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FÉDÉRALE DE LAUSANNE

Enterprise Architecture

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The question

- **Optimization of company IT resources / gain in agility**
  - Example: RATP
  - Example: Michelin
- **Managing mergers**
  - Example: Air-France / KLM
  - Example: Crédit Agricole

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Example RATP (1)

- 12'000 km2 served
- 15% of French population

- 14 metro lines
- 300 bus lines
- two regional trains
- 2 airports
- Operate also in 11 other countries

http://www.ratp.fr/en/ratp/c_5007/presentation/

- 50K employee
- 20% employee in maintenance
- 2% employee in IT (half in IT department)

Example RATP (2)

- Approx. 1000 people in IT and 500 in IT departments (500 others in overall organization)
- Approx. 200 business processes, 400 activities, 900 tasks
- Approx. 1K applications and 14 large systems
- **Question: how do you coordinate development ?**

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Enterprise Architecture

Clinger-Cohen Act (1996)

- Goal: improve IT management in US Federal Agencies
- Means:
  - Definitions
  - Management structure
  - Expected performance and results
  - Processes

W. Cohen

W. Clinger

http://en.wikipedia.org/wiki/Clinger–Cohen_Act

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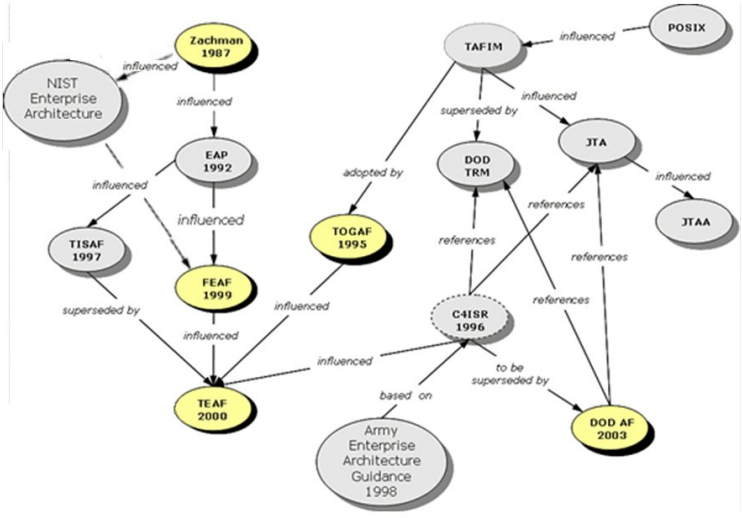
Information Systems Architecture

- **A framework for information systems architecture**
  John A. Zachman
  1987

Enterprise Architecture - History



Source: http://en.wikipedia.orgwikiEnterprise_Architecture_framework

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Enterprise Architecture

- EA fundamental for 21st century enterprises.
- EA establishes a **basis for changes**

- EA **advances enterprise design**
- EA **manages the knowledge-base** of the enterprise
- EA **integrates the technology** (automated and/or non-automated) into the enterprise
- EA is **universal** and **cross-disciplinary**

Source: www.zifa.com

Three Frameworks

- Zachman – the "classic" (but rarely used)
- TOGAF – the "standard", widely used
- URBA – the "practical one", used in France

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Zachman Framework

Zachman ISA Framework

What, How, Where, Who, When, Why

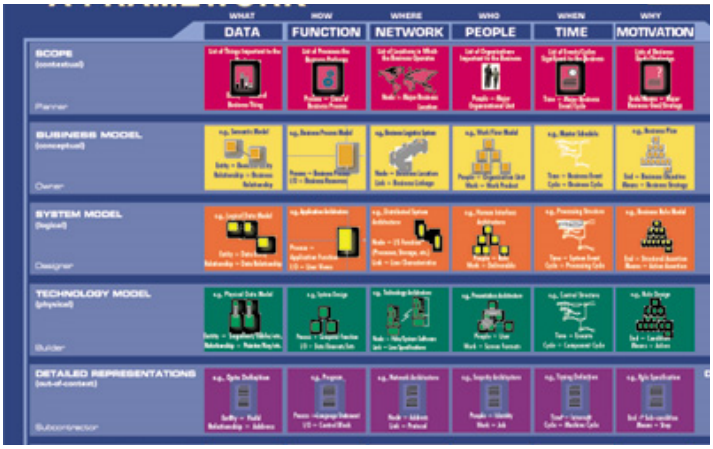
Planner

Owner

Designer

Builder

Sub-contractor



Source: www.zifa.com

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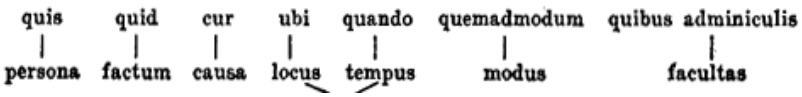
5 lines x 6 columns

- Planner (scope)
- Owner (business model)
- Designer (system model)
- Builder (technology model)
- Sub-contractor (detailed representation)

- What (data)
- How (function)
- Where (network)
- Who (people)
- When (time)
- Why (motivation)

Cicero's system of circumstance



http://en.wikipedia.org/wiki/Five_Ws

Quis, (Who,
quid, what,
quando, when,
ubi, where,
cur, why,
quem ad modum, in what way,
quibus adminiculis by what means)

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Designing w/ Zachman Framework

Source: www.zifa.com

Business / IT alignment

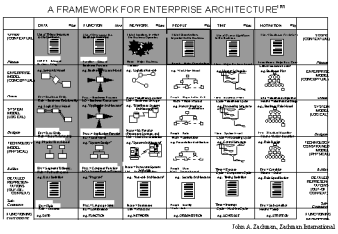

Figure 2: Robust Top Down Methodology and Tool Support

Quick start in EA

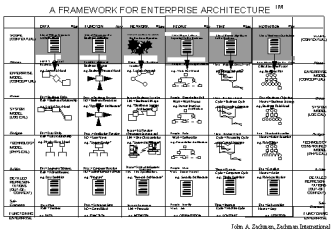

Figure 4: Architecture Project 2 - Architecture Quick Start

Application developement

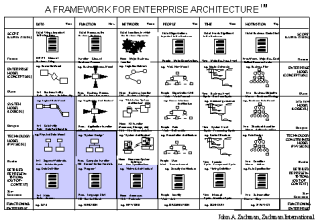

Figure 1: State of the Art - Methods and Tools

Complete EA project

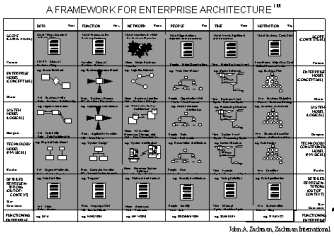

Figure 5: Architecture Project 1 - Architecture Process for Entire Enterprise

15

Relation SEAM / Zachman

- Augmenting the Zachman Enterprise Architecture Framework with a Systemic Conceptualization

  Wegmann, Alain ; Kotsalainen, Anders ; Matthey, Lionel ; Regev, Gil et al.

  Presented at: The 12th IEEE International EDOC Conference (EDOC 2008), Muenchen, September 15-19, 2008.

- http://infoscience.epfl.ch/record/126293

16

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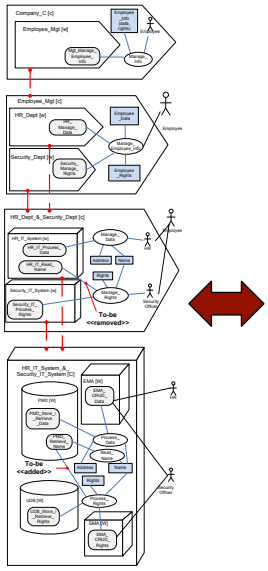
SEAM / ISA Matrix



ISA	Data	Function	Network	People
Planner Row (row 1)	- Employee _Info (data, rights)	- Manage_ Info	- Employee _Mgt [w]	- Employee
Owner Row (row 2)	- Employee _Data - Employee _Rights	- Manage_ _Employee_ _Info	- HR _Dept [w] - Security _Dept [w]	
Designer Row (row 3)	- Address - Name - Rights	- Manage _Data - Manage _Rights	- HR_IT _System [W] - Security_IT _System [W]	- HR - Security _Officer
Builder Row (row 4)	- Address - Name - Rights	- Process _Data - Read _Name - Process _Rights	- EMA [W] - PMD [W] - SMA [W] - UDB [W]	

TOGAF Framework

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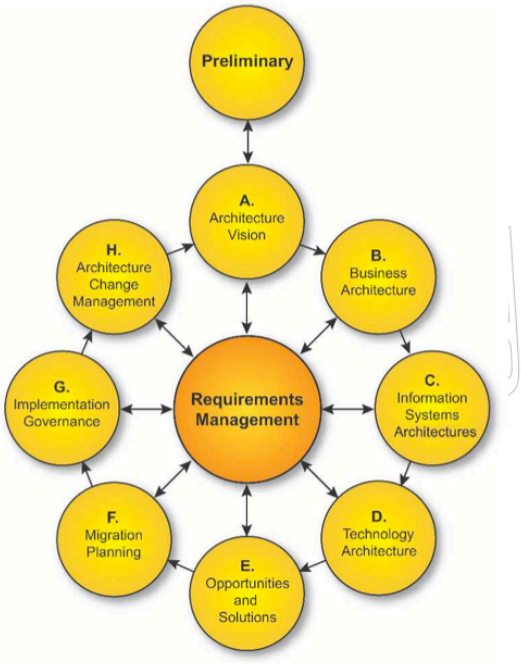
TOGAF

- Created by The Open Group
- Versions 1995 (version 1) .. 2009 (version 9)
- Includes:
  - An enterprise architecture domains (model)
  - An enterprise architecture method
  - An enterprise continuum (i.e. repository of knowledge)
- More on: http://www.opengroup.org/togaf/

19

TOGAF Architecture Development Framework



20

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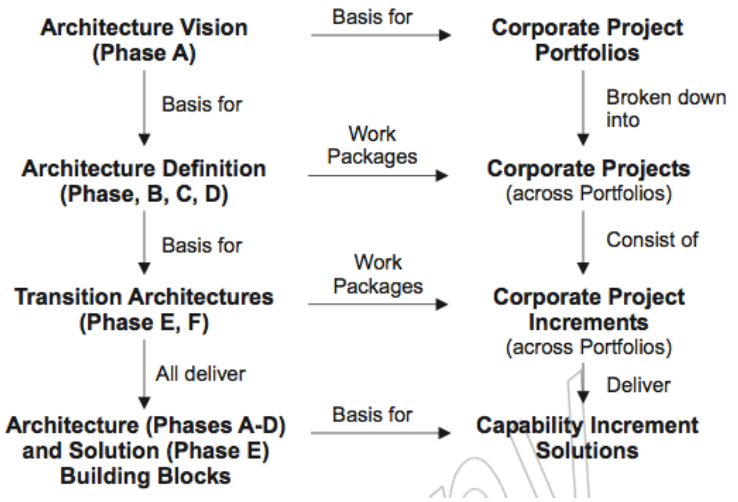
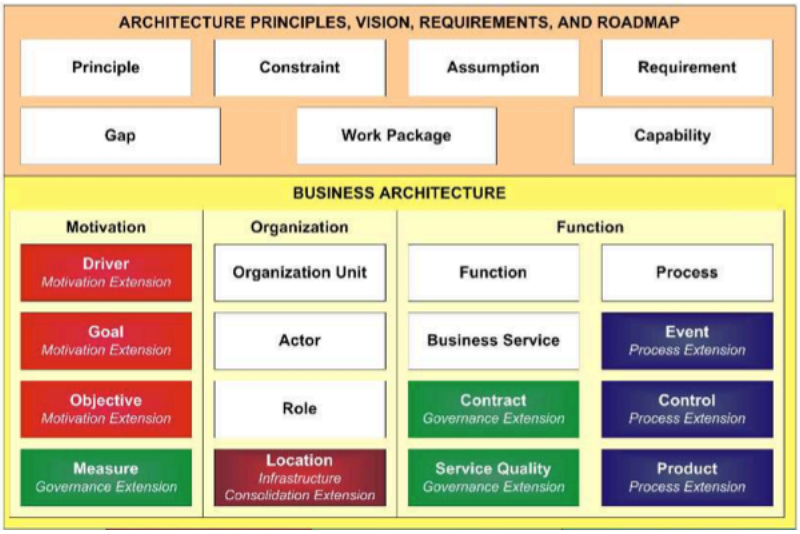
From TOGAF to Management



21

TOGAF Meta-Model



22

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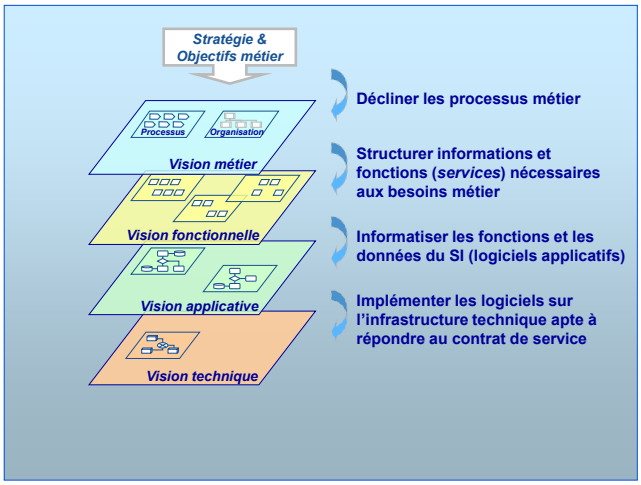
Urba

Urba Framework



http://www.urba-ea.org/

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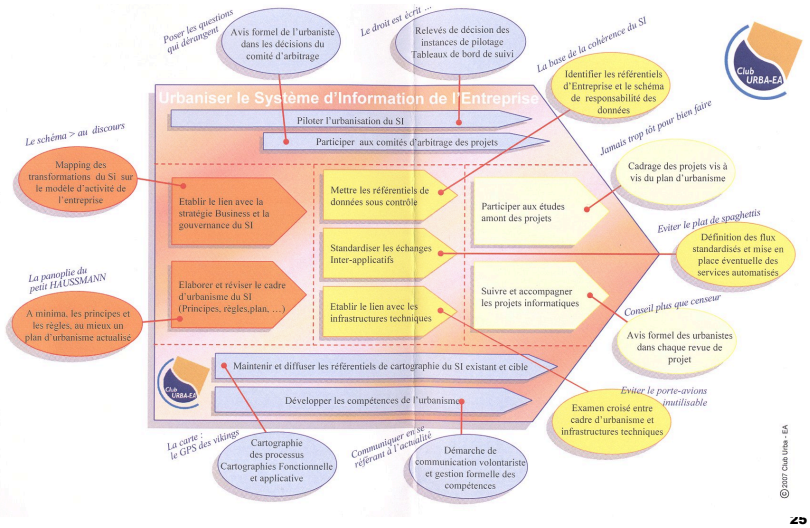
Urba Process



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