Introducing Architecture into the North Rhine-Westphalia State Government

IT-Architecture Model
A common initiative of the Regional Administrators and the Ministry of Home Affairs of the State of North Rhine-Westphalia (A Federal State in Germany)

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IT-Architecture Model

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1. Background and motivation
2. Objectives
3. Proceeding / results
4. Lessons learned
North Rhine-Westphalia is a federal State in Germany.

**Federal Republic of Germany**

- 82M People
- 357k km²
- 16 states and autonomous Cities

**North Rhine-Westphalia**

- 18M People (with about 22% of the total population - the most people)
- 34k km² (about 10% of Germany)
- 463.963M EUR gross domestic product (in 2002)
- 5 Regional Administrators
- 371.729 employees (full and part time) in the federal Government

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31.12.2001 Statistisches Bundesamt Germany
LDS NRW / October 2002
The North Rhine-Westphalia State Government

State Premier

Ministry of Finance

Ministry of Home Affairs

Ministry of Economics

Ministry of Education

Ministry of Justice

Ministry of Social Affairs

Ministry for Urban Devel.

Ministry of Environment

Ministry for Women
Every Ministry has its own IT-Infrastructure as well as the agencies ranging beneath them (indicated by the same colours)

- Top Level Agencies (Ministries)
- Middle Level Agencies
- Lower Level Agencies
Most Middle Level Agencies are integrated into five Regional Administrators (coordinated by Ministry of Home Affairs)
Ministry of Home Affairs and Regional Administrators must meet numerous requirements and challenges

• The special situation of the Regional Administrators regarding the supervision and technical control requires the balance of the **various interests of the departments**, the Ministry of Home Affairs and the Regional Administrators.

• Social changes lead to the implementation of new services resulting in changing and **new requirements** for the administration.

• The tight budget situation requires cost savings resulting in **short resources**.

• The public contract of the administration includes **specific requirements** regarding availability, security and usability.

This results in the implementation of specific and duplicate siloed solutions developed by the IT units.
Project Mission: Common Architecture Model for the efficient use of existing resources and for identification of optimizational potential

Up to middle 2004:

- **specification of a common IT architecture** in order to describe the business, the data, applications and infrastructure
- **documentation** of the architecture specified
- **recommendations** for the Regional Governments and the Lower Level Agencies
- generation of a **roadmap** for necessary initiatives including a time schedule
- definition of the further approach for the task force IT Architectural Model (**Governance**).

Long term objectives:

- An open and general documentation of the architecture
- Standardization of components and basic building blocks
- Specification of guidelines and standards to the make the IT more effective
The project is focused on the information architecture and technology architecture with a tight connection to other areas.

**Strategy**
- Business Strategy
- IT Strategy

**Architecture**
- Business Architecture:
  - Location model
  - Information Model
  - Government architecture
- IT-Architecture:
  - Application
  - Data
  - System
  - Network
  - Syst. Mgmt.

**Projects/Operation**
- • distinct Processes
- • distinct procedures
- • guidelines
- • distinct organizational aspects
- • Projects
- • Other IT processes

**Conditions:**
- • principles,
- • rules
- • standards

**Governance:**
- • Architecture-management
- • Planning and controlling
- • communication

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**Legend**
- Focus of the project
- taken over
- documented
- elaborated
- out of focus
Success Factors

• Integration of experts from the Regional Administrators and the Ministry of the Interior

• Implementation of a sound methodology (The Open Group Architectural Framework/TOGAF)

• External facilitation by IBM Business Consulting Services in order to integrate competency and experience on comprehensive solutions for business and IT architectures into the project.
What TOGAF 8 provides; Why TOGAF

- A Method (resp. a method framework) that explains Enterprise Architecture as a whole (Business and IT)
- Vendor-neutral methodology
- A methodology that explicitly defines separation between the Architectural and Solution building blocks.
- Architecture Development Method (ADM) with some step by step recommendations and a lot of specific information and method references
- A good technical reference model with a lot of described technical services

➢ Finally the Ministry of Home Affairs is in the Open Group Architecture Forum since a long time – so TOGAF was known
The integration of experts of the Regional Administrators and Ministry of Home Affairs necessitated the training in Enterprise Architecture modeling

- Strengthening of knowledge in the use of modern methods
- Reusability for other projects
- Intensive communication and exchange of experience in the team

Trained architecture team consisting of subject experts of the Regional Governments and the Ministry of Home Affairs
Current Status of the initiative

Architecture vision, business architecture and major parts of the Information System Architecture are defined and documented. In the next step the other parts of the IT architectures have to be worked out.

- **Preparation**
  - Trainings (UML, TOGAF, tool)
  - Purchase of external support
  - Team formation and project start
  - Specifications of the target criteria and framework conditions

- **Architecture Vision**
  - Identification of strategic context
  - Definition of the strategic principles
  - Description of business scenarios
  - Architecture Vision

- **Documenting the Business Architecture**
  - Services (Products)
  - Functions
  - Organization Structure
  - Information Model

- **Definition of Information System Architecture**
  - Existing applications
  - Application function model
  - Application ABB
The major work products are documented in a high level model and are accessible over the internal intranet.

Examples, documented in the Intranet:

- Scenarios
- Principles
- Business Services
- Business Function
- Information Model
- Location Model
- Dependencies
- Actors
- Business Events
- Channels
We identified the major information system architecture building blocks in a top down and bottom up approach.

**Business Model** (last phase)

**Application and data function**

First step within the Information System Architecture  

As is  
(Application / (data))

ABB Information Architecture

Data Model
The Technical Reference Model was useful to clearly separate the technology ABB‘s from the Information System Architecture ABB‘s.

**Information Architecture**
(ABB Application)

**Technology Architecture**
(Technical Reference Model TOGAF)
A first SSB/ABB matrix identifies the enormous optimization potential in a manageable and understandable way.

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<thead>
<tr>
<th></th>
<th>Antragsbearbeitung</th>
<th>Gef-stehweh</th>
<th>Planung</th>
<th>Innere Dienste</th>
<th>Inf. Mgmt</th>
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<tbody>
<tr>
<td>SBB</td>
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### SBB (Application)

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<th>DAVID</th>
<th>DB-Auskunft</th>
<th>DEA</th>
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<th>Dezug</th>
<th>Dienst zu ungünstigen Zeiten</th>
<th>Dienststellenleiterfehler</th>
<th>DSM - Dez Schichtdienstmanagement</th>
<th>Einburgerungen</th>
<th>Empirum Pro</th>
<th>Favorit Office Flow</th>
<th>Fax to Mail</th>
<th>Flucabschiestatistik</th>
<th>FlussWingis</th>
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What TOGAF does not provide

- ADM provides general method guidance, but no useful description of the objects to be produced to describe a consistent model
- A consistent and unambiguous definition of used terms (on different abstraction levels)
- Guidance and examples to identify the right level of abstraction
- Tools to use the method
- A short and useful overview for experienced practitioners

We missed consistent Work Products, Work Product Descriptions and Dependency Diagrams
Lessons learned (up to now) 1/2

- TOGAF isn’t a cookbook, good experience is necessary, the usage of other methodical references is useful (we used the IBM EA-Method)

- practitioners need to think on an abstract level

- fast pace and show of results is necessary

- Marketing and communication of the project targets and results (e.g. flyer)

- Specific generation of Quick Win— (It’s hard on the chosen abstract level within a consistent methodology)
Lessons learned (up to now) 2/2

- Up to now most of the value is in the established communication and common understanding

- The abstract approach shows the high reusability of business function-related components in an astonishing way

- The key architecture relevant functions are independent of politics and organizational structures

- Politics is needed to setup the project and implement the initiatives

- We get more and more very useful material to analyse, structure and explain the architecture

- It works !!!
Many thanks for your interest.