Tool support for Enterprise Architecture in System Architect

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Topics

- The target
- What is (enterprise) architecture
- What is a framework
- Why tool support
- Which frameworks
  - Zachman
  - TOGAF
- TOGAF 7 and TOGAF 8
- System Architect support for TOGAF 8
The target

Enterprise Architecture
  + a framework
  + tool support

= alignment (business and IT)
  + benefit (to the organisation)

Your Enterprise Architecture becomes an enterprise asset
Enterprise Architecture

“… the set of descriptive representations (models) that are relevant for describing an Enterprise such that it can be produced to management’s requirements (quality) over the period of its useful life (changed).” [q. J Zachman]

• Set of models and documents
• Graphical and textual artefacts
  • Diagrams and symbols
  • Definitions and descriptions
• Describes multiple architecture domains:
  ➢ People
  ➢ Processes
  ➢ Technology
  ➢ Information
  ➢ Applications
• Defines relationships between them
• An Enterprise Architecture supports an operating business in achieving its goals
Models in the Enterprise Architecture

- Graphical representation of the “real world” (the “picture on the lid”)
- Many domains (views)
  - Data
  - Business process
  - Technical
  - Application
  - Organisation
- Many levels
  - conceptual
  - logical
  - physical
- Many artefacts and relationships
- Supported by descriptive text
- Supports and enables
  - Development (business or technology)
  - Change (business or technology)
The IT architecture in the Enterprise

Enterprise Architecture

- principles + standards
- Common Vocabulary
Making the enterprise architecture useful, usable and used …

• The Architecture alone is not enough
  • Need to understand how it all fits together
  • Need to maintain consistency and currency of models
  • Need a common vocabulary
    ➢ communication
    ➢ all stakeholders
  • Need to manage multiple models, methods and notations
  • Need to organise and classify the information
  • Need clear and agreed architecture and principles
  • Need an architecture framework
  • Need methods for populating the framework
Architecture frameworks

- Architecture framework provides:
  - Integration
  - Organisation
  - Classification

- Window on the underlying repository
- Shows how it all fits together
- Gives you the view you want to see, appropriate to your purpose

- “A place for everything and everything in its place”
  - Knowing where to put things
  - Knowing where to find them

- “Static” and “dynamic” frameworks
  - Content-focused frameworks (eg: Zachman)
  - Process-focused frameworks (eg: TOGAF)
Static and dynamic frameworks

- **Static framework**
  - Window on the repository
  - Static picture of current content

- **Dynamic framework**
  - Defines process steps
  - Defines content (deliverables from steps)
  - Navigates the process
  - The process uses and populates the framework

- Architecture artefacts used and visible in many frameworks
  - **Zachman**
    - an implicit process
  - **TOGAF**
    - an explicit process
Supporting content (static) - Zachman

Zachman – a “reference model”
Zachman Framework – key features

• Reference for other frameworks
• Supports all architecture domains (column)
• Supports multiple perspectives (row)
• Not prescriptive about multiple modelling methods
• A place for for everything + everything in its place
• Enables re-use of model artefacts
• Enables a common vocabulary for IT and business people
• “The system is the enterprise” [q. J Zachman]
Supporting a process (dynamic) – TOGAF

The Open Group Architecture Framework – an implementation method

- TOGAF populates the Zachman (or other) framework
- Defines process and deliverables
- Navigates the process
Why tool support

*To bring the architecture alive … (useful, usable and used)*

- Ability to store and integrate models and textual material in one place
- Ability to navigate and share the information (but define and store only once)
- Improved quality, currency and completeness of information
- Ability to analyse across domains and business areas
- Enables implementation of a corporate metamodel
  - defines content and style
  - no gap between visual representation and textual definition, hence …
- Enables improved communication between all stakeholders
  - Common vocabulary
  - Business, IT and other audiences

- *In short … to deliver the benefits …*

  architecture + framework + tool support = an enterprise asset
System Architect summary in a single slide

Business Modeling
Analyze Business:
- Processes
- Organization
- Functions
- Technology
  - Infrastructure
  - IDEF0/IDEF3
  - BPMN
  - Simulation

UML
Design
- Applications:
  - Use Cases
  - Object Interactions
  - Classes
  - Components
  - State Machines
  - Java

Data Modeling
Design
- Databases:
  - ERD Model
  - Physical Model
  - IDEF1X
  - DB Synchronize™

Structured Methods
Analyze Legacy Systems:
- Gane/Sarson
- Ward/Mellor
- Yourdon/DeMarco
- SSADM

XML Design
Design XML Schemas:
- DTDs
- BizTalk
- Instance Docs
- Test Data
- UML Integration
- Data Modeling Integration

Shared Repository
Customizable Repository Metamodel

Reporting
- XML
- MS Office

Browsing
- HTML
- XML

Interfaces
- OLE Automation
- CSV
- XML/XML

Matrices
- HTML
- MS Office
- XML
SA Framework and Method support - overview

- Not prescriptive
- Supports multiple frameworks and methods
- Supports re-use of artefacts
- Frameworks, including:
  - Zachman
  - TOGAF
- Methods and Languages, including:
  - UML
  - BPMN
  - ER
  - IDEF
- Customisable, build-your-own framework, select appropriate methods
### Zachman Framework in SA

<table>
<thead>
<tr>
<th>Planner</th>
<th>Owner</th>
<th>Designer</th>
<th>Builder</th>
<th>Subcontractor</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="noimage" alt="Diagram" /></td>
<td><img src="noimage" alt="Diagram" /></td>
<td><img src="noimage" alt="Diagram" /></td>
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</table>

#### Zachman by Diagram

**What**

- Activity
- Auto Decomposition
- Business Concept
- Class
- Collaboration
- Component
- Data Flow Game & Saxon
- Data Flow Ward & Mellor
- Decomposition
- Deployment
- Entity Relation
- Functional Hierarchy
- IDEF0
- IDEF3 Object State Transition
- IDEF3 Process Flow
- Network Concept
- Organization Chart
- Physical Data Model
- Process Chart
- Process Decomposition
- Process Hierarchy
- Process Map
- Relationship Map

**How**

- Business Process
- Application
- Structured
- Organization
- Technology
- Location
- Business Direction
- UML

**Where**

- Data Flow Game & Saxon
- Data Flow Ward & Mellor
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**Who**

- Planner
- Owner
- Designer
- Builder
- Subcontractor

**When**

- Activity
- Auto Decomposition
- Business Concept
- Class
- Collaboration
- Component
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TOGAF 7 Framework in SA
TOGAF Tool support requirements

- Main requirements of a supporting tool:
  - Supports the ADM process
  - Supports the ADM core deliverables
  - Supports the Foundation architecture and Enterprise Continuum
  - Enables re-use of architecture components
  - Enables full integration of architecture components
  - Enables production of principal TOGAF documents and models
  - Supports commonly-used modelling standards and methods
  - Has a common repository supporting multiple concurrent users
TOGAF in System Architect

- TOGAF framework graphical
- Supports the TOGAF ADM
  - The phases of TOGAF 7 and TOGAF 8
  - Navigation through the phases
- Supports the TOGAF products and techniques
  - Definition *templates* for core deliverables, in particular:
    - Business Architecture
    - Data Architecture
    - Application Architecture
    - Technology Architecture
  - Business Scenarios
  - Requirements management
  - Gap analysis
- Supports Foundation Architecture
  - The TRM graphic and taxonomy, including hyperlinks to TRM, SIB
- Enables re-use and integration of architecture artefacts
- Central repository + support for multiple concurrent users
- Supports production of principal TOGAF document and views
TOGAF Phase A – definition selected
TOGAF Phase B – mini-browser

Requirements

A. Initiation and Framework
B. Baseline Description

G. Architecture Maintenance
F. Implementation
E. Migration Planning
D. Opportunities and Solutions
Summary – the framework and the tool

- Support for your chosen framework(s) and method(s)
- A way of organising information
- A means to share information
- Your set of reference material
- Knowing where to put things …
- Knowing where to find them …
  - Other people knowing where to find them
  - Now and next year …
- A common vocabulary
- In a *single repository*

- Brings your architecture alive
- Delivers business benefit
Conclusion – delivering the Enterprise Asset

Enterprise Architecture
- principles + standards
- Common Vocabulary

enterprise architecture ➔ alignment (business and IT)
+ a framework ➔ + benefit (to the organisation)
+ tool support

Your Enterprise Architecture has become an enterprise asset
SA and TOGAF – next steps

• Full support for TOGAF 8
• TOGAF 8 sample encyclopaedia
• Develop / contribute to a TOGAF meta-model
  - Architecture artefacts
  - Principles and standards
  - TOGAF resources
  - ERD / UML
• Develop / contribute a TOGAF process model
  - ADM phases
  - Related processes
  - BPMN
• Commitment to support future TOGAF versions
• Policy of continuous improvement
• Promotion of TOGAF with Popkin clients