*TOGAF® Series Guide*

# Architecture Roles and Skills

Prepared by The Open Group Architecture Forum

THE *Open* GROUP

# Contents

# Preface

**The Open Group**

The Open Group is a global consortium that enables the achievement of business objectives through technology standards and open source initiatives by fostering a culture of collaboration, inclusivity, and mutual respect among our diverse group of 900+ memberships. Our membership includes customers, systems and solutions suppliers, tool vendors, integrators, academics, and consultants across multiple industries.

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

- Working with customers to capture, understand, and address current and emerging requirements, establish policies, and share best practices

- Working with suppliers, consortia, and standards bodies to develop consensus and facilitate interoperability, to evolve and integrate specifications and open source technologies

- Offering a comprehensive set of services to enhance the operational efficiency of consortia

- Developing and operating the industry's premier certification service and encouraging procurement of certified products

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

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

**The TOGAF® Standard, a Standard of The Open Group**

The TOGAF Standard is a proven enterprise methodology and framework used by the world's leading organizations to improve business efficiency.

**This Document**

This document is a TOGAF® Series Guide to Architecture Roles and Skills. It has been developed and approved by The Open Group.

The document supersedes TOGAF® Series Guide: Architecture Skills Framework (G198).

More information is available, along with a number of tools, guides, and other resources, at www.opengroup.org/architecture.

**About the TOGAF® Series Guides**

The TOGAF® Series Guides contain guidance on how to use the TOGAF Standard and how to adapt it to fulfill specific needs.

The TOGAF® Series Guides are expected to be the most rapidly developing part of the TOGAF Standard and are positioned as the guidance part of the standard. While the TOGAF Fundamental Content is expected to be long-lived and stable, guidance on the use of the TOGAF Standard can be industry, architectural style, purpose, and problem-specific. For example, the stakeholders, concerns, views, and supporting models required to support the transformation of an extended enterprise may be significantly different than those used to support the transition of an in-house IT environment to the cloud; both will use the Architecture Development Method (ADM), start with an Architecture Vision, and develop a Target Architecture on the way to an Implementation and Migration Plan. The TOGAF Fundamental Content remains the essential scaffolding across industry, domain, and style.

**Conventions Used in this Document**

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

- Bold

Used to highlight specific terms.

- Italics

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

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# About the Authors

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Michael Anniss is an architect and consultant helping organizations to implement and improve their use of the TOGAF® Standard and Enterprise Architecture in general. He has been working in this field for some 40+ years leading Enterprise Architecture practices at TransCanada Pipelines, Deloitte, Hewlett-Packard, Xansa, British Telecom, and many of their clients, including major Banks and Government Agencies. He is currently active in advising clients on improving their architecture practice, in The Open Group Architecture Forum, and in the general development of the TOGAF® Standard, focusing on the integration of Enterprise Architecture and Agile techniques.

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Chris Frost is a Principal Enterprise Architect at Fujitsu, working in the Delivery Architecture Division, which provides architecture guidelines, standards, and expert technical support for the global Fujitsu group. Chris has worked for Fujitsu since 2005 in a variety of technical leadership roles, including Chief Technology Architect (CTO) for various large business units. Before Fujitsu, Chris worked for EDS (now part of DXC) on several large contracts for the UK Ministry of Defence, and in earlier years worked for Ford, Shell, and a small start-up software house called Shamrock Marketing.

# Acknowledgements

# Referenced Documents

The following documents are referenced in this TOGAF® Series Guide.

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

C220      The TOGAF® Standard, 10th Edition, a standard of The Open Group (C220), published by The Open Group, April 2022; refer to: www.opengroup.org/library/c220

Maier and Rechtin
     The Art of Systems Architecting, by Mark Maier and Eberhardt Rechtin, published by CRC Press, January 2009.

ISO 42010      Software, Systems and Enterprise (ISO/IEC/IEEE 42010:2022), published by ISO, November 2022; refer to: https://www.iso.org/standard/74393.html

# 1 Introduction

The TOGAF® Standard provides a framework for addressing the complete Architecture Landscape of an enterprise. In addressing this complete landscape, it deals with different timeframes, levels, scale, and complexity. To tackle these effectively, the standard identifies three broad perspectives from which the Architecture Landscape can be governed and evolved.

This document identifies these roles and the skills associated with them. This assists in the setting up and maintenance of an effective architecture practice.

It also provides a skills framework that offers a view of the competency levels required for specific roles, identifying:

- The skills required by each role

- The depth of knowledge required for the skill to fulfill a role successfully

Skills frameworks are used widely across many different roles in many enterprises providing a means of rapidly identifying skill matches and gaps. When successfully applied they can ensure that candidates are fit for the jobs, roles, and tasks assigned to them.

# 2 Architecture

Architecture is a well-known term, originally used in relation to the construction of buildings and the wider environment. The Merriam-Webster dictionary includes these phrases in their definition:

- The art or science of building

- A unifying or coherent form or structure

- Architectural product or work

- The manner in which the components of a computer or computer system are organized and integrated[1]

From these phrases we can see that the term has more recently also been applied specifically to information systems, as their importance has grown. Architecture essentially understands shapes, specifies, and governs. It provides the basis upon which components are created or changed and integrated into sub-systems and systems delivering the services associated with an enterprise.

The ISO/IEC/IEEE 42010:2022 [ISO 42010] defines "architecture" as:

*"[The] fundamental concepts or properties of an entity in its environment and governing principles for the realization and evolution of this entity and its related life cycle processes."*

The TOGAF Standard embraces but does not strictly adhere to ISO/IEC/IEEE 42010:2022 terminology. In addition to the ISO/IEC/IEEE 42010:2022 [ISO 42010] definition of "architecture", the TOGAF Standard defines a second meaning depending upon the context:

*"The structure of components, their inter-relationships, and the principles and guidelines governing their design and evolution over time."*

The TOGAF Standard considers the enterprise as a system and endeavors to strike a balance between promoting the concepts and terminology drawn from relevant standards, and commonly accepted terminology that is familiar to the majority of those using the standard.

In bringing these concepts together the TOGAF Standard addresses the complete scope of an enterprise's Architecture Landscape, including all the components and their creation, organization, governance, and evolution. It provides three main viewpoints from which to manage this:

- A complete **enterprise** and its overall structure

- Specific **segments** (relevant elements) of the enterprise that have coherence and can be governed and evolved effectively

- Specific **solutions** that utilize the components within the segments to remove, change, or introduce new solutions and their associated sub-systems, systems, and services

This provides the guidance and oversight of the creation, implementation, and operation of the elements within an enterprise, but it does not describe how to actually build, deploy, and run the systems and services. That is the job of the relevant business, technical, and service management professionals. The TOGAF Standard refers to these other roles and how they must collaborate

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[1] Refer to: https://www.merriam-webster.com/dictionary/architecture.

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with the architecture roles but leaves the detail to the relevant professionals and associations that provide leadership for those roles and skills.

In this manner, the TOGAF Standard provides an approach for dealing with all levels of architecture and executing the main roles needed to deliver a constantly evolving Architecture Landscape that satisfies an enterprise's goals, objectives, and its specific requirements.

# 3      Architecture Roles and Skills: The Basis of an Enterprise Architecture Practice

Once the overall concepts of Enterprise Architecture and the architecture roles are understood, it is relatively easy to organize the beginnings of such a practice. This document provides the information about those roles and skills that are used to organize the architecture practice and manage it over time.

As is the case throughout the TOGAF Standard, the standard does not mandate how to do this and expects that there will be considerable customization and organizational alignment when applied to each specific circumstance.[2] The TOGAF Standard is descriptive, not prescriptive, and provides an illustrative approach that can be used to underpin the management of an enterprise's Architecture Landscape. In some cases, the illustrated approach or model will be adopted directly; in others it may be significantly changed. When doing so, bear in mind that the TOGAF Standard illustrations are based on a long running accumulation of best practices that are constantly being evaluated against the latest changes in our business and technology environment.

*(Note that when establishing an architecture practice, the more difficult aspect is often justifying, explaining, and integrating the practice to and with other parts of the enterprise. Those issues are not addressed in this document but are addressed in The Open Group documents on the setting up and establishment of an architecture practice.)*

In order to set up an effective architecture practice, there is a need to:

- Have a clear mandate from the appropriate relevant stakeholders (this will vary from organization to organization)

- Identify and define needed architectural competencies, while aligning necessary staff roles, skills, and experience with the architecture tasks the enterprise needs to be performed, whether these are to be performed internally to the enterprise or externally; for example, as part of a consultancy engagement

- Formally recognize the skills and capabilities of architects, as part of the task of establishing and maintaining a professional architecture organization

- Provide a competency development path for architects to ensure minimal competency levels, and provide confidence that the architecture activities performed by those certified meet an acceptable level

A well-defined set of the roles and skills enables you to:

- Simplify communication between recruiting organizations, consultancies, and employment agencies

- Provide criteria for consistent decisions about the development and assignment of architects

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[2] The Open Group Open Professions Certification program is an implementation of a skills and careers framework, and its Open Certified Architect program (see Appendix A) recognizes the TOGAF ADM as a method and provides levels of certification for individuals based on their skills and experience.

TOGAF® Series Guide (2024)

- Avoid wasting time assessing candidates who may have applied in all good faith, but still lack the skills and/or experience required by the employer

- Identify staff who are capable of filling architecture roles and might otherwise be overlooked

- Enable employees to self-assess against a set of required skills to prepare their own training and career plans, supported by mentoring where appropriate

- Assess levels of talent and where investments in training should be made, based on common skill gaps

- Create a stable base of future architects and nurture them by mentoring with a well-defined path

- Create a stable base of future architects and allow determination of those close to being ready to enable application of limited mentoring resources

- Provide a career path for aspiring architects, increasing employee satisfaction, and improving employee retention

By providing definitions for the architecting skills and proficiency levels for the various architecting roles defined within the TOGAF Standard, an architecture skills framework greatly reduces the time, cost, and risk of setting up a practice for the first time and avoids "re-inventing the wheel". Enterprises that already have an Enterprise Architecture practice are able to set enterprise-wide norms and find it easier to recruit staff or engage consultants from external sources.

# 4  Architecture Roles

This guide provides an illustration of what an enterprise might consider when developing an architecture practice as part of the Preliminary phase. Identifying architecture roles and skills is often done in conjunction with other parts of the enterprise such as Human Resources (HR), and is informed by many industry frameworks such as Skills For the Information Age (SFIA) for other purposes as well.

It is necessary to provide a context for the terms "job, role, and assignment" as these terms are used in many different overloaded contexts. In this guide:

- Job means the agreed position usually with a formal contract for employment

- Role means the expected activities that are generally performed with an associated set of skills

- Assignment means a piece of work that a person has been assigned to perform usually within the context of their job and role (but not always)

This guide recognizes that in many enterprises there may be people who perform multiple roles, and also multiple people that perform only one role. An illustrative starting point is provided, identifying the most important roles performed as part of an Enterprise Architecture practice from which you should tailor these to your specific enterprise needs.

The TOGAF Standard provides an example set of roles that are valuable in the evolution and governance of the Architecture Landscape of an enterprise. They support effective decision making at different levels of impact and influence. The three main viewpoints of enterprise, segment and solution were introduced earlier. These are shown in Figure 1 together with some additional ones that are introduced below.
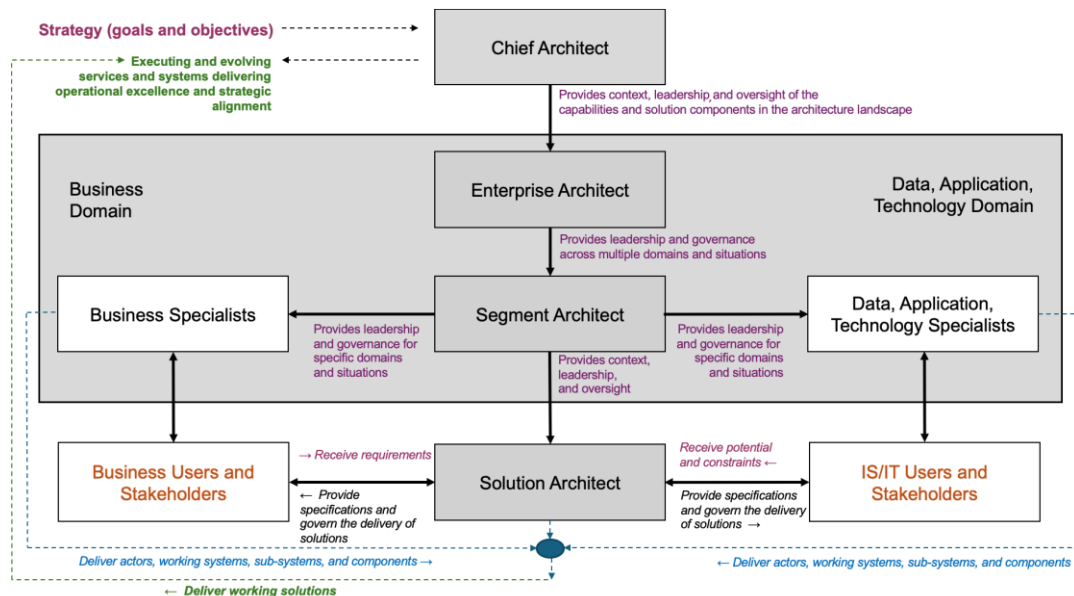


**Figure 1: Architecture Roles and their Relationships**

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The Chief Architect is a special case of an Enterprise Architect and is responsible for integrating the Enterprise Architecture view into the wider strategic and operational context of the enterprise. The main context of the role is political and collaborative, persuasive and strategic. It strives to ensure that the business understands the importance of a well understood and governed architecture and how it improves business operation and change.

Other specialist roles work at a more detailed level within segments (business and/or technically-focused) taking leadership from the Segment Architect, and adding the detailed knowledge and expertise to create, evolve, implement, and integrate the various components, sub-systems, systems, and services provided and overseen by a segment. Solution Architects implement new and/or changed solutions satisfying specific requirements and informed by the superior architectures identified at the Enterprise and Segment Levels.

The users and stakeholders represent the other roles working in and/or influencing business or technology within the enterprise. Change to services and solutions are usually targeted at those roles responding to specific requirements that they have identified.

The TOGAF Standard does not give specific details on the specialist, user, and stakeholder roles. These can be found in the many different professional frameworks and associations that exist for those roles.

Figure 1 shows the three main architecture roles (supplemented by the special case of the Chief Architect) in the central vertical relationship. Moving down from Chief Architect, through Enterprise Architect to Segment Architect there is greater detail in the understanding, leadership, and governance of the specific elements in the Architecture Landscape, enabling properly leveled decision-making. Most organizations have a set of management and control levels ranging from three to seven levels. It is common for enterprises to try to minimize the number of these levels. The TOGAF Standard provides a model with the minimum three levels of differentiation from which you can grow your model should you need to address more levels of shaping and governance. The roles are described in more detail below.

## 4.1 Chief Architect

The Chief Architect is a very experienced and accomplished professional, responsible for communicating and gaining commitment for significant technical and business change and performance improvement across an enterprise and its marketplace (whether as an internal employee or external consultant/ resource).

They work at the most senior levels creating a consensus among executives and board members about the nature and need for an effective Architecture Landscape. They communicate the latest business and technical concepts and ideas in a manner that can be understood by all executives and their direct reports, and can be clearly related to, and integrated, with the enterprise's strategic and operational goals and objectives.

They operate effectively when the situations encountered are dynamic, evolving, and/or novel in complexity, scope, or solution. They promote and champion roadmaps for change across multiple domains, shape the structure and evolution of the Architecture Landscape, and have ultimate accountability for, and oversight of, the Architecture Landscape, its impact on the delivery of business services, and its governance.

Their prime responsibility is to create the conditions for effective responses to the strategic change desired by an enterprise. They lead Enterprise Architects, Segment Architects, Solution Architects, and various specialists to create, implement, and operate the services and solutions needed to keep an enterprise operating effectively in its evolving marketplace.

Activities may include, but are not limited to:

- Supporting and contributing to the development of business strategy

- Translating business and technology strategies, goals, and objectives into related changes in the operating model

- Assessing current capabilities and identifying required changes in those capabilities to achieve business and technology strategies, goals, and objectives

- Communicating and collaborating through multiple channels and mechanisms with enterprise leadership to ensure that they understand and are up to date with the Architecture Roadmap

- Leading on and providing the overall context and shape of the Architecture Landscape, ensuring that the architectural models and views embody key goals, objectives, and principles, and describe the organization's future state to enable its successful evolution

    In most cases, they are leading others and providing decisions about the overall landscape, as Enterprise Architecture leaders or Enterprise Architecture practitioners.

- Being responsible for the largest, most complex, and risky changes about evolution the Architecture Landscape and the related solutions and services

- Identifying, documenting, and communicating the major constraints, principles, and policies

- Developing, enabling, and supporting the Enterprise, Segment, and Solution Architects working within the architecture team through leadership, mentoring, and coaching

- Providing awareness of relevant change drivers to the enterprise and overseeing the governance activities associated with the changing Architecture Landscape

Key Stakeholders may include, but are not limited to:

- Executive leaders and board members

- Senior business leaders

- Senior customer/user representatives

- Business segment leaders

- Product owners and managers

- Change managers

- Program and project managers

- Portfolio managers

- Segment Architects

- Solution Architects

- Business and technical specialists

- Relevant segment industry leaders

- Any other stakeholders with an interest in the Enterprise Architecture and the delivery of effective solutions and services (including all relevant user types)

Potential Key Performance Indicators (KPIs) to measure success:

- Stakeholder satisfaction score => 3 out of 5 (scale 1 = poor; 5 = excellent, target score average or above.)

- Services delivering and accepted at or better than planned service levels

- The enterprise externally benchmarked as in the (xxx) quartile for technology use

- Externally benchmarked as in the (xxx) quartile for comparative similar scale in yearly market development

- New and changed solutions are delivered and signed off within agreed time, resource, and cost boundaries (boundaries must be properly set to reflect the potential variation relevant to a specific change)

## 4.2    Enterprise Architect

Enterprise Architects are very experienced and accomplished professionals responsible for creating, leading, and delivering significant technical and business change across an enterprise and into the marketplace.

They initiate, drive, and own major pieces of work, interfacing at the most senior levels, with accountability for overall business service delivery through information systems demonstrating mastery in several key technical and/or business areas. They have a track record of significant delivery, have created strong working relationships with key stakeholders, and will coach and mentor others.

They operate effectively when the situations encountered are dynamic, evolving, and/or novel in complexity, scope, or solution compared to those encountered before, and where the situation and scope is not limited to any particular solution aspect or segment (e.g., not limited to a specific part of the requirements/analysis/design/delivery lifecycle, a specific market, or a single product or technology). They create roadmaps for change across multiple segments, define principles and policies to shape the Architecture Landscape, and oversee the governance process for architectural change.

Their prime responsibility is to create and evolve the conditions for the integration, interoperability, and governance of solution components, leading Segment Architects, Solution Architects, and various specialists to create, implement, and operate the services and solutions needed to keep their enterprise as an effective player in its evolving marketplace.

Activities may include, but are not limited to:

- Translating business and technology strategies and objectives into related changes in the operating model

- Assessing current capabilities and identifying required changes in those capabilities to achieve business and technology strategies and objectives

- Describing the interrelationships (between people, organization, service, process, data, information, technology, and the external environment) needed to enable the delivery of effective products and services

- Creating and evolving architectural models and views embodying the key principles that describe the enterprise's future state, and that enable its successful evolution across the Architecture Landscape

- Defining, communicating, and implementing Enterprise Architecture working practices to support and enable iterative and Agile working

- Identifying, documenting, and communicating the constraints, principles, and policies necessary to define, assure, and govern the effective evolution of the Architecture Landscape (its environment of services implemented in its various components)

- Developing, leading, enabling, and supporting the Segment and Solution Architects working within the architecture team through leadership, mentoring, and coaching

- Providing awareness of relevant change drivers to the enterprise and participating in the governance activities associated with the changing Architecture Landscape

Key Stakeholders may include, but are not limited to:

- Chief Architect

- Business segment leader

- Customer/user representatives

- Product owners and managers

- Change managers

- Program and project managers

- Portfolio managers

- Segment Architects

- Solution Architects

- Business and technical specialists

- Relevant segment industry leaders

- Any other stakeholders with an interest in the Enterprise Architecture and the delivery of effective solutions and services (including all relevant user types)

TOGAF® Series Guide (2024)

Potential KPIs to measure success:

- Stakeholder satisfaction score => 3 out of 5 (scale 1 = poor; 5 = excellent, target score average or above.)

- Services delivering and accepted at or better than planned service levels

- The enterprise externally benchmarked as in the (xxx) quartile for technology use

- New and changed solutions are delivered and signed off within agreed time, resource, and cost boundaries (boundaries must be properly set to reflect the potential variation relevant to a specific change)

## 4.3 Segment Architect (Business and Technical)

A segment is a coherent grouping of capabilities for management and control purposes, usually managed as portfolio of capabilities or a specific program of change. The TOGAF Standard also uses the concept of a domain. A domain is used to reflect any useful grouping of capabilities to be managed by an enterprise; with four particular Information Services (IS)/ Internet Technology (IT) related segment-based viewpoints that are useful in managing an Architecture Landscape that includes information systems. These four particular segments are called the business, application, data, and technology domains.
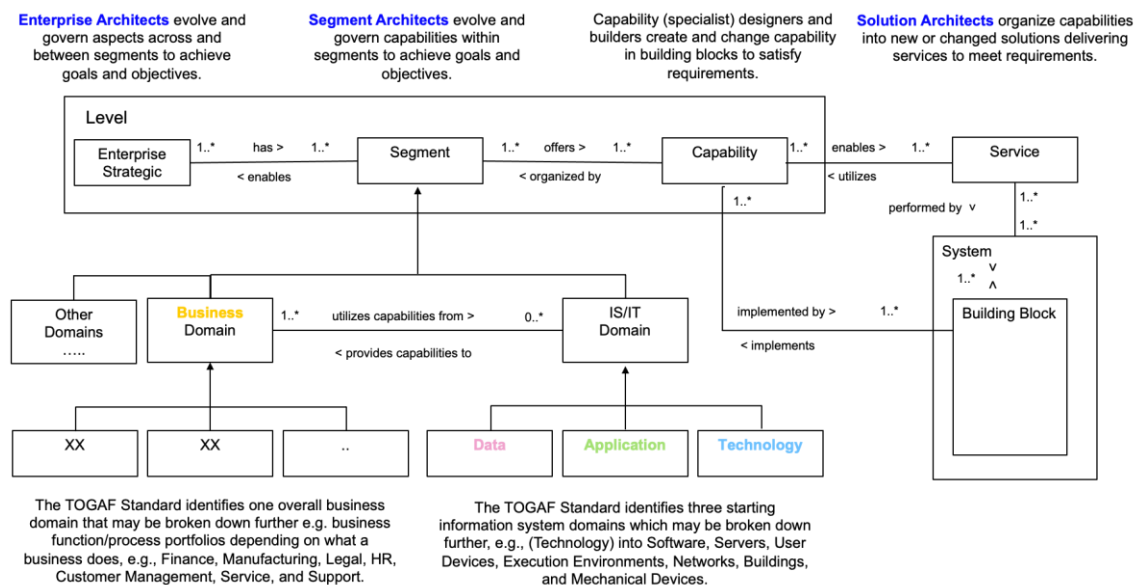


**Figure 2: Entity Relationship Diagram for Architecture Level Concepts**

Segment Architects are experienced and accomplished professionals responsible for the capabilities provided by one or more business or technical segments within an enterprise and its marketplace.

They shape and govern the systems, sub-systems, and components needed to implement products and services from those domains. They develop roadmaps for segment evolution and ensure that the latest business and technical options are considered and effectively exploited. They identify the policies and standards needed to ensure that the components from the segment(s), are effective,

efficient, and legal. They collaborate effectively and easily with other architects ensuring that the overall environment can operate in a well-connected manner.

They operate effectively when the situations encountered are dynamic, evolving, or novel in complexity, scope, or solution compared to those encountered before. They oversee all development of the systems, sub-systems, and components related to a segment(s), ensuring that they are fit for purpose, legal, and follow the required policies and standards.

Their prime responsibility is to create the conditions for the creation, integration, interoperability, and evolution of the systems, sub-systems, and components within a segment(s), ensuring that the technical/business specialists and Solution Architects are clear about their roles, understand how to work together effectively, and deliver the components and building blocks that achieve the end-to-end business service levels required by an enterprise and its clients.

Activities may include, but are not limited to:

- Translating business and technology strategies and objectives into related changes in the relevant business and/or technical segment

- Assessing current capabilities and identifying required changes in capabilities to achieve business and technology strategies and objectives in the relevant business and/or technical segment

- Describing the interrelationships (between people, organization, service, process, data, information, technology, and the external environment) needed to enable the delivery of effective products and services in the relevant business and/or technical segment

- Creating, iterating, and maintaining architectural models and views embodying the key principles that describe the organization's future state, and that enable its successful evolution in the relevant business and/or technical segment

- Implementing architecture working practices to support and enable iterative and Agile working in the relevant business and/or technical segment

- Identifying, documenting, and communicating the constraints, policies, and standards necessary to define, assure, and govern the effective evolution of an Architecture Landscape (its environment of services implemented in its various building blocks) in the relevant business and/or technical segment

- Developing, leading, enabling, and supporting the technical/business specialists and Solution Architects working within the architecture team in the relevant business and/or technical segment through leadership, mentoring, and coaching

Key Stakeholders may include, but are not limited to:

- Chief Architect

- Relevant business segment leaders

- Customer/user representatives

- Relevant business operators

- Relevant product owners and managers

- Change managers

- Program and project managers

- Portfolio managers

- Enterprise Architects

- Segment Architects

- Solution Architects

- Relevant business and technical specialists

- Relevant segment industry leaders

- Any other stakeholders with an interest in the Enterprise Architecture and the delivery of effective solutions and services (including all relevant user types)

Potential KPIs to measure success:

- Stakeholder satisfaction score => 3 out of 5 (scale 1 = poor; 5 = excellent, target score average or above.)

- Services (related to the elements overseen by a segment(s)) delivering and accepted at or better than planned service levels

- The segment(s) is externally benchmarked as in the (xxx) quartile for business/technology capability and architecture in the relevant market segment

- New and changed solutions are delivered and signed off within agreed time, resource, and cost boundaries (boundaries must be properly set to reflect the potential variation relevant to a specific change)

## 4.4    Solution Architect

Solution Architects are experienced and accomplished professionals responsible for the delivery of new and/or changed capabilities into an enterprise and its marketplace.

They shape and govern the solutions needed based on specific requirements (that also implement the higher level goals and objectives), delivering specified service levels within aspirational time frames.

They specify the systems, sub-systems, and components needed for a solution and their interoperability, and place them in a consolidated roadmap of change, delivering the required evolution through a series of implementable Transition Architectures (value-driven deliverable units of work). They ensure that the latest business and technical options are considered and effectively exploited.

They operate effectively when the situations encountered are dynamic, evolving, or novel in complexity, scope, or solution compared to those encountered before. They oversee all specification, development, and implementation of new and changing solutions, ensuring that relevant principles, policies, and standards are applied to solutions and that the solutions are fit for purpose, effective, efficient, and legal.

Their prime responsibility is to create the collaborative conditions for the specification, creation, integration, and interoperability of a solution, ensuring that the technical/business specialists, implementers, and operators are clear about their roles, understand how to work together effectively and can deliver the systems, sub-systems, and components that achieve the end-to-end business service levels expected. This understanding is based on the Solution Architect fully engaging with all business/technology and other stakeholders to fully understand their concerns, requirements, and expectations.

Activities may include, but are not limited to:

- Specifying changes to services, processes, organization structure, and operating models as well as technology, including the planned operation, maintenance, and evolution of the solution within a production environment

- Ensuring that existing and planned solution components are compatible with relevant architectures, strategies, policies, standards, and practices

- Taking full account of the requirements for security, privacy, and testing of solutions

- Clearly identifying the benefits and issues associated with different solution topologies (such as with on-premise and off-premise solutions and services), systems, sub-systems, and components for each change being specified and implemented

- Creating, evolving, and ensuring the implementation of the Target Architecture Roadmaps, for each major product and/or service change and its constituent transition architectures

- Providing guidance and risk-based governance to support solution implementation, including managing requests for changes and any necessary deviations from specifications

- Ensuring that all stakeholders can communicate and collaborate effectively to deliver the targeted solutions and services and their expected service levels

Key Stakeholders may include, but are not limited to:

- Enterprise Architects

- Relevant business segment leaders

- Senior customer/user representatives

- Relevant business operators

- Relevant product owners and managers

- Change managers

- Program and project managers

- Portfolio managers

- Segment Architects

- Solution Architects

- Relevant business and technical specialists

TOGAF® Series Guide (2024)

- Relevant domain industry leaders

- Any other stakeholders with an interest in the Enterprise Architecture and the delivery of effective solutions and services (including all relevant user types)

Potential KPIs to measure success:

- Stakeholder satisfaction score => 3 out of 5 (scale: 1 = poor; 5 = excellent, target score average or above.)

- Service changes delivering and accepted at or better than planned service levels for the targeted solutions

- Solutions are delivered and signed off within agreed time, resource, and cost boundaries (boundaries must be properly set to reflect the potential variation relevant to a specific change)

# 5 Skills and Proficiency Levels

The architecture team skillset will need to include the following main categories of skills:

- Application

  Typically comprising application management, Application Programming Interface (API) patterns, software design principles, etc.

- Architecture

  Typically comprising modeling, building block design, high-level design, role definition, Architecture Principle design, high-level migration planning, architectural building block management, systems development and integration methods, security architecture, architecture patterns (Microservices Architecture (MSA), etc.), requirements management, governance, etc.

- Business

  Typically comprising enterprise organization knowledge, business cases, business process, strategic planning, etc.

- Change

  Typically comprising managing business change, project management methods, and tools, etc.

- Data

  Typically comprising data analysis, data exchange, and data management.

- Generic

  Typically comprising leadership, teamworking, inter-personal skills, etc.

- Legal

  Typically comprising data protection laws, contract law, procurement law, fraud, etc.

- Technology

  Typically comprising compute, storage, and network infrastructure, etc.

Table 1 shows the proficiency levels. Table 2 shows the proficiency levels associated with the categories of skill and architect roles.

**Table 1: Proficiency Levels**

| Level Number | Level Name | Level Description |
|---|---|---|
| 1 | Background | Some understanding but reliant on specialists. |
| 2 | Aware | Understands and can address issues with the support of specialists. |
| 3 | Knowledgeable | Good detail enabling effective decision-making, requiring specialist input in difficult situations. |
| 4 | Expert | Extensive experience, practical, and applied knowledge. |

**Table 2: Skill/Architecture Role Matrix**

| Skill Category | Skill Subcategory | Enterprise Architect | Business Domain Architect | Data Domain Architect | Application Domain Architect | Technology Domain Architect | Solution Architect |
|---|---|---|---|---|---|---|---|
| Application | Artificial Intelligence (AI) and Expert Systems | 3 | 3 | 3 | 3 | 2 | 2 |
| Application | Application Development | 3 | 2 | 2 | 3 | 2 | 3 |
| Application | Application Modeling | 3 | 2 | 2 | 3 | 2 | 2 |
| Application | Application Security | 3 | 2 | 2 | 3 | 3 | 3 |
| Application | Integration and Interoperability | 3 | 2 | 3 | 4 | 3 | 4 |
| Application | Optimistic/ Pessimistic Patterns | 4 | 3 | 4 | 4 | 3 | 4 |
| Application | Programming | 3 | 2 | 2 | 3 | 2 | 2 |

| Skill Category | Skill Subcategory | Enterprise Architect | Business Domain Architect | Data Domain Architect | Application Domain Architect | Technology Domain Architect | Solution Architect |
|---|---|---|---|---|---|---|---|
| Application | (Micro/Macro) Service-Oriented Architecture (SOA) | 4 | 3 | 2 | 4 | 2 | 4 |
| Business | Budget Management | 3 | 3 | 2 | 2 | 2 | 2 |
| Business | Business Capability Modeling | 3 | 4 | 2 | 2 | 2 | 3 |
| Business | Business Case | 3 | 3 | 2 | 2 | 2 | 2 |
| Business | Business Culture | 3 | 3 | 2 | 2 | 2 | 2 |
| Business | Business Information Management | 3 | 3 | 2 | 2 | 2 | 2 |
| Business | Business Metrics | 3 | 3 | 2 | 2 | 2 | 2 |
| Business | Business Process Design | 3 | 3 | 2 | 2 | 2 | 2 |
| Business | Business Process Management | 3 | 3 | 2 | 2 | 2 | 2 |
| Business | Business Scenario | 3 | 3 | 2 | 2 | 2 | 3 |
| Business | Business Service Development | 3 | 4 | 2 | 2 | 2 | 2 |
| Business | Integration and Sharing | 3 | 3 | 2 | 2 | 2 | 2 |
| Business | Legacy Management | 3 | 3 | 2 | 2 | 2 | 2 |
| Business | Organization Design | 3 | 3 | 2 | 2 | 2 | 2 |
| Business | Role Design | 3 | 3 | 2 | 2 | 2 | 2 |
| Business | Security and Asset Management | 3 | 3 | 2 | 2 | 2 | 2 |
| Business | Strategic Planning | 3 | 3 | 2 | 2 | 2 | 2 |
| Business | Visioning | 3 | 3 | 3 | 3 | 3 | 3 |
| Change | Managing Change | 3 | 3 | 3 | 3 | 3 | 3 |
| Change | Value Management | 3 | 3 | 3 | 3 | 3 | 3 |

TOGAF® Series Guide (2024)

| Skill Category | Skill Subcategory | Enterprise Architect | Business Domain Architect | Data Domain Architect | Application Domain Architect | Technology Domain Architect | Solution Architect |
|---|---|---|---|---|---|---|---|
| Change | Work Package Management | 3 | 3 | 3 | 3 | 3 | 3 |
| Change | Governance of Change | 3 | 3 | 3 | 3 | 3 | 3 |
| Data | Analytical Data | 3 | 2 | 3 | 2 | 2 | 2 |
| Data | Big Data | 3 | 2 | 3 | 2 | 2 | 2 |
| Data | Data Governance | 3 | 2 | 4 | 2 | 2 | 2 |
| Data | Data Integration | 3 | 2 | 4 | 3 | 3 | 3 |
| Data | Data Migration | 3 | 2 | 4 | 2 | 2 | 3 |
| Data | Data Modeling | 3 | 2 | 3 | 2 | 2 | 2 |
| Data | Data Security | 3 | 3 | 4 | 3 | 3 | 3 |
| Data | Master Data Management | 3 | 3 | 4 | 3 | 3 | 3 |
| Data | Operational Data | 3 | 2 | 3 | 2 | 2 | 2 |
| Architecture | Broad and Focused Perspective | 4 | 3 | 3 | 3 | 3 | 3 |
| Architecture | Broad Generic Modeling | 4 | 3 | 3 | 3 | 3 | 3 |
| Architecture | Decision Making | 4 | 3 | 3 | 3 | 3 | 4 |
| Architecture | Generic Integration and Interoperability | 4 | 3 | 3 | 3 | 3 | 3 |
| Architecture | Generic Standards and Regulations | 4 | 3 | 3 | 3 | 3 | 2 |
| Architecture | Principle Definition | 4 | 3 | 3 | 3 | 3 | 2 |
| Architecture | Road Mapping | 4 | 3 | 3 | 3 | 3 | 3 |
| Architecture | Strategy Into Architecture | 4 | 3 | 3 | 3 | 3 | 2 |
| Architecture | Viewpoints and Views | 4 | 3 | 3 | 3 | 3 | 3 |

| Skill Category | Skill Subcategory | Enterprise Architect | Business Domain Architect | Data Domain Architect | Application Domain Architect | Technology Domain Architect | Solution Architect |
|---|---|---|---|---|---|---|---|
| Generic | Influencing | 4 | 3 | 3 | 3 | 3 | 3 |
| Generic | Inter-Personal | 4 | 3 | 3 | 3 | 3 | 3 |
| Generic | Leadership | 4 | 3 | 3 | 3 | 3 | 3 |
| Generic | Logical Analysis | 3 | 3 | 3 | 3 | 3 | 3 |
| Generic | Oral Communication | 3 | 3 | 3 | 3 | 3 | 3 |
| Generic | Risk Management | 3 | 3 | 3 | 3 | 3 | 3 |
| Generic | Stakeholder Management | 3 | 3 | 3 | 3 | 3 | 3 |
| Generic | Teamwork | 4 | 3 | 3 | 3 | 3 | 3 |
| Generic | Training | 3 | 3 | 3 | 3 | 3 | 3 |
| Generic | Written Communication | 3 | 3 | 3 | 3 | 3 | 3 |
| Technology | Data Center | 2 | 2 | 2 | 2 | 4 | 4 |
| Technology | Device | 2 | 2 | 2 | 2 | 4 | 2 |
| Technology | Integration and Interoperability | 3 | 2 | 2 | 2 | 4 | 2 |
| Technology | Location, Security, and Directory Services | 2 | 2 | 2 | 2 | 3 | 2 |
| Technology | Network Topology | 3 | 2 | 2 | 2 | 3 | 2 |
| Technology | Networks | 2 | 2 | 2 | 2 | 4 | 2 |
| Technology | Operating Systems and Services | 2 | 2 | 2 | 2 | 3 | 2 |
| Technology | Physical Security | 3 | 2 | 2 | 2 | 3 | 2 |
| Legal | Contracts | 3 | 3 | 3 | 3 | 3 | 3 |
| Legal | Data Protection | 3 | 3 | 4 | 3 | 3 | 3 |

| Skill Category | Skill Subcategory | Enterprise Architect | Business Domain Architect | Data Domain Architect | Application Domain Architect | Technology Domain Architect | Solution Architect |
|---|---|---|---|---|---|---|---|
| Legal | Fraud and Fair Dealing | 3 | 3 | 3 | 3 | 3 | 3 |
| Legal | Procurement | 2 | 2 | 2 | 2 | 2 | 3 |
| Legal | Risk | 3 | 3 | 3 | 3 | 3 | 3 |
| Legal | Rules and Regulations | 3 | 3 | 3 | 3 | 3 | 3 |
| Total | | 222 | 194 | 190 | 185 | 189 | 186 |
| Mean | | 3.13 | 2.7 | 2.7 | 2.6 | 2.6 | 2.6 |
| Number of Level 4s | | 15 | 2 | 7 | 3 | 4 | 5 |
| Number of Level 3s | | 50 | 48 | 34 | 37 | 39 | 34 |
| Number of Level 2s | | 6 | 21 | 30 | 31 | 28 | 32 |
| Number of Level 1s | | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Number of Skills | | 71 | 71 | 71 | 71 | 71 | 71 |

# 6     Summary

The architecture roles, skills, and proficiency levels enable better and easier creation and operation of an architecture practice, and improved understanding and effectiveness of the architects within the wider business environment.

This model/shape is a recommended starting point for developing the approach that will best fit a specific enterprise(s). Make sure that you shape and customize it to your specific needs to gain the best outcomes and ongoing effectiveness.

# A      The Open Group Certified Architect Program

The Open Group Open Professions program provides experience-based certification assessing the required skills and experience for professional Architects in the form of the Certified Architect program (Open CA).

Architecture certifications are available for the following disciplines:

* Business Architecture

* Digital Architecture

* Enterprise Architecture

* Solution/IT Architecture

Three levels of certification are available, depending on the length and characteristics of the Architect's experience:

* Level 1: Certified Architect – able to perform as a contributing Architect with assistance/supervision, with a wide range of appropriate skills

* Level 2: Master Certified Architect – able to perform independently as lead Architect, and take responsibility for delivery of solutions

* Level 3: Distinguished Architect – delivering leadership, scope, depth, and breadth of impact

For more information see: www.opengroup.org/experience-based-professional-certification-open-professions-program.

# Acronyms & Abbreviations

AI          Artificial Intelligence

API         Application Programming Interface

HR          Human Resources

IS          Information Services

IT          Information Technology

MSA         Microservices Architecture

SFIA        Skills For the Information Age

SOA         Service-Oriented Architecture

# Index