



Module 01/16

TOGAF® EA Training - Foundation

TOGAF® Standard, 10th Edition

Module 01

Overview

TOGAF® is a registered trademark of The Open Group Copyright © The Open Group 2022

1/40

©2022 Materials - sole property of Mundo Cognito Ltd – may not be copied or reproduced without written permission

Course Module Index



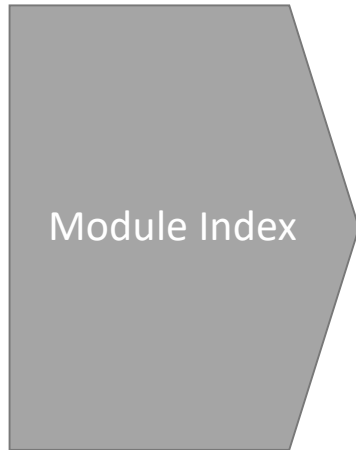
Course
Module
Index

#	Topic – Level 1	
1	Module 00 - Course Introduction	✓
2	Module 01 - Overview	
3	Module 02 - Concepts	
4	Module 03 - Introduction to the ADM	
5	Module 04 - Introduction to the ADM - Techniques	
6	Module 05 – Applying ADM	
7	Module 06 - Architecture Governance	
8	Module 07 – Architecture Content	
#	Topic – Level 2	
9	Module 00 - Course Introduction	
10	Module 08 - The Context for Enterprise Architecture	
11	Module 09 – Stakeholder Management	
12	Module 10 – Phase A	
13	Module 11 – Architecture Development	
14	Module 12 – Implementing the Architecture	
15	Module 13 – Architecture Change Management	
16	Module 14 – Requirements Management	
17	Module 15 – Supporting the ADM Work	
18	Module 16 – Closure	

2/40

©2022 Materials - sole property of Mundo Cognito Ltd – may not be copied or reproduced without written permission

Module Index



#	Topic	Slide No.
1	Course Module Index	2
2	Module index	3
3	Where did EA come from?	4
4	Why Enterprise Architect?	6
5	Where did TOGAF® come from?	9
6	TOGAF®'s Genealogy	12
7	TOGAF® Training	13
8	TOGAF® Foundation Training	14
9	What is an Enterprise?	15
10	What is an Architecture?	18
11	Purpose of Enterprise Architecture	19
12	Enabling Enterprise Agility	23
13	Benefits of having an Enterprise Architecture	24
14	TOGAF® as a Framework	26
15	Enterprise Agility	27
16	Architecture Domains	29
17	Architecture Abstraction	31
18	Enterprise Continuum	32
19	Architecture Repository	34
20	The TOGAF® Content Framework	36
21	The Enterprise Metamodel	37
22	Summary of Module 01	39

Where did EA come from? – 01/02



'Formal' EA can be traced from:

- 1967 - John Zachman article
- 1969 - Sal Catalano & Dewey Walker - need for two phases:
 - Customization
 - A two week survey to find Asset Management issues
 - Is there access to enterprise-wide, coherent data to support enterprise-wide decision making?
 - Definition
 - This was not defined



John Zachman

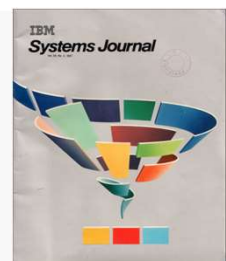
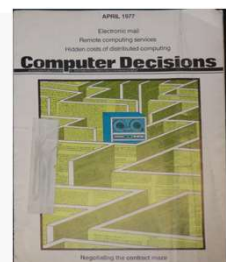
Companies need

- A plan
- A long-term strategy to support the rapid growth of technology

Modern EA

- Extends this thinking to the entire business
- Ensuring business is aligned with digital

EA focuses on bringing legacy processes and applications together to form an integrated environment.

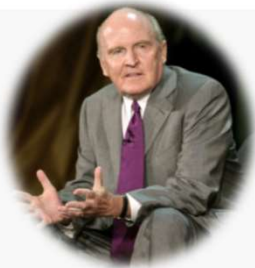


Where did EA come from? – 02/02



Boundaryless Information Flow™

From a notion articulated by John Francis Welch Jr. (November 19, 1935 – March 1, 2020), Chairman and CEO of General Electric, 1981-2001



... an organization behavior

- Boundaryless
- Defined as one which
 - o Removed the barriers between traditional functions
 - o Supported finding great ideas
 - o Was anywhere within the organization
 - o Or from outside the organization
 - o Shared with everyone within the company

"Jack Welch's approach to breaking down silos still works ..."
- 2015 - Harvard Business

5/40

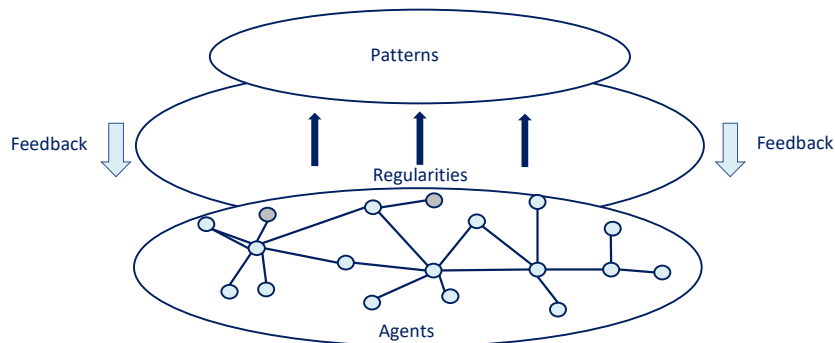
©2022 Materials - sole property of Mundo Cognito Ltd – may not be copied or reproduced without written permission

Why Enterprise Architecture? – 01/04



The universe is full of systems, weather systems, immune systems, social systems, tax systems etc. . . . these systems are complex, and constantly adapting to their environment.

Interactions between individual entities at the lower level create patterns observable at the higher level which, in turn, impact on the interactions between individual entities.



A complex adaptive systems does not have to be perfect in order to thrive. It only has to be slightly better than its competitors. Any energy used on being better than that is wasted energy. Once it has reached the state of being good enough it will, every time, trade off increased efficiency, in favour of greater effectiveness.

Complex Adaptive Systems and Complexity Theory, Peter Fryer

6/40

©2022 Materials - sole property of Mundo Cognito Ltd – may not be copied or reproduced without written permission

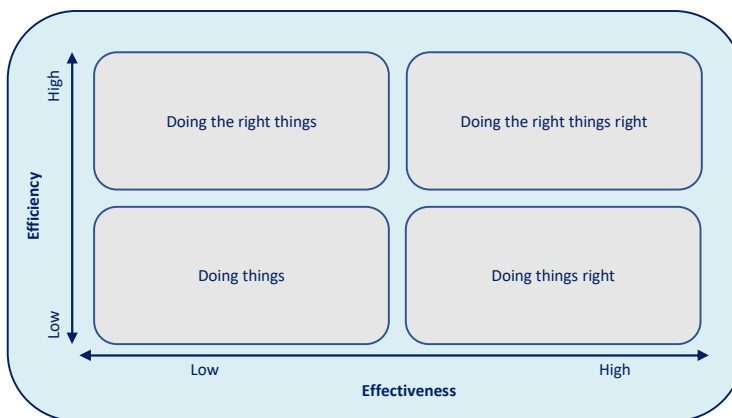
Why Enterprise Architecture? – 02/04



- Max output for min input
- Considers the present state
- Consistent method
- Focus on process



Image courtesy of Oriental Outpost-<https://www.orientaloutpost.com>



- Compare measured vs. desired output
- Considers the long term
- Innovative ways of working
- Focuses on result

Why Enterprise Architecture? – 03/04



Why enterprise architecture?



Situations constantly arise that require a response



The decision-making should be as agile as possible



The business has an asset that supports decision making



An Enterprise Architecture is a properly indexed repository of business knowledge



Enterprise Architecture supports analysis and development of decision options



The Enterprise Architecture repository provides a framework which can capture the quantitative outcomes of decisions

Where did TOGAF® come from – 01/04



Committee of Sponsoring Organizations (COSO) 1985

sponsored the National Commission on Fraudulent Financial Reporting (the Treadway Commission). 1992, September, released the *Internal Control— Integrated Framework* report

- Re-published with minor amendments in 1994
 - A common definition of internal control
 - A framework against which internal control systems may be assessed and improved.

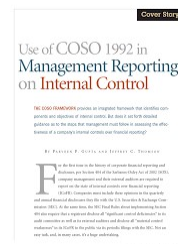


Image source: <http://researchgate.net/>

The Clinger–Cohen Act (CCA) 1996 [cf. The Open Group foundation date]

United States information technology (IT)

- Focusing on information resource planning
- Implementing a capital planning and investment control
- Rethinking and restructuring the way they do their work before investing



Clinger-Cohen Act (CCA) Compliance Certification
of Major Automated Information Systems for
Fiscal Year (FY)04 and 05

24 June 2004
Willsie Mose
OASD(MIS)
Willsie.mose@osd.mil
j7591802-2989 ext 105

Images source: slideplayer.com

Where did TOGAF® come from – 02/04



Pressure in 1980s from Government – IT industry to control diversity

X/Open Company, Ltd. 1984-1996

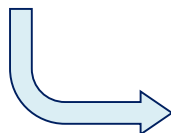
European UNIX systems manufacturers consortium

Groupe Bull, ICL, Siemens, Olivetti, Nixdorf Computer, Philips, Ericsson

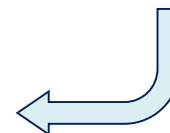
Open Software Foundation (OSF) 1988-1996

not-for-profit organization founded under the U.S. National Cooperative Research Act, 1984

Apollo Computer, Groupe Bull, Digital Equipment Corporation, Hewlett-Packard, IBM, Nixdorf Computer, and Siemens AG, Philips, Hitachi



The **Open Group LLC** was incorporated in 1996 as the parent of X/Open Company Limited (now The Open Group Limited) and OSF



Where did TOGAF® come from – 03/04



“a global consortium that enables the achievement of business through technology standards”

Vision:

Boundaryless Information Flow™

- Open standard components that provide services in a customer's extended enterprise that:
 - Combine multiple sources of information
 - Securely deliver the information whenever and wherever it is needed, in the right context for the people or systems using that information.

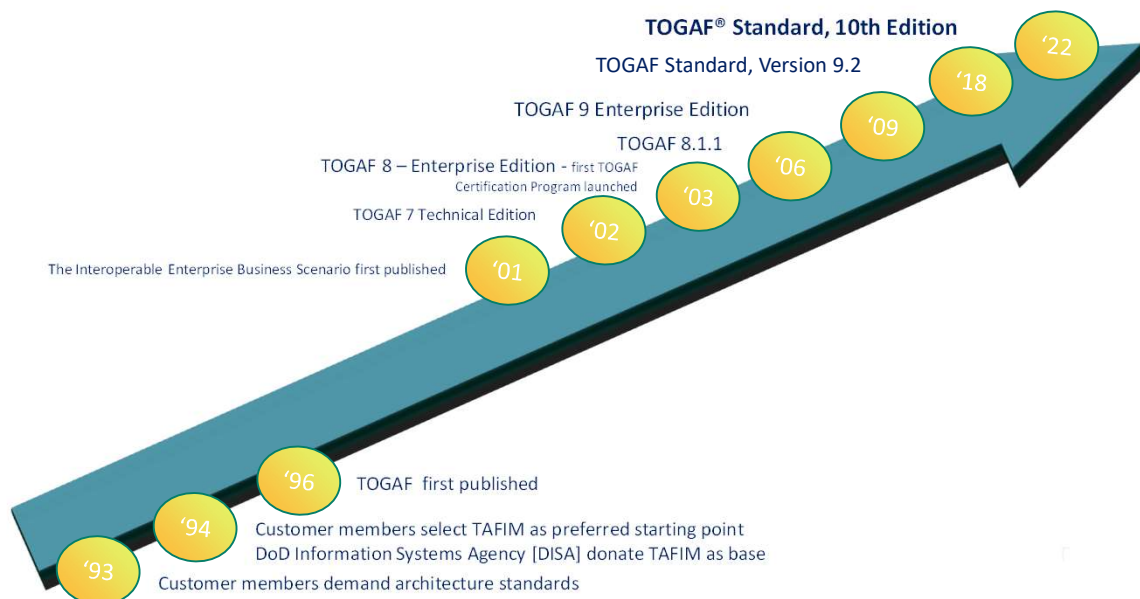


Boundaryless Information Flow is a trademark and UNIX and The Open Group are registered trademarks of The Open Group

11/40

©2022 Materials - sole property of Mundo Cognito Ltd – may not be copied or reproduced without written permission

Where did TOGAF® come from – 04/04



12/40

©2022 Materials - sole property of Mundo Cognito Ltd – may not be copied or reproduced without written permission

TOGAF® Training – 01/02



Level	Tag	Purpose
1	TOGAF Foundation	To provide validation that the candidate has gained knowledge of the TOGAF terminology, structure and basic concepts, and understands the core principles of Enterprise Architecture and the TOGAF standard [40 multiple choice questions, select 1 response, 60 minutes, closed book]
2	TOGAF Practitioner	To provide validation that in addition to knowledge and comprehension, the candidate is able to analyze and apply knowledge of the TOGAF standard [8 complex scenario questions, gradient scoring (0,1,3,5), 90 minutes, open book]

Exam pass needs ≥ 60% in each, resit only failed Tag after 1 month

TOGAF® Training – 02/02



The target audience for TOGAF Foundation (Level 1) training includes but is not limited to:

- ✓ Individuals who require a basic understanding of the *TOGAF Standard, 10th Edition*
- ✓ Professionals who are working in roles associated with an architecture project, such as those responsible for planning, execution, development, delivery and operation
- ✓ Architects who are looking for a first introduction to the *TOGAF Standard, 10th Edition*
- ✓ Architects who want to achieve Level 2 certification in a stepwise approach.

What is an Enterprise ? - 01/03



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

For example, an enterprise could be:

- 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 partnerships

What is an Enterprise ? - 02/03



1

Can be applied to an entire enterprise, encompassing all of its:

- Business activities
- Capabilities
- Information
- Technology



2

Could include

- Partners
- Suppliers
- Customers
- Internal business units
- Regulators

What is an Enterprise ? - 03/03



The Enterprise operating model concept is useful to determine the nature and scope of the Enterprise Architecture within an organization



Many organizations may comprise multiple enterprises



These enterprises often have much in common with each other

What is an Architecture ?

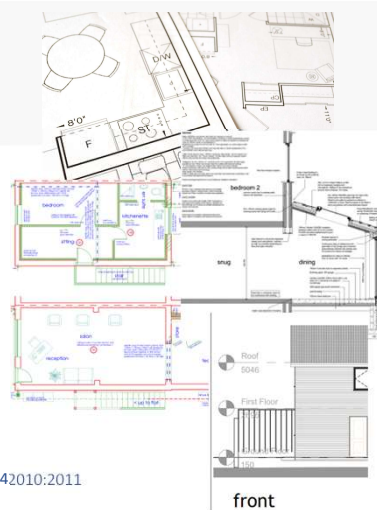


An Architecture is the fundamental concepts or properties of a system in its environment, embodied in:

its elements

their relationships to each other and the environment

and the principles governing its design and evolution



Adapted from ISO/IEC/IEEE 42010:2011

Purpose of Enterprise Architecture – 01/03



To optimize the utilization of resources across the enterprise

The effective management and exploitation of information and digital transformation are key factors to business success, and are indispensable means to achieving competitive advantage

A good Enterprise Architecture enables you to achieve the right balance between business transformation and continuous operational efficiency

Enterprise Architecture supports the needs of the organization to be met with an integrated strategy*

*Formulation of the strategy is one of the major responsibilities of the Board of Directors. We will consider this when we look at Governance in general.

Purpose of Enterprise Architecture – 02/03



Most global privacy legislation demands that processes around personal data are fully documented



The creation of this basic documentation arises from the changed fundamental considerations and this is now crucial

Note:

Most of the legislation mandates the creation of the Privacy Impact Assessment for **every** process – the only tenable basis for this is a properly articulated and documented Enterprise Architecture.

Purpose of Enterprise Architecture – 03/03



Elsewhere, these same 'purpose thoughts' are expressed from a slightly different viewpoint:

Pretty much all enterprises seek to 'improve'

Guidance on effective change will take place during the activity to realize the approved EA

The scope of the improvement drives everything that is done

EA must describe the future state and the current state

The gap between the current state and future state highlights what must change

The above blocks highlight the conceptual scope of EA

- This scope often leads to the assumption that EA is only used to answer the big questions
- The scope of the system varies
- All of the concepts remain the same

Why Enterprise Architecture is needed ?



Why Enterprise Architecture is needed ?

The Open Group's explanation for why Enterprise Architecture is needed:

- ✓ Effective management and exploitation of information through IT is key to business success
- ✓ Good information management = competitive advantage
- ✓ Current IT systems do not really meet the needs of business
- ✓ Investment in Information Technology

Enabling Enterprise Agility



The TOGAF Standard recognizes the need to recursively break down the Enterprise Architecture to more granular levels -

enabling a cross-cutting view across the TOGAF domains:

- A description of the elements within an organization
- A framework (structure, approach and process) for managing change
- The practice of acting to manage and evolve the Enterprise Architecture

This provides a structured framework helping to assure the context and the value-add of Agile implementation.

Benefits of having an Enterprise Architecture – 01/02



There are many benefits to having a properly organised understanding of a business:

- **More effective strategic decision-making by C-Level executives/business leaders:**
 - Quick response to change, support for enterprise agility aligned with organization strategy
 - Organizational transformation, adopting new trends in business and technology
 - Organizational change to support Digital Transformation
 - Organizational and operating model changes to improve efficiency and effectiveness
- **More effective and efficient business operations:**
 - Lower business operation costs
 - More agile organization
 - Business capabilities shared across the organization
 - Lower change management costs
 - More flexible work force
 - Improved business productivity
 - Improved organization integration in support of mergers and acquisitions
- **More effective and efficient Digital Transformation and operations:**
 - Extending effective reach of the enterprise (e.g., through digital capability)
 - Bringing all components of the enterprise into a harmonized environment
 - Lower development, deployment, operations, support, maintenance costs
 - Improved interoperability
 - Improved system management
 - Improved ability to address critical enterprise-wide issues
 - Easier upgrade and exchange of system components
- **Better return on existing investment, reduced risk for future investment:**
 - Reduced complexity in the business and IT
 - Maximized return on investment in existing business and IT
 - The flexibility to make, buy, or outsource business and IT solutions
 - Understanding how return on investment changes over time
- **Faster, simpler, and cheaper procurement:**
 - Buying decisions are simpler, because the information governing procurement is readily available in a coherent plan
 - The procurement process is faster – maximizing procurement speed and flexibility without sacrificing architectural coherence
 - The ability to procure heterogeneous, multi-vendor open systems
 - The ability to secure more economic capabilities

Benefits of having an Enterprise Architecture – 01/02



There is no single correct scope, level of detail, or purpose for an Enterprise Architecture.

Different enterprises will expect their EA to guide change at different levels within the enterprise.

There are two main challenges:

1. recognizing that the range, scope, and scale of an
2. the ability to develop, use, and sustain the required EA

The skill/role of an architect is to navigate these dimensions of Architecture.

The purpose of EA:
is to optimize the enterprises realization of a business strategy –

- all optimization requires all components to work together
- optimization is to the Enterprise strategy or mission
- helps facilitate effective management and exploitation opportunities
- provides a strategic context for the evolution of the enterprise
- responds to the constantly changing needs of the business environment
- enables the whole enterprise achieve balance across conflicting demands
- forces that all the concerns and requirements will be considered
- supports any appropriate trade-off



TOGAF as a framework

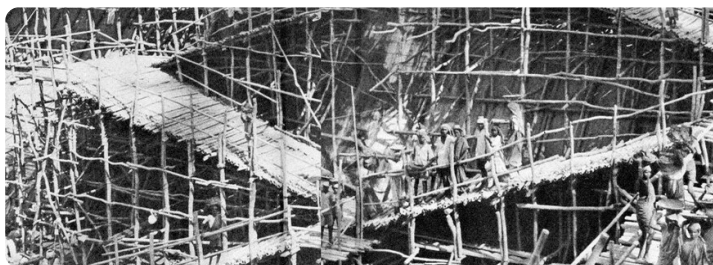


Using the TOGAF Standard results in Enterprise Architecture that is:

- Consistent
- Reflects the needs of stakeholders
- Employs best practice

Guidance provided by the standard is intended to be adapted to address different needs, including

- Agile enterprises
- Digital transformation

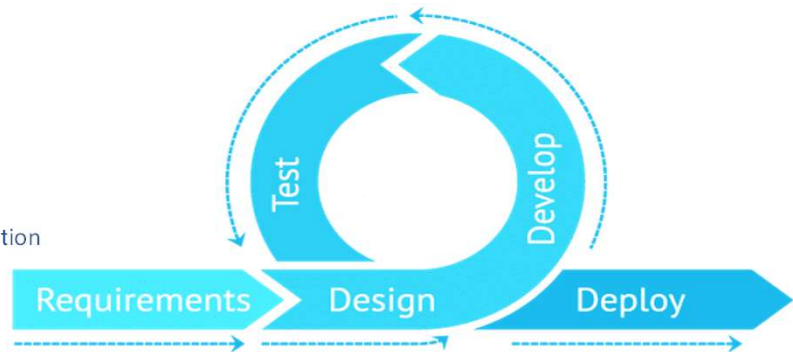


Enterprise Agility – 01/02



A commonly used term includes:

- Responsiveness to change
- Value-driven
- Practical experimentation
- Empowered, autonomous teams
- Customer communication and collaboration
- Continuous improvement
- Respect for people



Important because it enables an enterprise to react better, and Agile principles and techniques can be applied to adapt the TOGAF framework.

See e.g. Manifesto for Agile Software Development, agilemanifesto.org

Enabling Enterprise Agility : Page 9 : §1.2

27/40

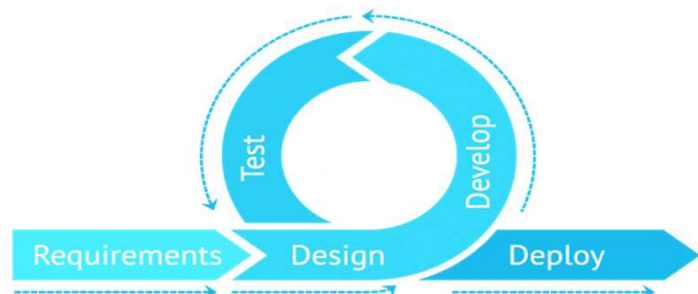
©2022 Materials - sole property of Mundo Cognito Ltd – may not be copied or reproduced without written permission

Enterprise Agility – 02/02



TOGAF® Standard, 10th Edition, 2022 gives context by:

- Describing the elements within an organization
- Being a framework for managing change
- Supports adapting to change that is aligned to strategy



- **Iterative development** is a useful tool to obtain early stakeholder feedback and results
- Dividing work into **sprints** does not only mean dividing work into small pieces, but also learning by doing in short cycles and adapting the work accordingly

Enabling Enterprise Agility : Page 10 : §1.3

28/40

©2022 Materials - sole property of Mundo Cognito Ltd – may not be copied or reproduced without written permission

Architecture Domains – 01/02



Business (Process) Architecture

- Business strategy
- Governance
- Organization
- Business processes

Data Architecture

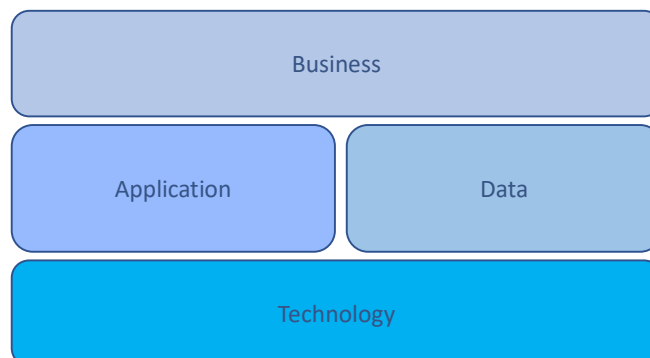
- Logical data assets
- Physical data assets
- Data management resources

Application Architecture

- Individual application systems
- Their interactions
- Relationship to core business processes

Technology Architecture

- The infrastructure intended to support deployment of applications



Note: These are NOT intended to be indicative of 'hard boundaries'. Such an approach is unhelpful. Instead, they are intended as an aid to visualization.

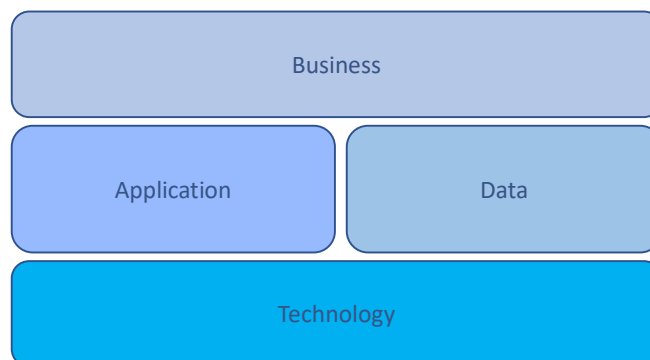
Architecture Domains – 02/02



There are many other domains that could be defined by combining appropriate/cross-cutting views of these domains.

For example:

- Information Architecture
- Risk and Security Architectures
- Digital Architecture
- Privacy Architecture



The TOGAF Framework both enables and expects the creation of these multi-dimensional views to consider the wider scope of the enterprise and capabilities.