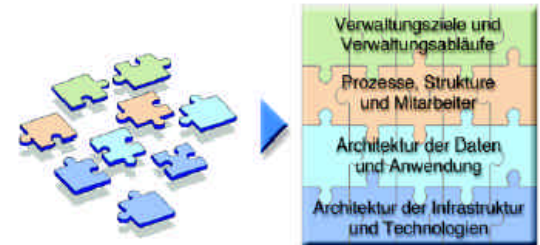


# Introducing Architecture into the North Rhine-Westphalia State Government

## 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

A common initiative of the Regional Administrators and the Ministry of Home Affairs of the State of North Rhine-Westphalia

- 
- |   |                           |
|---|---------------------------|
| 1 | Background and motivation |
| 2 | Objectives                |
| 3 | Proceeding / results      |
| 4 | Lessons learned           |
-

## North Rhine-Westphalia is a federal State in Germany.



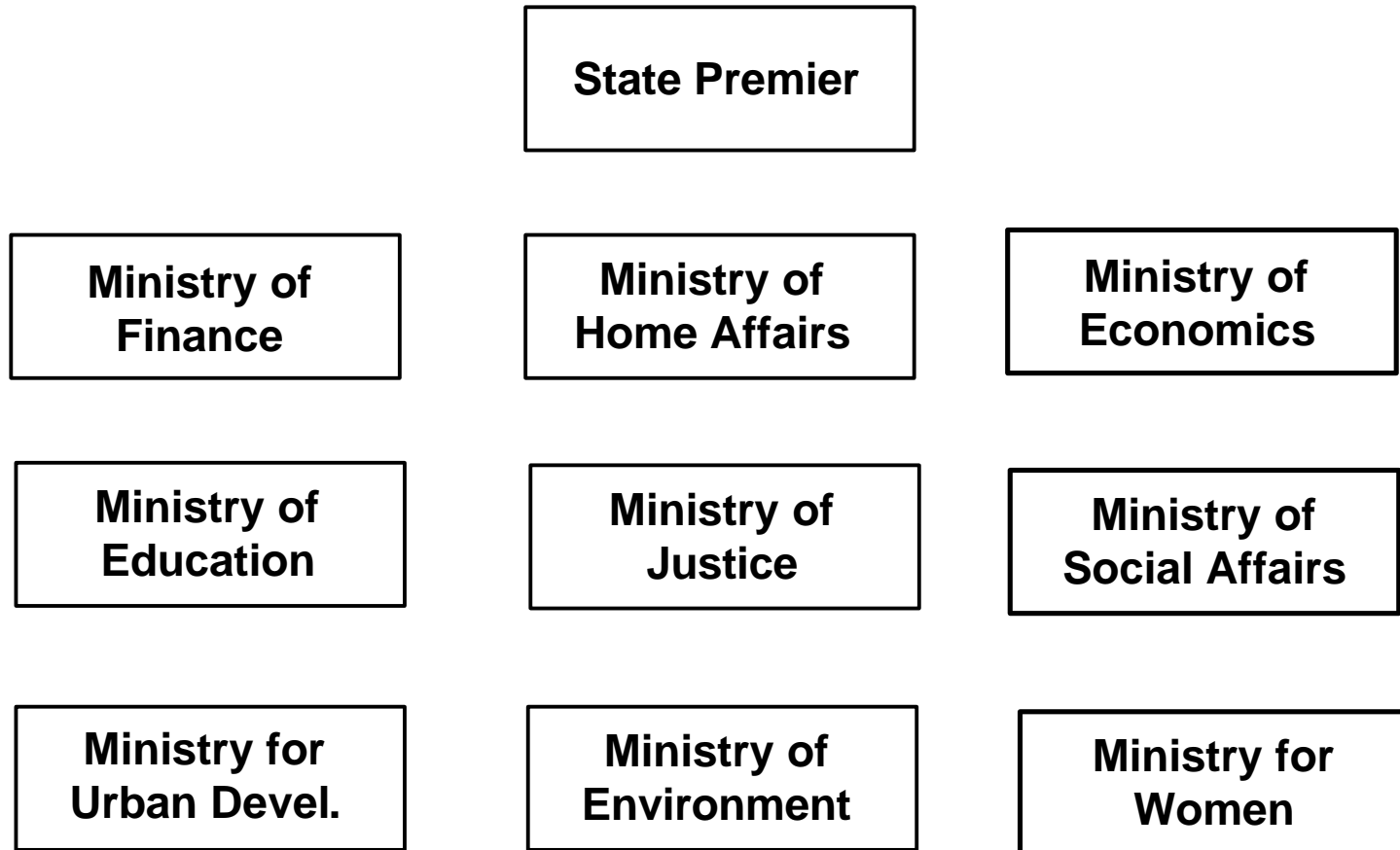
### Federal Republic of Germany\*

- 82M People
- 357k km<sup>2</sup>
- 16 states and autonomous Cities

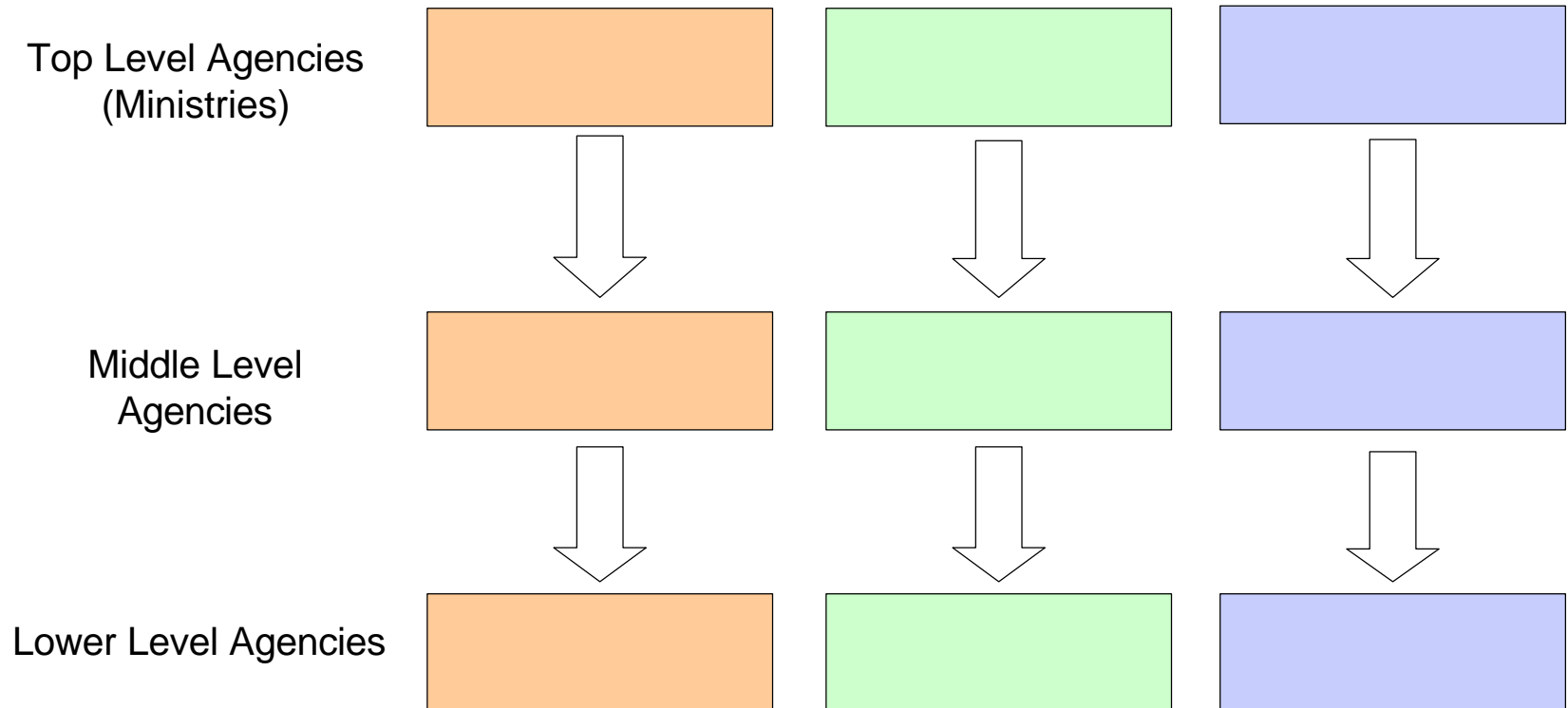
### North Rhine-Westphalia

- 18M People (with about 22% of the total population - the most people)
- 34k km<sup>2</sup> (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

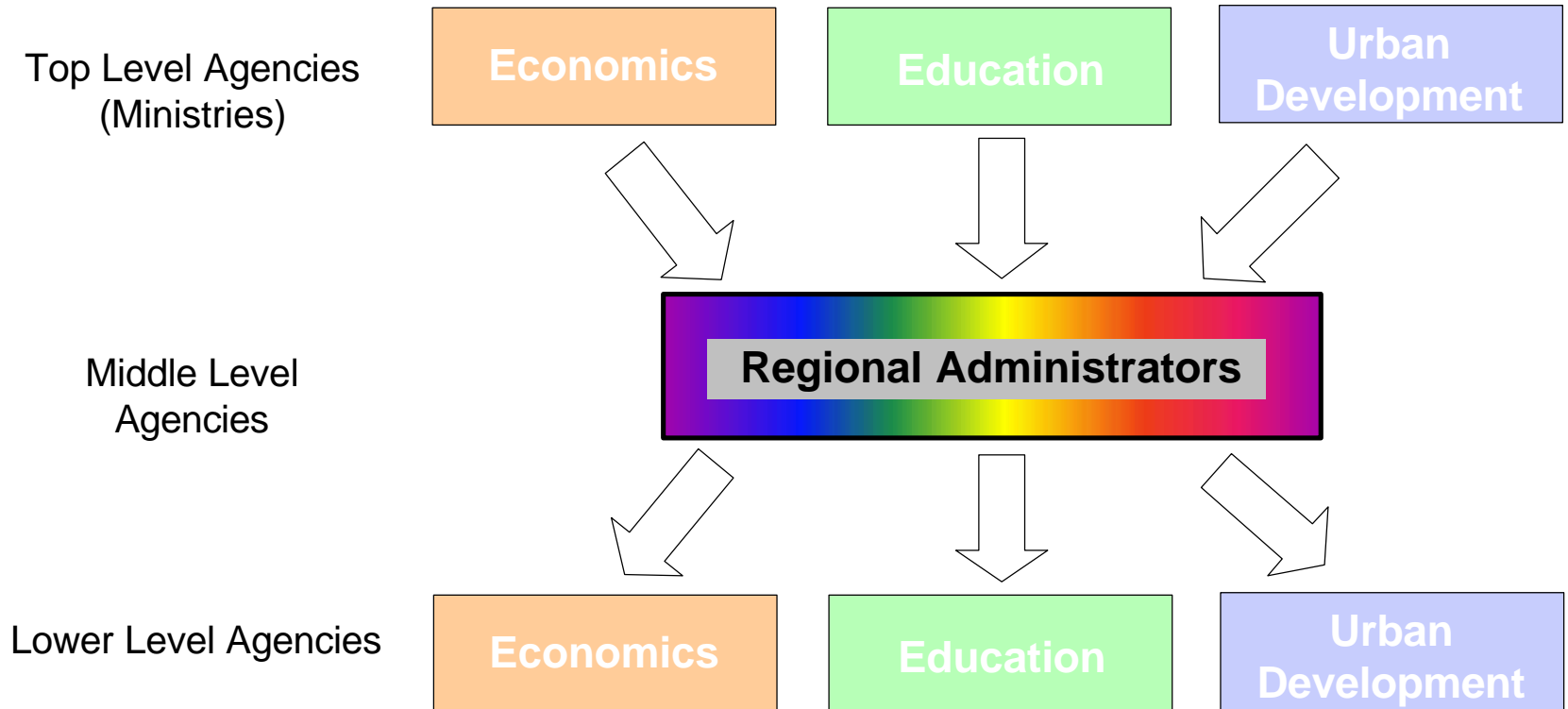
## The North Rhine-Westphalia State Government



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



## 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:**

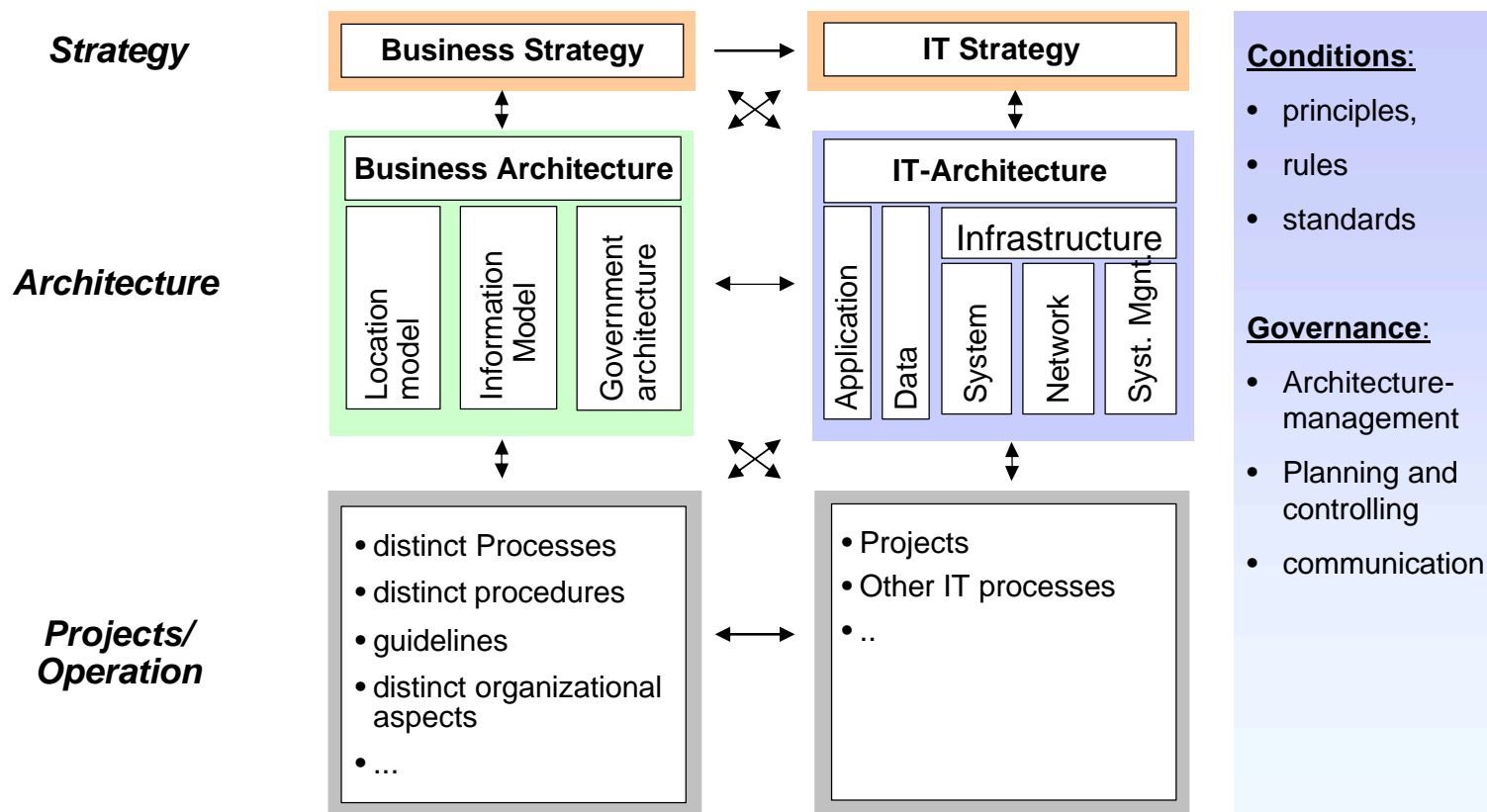
- **specification of a common IT architecture** in order to describe the business, the data, applications and infrastructure
- **documentation** of the architecture specified
- **recommendations** for the Regional Governments and the Lower Level Agencies
- generation of a **roadmap** for necessary initiatives 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 make the IT more effective



## The project is focused on the information architecture and technology architecture with a tight connection to other areas.



## 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

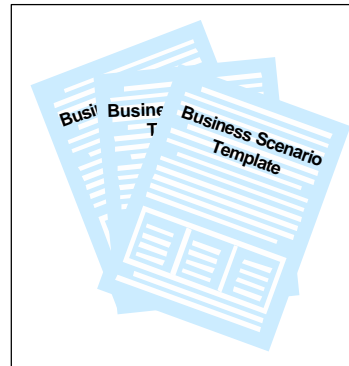
# The integration of experts of the Regional Administrators and Ministry of Home Affairs necessitated the training in Enterprise Architecture modeling



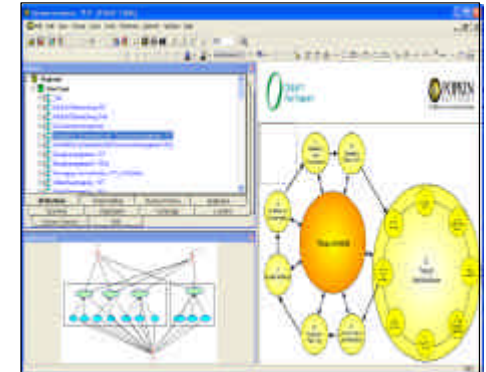
TOGAF  
Method Education



UML  
Method Education



Specific guidance  
Workshops



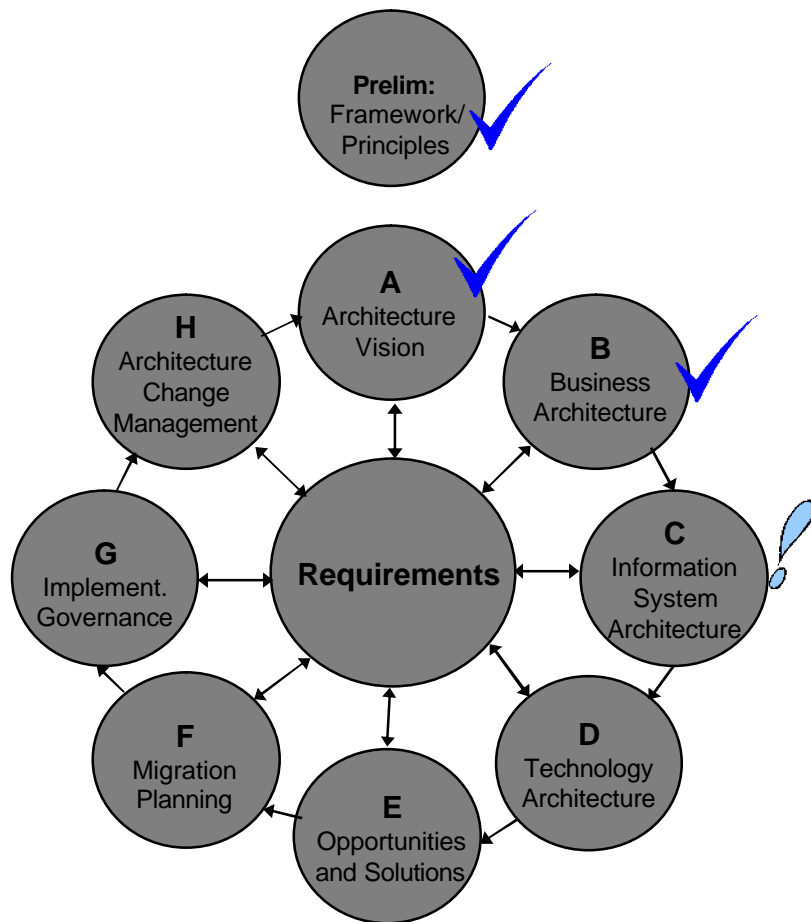
Tool for documentation  
End User Training

***Trained architecture team consisting of subject experts of the Regional Governments and the Ministry of Home Affairs***

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

## 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.

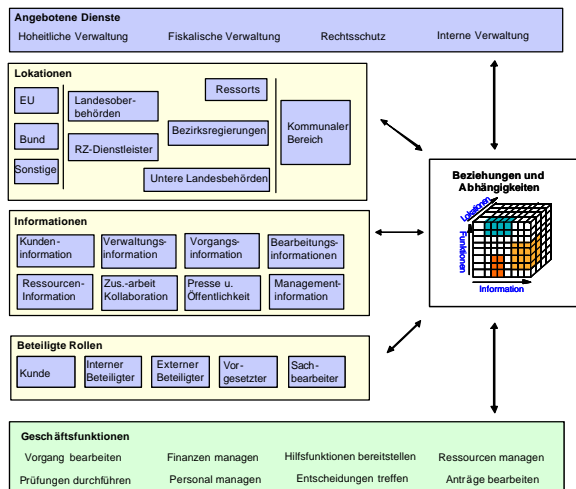
## Examples, documented in the Intranet:

- Scenarios
- Principles
- Business Services
- Business Function
- Information Model
- Location Model
- Dependencies
- Actors
- Business Events
- Channels

The screenshot shows a web browser window titled "Innenministerium NRW: AE IT-Architektur". The address bar shows the URL "D:\Kunden\NRW\_Architektur\Intranet\IT-Architektur\index.htm". The page content includes a navigation menu with "Startseite", "Newsletter", and "Kontakt". The main heading is "IT-Architekturmodell", followed by the text "Eine gemeinsame Initiative der Bezirksregierungen Arnsberg, Detmold, Düsseldorf, Köln und Münster und des Innenministeriums des Landes NRW". A central diagram shows a cluster of colorful puzzle pieces on the left, with an arrow pointing to a box on the right. The box contains the text: "Vorgehensmodell mit Vernetzungsmatrix", "Prozesse, Strukturen und Rollen", "Architektur der Daten und Anwendung", and "Architektur der Infrastruktur und Technologien". Below this, the text "Projektdarstellung nach" is followed by two sub-sections: "TOGAF-Vorgehensmodell" (with a circular diagram) and "Architekturübersicht" (with a grid of documents).

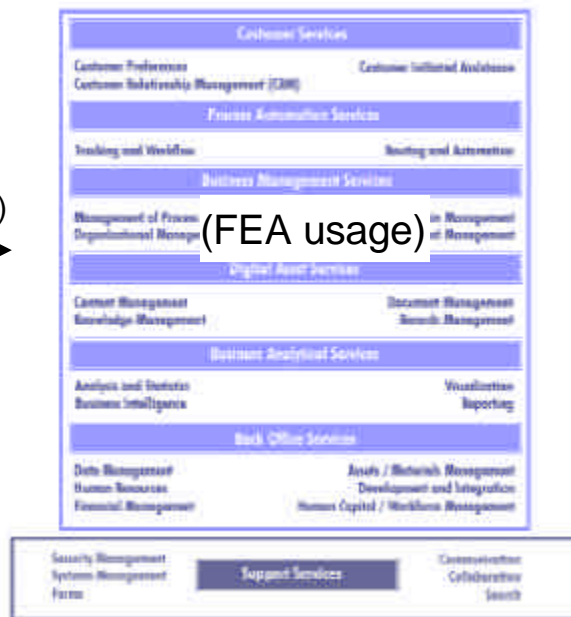
# We identified the major information system architecture building blocks in a top down and bottom up approach.

## Business Model (last phase)



Group 1  
(Top down)

## Application and data function

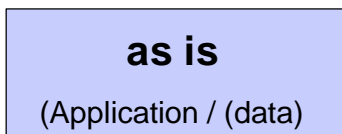


Next step  
(consolidation)

Next step  
(definition)

First step within the Information System Architecture

Group 2  
(Bottom Up)



**ABB Information Architecture**



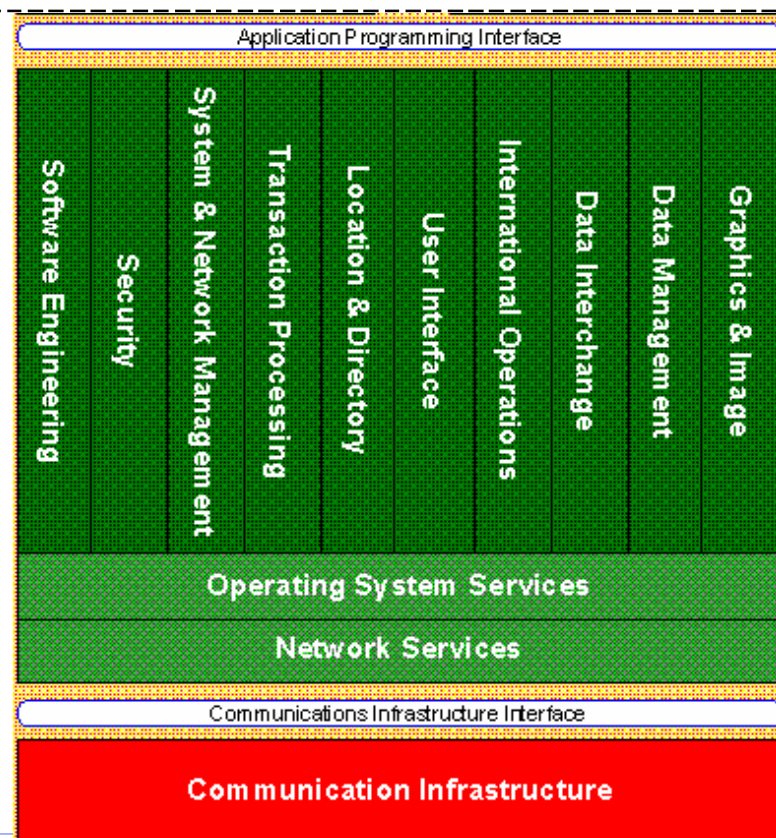
The Technical Reference Model was useful to clearly separate the technology ABB's from the Information System Architecture ABB's.

**Information Architecture**  
**(ABB Application)**

**ABB  
Business  
Application**

**ABB  
Infrastructure  
Application**

**Technology Architecture**  
**(Technical Reference Model TOGAF)**





# A first SSB/ABB matrix identifies the enormous optimization potential in a manageable and understandable way.

1		Antragsbearbeitung		Gef.-abwehr		Planung		Innere Dienste					Inf. Mgnt.	Öffent.	Ührungsir	e-govern.	Zus.-Arbeit	B																													
2	Name	keine Zuord. Business	Texterstellung	Vorgangsmangement	katalogmanagement	plausibilitätskontrolle	Antragsverfolgung	Formularbereitstellung	Prüfung u-Messung	Polizeidienste	lagermanagement	Leitstellenmanagement	Gremienmanagement	Projektmanage	Geodatenanah	IT/Orga	Haushalt	kasse	Personal	beschaffung	Material	Bibliothek	Hausdienst	Stammdatenbe	Managem. Ver	Managm. Integ	Kundenbefrag	Call-center	berichtsweisen	Zielvereinbaru	Controlling	keine zuordnu	Sicherheit	e-payment	Web-CMS	CRM	Kalender	Groupware	e-mail	Präsentation							
3		29	33	35	13	10	28	7	1	0	0	0	0	0	1	8	10	12	9	4	3	3	1	49	31	3	0	0	16	0	9	0	3	0	0	0	5	3	1	1							
4		▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼	▼						
62	Cashline Web																	x																													
63	Checkpoint VPN																																														
64	DAVID														x																																
65	DB-Auskunft																																														
66	DEA																								x																						
67	Denkmalschutz		x	x			x																	x																							
68	Dezug		x	x	x	x	x										s	s						x	x					x																	
69	Dienst zu ungünstigen Zeiten																								x																						
70	Dienststellenleiternprotokolle																																														
71	Di	?																																													
72	Di																																														
73	Di																																														
74	Di		x	x	x	x	x	x									s	s						x	x	x				x																	
75	DSM - Dez.Schichtdienstmanagement																							x	x																						
76	Einbürgerungen	?	x	x			x																	x																							
77	Empirum Pro																																														
78	Favorit Office Flow (Domea)	o					x																																								
79	Fax to Mail																																														
80	Flugabschiebestatistik	x																																													
81	FlussWinGis	x																																													
82	FOP	x	x	x		x													x					x																							

**ABB**  
**(Information Architecture)**

**SBB**  
**(Application)**

## 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.