

# *Modeling Business Architecture*

*Knut Hinkelmann*



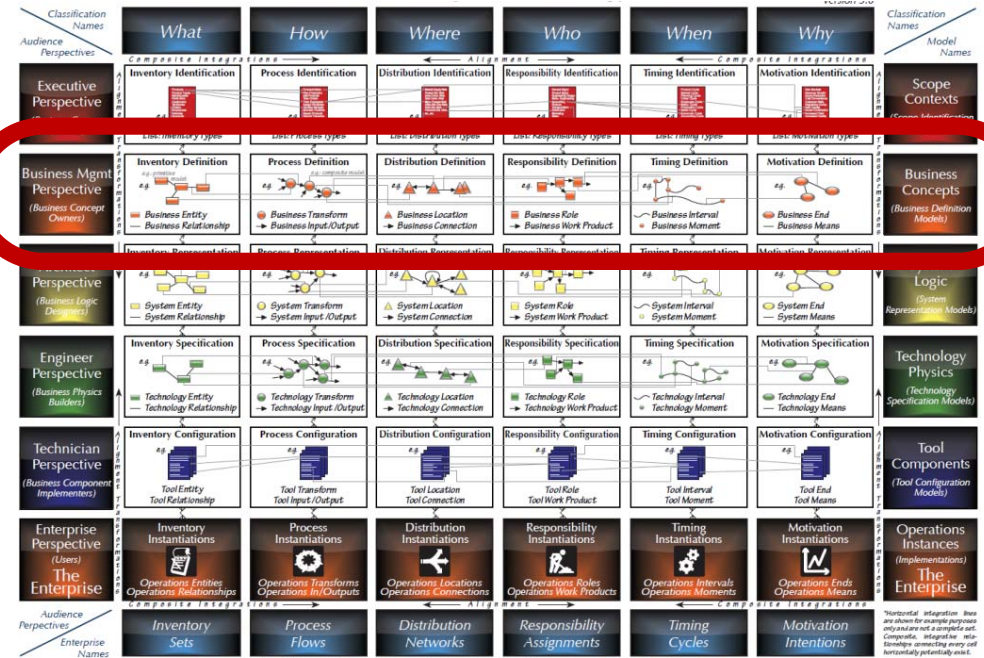
# Business Architecture

Business Architecture

Data Architecture

Application Architecture

Technology Architecture



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## Modeling Business Architecture

- The Business Architecture comprises all the structures and relationships which are essential for the business
- It should help answer questions like:
  - ◆ What are the *business goals*? How are they to be accomplished? (*Business Motivation*)
  - ◆ Which *business processes* or *products* are critical for the company or for a particular environment in which it operates?
  - ◆ Which *business process* is responsible for which *business objects*?
  - ◆ Which *organisational structures* are relevant for the business? Which *business processes* are assigned to which *business units*?
  - ◆ Which *business objects* are used in which manner (reading, creating, modifying) by which *business processes* or *business functions*?
  - ◆ How is the business changing in which business segment? Which *products, business processes or functionality* will be needed in future?

(Hanschke 2010, p. 70f)



## *Building Blocks of the Business Architecture*

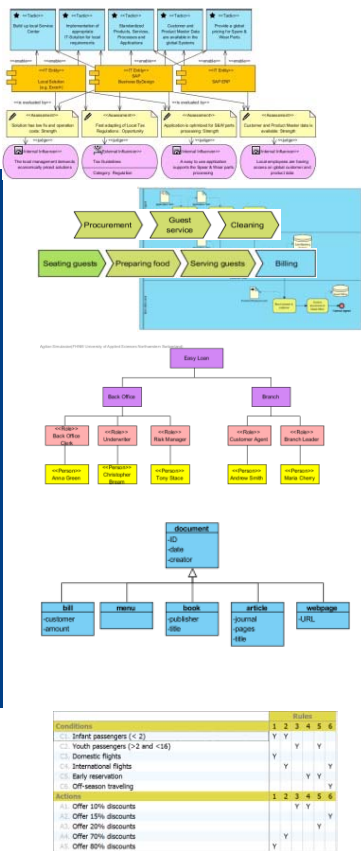
- The Business Architecture contains building blocks like
  - ◆ **Business processes (HOW):** sequence of logically connected activities or sub-processes.
  - ◆ **Business functions (HOW):** distinct, cohesive set of business functionality expressing the enterprise's capabilities (e.g. “customer relationship management”).
  - ◆ **Products (WHAT):** outcome or deliverable of an enterprise’s service or process; can be either material or immaterial (services) and can consist of subproducts.
  - ◆ **Business units (WHO):** logical or structural unit of the enterprise
  - ◆ **Business objects (WHAT):** real-world entity which encapsulates some part of the business activity of an enterprise (e.g. customers, for example, products or orders).

(Hanschke 2010, p. 71f)



# Models of the Business Architecture

■ We will learn how to model



- ◆ Business Motivation (OMG Business Motivation Model)
- ◆ Business Processes (Process maps, BPMN)
- ◆ Organisation
- ◆ Data/Document (UML Class Diagrams)
- ◆ Products (UML Class Diagrams)
- ◆ Business Rules
- ◆ Applications

and the relations between them

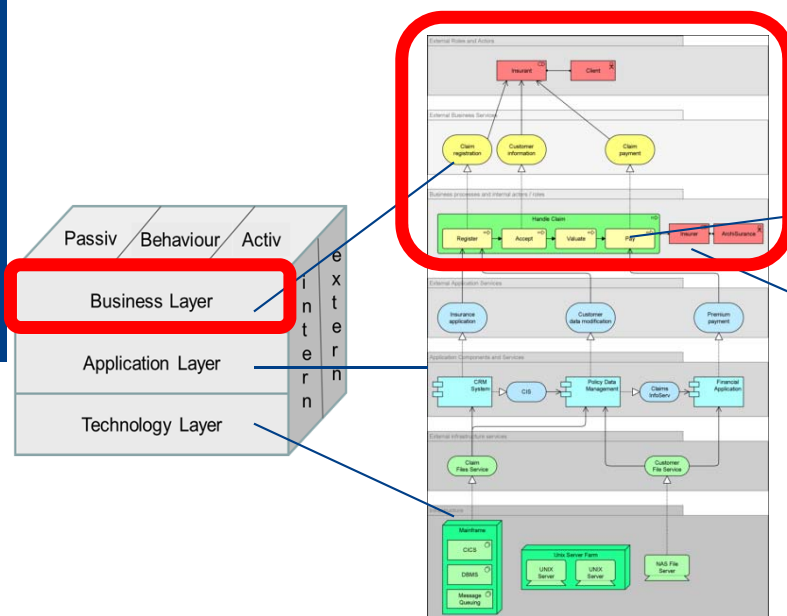




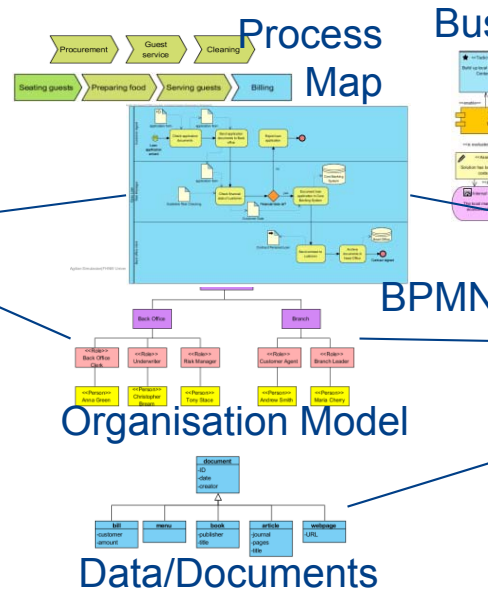
# Modeling Business Architecture

- Detailed models can
  - ◆ be related to the cells of the Zachman Framework
  - ◆ represent details of elements in an ArchiMate model

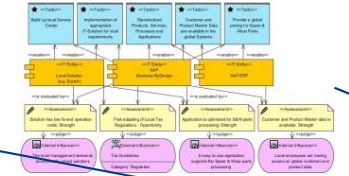
## Overview: ArchiMate



## Detailed Models



## Business Motivation



## Overview: Zachman



## Business Rules

Conditions	1	2	3	4	5
C1. Infant passengers (< 2)	Y	Y	Y	Y	Y
C2. Youth passengers (> 2 and < 15)	Y	Y	Y	Y	Y
C3. Domestic flights	Y	Y	Y	Y	Y
C4. International flights	Y	Y	Y	Y	Y
C5. Early reservation	Y	Y	Y	Y	Y
C6. Off-season traveling	Y	Y	Y	Y	Y
Actions	1	2	3	4	5
A1. Offer 10% discounts	Y	Y	Y	Y	Y
A2. Offer 15% discounts	Y	Y	Y	Y	Y
A3. Offer 20% discounts	Y	Y	Y	Y	Y
A4. Offer 70% discounts	Y	Y	Y	Y	Y
A5. Offer 80% discounts	Y	Y	Y	Y	Y



# Referencing Detail Models from the Business Perspective of the Zachman Framework

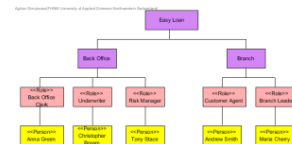
data models

process maps/  
business process models

process maps

business motivation models

organisation models

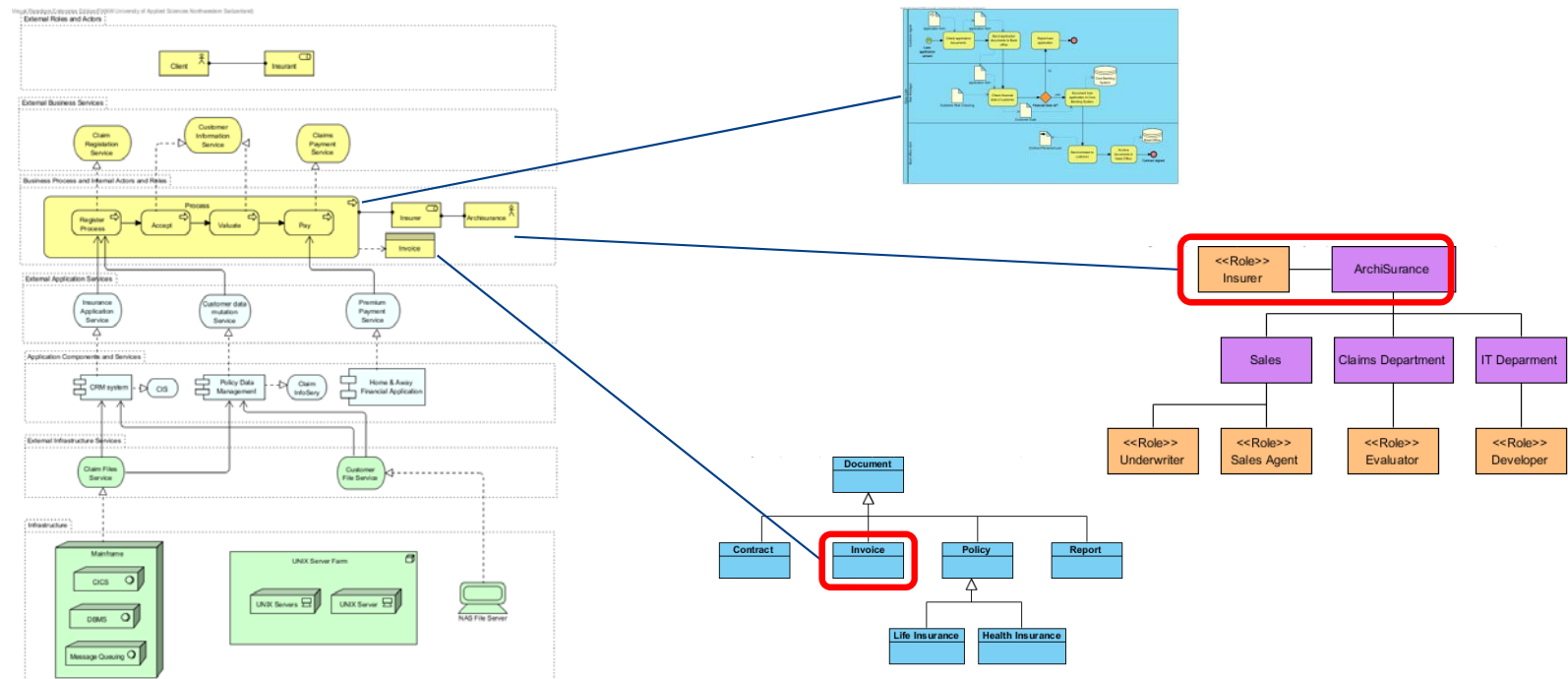


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# Referencing Detail Models from ArchiMate

- ArchiMate represents an overall architecture
- Elements in an ArchiMate model can be
  - ◆ modeled more detailed in a separate model (e.g. modeling conditional flows and events of a business process in BPMN)
  - ◆ reference to elements in a model showing their context (e.g. actors and roles being part of an organisation model, business objects being part of a data model)

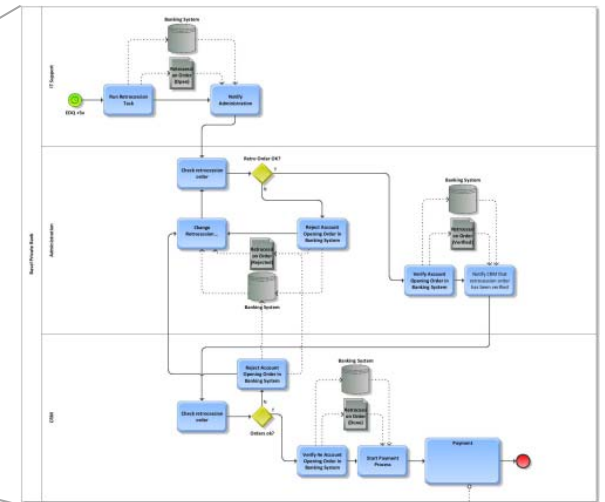
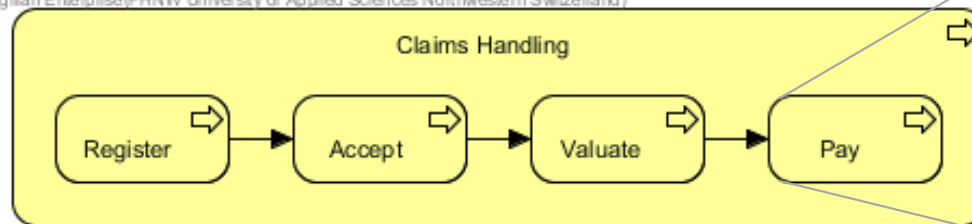




## Business Process Models and ArchiMate

- An ArchiMate Model is an overall representation of an Enterprise Architecture
- To model details of elements (e.g. conditional flows and events of a process) one can use specific models
- Example: Modeling the flow of a process in BPMN

Agilan Enterprise (FHNW University of Applied Sciences Northwestern Switzerland)



## *Relationships*

- Dependencies can exist between elements of the business architecture
  - ◆ Example: a business unit is responsible for the business object "customer" and maintain customer data in the business process "customer management"
- Dependencies can be represented in different ways and on different levels of granularity
  - ◆ **Landscape diagrams** representing dependencies between three building blocks
  - ◆ **Mapping tables** present functional dependencies between two building blocks
  - ◆ **Business Conceptual Model:** References between models and model elements

(Hanschke 2010, p. 71f)



## Example: Business Landscape Diagramm



In this business landscape diagramm

- business functions (cells of the matrix) are assigned to
- Business Processes (x-axis))
- Organisational Units (y-axis)



# Representing Relationships: Mapping Diagramm

This mapping table assigns business objects to business processes. The mnemonic “CRUD” summarises the ways in which business objects are used in business processes

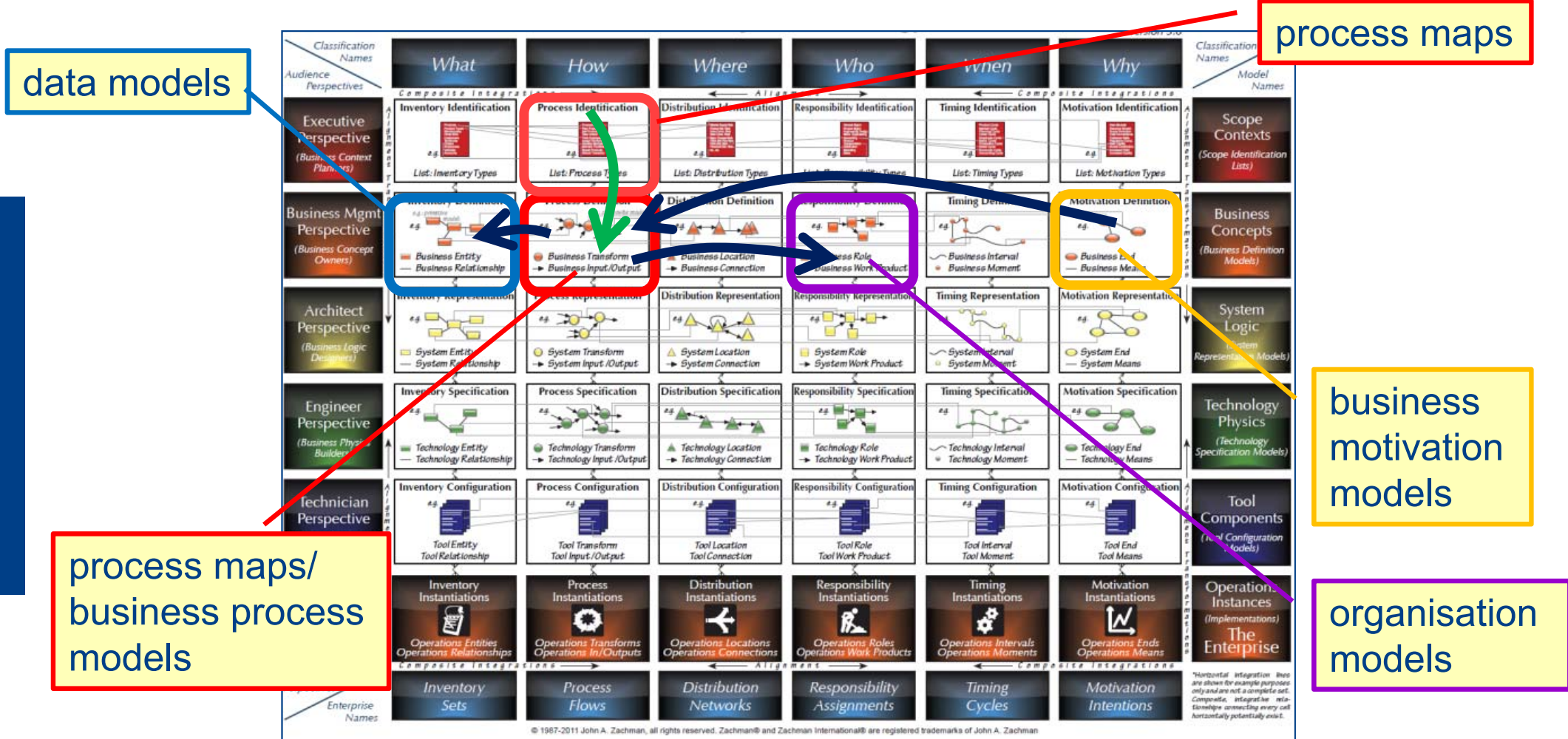
		Business processes				
		Disposition	Production management	Factory planning	Resource planning	...
		BP1	BP2	BP3	BP4	...
Business objects						
Sales order	BO1	R				
Production order	BO2	CUD	CUD	R		
Factory order	BO3			CUD	R	
Stock location	BO4	R	R	R		
Goods receipt doc.	BO5			R		
Storekeeper	BO6				R	
...	...					

CUD Create, Update, Delete  
 R Read





# Horizontal Relations between Processes and other Aspects on the Business Perspective



data models

process maps

business motivation models

organisation models

process maps/  
business process models



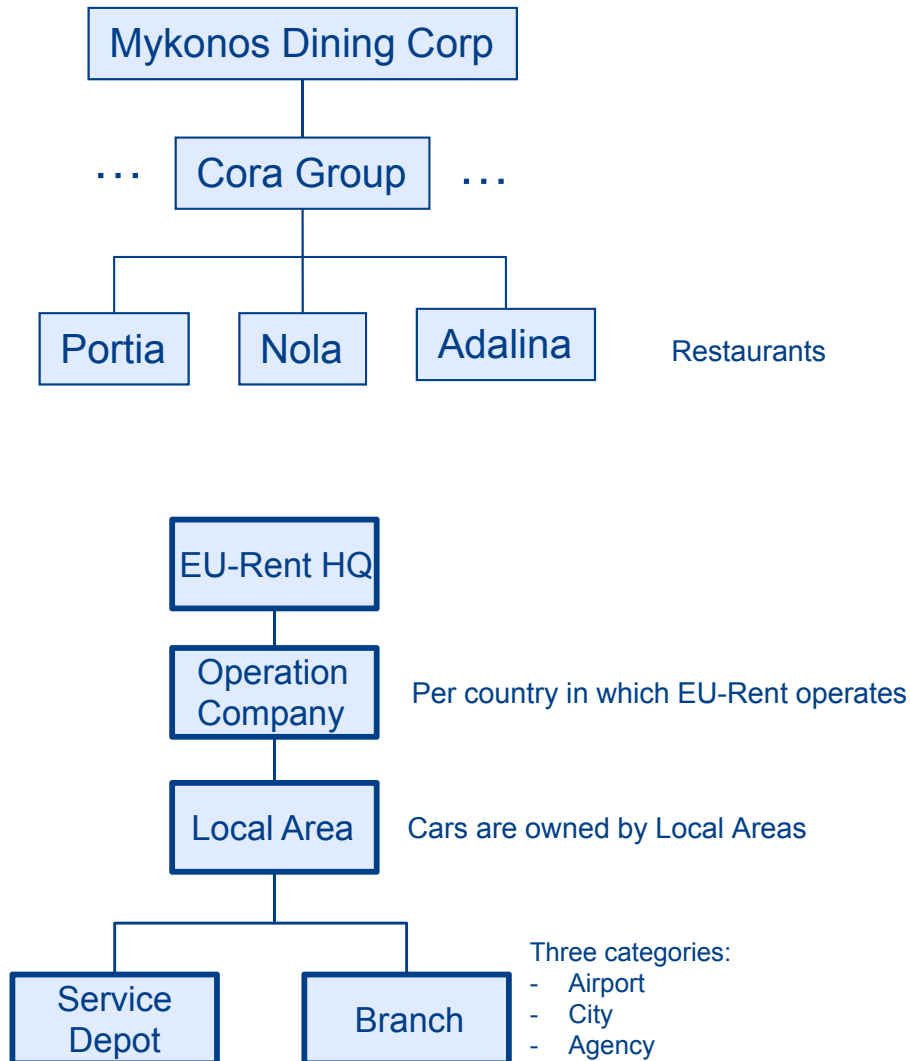
# Enterprise Architecture and Business Process Management

- From the *business process perspective*, enterprise architecture achieves enterprise integration through
  - ◆ capturing and describing processes, strategies, organisation structures, information and material flow, resources etc.
  - ◆ concentration on **how** to perform core business processes in an organisation
  - ◆ considering **who** is executing tasks in the process
  - ◆ considering the information and material flow in the entire process (**what**)
- In this sense, business process management (BPM) relies on enterprise architecture
  - ◆ relating business processes to their enterprise context
- Tools for BPM are part of the toolset of enterprise architecture

adapted from (Bernus et al. 2003, p. 9f)



# Example Enterprises



- The modeling of Business Motivation Model, Business Processes and Organisation Model are explained with examples from two enterprises.

- **Mykonos Dining Corp. and Cora Group**

- ◆ *Mykonos Dining Corp.* is a company which acquired *Cora Group*, a company which owns several restaurants in Washington DC.
- ◆ Cora's flagship restaurant is *Portia* which has the mission of cooking meals fresh.
- ◆ *Nola* is another restaurant of Cora Group that just opened.
- ◆ A third restaurant in the Cora Group is *Adalina*, a fairly new restaurant with only eight tables.

- **EU-Rent**

- ◆ *EU-Rent* is a world-wide operating car rental company. Customers are individuals or companies. Different models of car are offered, organized into groups.

