TOGAF® Enterprise Architecture Training Course (Foundation)

Unit 1 - Concepts

simpli·learn

Unit Objectives

Introducing the concepts of Enterprise Architecture and the TOGAF Standard, including:

- What an enterprise is

- The purpose and benefits of Enterprise Architecture

- The TOGAF Standard as a framework for Enterprise Architecture

- The four architecture domains

- Architecture abstraction

- The Enterprise Continuum

- The Architecture Repository

- The TOGAF Content Framework and Enterprise Metamodel

- Architecture Capability

- Risk Management

- Gap Analysis

1.1 Enterprise

Enterprise

- The TOGAF Standard considers an "enterprise" to be any collection of organizations that have common goals.

- The term "Enterprise" in the context of "Enterprise Architecture" can be applied to either an entire enterprise, or to one or more specific areas of interest within the enterprise.

- An enterprise may include partners, suppliers, and customers as well as internal business units.
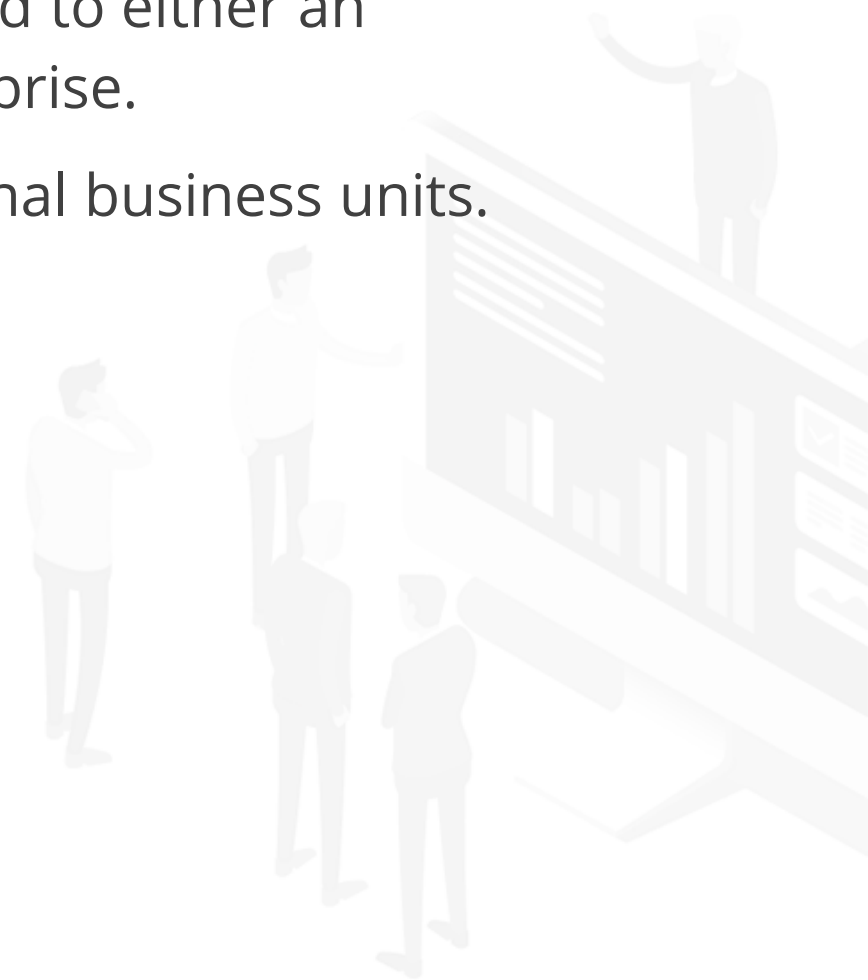
Examples

- A whole corporation or a division of a corporation

- A government agency or a single government department

- A chain of geographically distant organizations linked together by common ownership

- Groups of countries, governments, or governmental organizations (such as militaries) working together to create common or shareable deliverables or infrastructures

- Partnerships and alliances of businesses working together, such as a consortium or supply chain
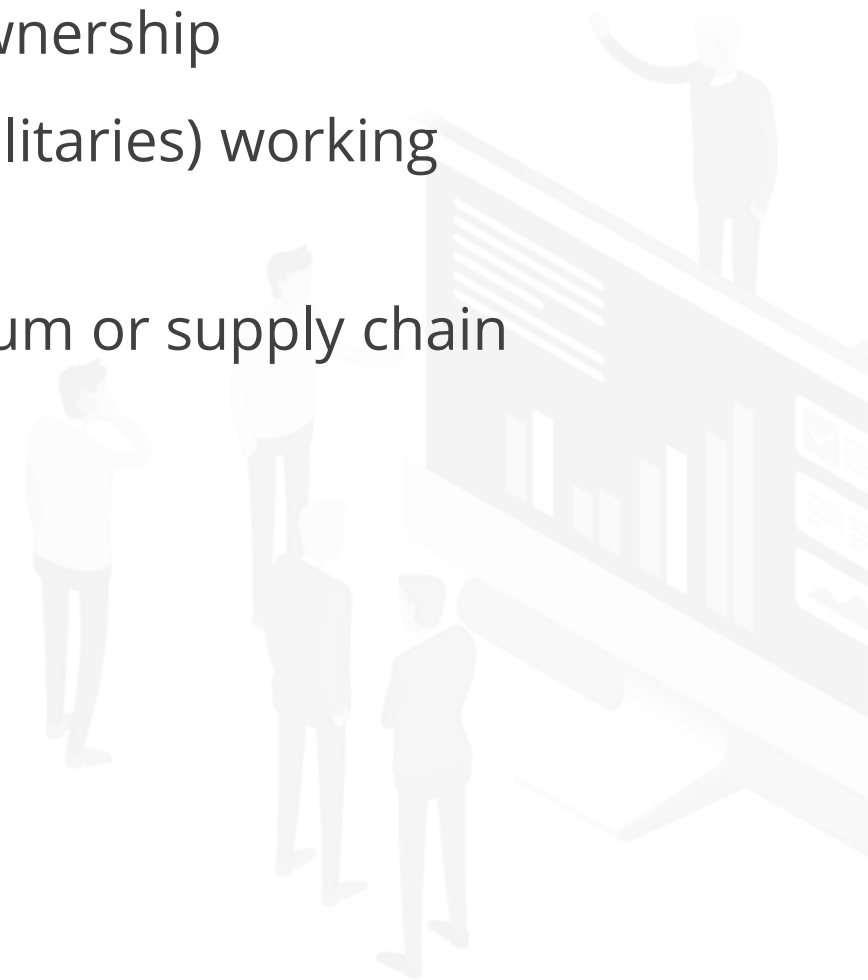
1.2 The Purpose of Enterprise Architecture

What is Enterprise Architecture?

- The process of translating business vision and strategy into effective enterprise change by creating, communicating, and improving the key principles and models that describe the enterprise's future state and enable its evolution. (Source: Gartner®)

- A set of abstractions and models that simplify and communicate complex structures, processes, rules, and constraints to improve understanding, implementation, forecasting, and resourcing. *(Source: DoDAF)*
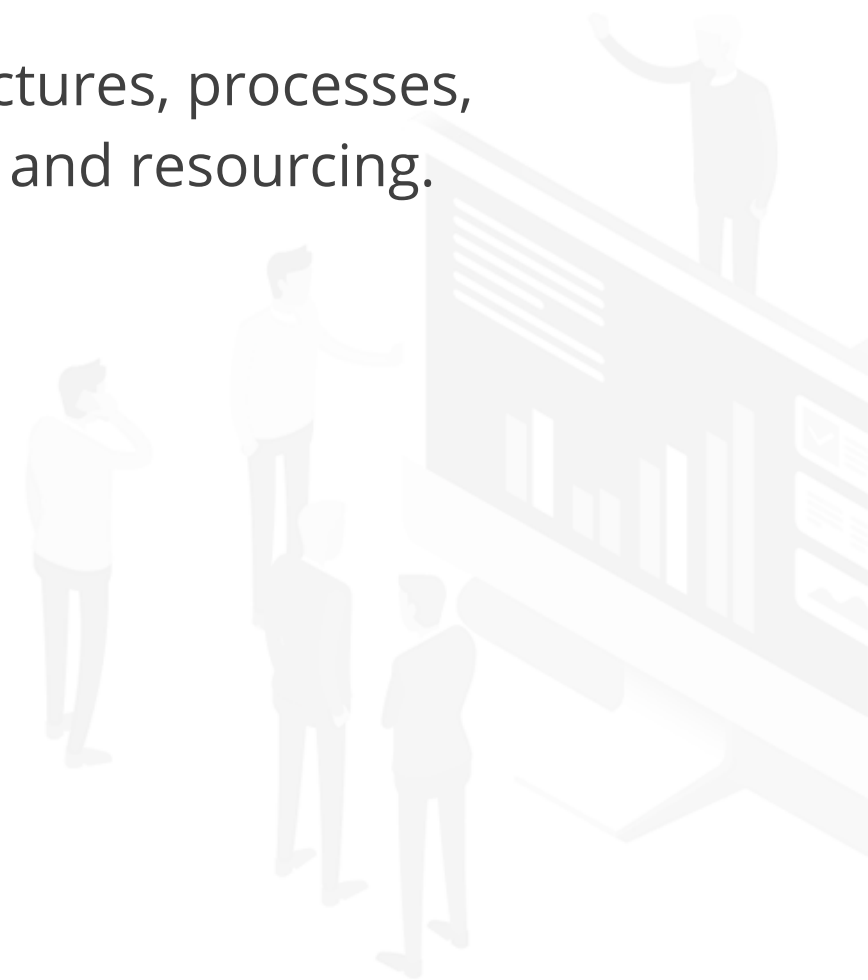
Purpose of Enterprise Architecture

- It provides a framework for change, linked to both strategic direction and business value, and a sufficient view of the organization to manage complexity, support continuous change, and manage the risk of unanticipated consequences.

- It enables the achievement of the right balance between business transformation and continuous operational efficiency.

- A good Enterprise Architecture facilitates effective governance, management, risk management, and exploitation opportunities.
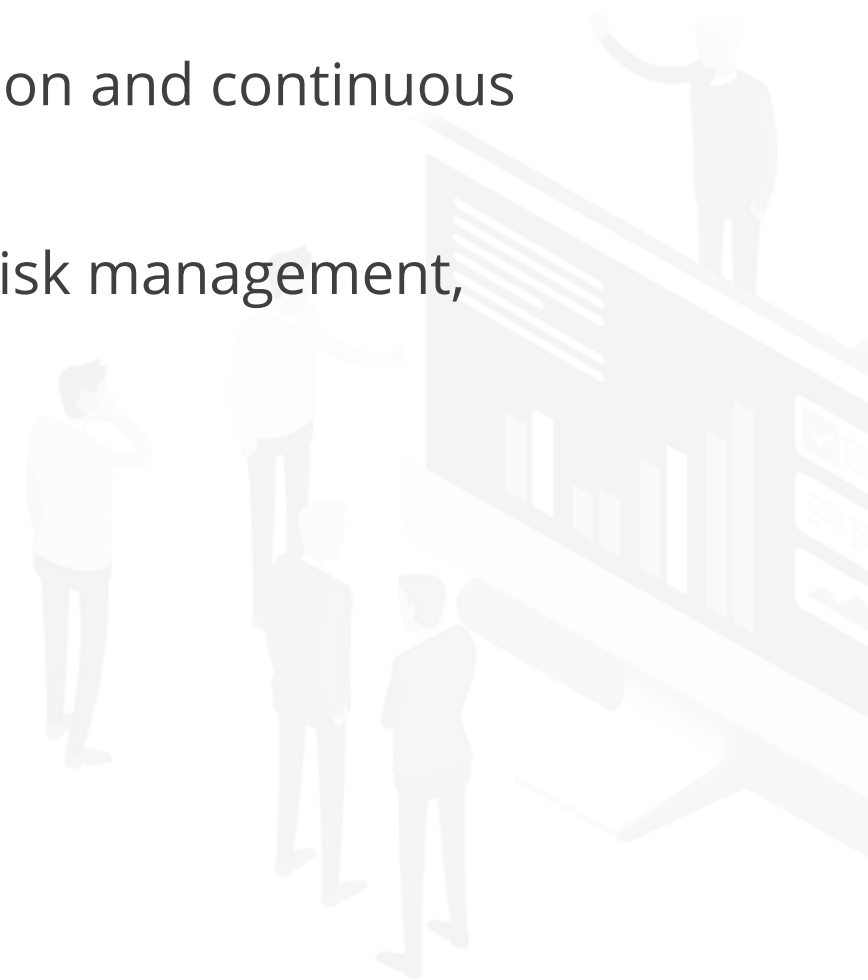
Why is it Important?

- An Enterprise Architecture is developed to guide effective change. Guidance on effective change will take place during the activity to realize the approved Enterprise Architecture.

- During implementation, Enterprise Architecture is used by the stakeholders to govern change.

1.3 The Benefits of Having an Enterprise Architecture

Key Benefits – More Effective

More effective strategic decision-making by C-Level executives and business leaders:

- Support for quick responses to change and support for enterprise agility

More effective and efficient business operations:

- Lower operational costs due to capabilities share across the organization

More effective and efficient Digital Transformation and operations:

- Bringing components of the enterprise into a harmonized environment

Better return on existing investment, reduced risk for future investment:

- Reducing complexity, maximizing return on investment

Faster, simpler, and cheaper procurement:

- Information governing procurement is more readily available

Key Benefits – Balancing Conflicting Demands

- A good EA enables the sponsors and the enterprise as a whole to achieve the right balance across conflicting demands.

- Without the EA, it is highly unlikely that all the concerns and requirements will be considered and addressed with an appropriate trade-off.

1.4 A Framework for Enterprise Architecture

The TOGAF® Standard and the TOGAF® Library

Copyright © The Open Group 2022
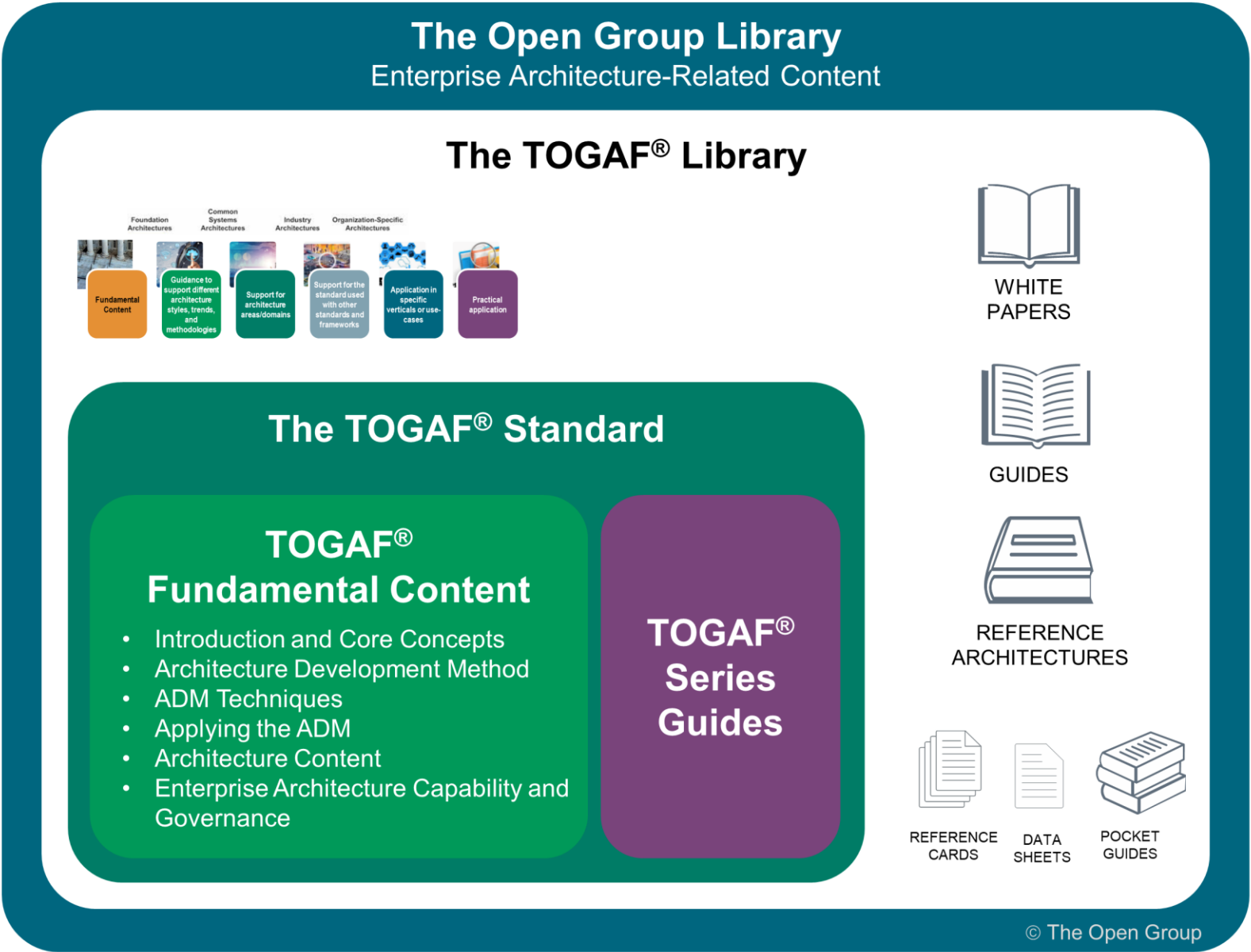
A Framework Suitable for EA

- The TOGAF Standard is suitable for EA since it plays an important role in standardizing and de-risks the architecture development process.

- It provides a best practice framework for adding value, and enables the organization to build workable and economic solutions which address their business issues and needs.

- Using the TOGAF Standard results in Enterprise Architecture that is consistent, reflects the needs of stakeholders, employs best practice, and gives due consideration both to current requirements and the perceived future needs of the business.
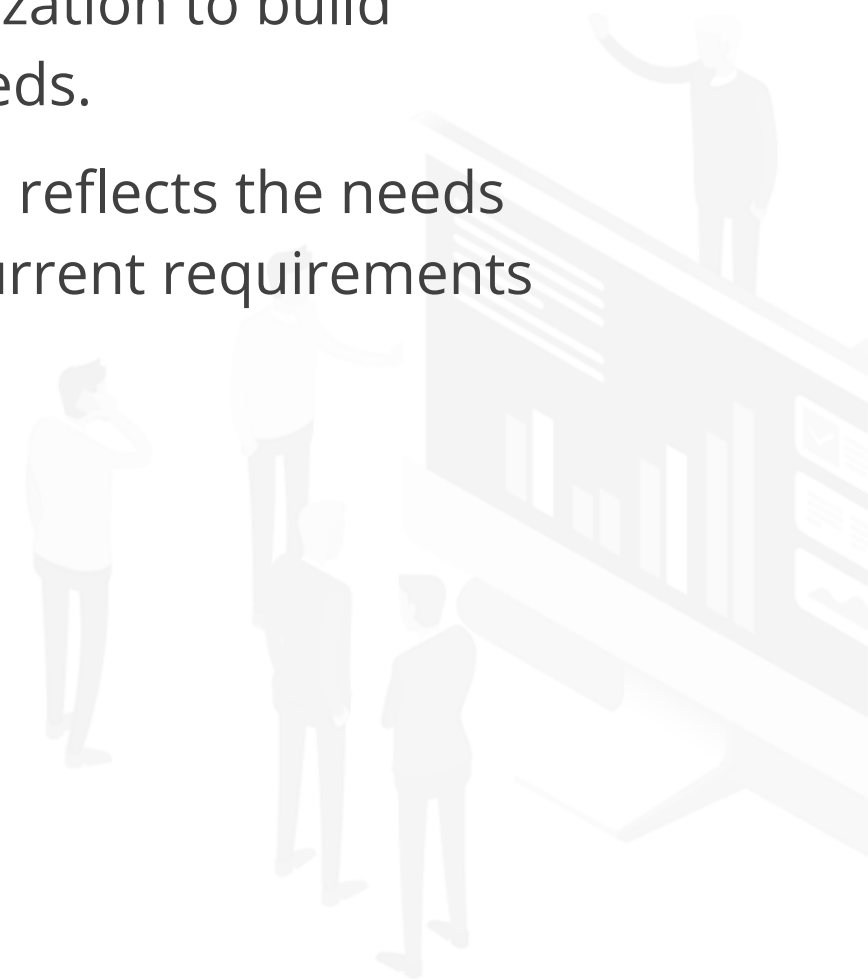
A Framework for Identifying and Implementing Change
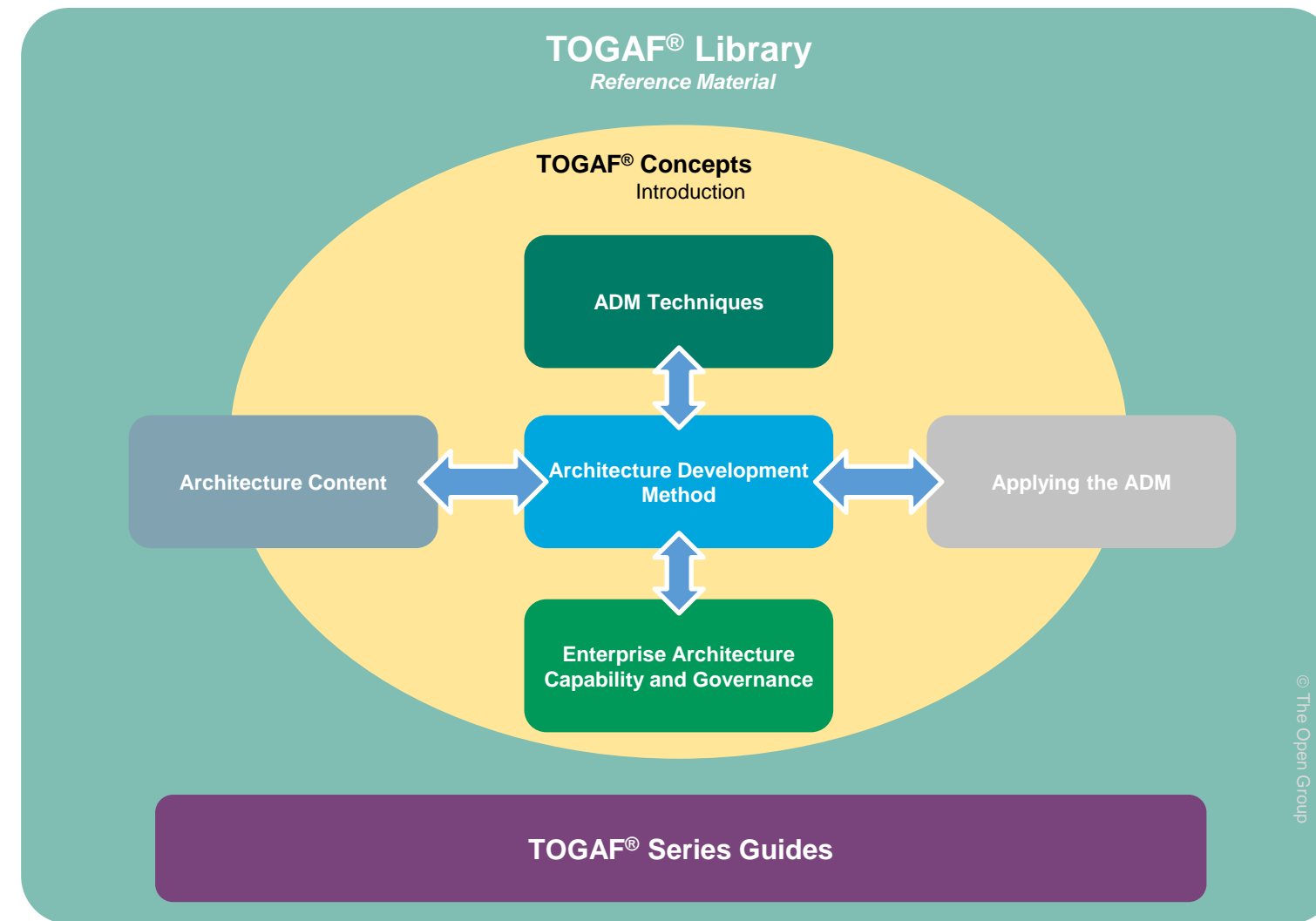
1.5 Architecture Domains

Four Architecture Domains

- Business Architecture
- Data Architecture
- Application Architecture
- Technology Architecture

Business and Data Architecture

- The **Business Architecture** defines the business strategy, governance, organization, and key business processes.

- The **Data Architecture** describes the structure of an organization's logical and physical data assets and data management resources.
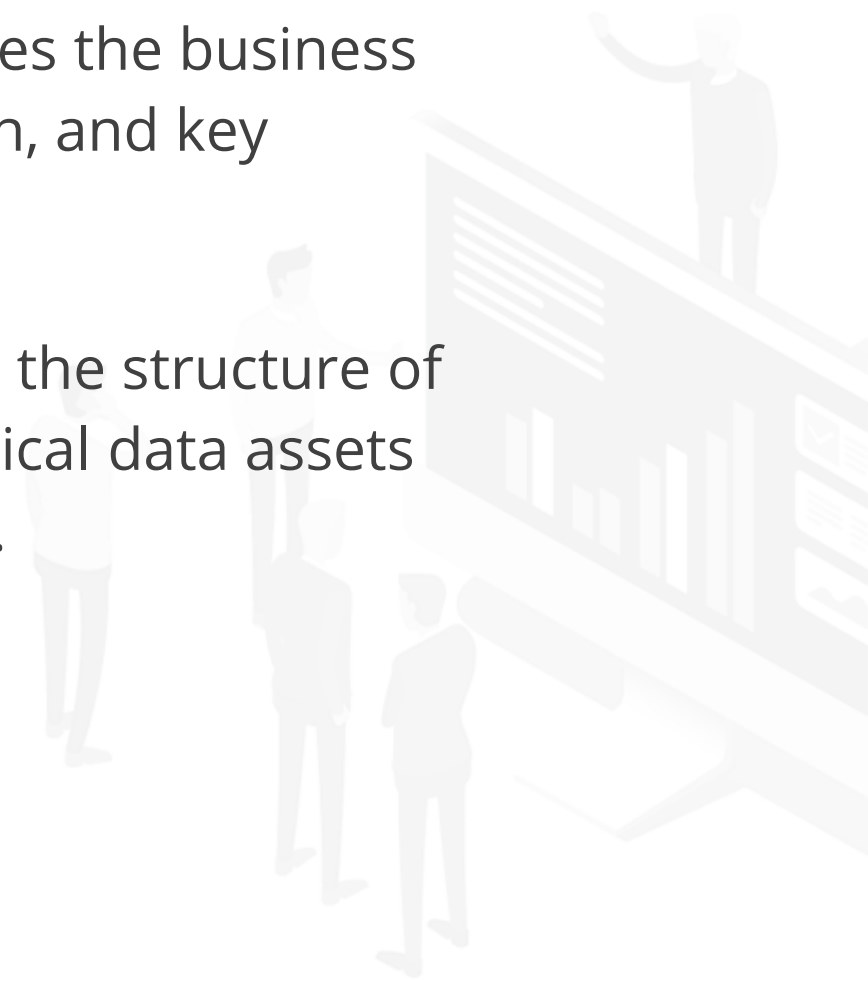
Application Architecture
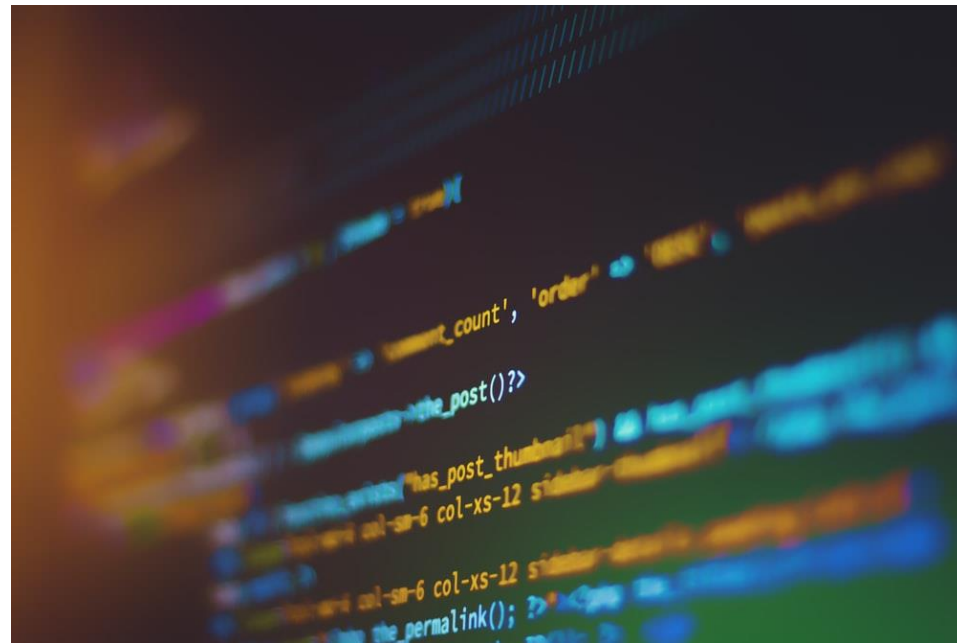
The **Application Architecture** provides a blueprint for the individual applications to be deployed, their interactions, and their relationships to the core business processes of the organization.

Technology Architecture

The **Technology Architecture** describes the digital architecture and the logical software and hardware infrastructure capabilities and standards that are required to support the deployment of business, data, and applications services.

1.6 Architecture Abstraction in Enterprise Architecture

Architecture Abstraction

- An architectural technique for dividing a problem area into smaller problem areas that are easier to model and therefore easier to solve.

- Architecture effort can be divided into abstraction levels to answer the four fundamental questions about an architecture:

    - **Why** – why is the architecture needed?
    - **What** – what functionality and other requirements need to be met by the architecture?
    - **How** – how do we structure the functionality?
    - **With what** – with what assets shall we implement this structure?

Four Abstraction Levels

1. Contextual
2. Conceptual
3. Logical
4. Physical

Contextual Abstraction

1. Contextual

Understanding the environment in which an enterprise operates and the context in which architecture work is planned and executed. It answers why an enterprise undertakes architecture work, what is the scope of work, and the motivation in terms of goals, drivers, and objectives.

2. Conceptual

3. Logical
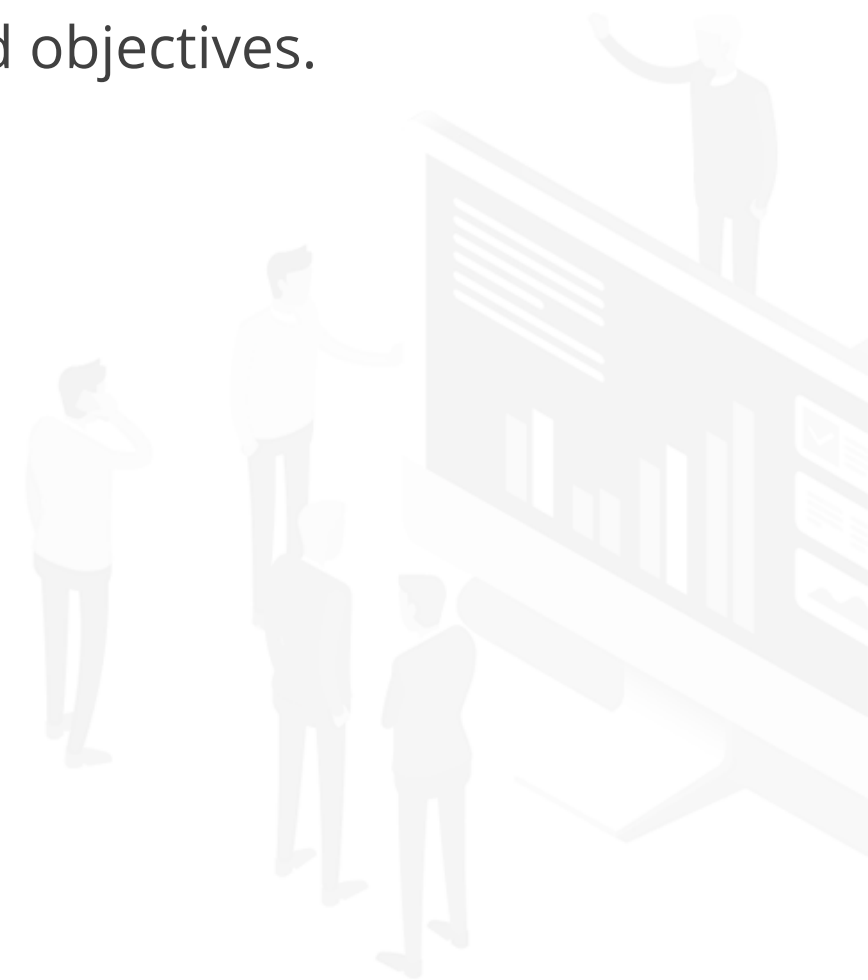
4. Physical

Conceptual Abstraction

1. Contextual

2. Conceptual

Decomposing the requirements to understand the problem, and what is needed to address the problem, without unduly focusing on how the architecture will be realized

3. Logical

4. Physical

Logical Abstraction

1. Contextual

2. Conceptual

3. Logical

Identifying the kinds of business, data, application, and technology components needed to achieve the services identified in the conceptual level. It is about identifying how an architecture can be organized and structured, in an implementation-independent fashion

4. Physical
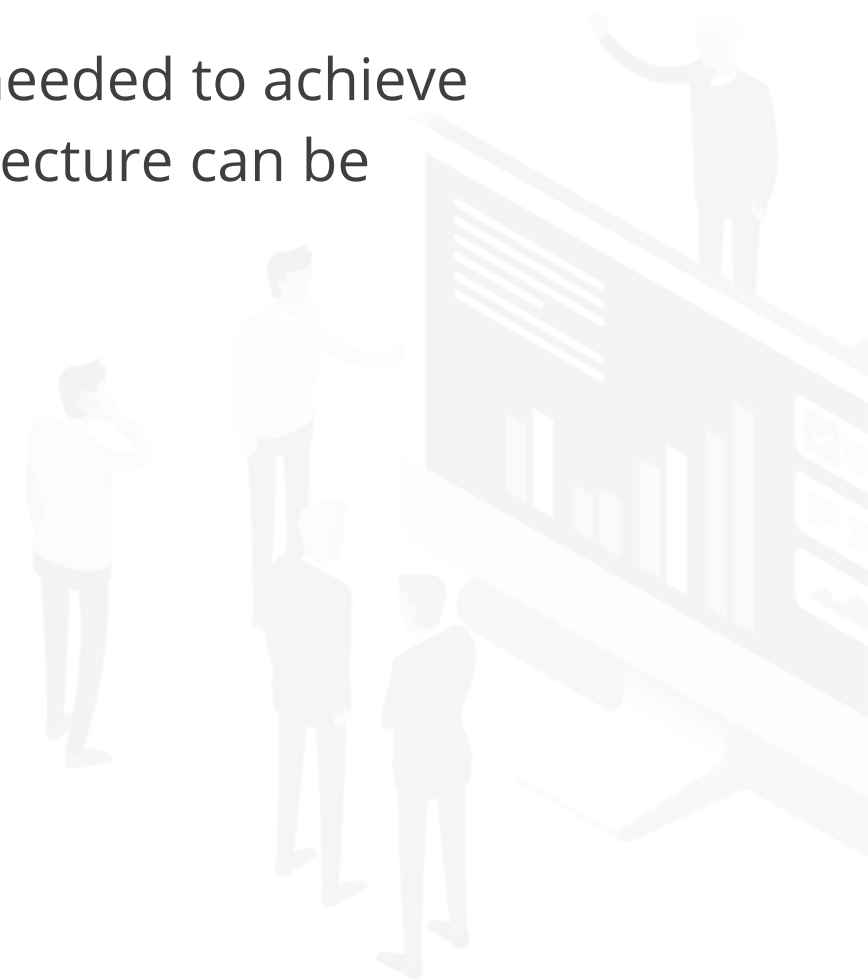
Physical Abstraction

1. Contextual
2. Conceptual

3. Logical

4. Physical

The allocation and implementation of physical components to meet the identified logical components. It is about determining with what physical components the logical-level components can be realized.
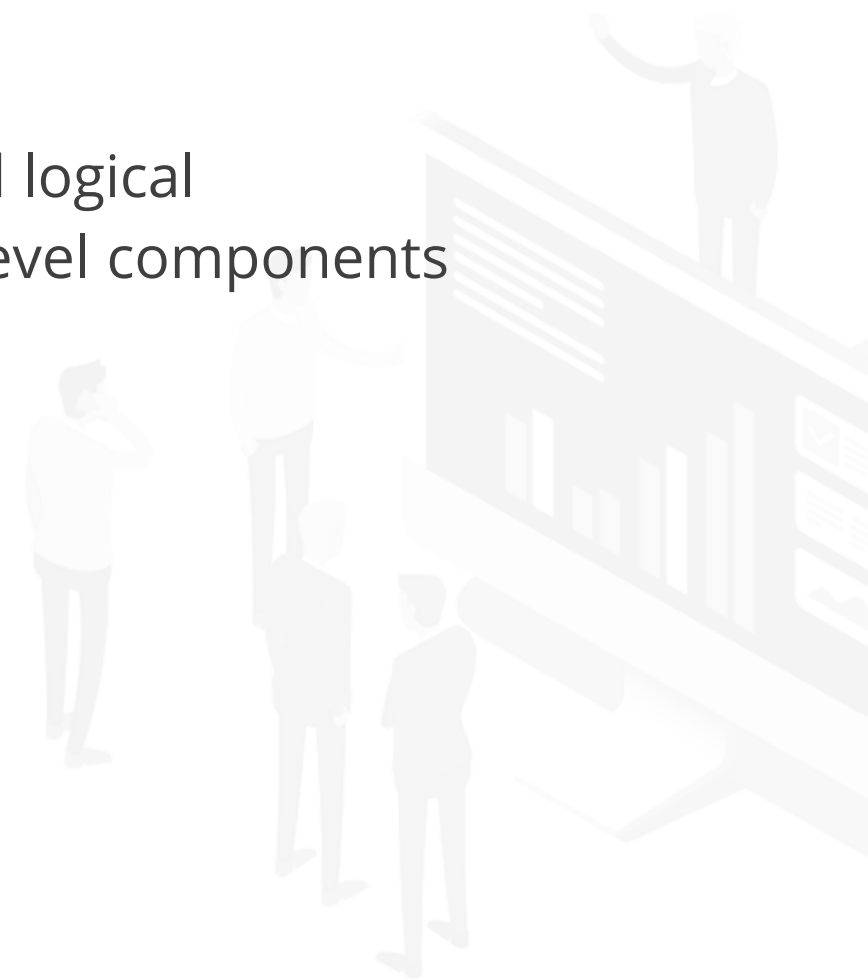
1.7 The Enterprise Continuum

The Enterprise Continuum

Copyright © The Open Group 2022
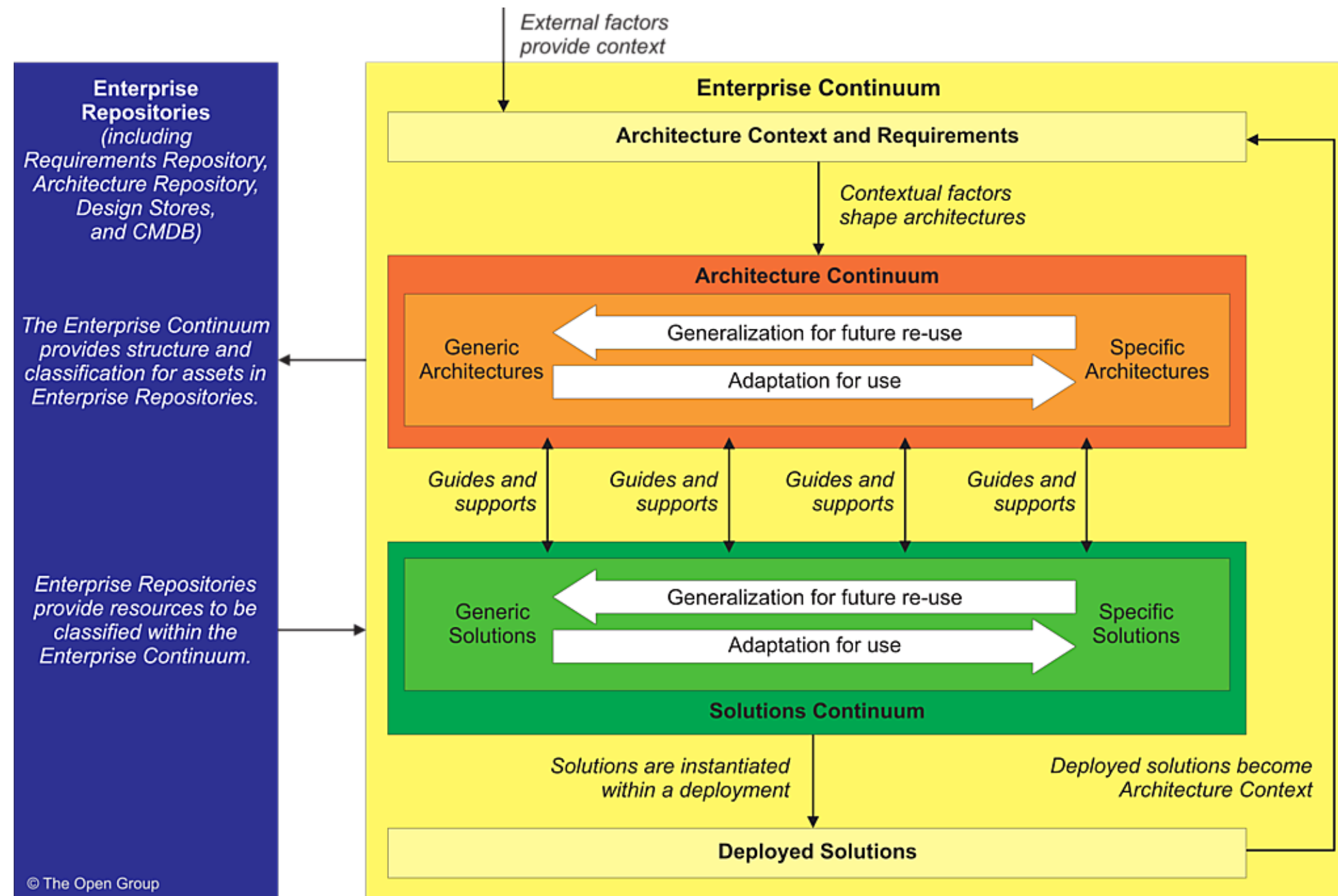
The Enterprise Continuum

- The concept of the Enterprise Continuum sets the broader context for an architect and explains how architecture assets can be leveraged and specialized in order to support the requirements of an individual organization.

- It comprises two complementary concepts:
  - The Architecture Continuum
  - The Solutions Continuum

1.8 The Architecture Repository

The Architecture Repository

© The Open Group

Architecture Repository

Architecture Metamodel

Artifacts in the landscape are structured according to the metamodel

Solutions Landscape

Enables the enterprise

Architecture Landscape

Best practice creates reference architecture

Reference Library

Adopted by the enterprise

Reference models adopted by the enterprise

External Reference Models

The Reference Library is governed

Standards have reference implementations

Standards are complied with

Standards Library

Standards adopted by the enterprise

External Standards

Business outcomes delivered

Best practice creates standards

Architecture Requirements Repository

The landscape is governed

Compliance is governed

Drivers for the enterprise

Governance Repository

Architecture Capability

Visibility and escalation

Architecture Board steers and manages the capability

Architecture Board

36

simplilearn

The Architecture Repository

- The TOGAF Standard identifies a broad set of materials that will be contained within the Architecture Repository.

- Enterprise Architecture practitioners are directly concerned with the Architecture Landscape, Reference Library, Standards Library, Architecture Requirements Repository, and the Compliance Assessments in the Governance Repository.

- Typically, these are implemented by a modeling and analytic tool, and a file repository.
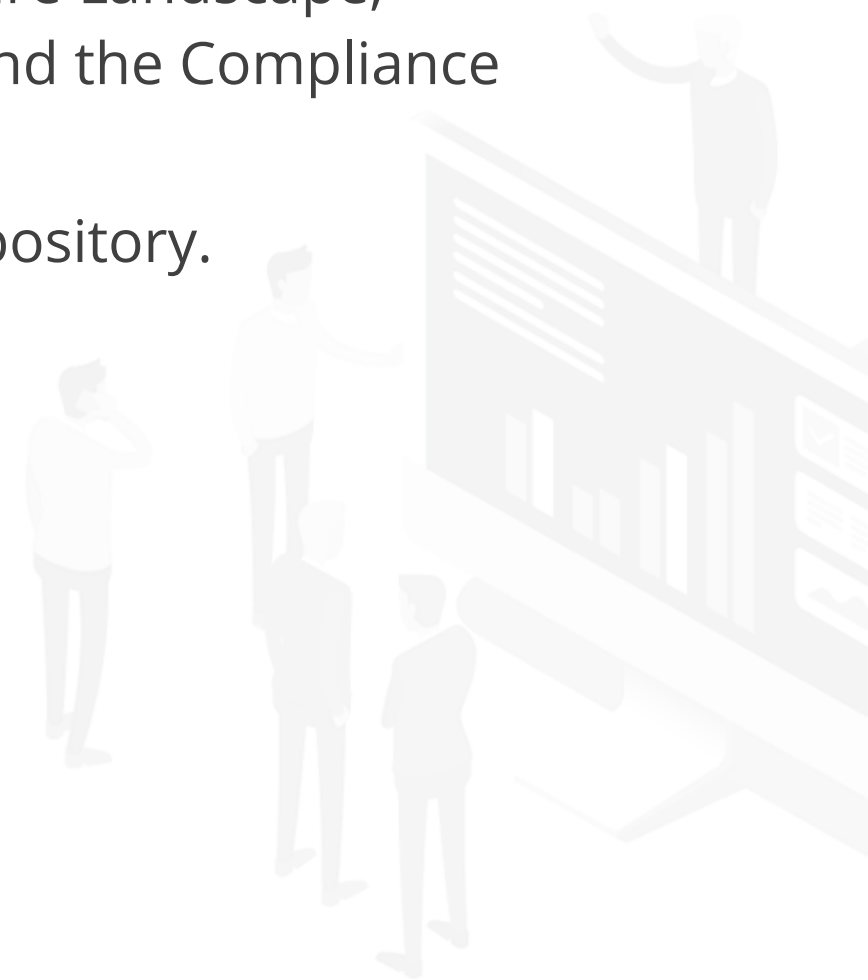
Copyright © The Open Group 2022

1.9 The TOGAF® Content Framework and Enterprise Metamodel

The Content Framework and Enterprise Metamodel define a formal structure and also provide guidance for organizations that wish to implement their architecture within an architecture tool.

Content Framework

A categorization framework to be used to structure the Architecture Descriptions, the work products used to express an architecture, and the collection of models that describe the architecture; this is referred to as the **Content Framework**.

Enterprise Metamodel

The **Enterprise Metamodel** defines the types of entities to appear in the models that describe the enterprise, together with the relationships between these entities. It allows architectural concepts to be captured, stored, filtered, queried, and represented in a way that supports consistency, completeness, and traceability.
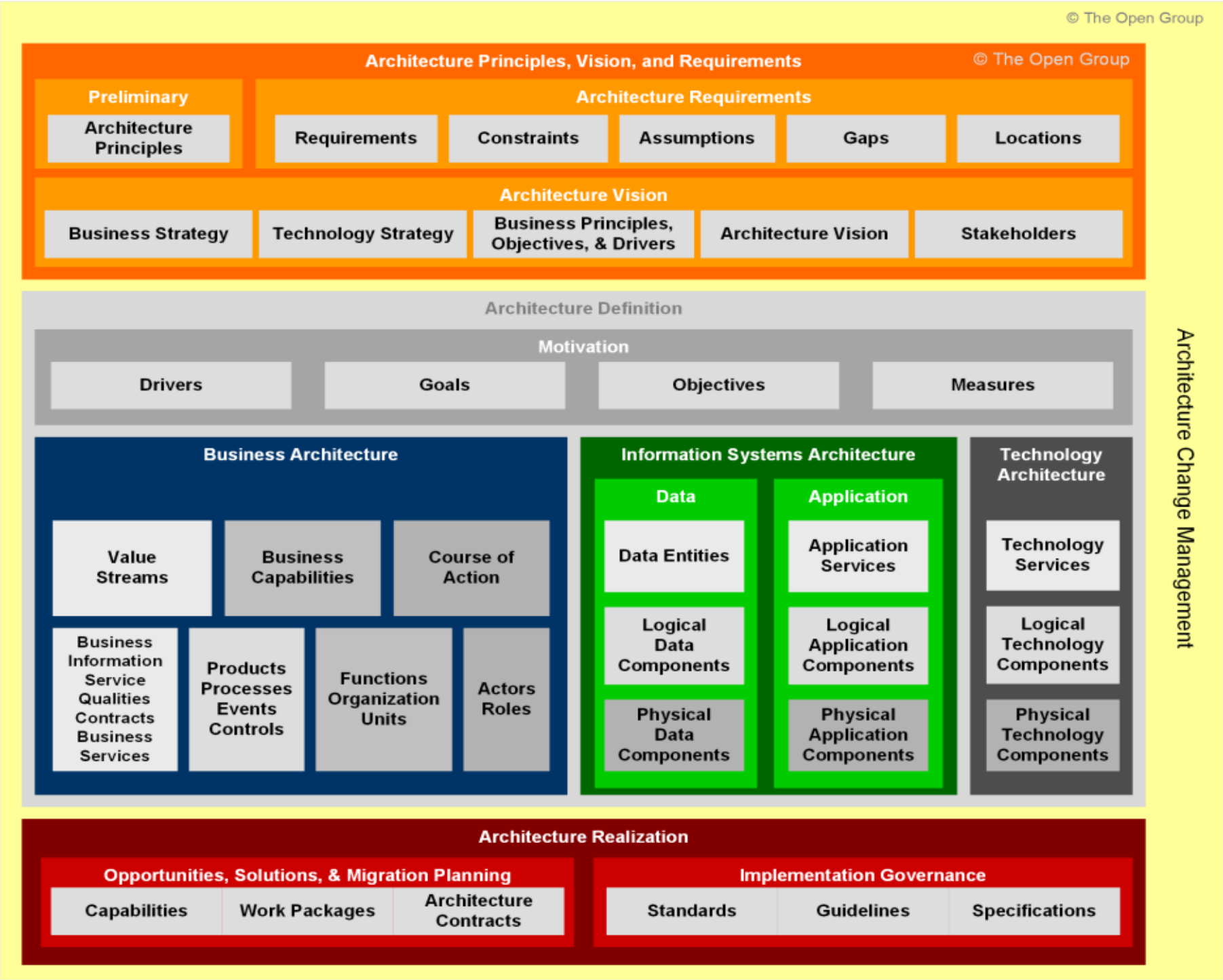
Enterprise Metamodel

- The Enterprise Metamodel is used to structure architectural information in an orderly way so that it can be processed to meet stakeholder needs.

- The TOGAF Enterprise Metamodel provides a good starting point for examining the information the Enterprise Architecture Capability requires.

simplilearn

Content Framework Overview

1.10 Architecture Capability

Architecture Capability (aka EA Capability)

- An Enterprise Architecture Capability is the ability to develop, use, and sustain the architecture of a particular enterprise, and use the architecture to govern change.

- In order to carry out architectural activity effectively within an enterprise, it is necessary to put in place an appropriate business capability for architecture, through organization structures, roles, responsibilities, skills, and processes.

Example: Enterprise Architecture Capability Model

General Business Capabilities

| Leadership | Performance Management | HR Management | Organization Model | etc. |

Purpose Capabilities

Architecture to Support Strategy

Develop Architecture

Govern Subordinate Architecture

Architecture to Support Portfolio

Develop Architecture (Consume Superior Architecture)

Govern Subordinate Architecture

Architecture to Support Projects

Develop Architecture (Consume Superior Architecture)

Govern Projects & Design

Architecture to Support Solution Delivery

Develop Architecture (Consume Superior Architecture)

Support Procurement

Foundational Capabilities

| Architecture Contents (Model) | Architecture Contents (Template & Repository) | Governance | Process Integration | EA Techniques (Stakeholder, Risk, Trade-off, etc.) |

# What is expected of an Enterprise Architecture Capability Team?

- Enterprise Architecture is used to describe the future state of an enterprise to guide the change to reach the future state.

- The description of the future state enables key people to understand what must be in their enterprise to meet the enterprise's goals, objective, mission, and vision in the context within which the enterprise operates.

- The gap between the enterprise's current state and future state highlights what must change within the enterprise.

- This gap is a function of the enterprise context and the scope of changes the enterprise sees.

Copyright © The Open Group 2022
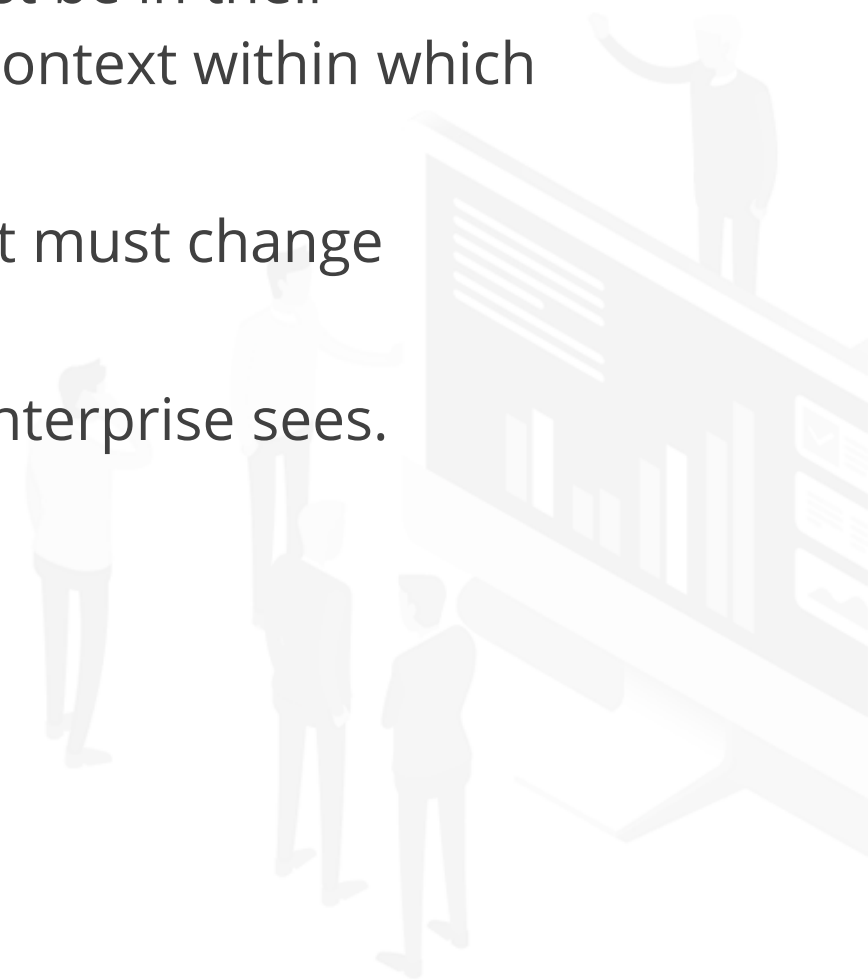
1.11 Risk Management

simplilearn

Risk Management

- The ISO 31000 definition of "risk" is the "*effect of uncertainty on objectives*".

- The ISO 31000 definition of risk management is "*coordinated activities to direct and control an organization with regard to risk*".

- Risk management is about striking a balance between positive and negative outcomes resulting from the realization of either opportunities or threats.
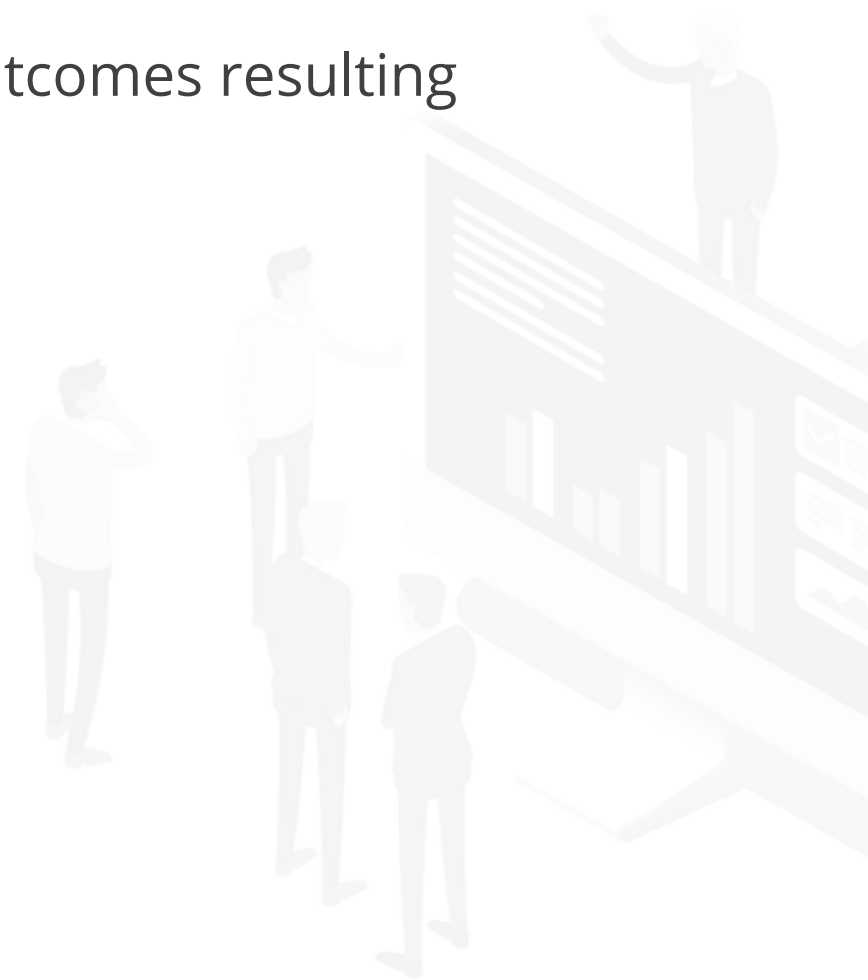
Risk Management and Mitigation

- There will always be risk with any architecture/business transformation effort.

- It is important to manage risks by identifying, classifying, and mitigating these risks before starting so that they can be tracked throughout the transformation effort.

- Mitigation is an ongoing effort and often the risk triggers may be outside the scope of the transformation planners (e.g., merger, acquisition) so planners must monitor the transformation context constantly.
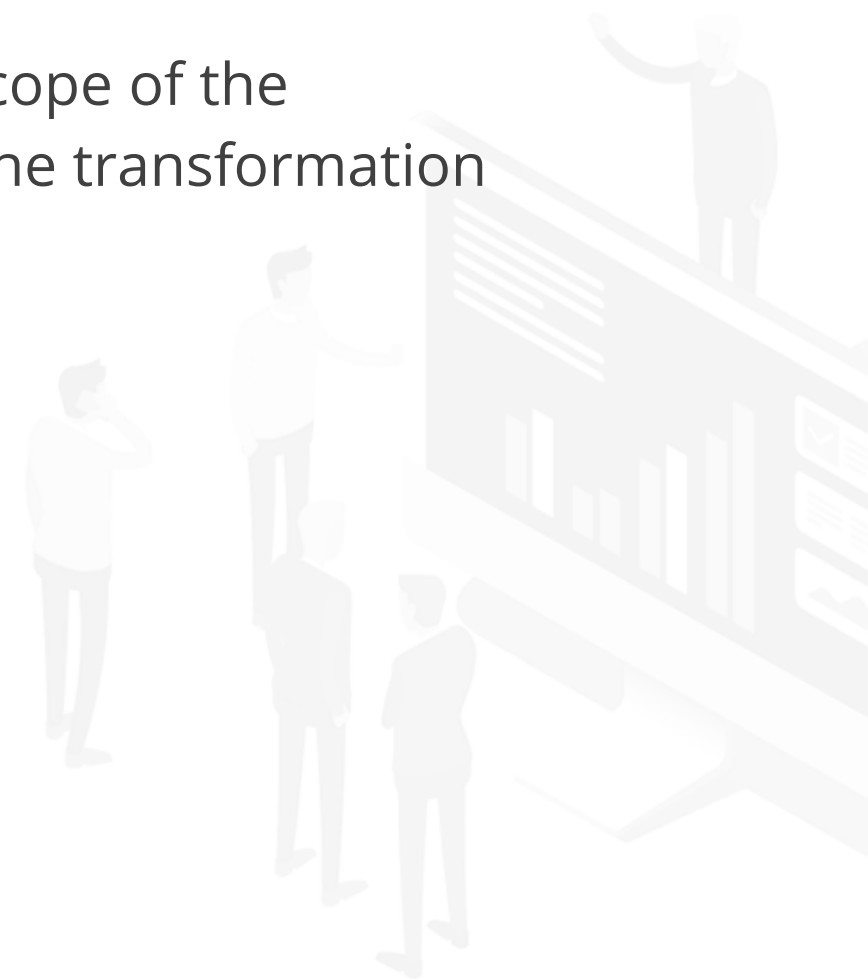
1.12 Gap Analysis

Gap Analysis

- A key step in developing an architecture is to identify changes between the baseline and target architectures using Gap Analysis.

- The Gap Analysis technique is used to consider what may have been forgotten or missed, as well as what is needed.
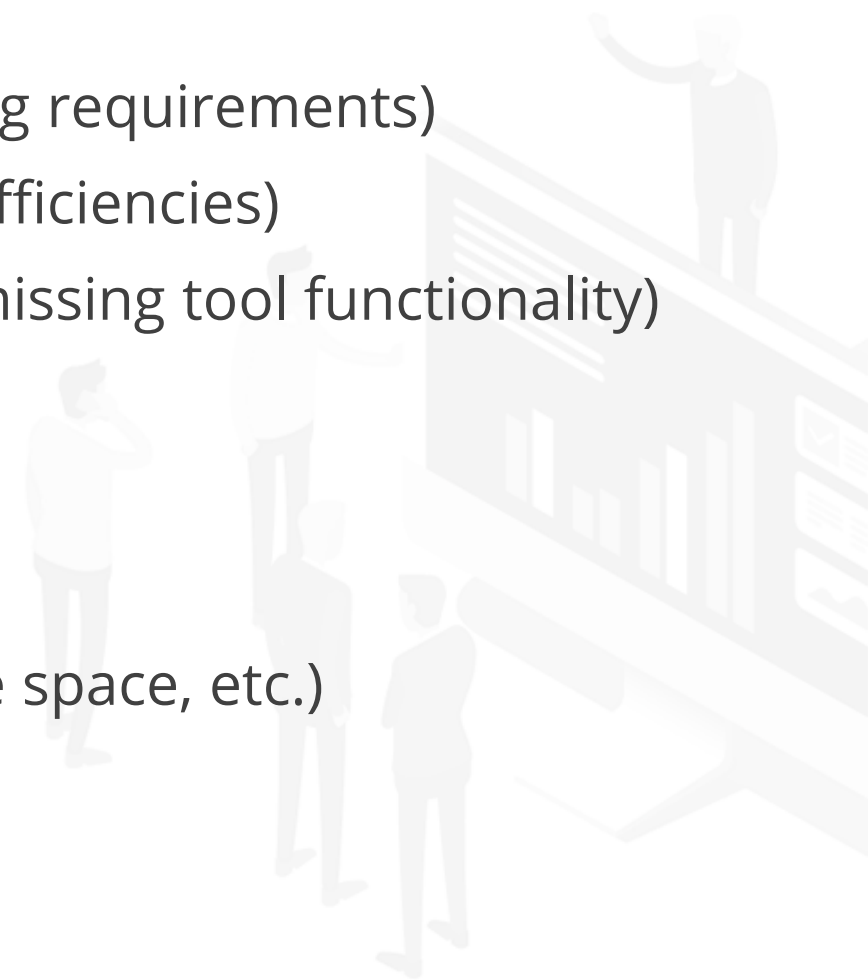
- A gap is simply everything that changes.

Potential Sources of Gaps

Business domain gaps:

- People gaps (e.g., cross-training requirements)
- Process gaps (e.g., process inefficiencies)
- Tools gaps (e.g., duplicate or missing tool functionality)
- Information gaps
- Measurement gaps
- Financial gaps
- Facilities gaps (buildings, office space, etc.)
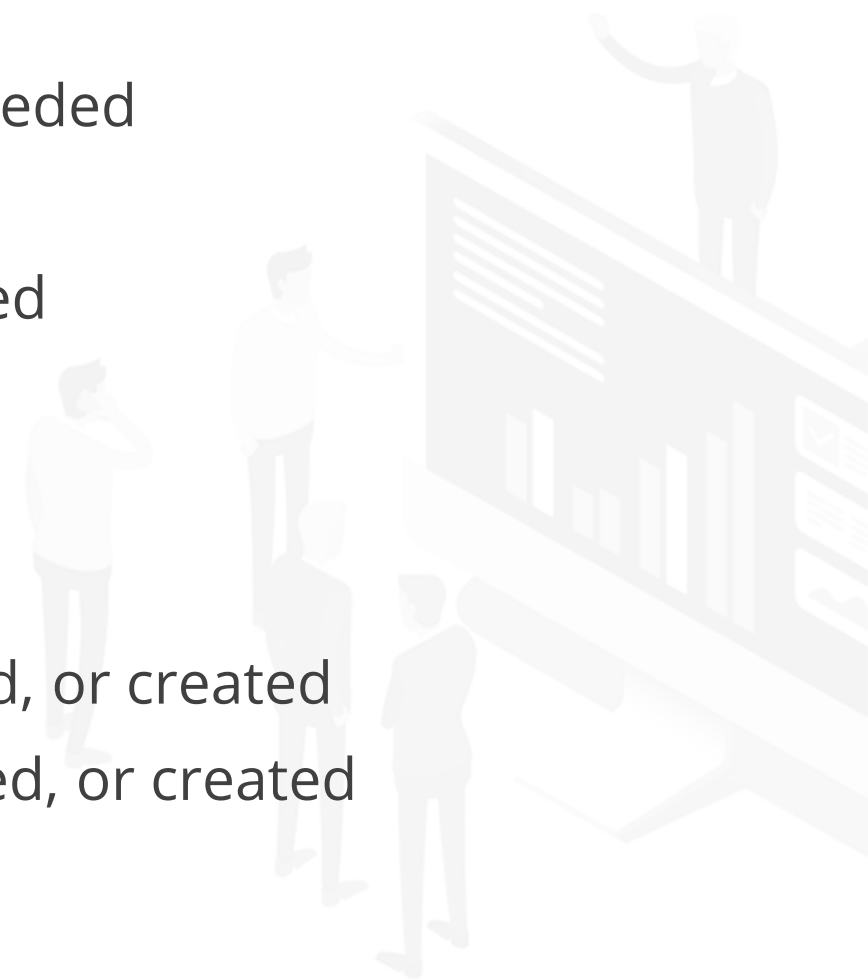
Copyright © The Open Group 2022

Potential Sources of Gaps

Data domain gaps:

- Data not of sufficient currency
- Data not located where it is needed
- Not the data that is needed
- Data not available when needed
- Data not created
- Data not consumed
- Data relationship gaps

Applications impacted, eliminated, or created

Technologies impacted, eliminated, or created

Simple Example Gap Analysis

Target Architecture → / Baseline Architecture ↓	Video Conferencing Services	Enhanced Telephony Services	Mailing List Services	Eliminated Services ↓
Broadcast Services				Intentionally Eliminated
Video Conferencing Services	Included			
Enhanced Telephony Services		Potential Match		
Shared Screen Services				Unintentionally excluded – a gap in Target Architecture
New →		Gap: Enhanced services to be developed or produced	Gap: Enhanced services to be developed or produced	