Enterprise Architecture Modelling, Visualization and Analysis with ArchiMate and TOGAF

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What is Enterprise Architecture?

- **A process**
  - Way of working
  - Aimed at the development and use of enterprise architectures within an enterprise
  - With people and resources

- **A product**
  - A design that shows the coherence between products, processes, organisation, information supply and infrastructure, based on a vision and certain explicit starting points, principles and preferences
  - With the objective of *steering changes*
Ingredients of an EA Approach

TOGAF

Process

Viewpoints

Language

Enterprise Continuum, Repository, Reference Models

ArchiMate

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TOGAF and ArchiMate both use the architecture definition from Standard ISO/IEC 42010:2007:

An architecture describes:
- the fundamental organisation of a system, embodied in its components, their relationships to each other and the environment;
- and the principles governing its design and evolution.

Practically, an architecture is represented in architectural descriptions from the viewpoints corresponding to the concerns of the stakeholders.
Viewpoints and views (ISO/IEC 42010)
Views on a shared model
The TOGAF Components

ADM

Architecture Content Framework

Reference Models

ADM Guidelines & Techniques

Enterprise Continuum

Architecture Capability Framework

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The ADM and ArchiMate

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ADM Guidelines and ArchiMate

Applying iteration to the ADM

A hierarchy of ADM processes
ADM Guidelines and ArchiMate

ADM Guidelines & Techniques

TOGAF, ArchiMate and SOAs

Security architecture and the ADM
ADM Techniques and ArchiMate

ADM Guidelines & Techniques

Stakeholder management

Architecture patterns
ADM Techniques and ArchiMate

ADM Guidelines & Techniques

Business scenarios

Gap analysis
The ACF and ArchiMate

Architecture Content Framework

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Deliverables and artifacts
Content Metamodel and ArchiMate

Business Application
Node
Device
Infrastructure Service
Application Component
Data Object
Business Object
Application Service
Artifact
Function
Business Service
Business Process
Business Function
Value
Business Actor
Business Role
Organization
Architecture Realization
Opportunities, Solutions, and Migration Planning
Capabilities
Work Packages
Architecture Contracts
Implementation Governance
Standards
Guidelines
Specifications

Architecture Principles, Vision, and Requirements
Architecture Principles
Business Strategy
Technology Strategy
Architecture Principles, Objectives, and Drivers
Architecture Vision
Stakeholders

Architecture Requirements
Requirements Constraints Assumptions Gaps

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The ACF provides a global structure for architecture building blocks: it identifies the concepts needed in the different ADM phases.

ArchiMate provides a well-defined language, including graphical notation, covering the core of the ACF.

With ArchiMate, relations between different architectural domains can also be modelled.

ArchiMate models form a basis for views, visualizations, and analysis.

Some concepts from the ACF are still missing in ArchiMate → potential future extensions of the language.
The Enterprise Continuum and ArchiMate
Architecture Continuum and ArchiMate

Foundation Architectures

Common Systems Architectures

Industry Architectures

Organization Architectures
TOGAF Reference Models and ArchiMate

Reference Models

Infrastructures

Applications

Application platform services

System integration services

Data management services

Security services

Graphics services

User interface services

System & network mgmt services

Software mgmt services

Operating system services

Network services

Communication infrastructure interface

Communication infrastructure

Qualities
Case study: Models throughout the ADM
Case study introduction: ArchiSurance
ArchiSurance: a 3-company merger

ArchiSurance Home & Travel insurances

PRO-FIT Car insurances

LegallyYours Legal Aid insurances

The “new” ArchiSurance
Structure of the new company

Front-office

Home & Away back-office

Car back-office

Legal Aid back-office

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Main IT systems of ArchiSure
Proposed change

- Develop a single back-office system (for policy administration and financial handling) to be used by the three back-offices.
- This system will eventually replace:
  - The Policy administration system and Financial application of the Home & Away back-office
  - The Car insurance application of the Car back-office
  - The Legal aid back-office system
- The separate CRM system of Legal Aid will also disappear
Architecture principles

**Business principles**
- Primacy of principles
- Maximize benefit to the enterprise
- Information management is everybody's business
- Business continuity
- Common use of applications
- Compliance with law
- IT responsibility
- Protection of intellectual property

**Data principles**
- Data is an asset
- Data is shared
- Data is accessible
- Data trustee
- Common vocabulary and data definition
- Data security

**Technology principles**
- Requirements-based change
- Responsive change management
- Control technical diversity
- Interoperability

**Application principles**
- Technology independence
- Ease of use
Stakeholders, concerns and business goals

- CFO
  - Cost-effectiveness
    - Reusable IT services
- Service department
  - Flexibility
- User
  - Ease of use
    - Uniform user interface

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Architecture Vision
Baseline & target Business Architecture: Business Roles & Functions
Baseline & target Business Architecture: Business Processes

Damage Occurred
- Register
- Accept
- Valuate
- Pay

Request for Insurance
- Formalise Request
- Create Contract
- Check and Sign Contract

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Target application architecture

- Call center application
- Web portal
- ArchiSurance
  - Customer Relations Management system
  - ArchiSurance back-office system
    - Policy data mgt.
    - Claim data mgt.
    - Risk assessment
    - Premium collection
    - Claim payment
- Document management system

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Business-application alignment

(Fragment, for the target architecture)
Baseline technology architecture

Web portal

DMS application

CRM application

Call center application

Generic application server

Web server

Archisurance LAN

Home & Away policy admin.

Home & Away financial app.

Car insurance application

Legal aid backoffice application

Legal aid CRM application

Home & Away application server

Car application server

Legal aid application server

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Target technology architecture

- Web portal
- DMS application
- CRM application
- Call center application
- Generic application server
- ArchiSurance LAN
- ArchiSurance backoffice back-up server
- ArchiSurance backoffice application
- ArchiSurance backoffice server

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Gap analysis technology architecture

- Web portal
- DMS application
- CRM application
- Call center application
- Generic application server
- ArchiSurance backoffice back-up server
- ArchiSurance backoffice application
- Legal aid CRM application
- Car insurance application
- ArchiSurance backoffice server
- Car application server
- Home & Away application server
- Home & Away financial app.
- Home & Away policy admin.

Legend:
- Both in Baseline and Target application architecture
- Only in Baseline application architecture
- Only in Target application architecture
Application-technology alignment

(For the target architecture)
Transition architectures

Baseline Architecture

Transition Architecture A:
Single CRM system, multiple backoffice systems

Transition Architecture B:
Multiple CRM systems, single backoffice system

Target Architecture

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Transition architectures
Gap analysis TOGAF and ArchiMate

- Supported by ArchiMate:
  - Business architecture
  - Application architecture
  - Data architecture
  - Technology architecture
  - Transition architectures

- Possible extensions:
  - Architecture principles
  - Stakeholders, concerns and business goals
  - Projects and deliverables
  - Requirements
Summary: ArchiMate en TOGAF

- Share the same definition of (Enterprise) Architecture
- Viewpoints as a central concept
- Use of the service concept
- Both managed by The Open Group
- Complement each other
- Use of both is growing rapidly
- Gaps between ArchiMate and TOGAF will be closed
Conclusion: TOGAF OR NOT TO GAF…

… that shouldn’t be a question…

… together with ArchiMate…

A perfect match!