BiZZdesign

ArchiMate® 3.0
in Practice

Marc Lankhorst
BiZZdesign is a software company that supports organizations in designing and realizing business change.
About BiZZdesign

Global, Fast Growing Company
with a direct presence in more than 10 countries

1000+ Customers
on 6 continents
across all industries, long lasting relationships

Scientific DNA
founded in 2000 as a spin-off from an R&D institute
known for the ArchiMate® standard

Offering Software Solutions
to innovate, design, transform and manage your digital business

Passionate People
sharing knowledge, innovating, and over 80% with advanced degrees

Worldwide Partner Network
leading global consultancies, boutique consultancies and resellers
Leader in Gartner EA MQ 2016

Source: Gartner, Magic Quadrant for Enterprise Architecture Tools, 3 May 2016
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Managing consultant & chief evangelist at BiZZdesign
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Lead author of books “Enterprise Architecture at Work” and “Agile Service Development”
MSc & PhD in Computer Science, TOGAF® and ArchiMate® certified
Manager of the development of ArchiMate
Contents

• Introduction to ArchiMate
  • Positioning ArchiMate
  • Structure of the language
  • Highlights of version 3.0

• Practical use cases
  • Capability-Based Planning & Digital Transformation
  • the Internet of Things
  • Manufacturing

• Relations to other standards

• Q&A
Why One Language?

- Get away from the “fuzzy pictures” image
- Clear communication
- No ambiguity
- Coherence
- Consistency
- Visualization
- Analysis
Why Models?

• Models create **transparency**
  • Communicate clearly and unambiguously

• Models facilitate **alignment**
  • Coherence of strategy, architecture, design and realization

• Models inform **decision making**
  • Perform cost calculations, manage portfolios, assess risks
  • Analyze dependencies between systems, processes, projects
What Does ArchiMate Provide?

• A **language** with concepts to describe architectures
• A **framework** to organize these concepts
• A **graphical notation** for these concepts
• A vision on **visualizations** for different stakeholders
• An **open standard** maintained by The Open Group
• With **BiZZdesign** in the lead in developing the standard!
Positioning ArchiMate

Strategy models

Architecture models

Design/implementation models

Business Model Canvas
Balanced Score Card
SWOT analysis

ArchiMate models

BPMN models
UML models
DMN models
Archimate Industry Usage (N=199)

Poll on Archimate LinkedIn group, June 2015
Why a New Version of ArchiMate?

• Increasing demand for relating EA to business strategy
• Technology innovations that mix IT and physical world
• Usage in new domains, e.g. manufacturing, healthcare, retail
• Improved consistency and comprehensibility
• Improved alignment between Open Group standards, notably TOGAF
Structure of ArchiMate
Core Framework Aspects

Passive structure
- Object: Book
- ‘What’

Behavior
- Verb: Reads

Active structure
- Subject: John
- ‘Who’

‘How’
# Core Framework Layers

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<th>Layers</th>
<th>Passive structure</th>
<th>Behavior</th>
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<tr>
<td>Technology</td>
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Aspects

Archimate 1
Adding Motivation

- Layers
  - Business
  - Application
  - Technology

- Aspects
  - Passive structure
  - Behavior
  - Active structure

- Motivation
Adding Implementation & Migration

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<tr>
<td>Implementation &amp; Migration</td>
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New: Strategy Elements

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<tr>
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</tbody>
</table>

Aspects
New: Physical Elements

Layers
- Strategy
- Business
- Application
- Technology
- Physical
- Implementation & migration

Aspects
- Passive structure
- Behavior
- Active structure

Motivation

Archimate 3
Highlights of the New Version
New Strategy Elements

• Added concepts for modeling strategy, capability-based planning and related domains
• This supports the increased usage of EA in supporting strategy execution
• New concepts are in line with approaches like TOGAF, BizBOK, BMM
• Whitepaper on Capability-Based Planning with the ArchiMate language will be published later this year
New Physical Elements

• Extended the Technology Layer with elements for modeling the physical world
  • Manufacturing, logistics and other physical environments

• Closely integrated:
  • E.g. for computer-controlled machinery or the Internet of Things
Relationships to Relationships

- Policy Creation
- Policy Management
- Insurance Policy
- Front-end applications in place
- Travel website
- Call center application
Grouping

- A grouping now has an **aggregation** (or composition) relationship with its contents, making it much more useful.
- You can also draw relationships to and from a grouping.
Notation

Optional notation to denote the layer or aspect of an element:

Letter in top-left corner denotes **M**otivation, **S**trategy, **B**usiness, **A**pplication, **T**echnology, **P**hysical, or **I**mplementation & Migration element

In BiZZdesign Enterprise Studio, you can switch this on and off with one click
Example
Consistency

• Aligned definitions within the language
  • e.g. all the service elements now have similar definitions

• Renamed the elements in the Technology Layer from *infrastructure x* to *technology x*

• Process, interaction, collaboration and event elements at all layers
Example: Capability-Based Planning & Digital Transformation
Strategic Analysis ArchiSurance

• Insurance companies are in challenging circumstances
  • Ultra-low interest rates make it very difficult to fulfill financial obligations
  • Digital disruption threatens their business models and market share

• ArchiSurance needs:
  • More efficiency in current operations
  • New business model to counter digital competitors
Digital Transformation ArchiSurance

‘Digital Customer Intimacy’ strategy:

• Engage with clients more intimately via social media

• Use external data to influence insurance premium
  • B2C: data from smart devices such as fitness trackers, black boxes in vehicles, home automation gateways
  • B2B: such as fleet management, energy networks, in-store RFID devices, smart building sensors

And also increase efficiency of current operations
Relating Strategy & Capabilities to Target Architecture & Change Programs

• Traceability supports decision making
  • But don’t show it to management in this way!
Model of Strategic Analysis

Driver
- Customers defecting to digitally savvy competitors

Assessment
- Profitability
- Cheaper competitors taking market share
- Increase in revenue
- Increase in market share

Goal
- Higher customer retention
- Competitive premium setting
- Improved customer satisfaction

Outcome
Capability Map

• Structured overview of the capabilities of an organization

• Useful as a basis to highlight specific information, e.g.:
  • Strategic importance
  • Performance, cost, other KPIs
  • Related resources
  • Planning, evolution
ArchiSurance Capability Heat Map

Efficiency:
- Below average
- Average
- Above average
Different Color Maps

Strategic relevance

Goal contribution

Application support
Capability Analysis

**Digital Customer Intimacy**
- Sales & marketing - Capability growth
- Asset management - Capability growth
- Product management - Capability growth

**Operational Excellence**
- Governance, Risk and Compliance - Capability growth
- Claim management - Capability growth
Capability Analysis

Analysis and planning of capabilities using an ArchiMate model and various metrics.
Metrics

• Using the language customization mechanism, **Metric** is defined as a specialization of the Driver concept: a driver that can be measured

• Metrics are associated with architecture elements

• Metrics can be aggregated
Capabilities for New Strategy

Course of Action
- Improved customer satisfaction
- Digital customer intimacy strategy

Outcome
- Competitive premium setting

Capability
- Customer care
  - Digital customer management
  - Digital channel management

- Claim management
  - Data-driven insurance
    - Data acquisition
    - Data analysis
Positioning New Capabilities
Positioning New Capabilities
Functions Realize Capabilities

- Marketing
- Sales and Distribution
- Product management
- Customer care
- Sales
- Actuarial
- Customer Relations
- Money management
- Asset management
- Claim management
- Finance
- Investment Management
- Claims
- Underwriting
Functions vs. Capabilities

**Business Functions**
- Aligned with organization
- Often explicitly managed
- More focused on the present, the work of the enterprise
- May realize capabilities
- May occur multiple times
- Hierarchical, functional decomposition

**Capabilities**
- Independent from organization structure
- Not always recognized or managed explicitly
- Unit of strategic change, used for analysis and planning
- Each capability occurs only once for the enterprise
- Not a hierarchical breakdown
Capabilities and Resources

**Capability**
- Digital channel management

**Resource**
- Social media competency
- Social media apps
- Data acquisition
- Data sources
- Data analysis automation
- Data warehousing solution
- Business intelligence team

- Customer service team
- MyArchinsurance mobile app
- Smart connected devices
- Data analysis competency
Relating Assets to Outcomes

- Analysis of application landscape
- Metrics related to outcomes (cost, risk, ...)
- Traced across entire model
From Capabilities to Value Chains
From Capabilities to Value Chains
# From Capabilities to Value Chains

<table>
<thead>
<tr>
<th>Supporting capabilities</th>
<th>Primary capabilities</th>
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<tbody>
<tr>
<td>Data governance</td>
<td>Data acquisition</td>
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<tr>
<td>Commercial management</td>
<td>Data aggregation</td>
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<td>Data asset management</td>
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<td>Data description</td>
<td>Data delivery</td>
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<td>Data security</td>
<td>Service management</td>
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<tr>
<td>Resource management</td>
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</tbody>
</table>
Example: Internet of Things
Integration of Physical Concepts

• Physical concepts tightly integrated in the Technology Layer
  • Equipment can be part of a Node
  • Material can be part of Product
  • Technology Process, Function and Interaction for the joint behavior of physical and information technology

• This way, you can model combined physical & IT systems
  • Internet of Things
  • Industry 4.0
Data Usage ArchiSurance

Application process

Data processing

- Data aggregation
  - Real-time customer data
  - Data acquisition

- Data analysis

- Data reporting

Actuarial

Product development

Underwriting

Insurance premium calculation

Aggregate customer data

Customer profile data
Data from Smart Devices

Technology function

Data acquisition

Data generation

IoT device

Equipment

Node

Car black box
Fitness tracker
Home alarm system
Smart thermostat
Smart home
Energy network

Facility

Distribution network
Microservices Architecture for IoT
Example: Manufacturing
Modeling a Steel Plant

• Using the new concepts for the physical world
• A real-life use case from a BiZZdesign customer
• But simplified a bit for demonstration purposes
• Also for integration of physical and IT worlds: Industry 4.0
Steel-Making Process

Technology process

- Processing raw materials
- Steel making
- Casting
- Rolling
Steel-Making Process

Technology process

Processing raw materials → Steel making → Casting → Rolling

Cokes factory

Facility

Blast furnace → Steel plant → Hot strip mill
Steel-Making Process

Distribution network

Coal

Cokes factory

Cokes

Blast furnace

Liquid iron

Scrap

Oxygen

Sinter factory

Sinters

Pellet factory

Pellets

Rail transport

Conveyor belts

Iron ore

Processing raw materials

Steel making

Output
Steel-Making Process

Product

Contract

Products can now aggregate passive structure elements (business objects, data objects, material)
Steel-Making Process

Nodes can integrate both physical equipment and IT infrastructure (devices, system software)
Relations to Other Standards
The ArchiMate language covers the TOGAF ADM well.

But both standards remain independent and can be used separately.

Note: This is only an approximate mapping.
ArchiMate, UML, BPMN, BMM

• ArchiMate connects architectural domains
  • Broader scope, but not focused on details
  • Put those in e.g. UML (software), BPMN (processes), BMM (motivation)
  • No replacement, but an ‘umbrella’ on top

• Some concepts derived from BPMN, UML, BMM and others
  • Easily linked to e.g. UML descriptions of detailed design or BPMN process models
Summary and Conclusions
Summarizing ArchiMate 3.0

• Modeling **business strategy**, where EA is becoming increasingly important
• Modeling the **physical** world, to support e.g. the Internet of Things, healthcare, manufacturing, etc.
• Improved **usability** and consistency
• Thus it offers even greater support in dealing with **digital transformation and business change**!
More Information

• The Open Group:  www.opengroup.org/archimate
• Discussion forum on LinkedIn (>8000 members!):  https://www.linkedin.com/groups/50758
• Webinars, blogs, e-books, customer stories, software on  www.bizzdesign.com & library.bizzdesign.com
• ArchiMate Quick Reference: tinyurl.com/zvy6olu
BiZZdesign

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