TOGAF® Series Guide

TOGAF® Digital Business Reference Model (DBRM)

Prepared by Sello Makhubela and members of The Open Group Architecture Forum

TOGAF® Series Guide

TOGAF® Digital Business Reference Model (DBRM)

ISBN: 1-947754-88-1

Document Number: G21H

Published by The Open Group, April 2022.

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

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

or by electronic mail to:

ogspecs@opengroup.org

Contents

Preface

The Open Group

The Open Group is a global consortium that enables the achievement of business objectives through technology standards. With more than 870 member organizations, we have a diverse membership that spans all sectors of the technology community – customers, systems and solutions suppliers, tool vendors, integrators and consultants, as well as academics and researchers.

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

- Working with customers to capture, understand, and address current and emerging requirements, establish policies, and share best practices
- Working with suppliers, consortia, and standards bodies to develop consensus and facilitate interoperability, to evolve and integrate specifications and open source technologies
- Offering a comprehensive set of services to enhance the operational efficiency of consortia
- Developing and operating the industry's premier certification service and encouraging procurement of certified products

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

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

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 the TOGAF® Digital Business Reference Model (DBRM). It has been developed and approved by The Open Group.

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.

Trademarks

ArchiMate, DirecNet, Making Standards Work, Open O logo, Open O and Check Certification logo, Platform 3.0, The Open Group, TOGAF, UNIX, UNIXWARE, and the Open Brand X logo are registered trademarks and Boundaryless Information Flow, Build with Integrity Buy with Confidence, Commercial Aviation Reference Architecture, Dependability Through Assuredness, Digital Practitioner Body of Knowledge, DPBoK, EMMM, FACE, the FACE logo, FHIM Profile Builder, the FHIM logo, FPB, Future Airborne Capability Environment, IT4IT, the IT4IT logo, O-AA, O-DEF, O-HERA, O-PAS, Open Agile Architecture, Open FAIR, Open Footprint, Open Process Automation, Open Subsurface Data Universe, Open Trusted Technology Provider, OSDU, Sensor Integration Simplified, SOSA, and the SOSA logo are trademarks of The Open Group.

Forrester is a registered trademark of Forrester Research, Inc.

Object Management Group and OMG are registered trademarks and BMM and Business Motivation Model are trademarks of Object Management Group, Inc. in the United States and/or other countries.

SAFe is a registered trademark of Scaled Agile, Inc.

All other brands, company, and product names are used for identification purposes only and may be trademarks that are the sole property of their respective owners.

Acknowledgements

(Please note affiliations were current at the time of approval.)

The Open Group gratefully acknowledges the author – Sello Makhubela – and members of The Open Group Architecture Forum past and present for their contribution in the development of this document.

The Open Group gratefully acknowledges the following reviewers who participated in the Company Review of this document:

- Rob Akershoek, DXC Technology
- Mukund Srinivasan, Capgemini SA
- Sonia Gonzalez, The Open Group
- Dave Lounsbury, The Open Group

The Open Group gratefully acknowledges the authors of The Open Group White Paper: World-Class EA: Business Reference Model (W146), from which this TOGAF Series Guide was developed:

- Mick Adams, EY
- Don Clasen, EY
- Peter Haviland, EY
- Yasalde Jimenez, EY
- Kate Lazar, EY
- Richard Noon, EY
- Navdeep Panaich, EY
- Mike Turner, EY

About the Author

Sello Makhubela, SMATMASS

The lead author of this document, Sello has extensive experience in enabling strategic execution through effective Enterprise Architecture management and ICT strategic management. He has more than 23 years of experience in the Information Technology industry and has operated in senior leadership and consulting roles for various company sizes, within both the private and the public sector. He has a proven track record in strategic program management and enabling Digital Transformation through Enterprise Architecture planning, blueprinting, and implementation.

Referenced Documents

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

- Beyond Advertising: Creating Value Through All Customer Touchpoints, Yoram (Jerry) Wind, Catharine Findiesen Hays, Wiley, 2015
- Business Motivation Model™ (BMM™), Version 1.3, OMG Document Number: formal/2015-05-19, April 2015, published by the Object Management Group® (OMG®): refer to: http://www.omg.org/spec/BMM/1.3/
- Digital Practitioner Body of Knowledge™ Standard (also known as the DPBoK™ Standard), a standard of The Open Group (C196), published by The Open Group, January 2020; refer to: www.opengroup.org/library/c196
- Domain-Driven Design: Tackling Complexity in the Heart of Software, Eric Evans, Addison-Wesley Professional, August 2003
- Forrester® Research: Customer Journey; refer to: www.forrester.com/Customer-Journey
- ISO/IEC/IEEE 42010:2011, Systems and Software Engineering – Architecture Description
- Open Agile Architecture™ Standard, a standard of The Open Group (C208), published by The Open Group, September 2020; refer to: www.opengroup.org/library/c208
- Project Management Theory and Practice, G.L. Richardson, Boca Raton: Auerbach Publications, Taylor & Francis Group, 2010
- Studying Complex Adaptive Systems, J.H. Holland, Journal of Systems Science and Complexity, Vol. 19, No. 1, pp.1-8, March 2006
- The Role of Product Architecture in the Manufacturing Firm, Karl T. Ulrich, Research Policy, final version received by MIT, Sloan School of Management, December 1993
- Product Design and Development, Seventh Edition, Karl T. Ulrich, Steven D. Eppinger, Maria C. Yang, published by McGraw-Hill, 2020
- 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
- World Class EA: Business Reference Model, White Paper (W146), published by The Open Group, Mary 2014; refer to: www.opengroup.org/library/w146

The following documents provide useful background information:

- Federal Enterprise Architecture Framework (FEAF), Version 2, Office of Management and Budget (US)
- Open Business Architecture (O-BA) – Part I, The Open Group Preliminary Standard (P161), published by The Open Group, July 2016; refer to: www.opengroup.org/library/p161

- Open Business Architecture (OBA) – Part II, The Open Group Preliminary Standard (P171), published by The Open Group, April 2017; refer to: www.opengroup.org/library/p171
- The Open Group IT4IT™ Reference Architecture, Version 2.1, a standard of The Open Group (C171), published by The Open Group, January 2017; refer to: www.opengroup.org/library/c171
- The Seven Levers of Digital Transformation: An Overview, White Paper (W17C), published by The Open Group, September 2017; refer to: www.opengroup.org/library/w17c
- The Seven Levers of Digital Transformation, White Paper (W17D), published by The Open Group, September 2017; refer to: www.opengroup.org/library/w17d
- TOGAF® Series Guide: Business Capabilities, Version 2 (G211), published by The Open Group, April 2022; refer to: www.opengroup.org/library/g211
- TOGAF® Series Guide: Business Models (G18A), published by The Open Group, April 2022; refer to: www.opengroup.org/library/g18a
- TOGAF® Series Guide: Enabling Enterprise Agility (G20F), published by The Open Group, April 2022; refer to: www.opengroup.org/library/g20f
- TOGAF® Series Guide: Using the TOGAF® Standard in the Digital Enterprise (G217), published by The Open Group, April 2022; refer to: www.opengroup.org/library/g217
- TOGAF® Series Guide: Value Streams (G178), published by The Open Group, April 2022; refer to: www.opengroup.org/library/g178
- Wider Business Ecosystems, White Paper (W17E), published by The Open Group, October 2017; refer to: www.opengroup.org/library/w17e
- World-Class Enterprise Architecture, White Paper (W102), published by The Open Group, April 2010; refer to: www.opengroup.org/library/w102

1 Introduction

1.1 Context

The modern Digital Enterprise faces multiple challenges in its transformation to the digital economy. New technologies – cloud, Internet of Things (IoT), Machine Learning (ML), Artificial Intelligence (AI) – and new techniques – organizational agility, continuous delivery, DevOps, etc. – both demand attention.

To cope with this fast technology evolution pace and succeed in this digital ecosystem, changes should be pervasive through the whole organization. Digital Transformation as strategy should be aligned with the overall organization context and environment and should be derived and sometimes even replace the existing organization strategy. The new digital capabilities thus become essential outcomes for an effective Digital Transformation program.

The strategy shift that should encompass the new business and IT disruptive trends, using an outside-in perspective over an inward focus, becomes important for the organizations to be responsive and remain relevant. The required strategic shift should also lead to the development of new business and operational models underpinned by the relevant digital technologies and platforms within the broader business ecosystem within which the organization operates.

Understanding the impact of change on the core components of the Digital Business Reference Model (DBRM) for the organizations will enable consistent responses to the envisaged change across the enterprise to ensure sustainability, while maintaining their strategic relevance.

The DBRM is intended to be industry-independent and outline common core components that are essential building blocks for consideration by organizations of all sizes, sectors, and development stages to enable consistent organization.

1.2 Scope of the DBRM

This document describes the TOGAF® DBRM, including the core components and the graphical representation of the DBRM.

The DBRM embodies the key element that makes up the personality of the enterprise, that when addressed collectively, consistently, and in an integrated manner will enable enterprises of all sizes, types, and industries to respond to the changing business environment.

The DBRM will guide the adoption of relevant aspects of The Open Group TOGAF Standard and other related standards, particularly The Open Group DPBoK™ and O-AA™ Standards (see Referenced Documents). It will enable organizations to develop an appropriate digital architecture blueprint in response to their changing strategies, business model, Operating Model, and operations. The journey towards digitalization will thus be based on the aggregated level of digital maturity of the respective components of the DBRM.

It also builds on the work that was done in The Open Group White Paper: World Class EA: Business Reference Model (see Referenced Documents) and applies a collection of appropriate concepts defined within other related TOGAF® Series Guides to develop a coherent reference model to guide the development of various aspects of the digital architecture artifacts.

This document presents a generic DBRM that may be adapted and used by organizations to enable sustainable enterprise design, organizational agility, and interoperability in response to the evolving customer needs and the business ecosystem.

The DBRM consists of ten core elements categorized into four domains as follows:

- Digital Domain:
  - — Customer Focus
  - — Digital Enterprise
- Strategy Domain:
  - — Strategic Context
  - — Business Motivation
  - — Business Services and Products
- Structural Domain:
  - — Ecosystem and Business Model
  - — Operating Model
  - — Business Capability Model
- Operational Domain:
  - — Business Operating Environment
  - — Digital Enablement

1.3 Structure of this Document

This document is organized as follows:

- Chapter 2 – Key Concepts
- Chapter 3 – DBRM Elements – High-Level Breakdown
- Chapter 4 – DBRM Elements in Detail
- Chapter 5 – Digital Architecture Development
- Chapter 6 – TOGAF Standard Adoption

1.4 Future Directions

It is expected that this document will need to be revised from time to time to remain current with both practice and technology developments.

The various scenarios for the application of the DBRM may need to also be defined to enable the adoption of the DBRM as a consistent point of reference to enable Digital Transformation, digital architecture development, and assessment of digital maturity as possible examples of some of the scenarios for consideration. The specific elements related to information security, governance, and risk may also be addressed in line with all the respective domains and elements of the DBRM for the adoption model.

2 Key Concepts

2.1 Adaptive Systems Architecture

Complex Adaptive Systems (CAS) are composed of elements, called agents, that learn or adapt in response to interactions with other agents. The activities of semi-autonomous agents are only partially controlled by current input. So agents can examine different courses of action prior to execution. (Source: Holland 2006)

2.2 Architecture

1. The fundamental concepts or properties of a system in its environment embodied in its elements, relationships, and in the principles of its design and evolution. (Source: ISO/IEC/IEEE 42010:2011)
2. (System Engineering Context) The embodiment of concept, and the allocation of physical/informational function (process) to elements.

2.3 Business Architecture

A representation of holistic, multi-dimensional business views of capabilities, end-to-end value delivery, information, and organizational structure; and the relationships among these business views and strategies, products, policies, initiatives, and stakeholders.

2.4 Business Capability

A particular ability that a business may possess or exchange to achieve a specific purpose.

2.5 Business Ecosystem

A composition of multiple businesses that come together to deliver something of value to the customer.

2.6 Business Model

A model describing the rationale for how an enterprise creates, delivers, and captures value.

2.7 Business Process

An ordered, countable set of activities; an event-driven, value-adding sequence that can be measured and improved.

2.8 Business Product

Output generated by the business; the business product of the execution of a process.

2.9 Business Service

Supports the business by encapsulating a unique element of business behavior; a service offered external to the enterprise may be supported by business service.

2.10 Business System

Hardware, software, policy statements, processes, activities, standards, and people which together implement a business capability.

2.11 Course of Action

Direction and focus provided by strategic goals and objectives, often to deliver the value proposition characterized in the business model.

2.12 Customer

The customer is a source of revenue for the service

- If the service is part of a profit center, the customer is the person purchasing the product (e.g., demand deposit banking)
- If the service is part of a cost center (e.g., a human resource system), the customer is best seen as an internal executive, as the actual revenue-producing customers are too far removed

2.13 Customer Experience

The sum-totality of how customers engage with the company and brand, not just in a snapshot in time, but throughout the entire arc of being a customer. (Source: Richardson 2010)

2.14 Customer Journey

The series of interactions between a customer and a company that occur as the customer pursues a specific goal. (Source: Forrester®)

2.15 Digitalization

The application of digital technology to create additional business value within the primary value chain of enterprises.

2.16 Digitization

The conversion of analog information into digital form.

2.17 Digital Architecture

The inclusive architecture focused on a combination of Enterprise Architecture, data science, telecommunications and IoT, security, AI, cognitive science, neuroscience, robotics, and social medias to deliver operational services.

2.18 Digital Enterprise

An enterprise characterized as follows:

1. Where the creation of digitalized products or services are delivered fully digitally (e.g., digital media or online banking)
2. Where physical products and services are obtained by the customer by digital means (e.g., online car-sharing services) (Source: The DPBoK Standard)

2.19 Digital Platform

A software system composed of application and infrastructure components that can be rapidly reconfigured using DevOps and cloud-native computing.

2.20 Digital Practices

A synthesis of methods and guidance from a wide variety of practitioners and professional communities active in digital technology (lean, agile, DevOps, etc.) designed to create and manage products with an increasing digital component or lead their organization through Digital Transformation.

2.21 Digital Product

A service, physical item, or digital item that provides an agreed and specific outcome for a consumer; that incorporates and requires software to realize that outcome; that is expected to require active management of the software and its required resources over its lifecycle, in a manner prescribed by the provider; and that is described by a formal offer of the outcome to be provided in exchange for an explicit price.

Digital product refers primarily to the perspective of a product manager and represents a complete product line over its lifetime, to include product variants, types and locations of consumers, annual and lifetime financial models, dependencies on other products and services, supplier relationships, capacity, service-level options, distribution models, pricing and usage rules, delivery and management of digital product instances, and so on.

2.22 Digital Technology

Information technology in the form of a product or service that is digitally consumable to create or enable business value.

2.23 Digital Transformation

The radical, fundamental change towards becoming a Digital Enterprise.

2.24 Domain Model: Domain-Driven Design

The representation of a selected abstraction of domain knowledge that is rigorously organized. (Source: Evans 2003)

2.25 Ecosystem

The complex community of organisms and their environment, functioning as an ecological unit. (Source: Wind & Hays 2015)

2.26 Event Storming

The identification of domain events, commands, persona, or entities to facilitate a structured conversation about the domain.

2.27 Information Map

A collection of information concepts and their relationships to one another. Information concepts, in effect, reflect the business' vocabulary; e.g., *client*, *account*, or *product*. Mapping information in Business Architecture starts with listing those elements that matter most to the business as well as how they are described in business terms.

2.28 Journey Mapping

Laying out the entire end-to-end Customer Experience.

2.29 Operational Context Domain

Refers to those elements that together describe the requirements and implications of operations. (Source: Wind & Hays 2015)

2.30 Organizational Competency

An organizational mechanism composed of related capabilities, commitments, knowledge, and skills that enable an organization to accomplish its strategic intent and objectives

2.31 Organization Map

A Business Architecture blueprint that shows:

1. The main organizational units, partners, and stakeholder groups that comprise the ecosystem of an enterprise.
2. The working relationships (informal as well as formal) between each of those entities.

2.32 Portfolio

A collection of initiatives (e.g., programs, projects), epics and services/products managed as a group to achieve strategic objectives. For example: portfolio backlog with epics, project portfolio, service and product portfolio, or technology portfolio.

2.33 Product

An outcome generated by the business to be offered to customers. Products include materials and/or services.

2.34 Product Architecture

1. The arrangement of functional elements
2. The mapping from functional elements to physical components
3. The specification of the interfaces among interacting physical components (Source: Ulrich 1993)

2.35 Program

A coordinated set of change projects, epics, and services/products that deliver business benefit to the organization.

2.36 Project

A single change activity which delivers business benefit to the organization.

2.37 Use-Case

A view of organization, application, or product functionality that illustrates capabilities in context with the user of that capability.

2.38 User

1. Any person, organization, or functional unit that uses the services of an information processing system.
2. In a conceptual schema language, any person or any thing that may issue or receive commands and messages to or from the information system.

2.39 Value Stream

A representation of an end-to-end collection of activities that create an overall result for a customer, stakeholder, or end user. In modeling terms, those value-adding activities are represented by value stream stages, each of which creates and adds incremental stakeholder value from one stage to the next.

2.40 Work System

Human participants and/or machines perform processes and activities using software, hardware, and other resources to deliver products or experiences.

3 DBRM Elements – High-Level Breakdown

3.1 Introduction

This chapter describes the major elements of the DBRM.

The high-level view of the DBRM is depicted in Figure 1.

The DBRM consists of the ten (10) core elements: Customer Focus, Digital Enterprise, Strategic Context, Business Motivation, Business Services and Products, Ecosystem and Business Model, Operating Model, Business Capability Model, Business Operating Environment, and Digital Enablement.

The core elements are categorized into four (4) domains – Digital, Strategy, Structural, and Operational – to enable the DBRM to address specific stakeholder concerns and enable consistent stakeholder management.

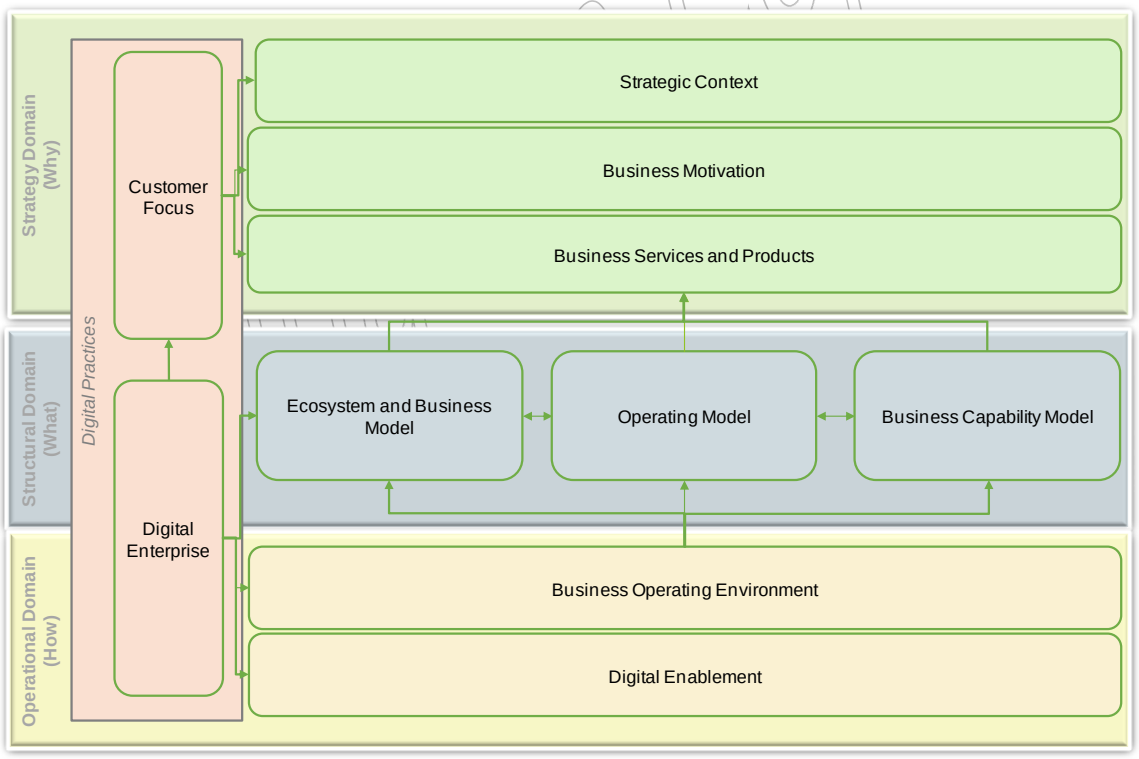

Figure 1: DBRM Elements – High-Level View

Figure 1 says nothing about the detailed relationships between the entities; only that they exist.

3.2 Digital Domain

The Digital Domain is essential to enable an outside-in approach for the creation and management of Digital Products and Services with an increasing digital component or to lead the organization through the digital journey towards a digital business.

The Customer Focus and Digital Enterprise elements are important for the organizations to adopt an outside-in mindset to ensure that all the other core elements of the DBRM are geared towards the implementation of appropriate digital capabilities. The digital practices are an essential element of ensuring that the journey towards digitalization becomes an effective process that creates sustainable value for the organization.

3.3 Strategy Domain

The Strategy Domain is addressed by the Strategic Context, Business Motivation, and Business Services and Products elements, which are about determining the "why" of the business.

Every organization operates within the specific Strategic Context irrespective of its nature and the industry. The context may change depending on the various forces that drives the industry within which the business operates. The business responds to the context, and the drivers that keep changing the context, through the Business Motivation element. The Business Motivation element focuses on the strategy and the associated strategic direction the business must take to remain relevant and sustain its existence, within the changing Strategic Context. Consequently, this determines the nature of core Business Services and Products that the business must focus on to establish the necessary competitive edge, in line with their strategic direction.

3.4 Structural Domain

Underpinning the core Business Services and Products element are the elements of the DBRM that focus on the "what" of the business – the Ecosystem and Business Model, Operating Model, and Business Capability Model are inter-related. They collectively define the means with which the business will establish and deliver the identified core business services to achieve the intended business objectives as defined in the Business Motivation element. They address the Structural Domain of the DBRM.

The definition of the Structural Domain – Ecosystem and Business Model, Operating Model, and Business Capability Model – will enable the business to consistently respond to its underlying operational environment and thus effectively utilize organizational resources to realize the intended strategic direction of the business.

3.5 Operational Domain

The Operational Domain is addressed by the Business Operating Environment and Digital Enablement elements – the "how" of the business. They enable the business to deliberately determine the requirements and implications of the Business Operating Environment in response to the intended business strategy.

The Business Operating Environment element defines the process, systems and resources necessary to enable the execution of the business model, Operating Model, and Business Capability Model.

The Digital Enablement element defines the digital strategies, principles, and resources necessary for the business to enable delivery of Digital Products and Services and digitalization, and thus take advantage of business opportunities associated with digital technologies. The Digital Enablement elements are thus essential for the business to consider the Digital Enterprise option.

Each of the elements in Figure 1 is discussed in detail in Chapter 4.

4 DBRM Elements in Detail

4.1 Introduction

Figure 2 unpacks the high-level view to depict the details of each element.

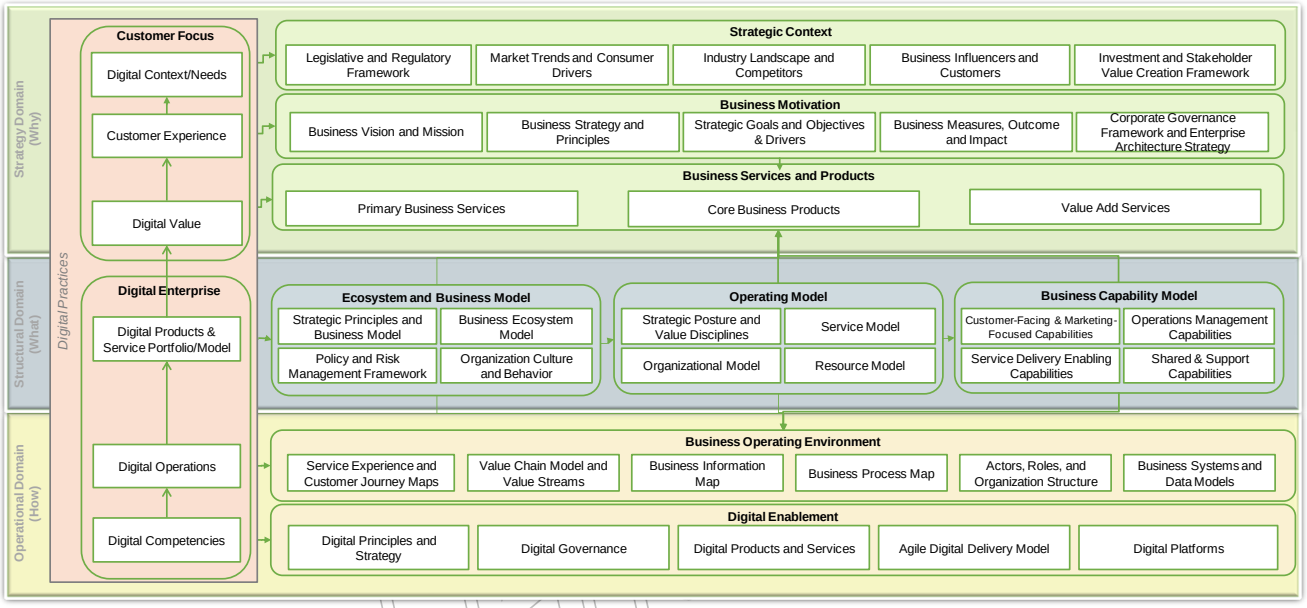

Figure 2: DBRM Elements – Detailed View

4.2 Digital Domain

4.2.1 Customer Focus

The Customer Focus element adopts outside-in thinking to discover how customers are likely to use products and services from the customer perspective and discovering the hidden or untold customer needs.

- Digital Context/Needs

  In positioning a digital offering, organizations must consider the likelihood of it being adopted. Is it part of a broader "movement" of technological innovation? Where is the customer base in terms of its willingness to adopt the innovation? The demand for "digital-first" culture where the business models, plans, architectures, and implementation strategies are based on a digital organization architecture that inspires and rewards a number of desired behaviors, such as servant leadership, strategic value chain thinking, consumer focus, fault tolerance, agility, and more are essential to enable a customer-centric approach within the organization. It requires a workforce with a sense of psychological safety, digitally savvy enough to execute a "digital-first approach".

- Customer Experience

  The sum totality of how customers engage with the company and brand, not just in a snapshot in time, but throughout the entire arc of being a customer. The Customer Experience way of doing business that meets the expectations of customers by analyzing the interactions between the enterprise and its customers, to enable the delivery of a pleasant and differentiated Customer Experience. (Source: The O-AA Standard)

- Digital Value

  There are many ways in which digital systems deliver value. Digital technology generates value in both direct and indirect ways. The application of digital technology to create additional business value within the primary value chain of enterprises (digitalization).

4.2.2 Digital Enterprise

- Digital Products and Service Portfolio/Model

  The management of a digitalized products and services portfolio and delivery model to enable the relevant Digital Products and Services is delivered fully digitally or obtained by the customer by digital means without impacting the overall Customer Experience. (Source: The DPBoK Standard)

- Digital Operations

  The adoption of an outward-in approach to identify and implement the appropriate operational capabilities to deliver the relevant digital and product services for the respective targeted customers for the respective digital business model. The underlying Operating Model, Business Capability Model enabled by the appropriate value streams, business process, people, and systems are essential to build the necessary digital capabilities for cost-effective Digital Operations.

- Digital Competencies

  Sets of resources, services, and assets that are necessary for individuals and organizations to create and manage product offerings with an increasing digital component or lead their organization through digital transformation. The DPBoK Standard defines these competencies based on the scaled model as follows:

  Context I: Individual/Founder – represents the bare minimum requirements of delivering Digital Value:

  — Conception of Digital Value

  — Digital infrastructure and related practices

  — Agile development and continuous delivery practices

  Context II: Team – the collaboration level represents the critical team-level experience. Establishing team collaboration as a fundamental guiding value is essential to successful digital product development:

  — Product management

  — Work execution

  — Operations management

Context III: Team of Teams – coordinating across the "team of teams" is a hard problem. Too often, coordination mechanisms (such as overly process-centric operating models) degrade team cohesion and performance:

— Coordination mechanisms, including process management and IT Service Management (ITSM)

— Investment and sourcing (including project management)

— Organization and cultural factors

Context IV: Enduring Enterprise – the thought experiment here is "the growing enterprise" and the establishment of additional feedback mechanisms for steering, managing risk, and assuring performance at scale and over increasing time horizons and increasingly complex ecosystems:

— Governance, risk, security, and compliance

— Information management

— Architecture and portfolio management

4.3 Strategy Domain

4.3.1 Strategic Context

The Strategic Context element focuses on the environmental factors of the business that may impact its success and sustainability. It describes the external factors – such as the competitors, regulation, and customers for an organization – in addition to the overall strategy possessed by the organization for market positioning.

The following need to be considered to determine the possible constraints, opportunities, and threats for the business:

- Legislative and Regulatory Framework

  The set of criteria to which the organization must adhere in order to assure that the value proposition is delivered using an acceptable standard of business practice. This is intended to describe the constraints that prevent an organization from acting in negative, destructive, or inappropriate ways and the corresponding opportunities that can be exploited from a differentiated compliance position. Analysis within this factor involves the identification of constraints and their potential implications for the organization in a way that supports risk-based decision-making on what constitutes acceptable and unacceptable behavior.

- Market Trends and Consumer Drivers

  This factor examines the overall industry value chain within which the organization operates. Considerations within this factor could include the relationships between suppliers and providers within the value chain, regulatory constraints, tax regimes, international accords, the value of the market, how costs and value are distributed across the value chain, industry trends, relationships with adjacent industries, etc.

- Industry Landscape and Competitors

  This factor examines organizations that provide similar, competing capabilities. Competitor analysis typically focuses on understanding the value proposition of competing organizations and measuring comparative quality and business performance attributes, such as customer satisfaction, customer retention, market share, and profitability.

- Business Influencers and Customers

  Influencers that can hinder or assist business operations. These influencers provide opportunities that may help the enterprise operate, as well as threats that may thwart its progress. Influencers also represent strengths from within that the enterprise could exploit, or weaknesses for which it should compensate. The current and potential customers of the enterprise may also influence the future direction and culture of the enterprise.

- Investment and Stakeholder Value Creation Framework

  The value shareholders are able to obtain through investment in a company. The primary goal for a company is to increase shareholder value. Shareholder value is typically a composite of operating profit, assets, and perception of future prospects. The mix of value components can be very different for different organizations and consequently it is critically important to understand what shareholders value about a company before attempting to change.

4.3.2 Business Motivation

The Business Motivation element focuses on the reason for the existence of the business and how it intends to remain sustainable and resilient within the environment in which it operates.

The following need to be considered to outline the business intention, purpose, and course of action to operate in its space:

- Business Vision and Mission

  The enterprise's strategic direction, its aspirations (its vision), and its action plans for how to realize them (its mission).[1] They represent both the desired end for the business and the envisaged means with which the end will be realized.

- Business Strategy and Principles

  The business strategy focuses on the enterprise's course of action and approach to channel the enterprise resources and efforts towards achieving the identified strategic goals and objectives. It articulates the statement of clear principles that will guide the strategic priorities of the enterprise to acquire the necessary resources such as skills, competencies, and business capabilities to achieve its intended strategic goals and objectives, given the Strategic Context within which it operates. Strategy makes explicit choices about the ambition level and focus areas of the organization that drive capability development and prioritization. It provides the basis for the Ecosystem and Business Model and the Operating Model.

[1] Refer to the OMG Business Motivation Model – see Referenced Documents.

- Business Measures, Outcome, and Impact

  The enterprise also has to consider the desired outcomes that it seeks to achieve through its endeavor to realize its Business Vision and Mission. This is necessary to position the enterprise within the broader ecosystem where it operates and thus also possibly expose other opportunities to sustain its existence. It is also necessary for the enterprise to consider the possible impact it may have within the context in which it operates – social, environmental, and economical.

- Strategic Goals, Objectives, and Drivers

  Understanding the Strategic Context, and having defined the enterprise aspiration and intents, it is necessary that the enterprise clearly outlines its intended strategic direction and the specific goals to achieve it in the short, medium, and long term. The focus of the strategic goals and objectives is to clearly articulate the intended result that the enterprise seeks to achieve to realize the identified outcomes and to make the necessary impact it seeks to achieve.

- Corporate Governance Framework and Enterprise Architecture Strategy

  The overarching framework that sets the tone for the culture of the enterprise. The corporate governance framework for the enterprise ultimately determines the nature of behaviors that are acceptable within the enterprise and how deviation from such behaviors is handled to ensure that the enterprise stays on course for what it is intended to achieve. It will influence the nature of policy framework and the overall Business Operating Environment of the enterprise, to ensure that there are appropriate management and governance controls in place to enable the enterprise to optimize its investment and benefits and generate sustainable value within acceptable level of costs and risks as a good corporate citizen. The Enterprise Architecture strategy sets the tone for the appropriate strategic investment as it outlines the Architecture Vision, Architecture Principles, and requirements to realize the intended business direction.

4.3.3 Business Services and Products

While the Business Services and Products element that the enterprise seeks to provide to its customers may have been addressed inherently when dealing with other elements above, it is important that the enterprise is deliberate about the nature of the business services and products that it will consider core to their business. This will assist with prioritization of resources and the sourcing strategy of the enterprise.

The following categories of Business Services and Products need to be considered to enable appropriate categorization and prioritization of enterprise resource and efforts:

- Primary Business Services

  These are the services that are at the center of why the enterprise exists. They are the primary revenue stream for the enterprise, and thus the enterprise needs to consider investing in ensuring that it is the best at providing this category of services to its customers. They are the source of competitive edge for the enterprise.

- Core Business Products

  Business products are also as equally as important as the primary services. They may also be a primary revenue stream and thus provide competitive advantage for production-intensive enterprises.

- Value-Add Services

  The enterprise may over and above provide its primary Business Services and Products, and also identify opportunities to delight its customers or expand its portfolio of products and services offering without losing the essence of what they are about. Enterprise may consider carefully combining their products and services to provide Value-Add Services to their customers.

4.4 Structural Domain

4.4.1 Ecosystem and Business Model

Understanding the Strategic Context within which the enterprise operates should provide the insight necessary to understand the various role players within the industry and the broader economy. This insight, combined with the strategic direction that the enterprise chose in the Business Motivation element and taking into consideration the envisaged service offering identified in the core business services, should inform the nature of the business model that that the enterprise will adopt to create value for the identified customers, at optimum cost of operations and returns.

The following aspects should be considered to determine an appropriate Ecosystem and Business Model for the enterprise to be sustainable:

- Business Ecosystem Model

  Outlines the internal and external partners and role players that may support the enterprise by complementing and/or providing core business functions. Typically, an ecosystem of partners can be exploited to generate competitive advantage, such as establishing the dominance of industry platforms. Analysis of partner capabilities includes the definition of which capabilities should be sourced from partners, what levels of partnership should exist, and how partnering occurs on different levels, which types of partners should be used in which circumstances, and which partners are preferred for which purposes. The enterprise should also determine the short-term and long-term role it intends to play within the ecosystem.

- Strategic Principles and Business Model

  The clear articulation of the value proposition of the enterprise to its target customers, the envisaged operating mechanisms, and the respective finance model necessary to ensure a sustainable business model for the enterprise. The envisaged business model must be underpinned by the set of values and principles that will steer the decision of the enterprise on all aspects of the business model in order to remain sustainable, relevant, and aligned to intended strategic direction of the enterprise.

- Policy and Risk Management Framework

  Governance rules, procedures, and controls to enable the consistent execution functions of the enterprise including the management of information generated by the execution of

capabilities. Enabling effective decision support, and communication channels for the enterprise to operate effectively. Providing effective models for delegations, reporting, analytics, performance management, quality management, financial governance, product portfolio management, controls, and communications. The management of risks that may impact the success of the enterprise in delivering its value proposition to the target customers must also be addressed with an appropriate risk management framework.

- Organization Culture and Behavior

  Building a set of learning organization behaviors that facilitates, at every level, a culture where questioning the *status quo* is an indicator of a growth mindset. A climate in which initiatives are rewarded and collaboration is effortless, a safe space where risks taken and mistakes made are volunteered, an atmosphere that does not shun intuition or look down upon people who voice complex problems without quick solutions. Business model innovation and agility are thus the norm, to enable an inherent continuous improvement culture within the enterprise, as it responds to the changing business model.

4.4.2 Operating Model

The Operating Model describes how the enterprise operates to deliver the intended value proposition to its customers. It enables the equitable deployment of resources at the disposal of the enterprise in line with the business model and strategic priorities of the enterprise. It enables consistent alignment of the enterprise's Business Motivation, services, business model, and operations. It is the lever that translates the business model into interrelated sets of business capabilities, processes, and the operating environment of the enterprise.

The following should be considered to determine Operating Model of the enterprise, to support the business model:

- Strategic Posture and Value Disciplines

  The determination of the strategic posture of the enterprise is necessary to inform the type of Operating Model that will dominate the operations of the enterprise, and deployment of resources within various functions of the enterprise. It will also enable the enterprise to consciously decide on its orientation towards its customers and stakeholders in line with the key value elements of the enterprise (e.g., customer-centricity *versus* operational excellence). The enterprise should thus consider a trade-off between various value disciplines and make a decision about the predominate Value Creation mechanisms for the enterprise, supported by the appropriate resources.

- Service Model

  Definition of the relevant service portfolio and the underlying service delivery mechanisms. Enabling alignment of business services with the business processes, organization model, and the underlying information systems services.

- Organizational Model

  The development and translation of the organization map into sets of objectives, structures, and interactions necessary for various role players, functions, and stakeholders for the enterprise to enable the execution of the Operating Model. It will influence the nature of the organization structure, organizational resources, and roles necessary for the enterprise to execute its functions in line with the Service Model.

- Resource Model

  Strategies, practices, and management mechanisms to effectively acquire, allocate, deploy, and utilize resources in line with the business model, Operating Model, and the strategic direction of the enterprise.

4.4.3 Business Capability Model

The development of the Business Capability Model is essential to enable the consistent definition of business capabilities within the enterprise. The Business Capability Model thus provides the visual blueprint of all the business capabilities and their relationships at an appropriate level of decomposition, logically grouped into different categories or perspectives to support more effective analysis, planning, and improvement of the respective business capabilities within the enterprise. Each business capability is thus also decomposed into a specific combination of roles, processes, information, and tools that enable its implementation.

The following high-level categorization for business capabilities should be considered by the enterprise developing the Business Capability Model:

- Customer-Facing and Marketing-Focused Capabilities – external-facing business capabilities that are focused on enabling customer access to the business services, through various service channels
- Service Delivery Management Capabilities – business operations capabilities that are necessary for the delivery of the products and services of the enterprise for direct revenue generation
- Service Delivery Enabling Capabilities – the business capabilities that are not at the core of operations, but are necessary for the execution of service delivery management
- Shared & Support Capabilities – business capabilities that are shared across the enterprise for administration and support of all other business capabilities within the enterprise

4.5 Operational Domain

4.5.1 Business Operating Environment

The Business Operating Environment is essential to enable consistent definition of business processes, organization structure, systems and their relationships and guidelines to enable their common understanding, standardization, integration, and implementation across the enterprise.

The enterprise should consider various elements of the Business Operating Environment at various levels of the enterprise, to address specific objectives and for the specific target stakeholders without losing the required vertical and horizontal integration needed to enable seamless operations and to drive operational efficiencies.

The following layers of category for business processes should be considered by the enterprise developing the Business Operating Environment:

- Service Experience and Customer Journey Maps

  The customer-focused business process and maps from the perspective of the target customers and other external stakeholders to enable service experience across the

enterprise service channels. The envisaged service experience driven by the specific customer touch points with the enterprise are essential focus areas when mapping the Service Experience and Customer Journey Maps.

- Value Chain Model and Value Streams

  The value stream stages, their relationships, and integration points necessary to enable streamlined execution of end-to-end primary, enabling, and value-adding activities to create the desired results and value for customer, stakeholder, or end user of the enterprise.

- Business Information Map

  The business information objects, their relationship, flows, and their association with the respective business processes and systems.

- Business Process Map

  The detailed business process underpinning the various value streams and the Service Experience and Customer Journey Maps with the associated business rules.

- Actors, Roles, and Organization Structure

  Organization functions, roles, and responsibilities supported by appropriate organizational procedures, performance management framework, and delegation of authority to enforce operational controls for effective organizational monitoring and evaluation.

- Business Systems and Data Models

  The business systems, their relationships, interface points, underlying data flows, and technologies to enable the respective business processes, value streams, and customer journey maps.

4.5.2 Digital Enablement

The need for Digital Enablement is increasingly becoming inevitable to drive the realization of the Digital Enterprise. The Digital Transformation required for the radical, fundamental change towards becoming a Digital Enterprise is now becoming inherent for consideration in all parts of the enterprise.

The Digital Enablement elements are cross-cutting and essential to enable enterprises to translate their business model, Operating Model, business capabilities, and Business Operating Environment into a set of specific responses to the digital economy.

Digital Enablement is thus essential to enable enterprises to become digital and agile enterprises, taking into consideration the specific context of the industry within which the enterprise operates.

The following are the key pillars for considerations for Digital Enablement within the enterprise:

- Digital Principles and Strategy

  The principles and strategies that are necessary to drive the common agenda for digitalization to enable a Digital Enterprise. These principles and strategies must also include the Digital Architecture blueprint and transformation roadmap, that will enable implementation of digital capabilities for a Digital Enterprise.

- Digital Governance

  The competencies necessary to enable effective governance, risk, and security management for digital delivery to enable Digital Value recognition, effective digital management, and optimize governance and management interfaces to enable the digital journey.

- Digital Products and Services

  The competencies necessary to enable digital product and service management to enable continuous provision of customer-facing products and services.

- Agile Digital Delivery Model

  The competencies necessary for a customer-centric approach to define, build, and release a continuous flow of valuable products and services to customers and users of Digital Products and Services.[2]

- Digital Platforms

  Underlying business processes, systems, skills, resources and digital technologies to enable digitally consumable product and service to create or enable business value.

4.5.3 Enabling Digital Competencies

Table 1 outlines the enabling DPBoK Digital Competencies for the respective Digital Enablement components/pillars.

Table 1: Enabling DPBoK Digital Competencies

Digital Enablement Pillar	Enabling DPBoK Competency	DPBoK Context
Digital Principles and Strategy	Architecture and portfolio management	Context IV: Enduring Enterprise
	Information management	Context IV: Enduring Enterprise
	Conception of digital value	Context I: Individual/Founder
Digital Governance	Governance, risk, security, and compliance	Context IV: Enduring Enterprise
Digital Products and Services	Coordination mechanisms (including process management and ITSM)	Context III: Team of Teams
	Investment and sourcing (including project management)	Context III: Team of Teams
	Product management	Context II: Team
Agile Digital Delivery Model	Organization and cultural factors	Context III: Team of Teams

[2] Refer to SAFe® Agile Product Delivery at: https://www.scaledagileframework.com/agile-product-delivery/.

Digital Enablement Pillar	Enabling DPBoK Competency	DPBoK Context
	Work execution	Context II: Team
	Operations	Context II: Team
	Agile development and continuous delivery practices	Context I: Individual/Founder
Digital Platforms	Digital infrastructure and related practices	Context I: Individual/Founder

5 Digital Architecture Development

5.1 Introduction

In a digital world, aligning business and IT is no longer sufficient. Organizations have to design the enterprise in such a way that it can adapt to emerging customer and business needs.

This will require organizations to adopt an adaptive enterprise model when developing their Enterprise Architecture building blocks to facilitate the co-evolution of the Enterprise Architecture blueprint with the environment and the required decision-making at the appropriate organizational level to enable required organizational agility.

The Digital Architecture is essential to enable Agile Architecture development that is based on the modular building blocks that can be configured and assembled in a variety of manners. This approach will enable the incorporation of various architecture development styles and the respective Agile Architecture perspectives.

5.2 O-AA Building Blocks

Figure 3 depicts the O-AA building blocks and the relationships in line with the O-AA perspectives that should be considered when developing the Digital Architecture to enable the digital business.

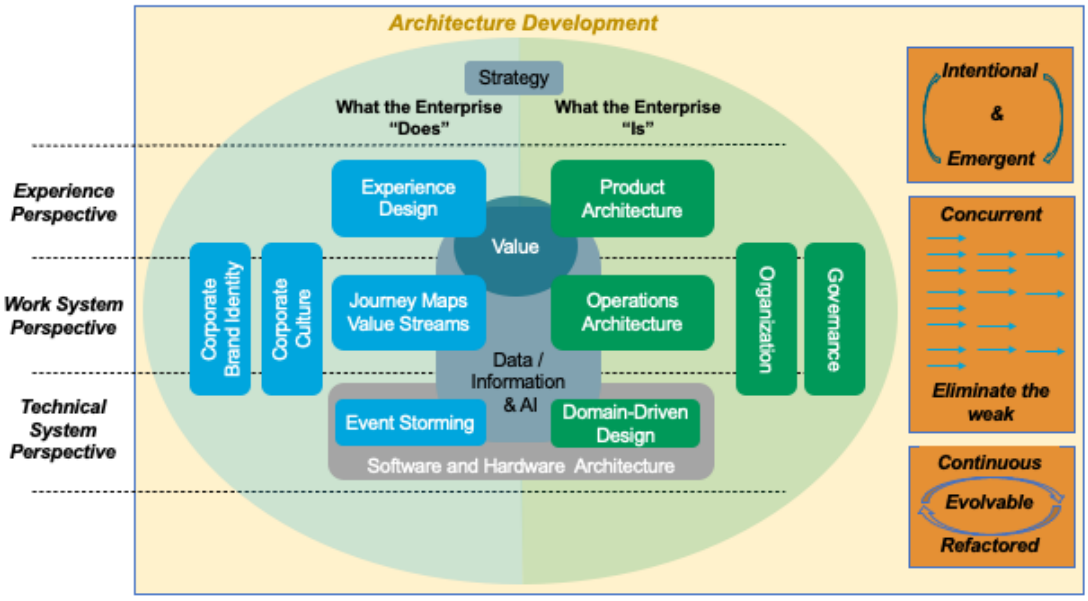

Figure 3: O-AA Building Blocks

The interdependency inherent within the O-AA building blocks should thus be managed in an agile manner to enable incremental delivery of the respective digital capabilities for a sustainable digital journey and Value Creation.

Following is a summary description of the respective O-AA perspectives to be considered when developing the Digital Architecture for the digital business:

- The Experience Perspective

  Defines value from a client perspective. It analyzes a client's job-to-be done; their pain points and gains. It also covers the emotional dimension of the experience, starting from an outside-in view that places customer needs and problems at the center. Design thinking and market research are incorporated into the broader agile architecting discipline.

- The Work System Perspective

  Defines the ability of the enterprise to deliver client benefits efficiently. It starts with analyzing commonalities across value streams; this helps to identify activities that could be shared, thus contributing to architecting the Operating Model.

- The Technical System Perspective

  Covers the software and hardware capabilities of the enterprise. It starts from analyzing domains such as payments, mortgage lending, or federated identity management and also includes architecting the physical world. The Software Architecture discipline is part of the broader agile architecting discipline.

5.3 O-AA Development Building Blocks for Digital Architecture

The following elements are essential to enable the extension of the DBRM core elements and should be considered to address the specific requirement for Digital Architecture development:

- Value Creation

  Digital Value Creation through digital stack to create additional business value within the primary value chain of enterprises to enable Customer Experience. Value definition for the organization must consider the Customer Focus elements – Digital Context/Needs, Customer Experience expectations, and the inherent Digital Value.

- Agile Strategy

  Sustainable differentiation-based appropriate strategic positioning with the digital ecosystem. Agile Strategy should deploy within the agile organization, which also influences strategy in a bottom-up manner to build the Digital Enterprise. Agile Strategy influences the definition of the enterprise's top-level organization. The respective Ecosystem and Business Model, Operating Model, and Business Capability Model should then be geared towards enabling an agile organization underpinned by the appropriate Digital Architecture building blocks to create sustainable value for the customers.

- Experience Design

  Combines customer research and product discovery during a set of design thinking iterations. This is not a linear process; it alternates between divergent and convergent thinking and is achieved through the development of journey maps. Journey maps bridge outside-in thinking with inside-out thinking by defining which activities deliver the

experience customers expect. Experience Design discovers the products that meet the needs of client segments. Organizations should consider Experience Design when defining their Product Architecture. The Product Architecture will have an impact on the underlying Business Operating Environment and the respective Digital Enablement elements.

- Product Architecture

  The assignment of the functional elements of a product to its building blocks or product components (Source: Ulrich et al 2020). The Product Architecture specifies what the Operations Architecture must do particularly well; i.e., what is required. The Product Architecture may require new operational capabilities that the Operations Architecture should deliver. The Product Architecture is developed concurrently with the Software and Hardware Architecture (Technology Architecture). The development of the Product Architecture must take into consideration core Business Services and Products, the respective Technology Architecture, and the Digital Enablement element. It would have an impact in the resulting experience, and the Digital Value realized by the target customers and digital product consumers.

- Operations Architecture

  Operations Architecture improves the value streams and processes that deliver products and designs the target Operating Model. The Operations Architecture is developed concurrently with the Software Architecture, and incorporates software functionalities. The Operations Architecture starts with an outward view that specifies the operational capabilities that products need. The analysis of operational capabilities is conducted for each targeted customer segment and is prioritized around cost, lead time, quality, flexibility, and agility. The Operations Architecture is about improving or redesigning enterprise operations to better meet client needs in alignment with the enterprise strategy. The main levers used by the Operations Architecture are value stream mapping, automation, and employee development and sourcing. Organizations should thus use the Operating Model, Business Capability Model, and Business Operating Environment when developing their respective Operations Architecture.

- Data/Information and Analytics

  Data becomes information when it is interpreted, when it has meaning. Data can be interpreted by humans or algorithms. AI transforms data into predictions, prescriptions, and automation capabilities. Effective data services and maturing data management capabilities for digitalization should thus be considered when addressing the Digital Enablement element.

- Technology Architecture

  Software and hardware include computer programs, tools, machines, wiring, and other physical components of a system. Software and hardware have become an increasing part of products and their supporting operations in the Digital Enterprise. Software Architecture, Product Architecture, and Operations Architecture must be developed in a concurrent manner to enable effective Digital Architecture. The convergence of Technology Architecture components, Business Operating Environment, and Digital Enablement are very important for the realization of the Digital Enterprise. Digital Architecture is the backbone of the sustainable Digital Enterprise – based on an appropriate Digital Products and Services delivery model, Digital Operations, and Digital Competencies elements. The organization that seeks to implement an appropriate

Technology Architecture to enable the implementation f appropriate Digital Architecture must ensure that the Technology Architecture is informed by the understanding of the envisaged Digital Enterprise in response to the respective target customers.

Table 2 depicts the relationship between the DBRM elements and the respective Digital Architecture viewpoints.

Table 2: DBRM/Digital Architecture Viewpoints

DBRM Domain	DBRM Element	Digital Architecture Viewpoint
Digital Domain	Customer Focus	Experience Design
	Digital Enterprise	Product Architecture Operations Architecture
Strategy Domain	Strategic Context	Agile Strategy Value Creation
	Business Motivation	
	Business Services and Products	Product Architecture Operations Architecture
Structural Domain	Ecosystem and Business Model	
	Operating Model	
	Business Capability Model	
Operational Domain	Business Operating Environment	Operations Architecture Journey Maps and Value Streams
	Digital Enablement	Software and Hardware Architecture (Technology Architecture)

6 TOGAF Standard Adoption

6.1 Introduction

The adaptation and application of the TOGAF Architecture Development Method (ADM) process to deal with many different usage scenarios, including different process styles like iteration and Agile Architecture development, is essential to enable continued relevance and value of the TOGAF Standard.

This chapter outlines the relationship between the DBRM elements and the TOGAF ADM phases, the metamodel, and a summary.

6.2 TOGAF ADM Phases

The TOGAF ADM lifecycle element of the DBRM is intended to enable incorporation and adaptation of the ADM method and the TOGAF Standard-related elements when an organization is adopting and implementing the DBRM.

Figure 4 depicts the TOGAF Content Framework in line with the ADM phases.

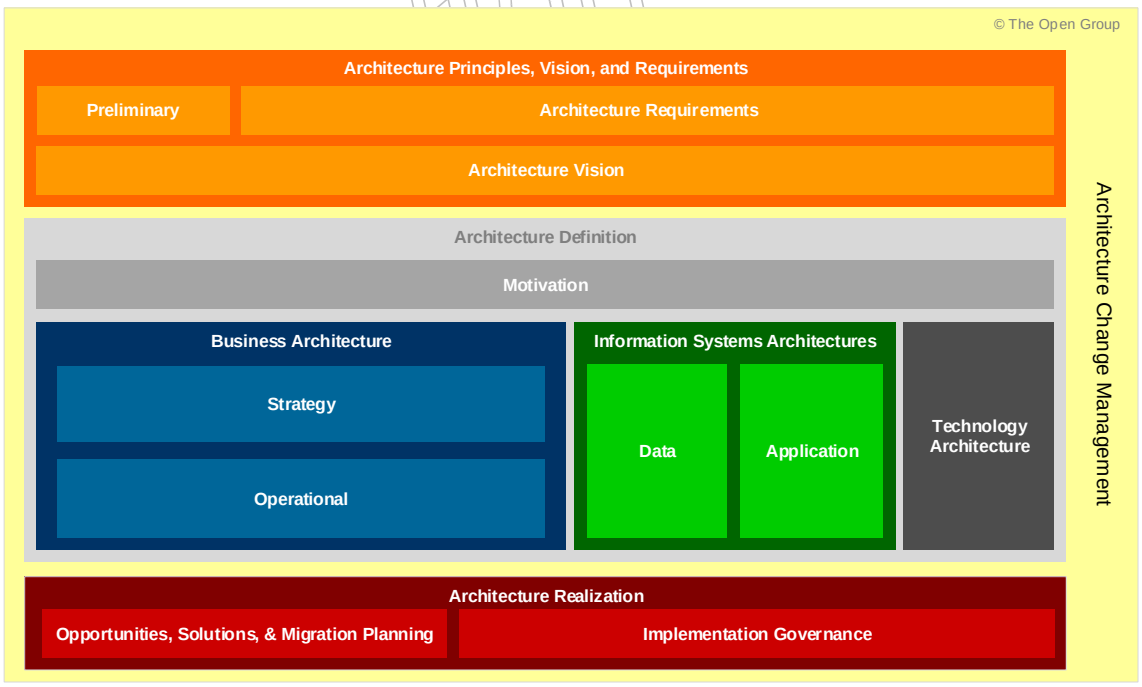

Figure 4: The TOGAF Content Framework by ADM Phase

Following is a summary description of the respective components of the TOGAF Content Framework that should be considered when adapting the ADM processes to enable the adoption and the implementation of the DBRM:

- Architecture Principles, Vision, Motivation, and Requirements models are intended to capture the surrounding context of formal architecture models, including general Architecture Principles, Strategic Context that forms input for architecture modeling, and requirements generated from the architecture

  The relevant aspects of the business context that have given rise to the Request for Architecture Work are typically investigated, refined, validated, and recorded in the Preliminary and Architecture Vision phases.

- The Business Architecture captures architecture models of the business, looking specifically at factors that motivate the enterprise, its structure, and its capabilities

- Information Systems Architecture models capture architecture models of IT systems, looking at applications and data in line with the TOGAF ADM phases

- Technology Architecture models capture technology assets that are used to implement and realize information system solutions

- Architecture Realization/Transformation models capture change roadmaps showing transition between architecture states and binding statements that are used to steer and govern an implementation of the architecture

- Architecture Change Management models capture value realization management events, internal and external, that impact the Enterprise Architecture and the generation of requirements for action

The following is a summary of the ADM phases:

- The Preliminary Phase describes the preparation and initiation activities required to create an Architecture Capability including customization of the TOGAF framework and definition of Architecture Principles

- Phase A: Architecture Vision describes the initial phase of an architecture development cycle; it includes information about defining the scope of the architecture development initiative, identifying the stakeholders, creating the Architecture Vision, and obtaining approval to proceed with the architecture development

- Phase B: Business Architecture describes the development of a Business Architecture to support the agreed Architecture Vision

- Phase C: Information Systems Architectures describes the development of Information Systems Architectures to support the agreed Architecture Vision

- Phase D: Technology Architecture describes the development of the Technology Architecture to support the agreed Architecture Vision

- Phase E: Opportunities & Solutions conducts initial implementation planning and the identification of delivery vehicles for the architecture defined in the previous phases

- Phase F: Migration Planning addresses how to move from the Baseline to the Target Architectures by finalizing a detailed Implementation and Migration Plan

- Phase G: Implementation Governance provides an architectural oversight of the implementation
- Phase H: Architecture Change Management establishes procedures for managing change to the new architecture
- Requirements Management operates the process of managing architecture requirements throughout the ADM

Table 3 outlines the relationship between the DBRM elements, TOGAF ADM phases, and the TOGAF Content Framework elements.

Table 3: DBRM/TOGAF Metamodel Relationship

TOGAF ADM Phase	Content Category	TOGAF Content Framework	DBRM Domain	DBRM Element
Preliminary Phase	Architecture Principles, Vision, Motivation, and Requirements	Preliminary	Strategy	Strategic Context
Phase A: Architecture Vision		Architecture Requirements		
		Architecture Vision	Structural	Ecosystem and Business Model
Phase B: Business Architecture	Architecture Definition	Motivation	Structural	Ecosystem and Business Model
			Strategy	Business Motivation
		Business Architecture		Business Services and Products
			Structural	Operating Model
				Business Capability Model
Phase C: Information Systems Architectures		Information Systems Architecture	Operational	Business Operating Environment
Phase D: Technology Architecture		Technology Architecture		
Phase E: Opportunities & Solutions	Architecture Realization	Opportunities &, Solutions, Migration Planning		Digital Enablement

TOGAF ADM Phase	Content Category	TOGAF Content Framework	DBRM Domain	DBRM Element
		Implementation Governance		

6.3 Architecture Domains

- Business Architecture defines the business strategy, governance, organization, and key business processes
- Data Architecture describes the structure of an organization's logical and physical data assets and data management resources
- 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 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; this includes digital services, IoT, social media infrastructure, cloud services, IT infrastructure, middleware, networks, communications, processing, standards, etc.

Table 4 outlines the relationship between the TOGAF Enterprise Architecture domains, the DBRM elements and their respective DBRM domains.

Table 4: DBRM/TOGAF Architecture Domains

Architecture Domain	Domain Element Enterprise Metamodel Entity	DBRM Sub-Element	DBRM Element	DBRM Domain
Business Architecture	Value Streams	Strategic Principles and Business Model Business Ecosystem Model	Ecosystem and Business Model	Structural
		Strategic Posture and Value Disciplines Service Model	Operating Model	
		Digital Context/Needs Customer Experience Digital Value	Customer Focus	Digital
		Service Experience and Customer Journey Maps	Business Operating Environment	Operational

Architecture Domain	Domain Element Enterprise Metamodel Entity	DBRM Sub-Element	DBRM Element	DBRM Domain
		Value Chain Model and Value Streams		
	Business Capabilities	Customer-Facing and Marketing-Focused Capabilities Service Delivery Enabling Capabilities Operations Management Capabilities Shared & Support Capabilities	Business Capability Model	Structural
	Course of Action	Digital Principles and Strategy	Digital Enablement	Operational
		Agile Digital Delivery Model		
	Business Information, Service Qualities, Contracts, Business Services	Business Information Map	Business Operating Environment	Operational
		Digital Products and Service Portfolio/Model	Digital Enterprise	Digital
	Products, Processes, Events, Controls	Primary Business Services Core Business Products Value-Add Services	Business Services and Products	Strategy
		Business Process Map	Business Operating Environment	Operational
		Policy and Risk Management Framework	Ecosystem and Business Model	Structural
		Digital Operations	Digital Enterprise	Digital
		Digital Governance	Digital Enablement	Operational

Architecture Domain	Domain Element Enterprise Metamodel Entity	DBRM Sub-Element	DBRM Element	DBRM Domain
	Functions, Organization Unit	Organizational Model	Operating Model	Structural
		Actors, Roles, and Organization Structure	Business Operating Environment	Operational
		Organization Culture and Behavior	Ecosystem and Business Model	Structural
		Agile Digital Delivery Model	Digital Enablement	Operational
	Actors, Roles	Digital Competencies	Digital Enterprise	Digital
		Resource Model	Operating Model	Structural
Data Architecture	Data Entities	Business Systems and Data Models	Business Operating Environment	Operational
	Logical Data Entities			
	Physical Data Components			
Application Architecture	Application Services	Business Systems and Data Models	Business Operating Environment	
	Logical Application Components	Digital Platforms	Digital Enablement	
	Physical Application Components			
Technology Architecture	Technology Services			
	Logical Technology Components			
	Physical Technology Components			

6.4 Summary Classification Model

In a typical enterprise, many architectures will be described in the Architecture Landscape at any point in time. Some architectures will address very specific needs; others will be more general. Some will address detail; some will provide a big picture.

The Architecture Landscape holds architectural views of the state of the enterprise at particular points in time.

Figure 5 depicts the TOGAF summary of the classification model for the Architecture Landscape to enable appropriate granularity for the definition of the Architecture Landscape.

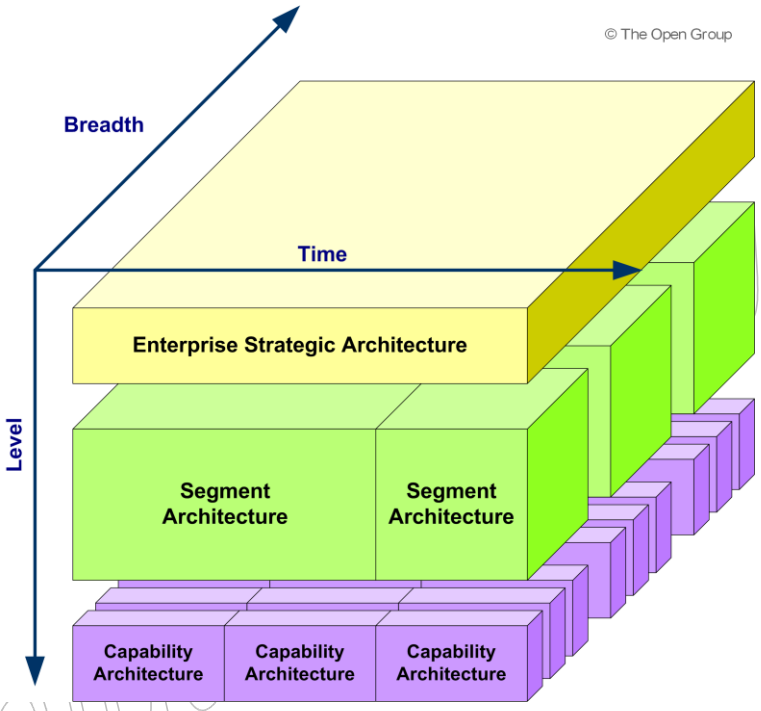

Figure 5: TOGAF Summary of the Classification Model for the Architecture Landscape

The Architecture Landscape is divided into three levels of granularity, as follows:

- The Strategic Architecture provides an organizing framework for operational and change activity and allows for direction-setting at an executive level; it shows a long-term summary view of the entire enterprise
- The Segment Architecture provides an organizing framework for operational and change activity and allows for direction-setting and the development of effective architecture roadmaps at a program or portfolio level; it provides more detailed Operating Models for areas within an enterprise
- The Capability Architecture provides an organizing framework for change activity and the development of effective architecture roadmaps realizing capability increments; it shows in a more detailed fashion how the enterprise can support a particular unit of capability

Table 5 outlines the relationship between the TOGAF summary classification model and DBRM elements.

Table 5: DBRM/TOGAF Summary Classification Model

Classification Summary Level	DBRM Element	DBRM Domain
Strategic Architecture	Customer Focus	Digital
	Strategic Context	Strategic
	Business Motivation	
	Ecosystem and Business Model	Structural
Segment Architecture	Business Services and Products	Strategic
	Operating Model	Structural
	Business Capability Model	
	Digital Enterprise	Digital
Capability Architecture	Business Operating Environment	Operational
	Digital Enablement	

Acronyms & Abbreviations

ADM	Architecture Development Method
AI	Artificial Intelligence
CAS	Complex Adaptive Systems
DBRM	Digital Business Reference Model
IoT	Internet of Things
ITSM	IT Service Management
ML	Machine Learning

Index