

Modeling Business Models and their Context

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The Business Process Perspective on Enterprise Architecture

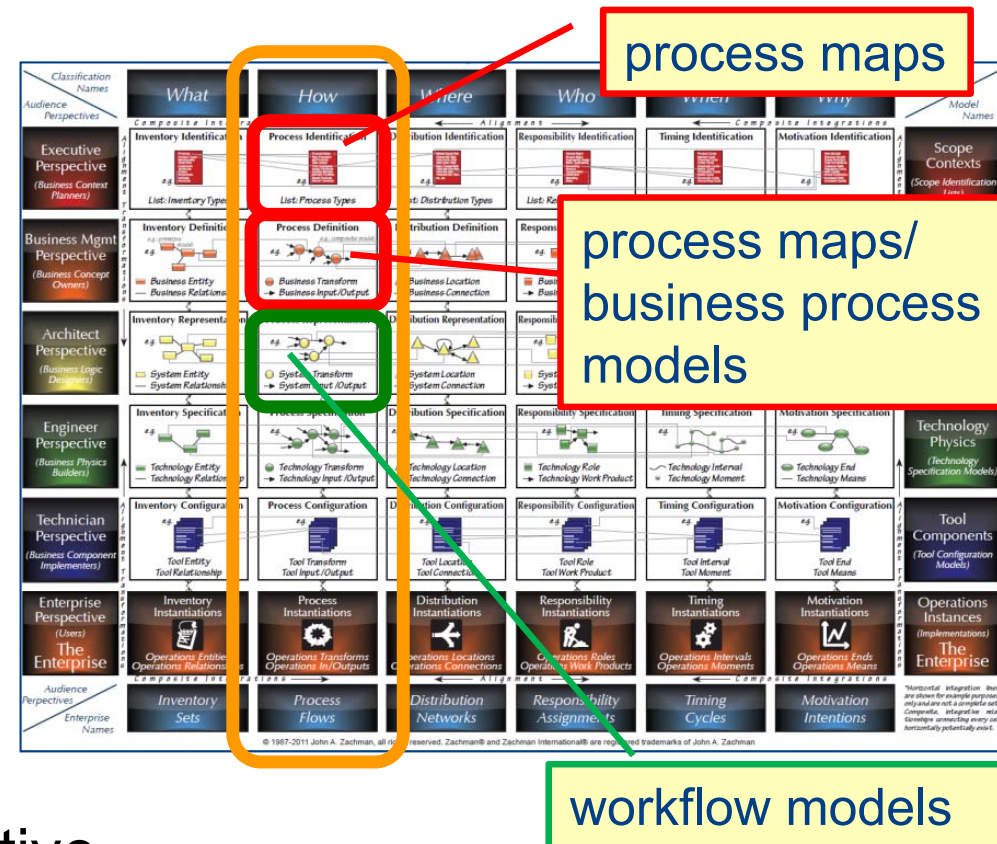
- From the *business process perspective*, enterprise architecture achieves enterprise integration through
 - ◆ capturing and describing processes, strategies, organisation structures, information and material flow, resources etc.
 - ◆ concentration on how to perform core business processes in an organisation
 - ◆ considering the information and material flow in the entire process
- In this sense, business process management (BPM) relies on enterprise architecture

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



Zachman Framework: Business Processes in different Perspectives

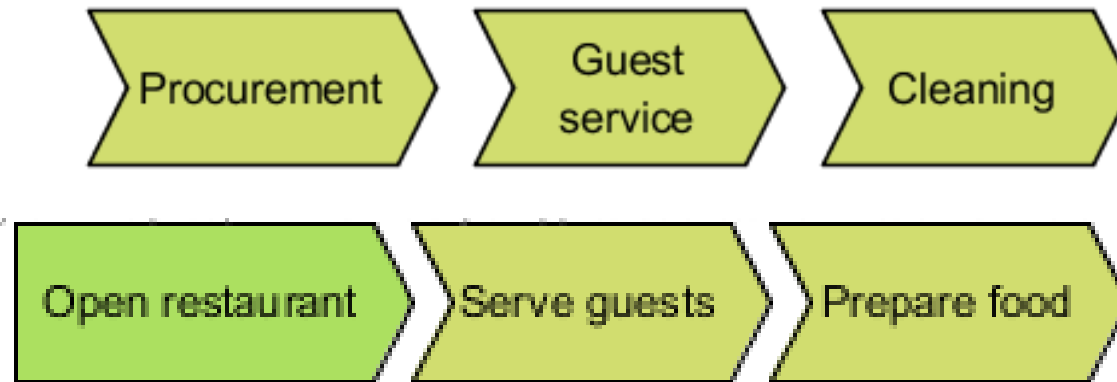
- Vertical Relationships relate the business process represented in the different perspectives
 - ◆ A "process map" is an overview of the enterprise's business processes linking them to the value chain
 - ◆ A "business process model" is a process diagramm from the business perspective.
 - ◆ A "workflow model" or "process implementation" represents the process from the IT perspective



The Workflow Management Coalition defines "workflow" as the automation of a business process

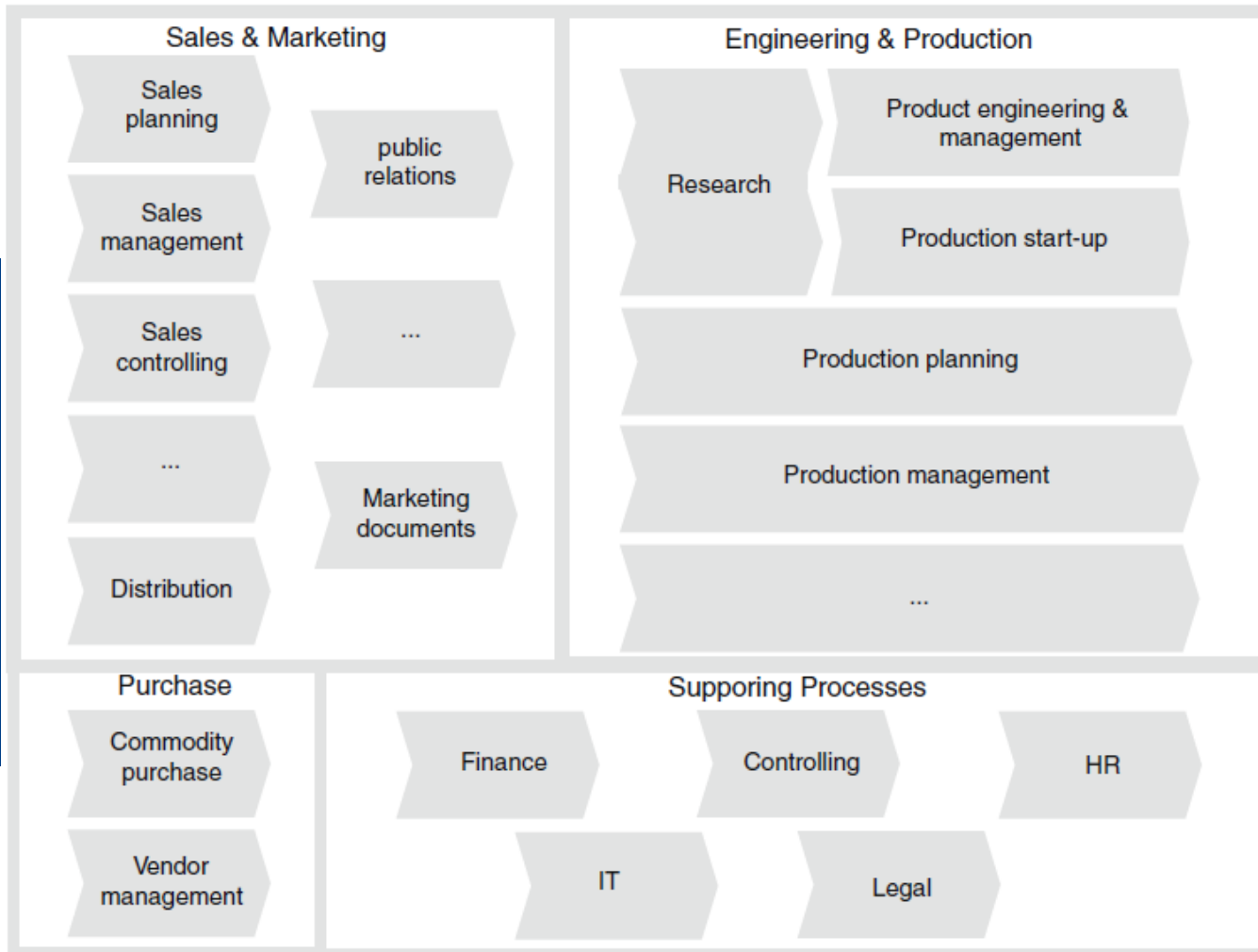


Process Maps



- Process maps give an overview of the business processes on a high level of abstraction
- Each element of a process maps represents a business process
- Process maps represent relationships between processes
 - ◆ grouping processes
 - ◆ logical ordering (e.g. procurement → production → sales)
- But: process maps do not represent control flow, i.e. a predecessor does not necessarily trigger ist successor

Example of a Process Map

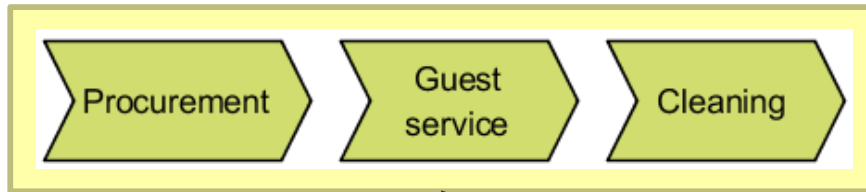


- This example represents a process map as a cluster diagram.
- Business processes on the value-chain level create the “umbrella” clusters, each of which contains a set of sub-processes.
- For example, the sub-process “sales planning” is assigned to its parent process, “sales and marketing”.

(Hanschke 2010, p. 75)

Hierarchical Process Maps

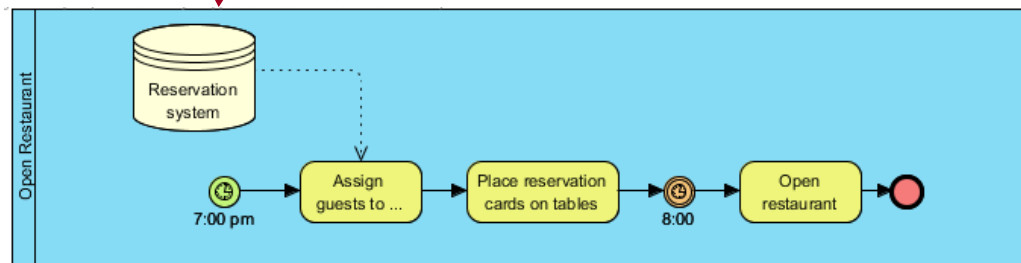
Level 1: Process map



Level 2: Process maps



Level 3: Business processes

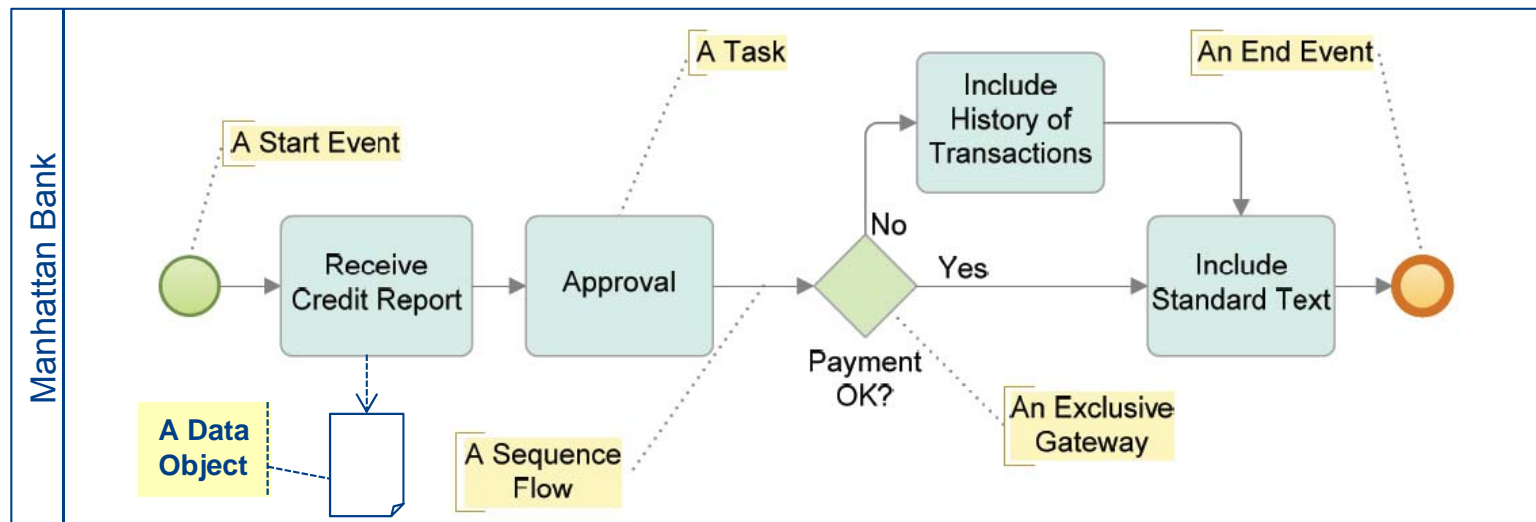


- Process maps can be organized hierarchically. An element either represents
 - ◆ another set of processes (i.e. a process map)
 - ◆ a business process (e.g. in BPMN)



BPMN












- We assume familiarity with Business Process Model and Notation BPMN 2.0



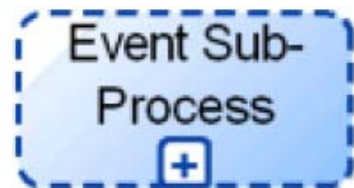
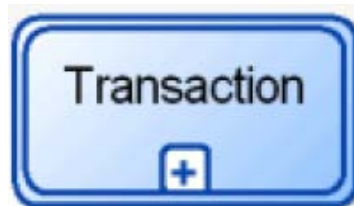
- BPMN was officially adopted as an OMG specification in 2006, updated in 2008 and now available in version 2.0 (<http://www.omg.org/spec/BPMN/2.0/>)
- In the following we only give an overview of the main elements.

Elements of BPMN

Elements of BPMN can be divided into 4 categories:








Flow Objects	Connectors	Artefacts	Swimlanes
<p>Events</p>  <p>Activities</p>  <p>Gateways</p> 	<p>Sequence Flow</p>  <p>Message Flow</p>  <p>Association</p> 	<p>Data Object</p>  <p>Name [State]</p> <p>Text Annotation</p>  <p>Add Text Here</p> <p>Group</p> 	<p>Pool</p>  <p>Lanes (within a Pool)</p> 

Activities

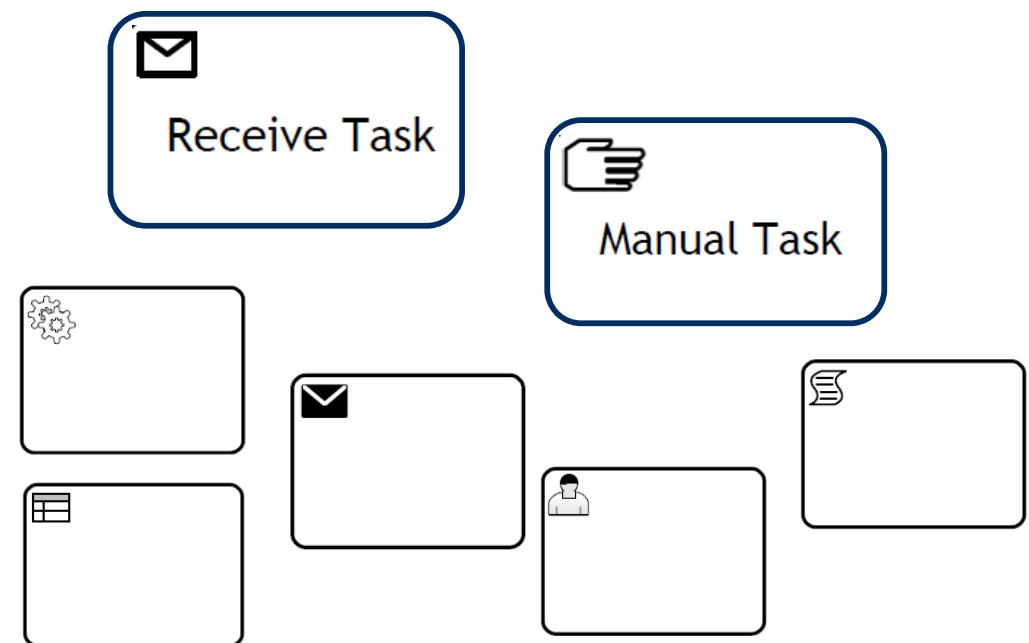


- A **Task** is a unit of work, the job to be performed. When marked with a [+] symbol it indicates a **Sub-Process**, an activity that can be refined.
- A **Transaction** is a set of activities that logically belong together; it might follow a specified transaction protocol. .
- An **Event Sub-Process** is placed into a Process or Sub-Process. It is activated when its start event gets triggered and can interrupt the higher level process context or run in parallel (non-interrupting) depending on the start event.
- A **Call Activity** is a wrapper for a globally defined Sub-Process or Task that is reused in the current process.

Task Types







	Send Task
	Receive Task
	User Task
	Manual Task
	Business Rule Task
	Service Task
	Script Task

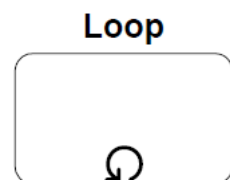
- Types specify the nature of the action to be performed.
- They can be identified by a symbol inside the object.



Activity Markers

- Markers indicate execution behavior of activities / subprocesses

	Sub-Process Marker
	Loop Marker
	Parallel MI Marker
	Sequential MI Marker
	Ad Hoc Marker
	Compensation Marker

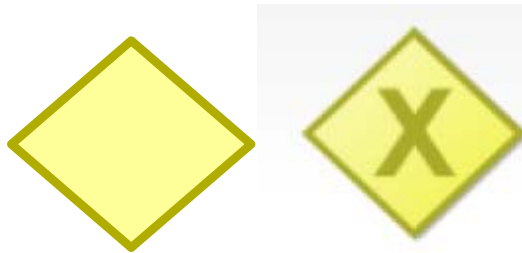


Event-Types

		None	Message	Timer	Con- ditional	Signal	Escalation	Error	Com- pensation	Multiple	Parallel Multiple	Link	Cancel	Terminate
Start Events	Top-Level													
	Event Sub- Process Interrupting													
	Event Sub- Process Non- Interrupting													
Inter- mediate Events	Catching													
	Throwing													
	Boundary Interrupting													
	Boundary Non- Interrupting													
End Events														



Gateways – Splitting and Merging



Exclusive Gateway: When splitting, it routes the sequence flow to exactly one of the outgoing branches. When merging, it awaits one incoming branch to complete before triggering the outgoing flow.



Event-based Gateway: Sequence flow is routed to the subsequent event/task which happens first.

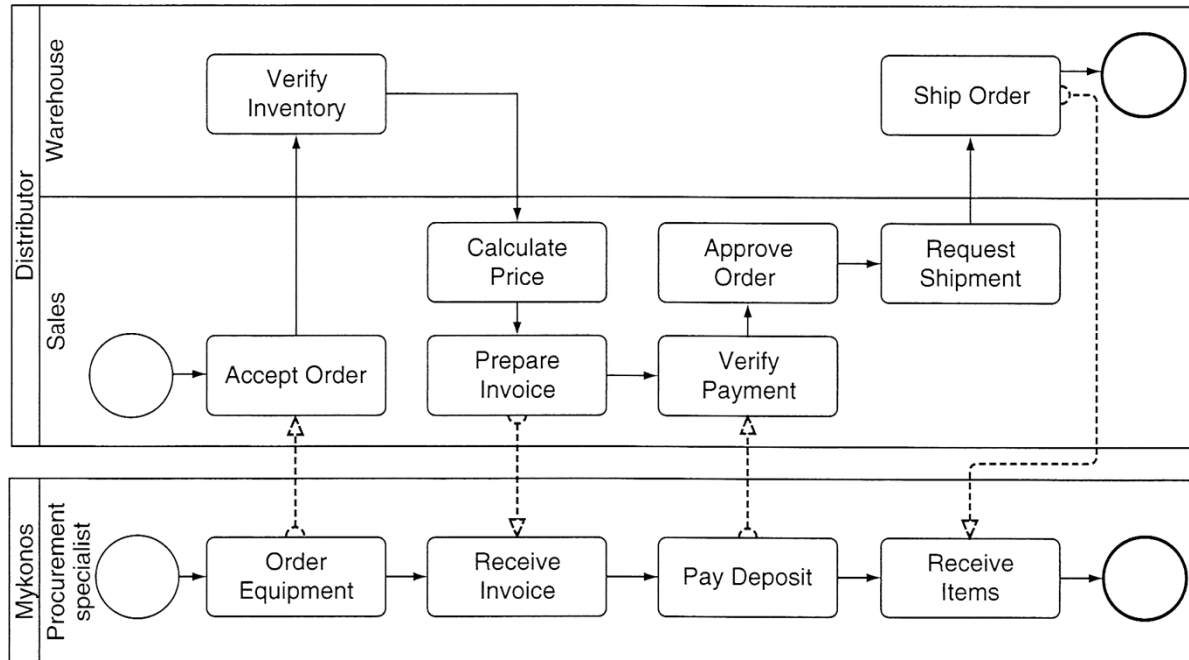
Parallel Gateway (AND): When used to split the sequence flow, all outgoing branches are activated simultaneously. When merging parallel branches it waits for all incoming branches to complete before triggering the outgoing flow.



Inclusive Gateway (OR): When splitting, one or more branches are activated. All active incoming branches must complete before merging.

n|w Swimlanes

- Swimlanes partition and organise activities
- There are two main types of swimlanes: Pool and Lane
 - ◆ A pool contains a process or it represents a participants in an interactive (B2B) Business Process Diagram.
 - ◆ Lanes represent sub-partitions for the objects within a Pool – they represent participants of a process



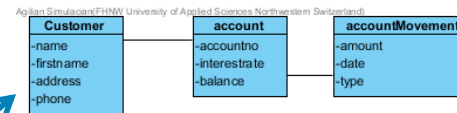
(Bridgeland & Zahavi 2009, p. 123)



References in BPMN

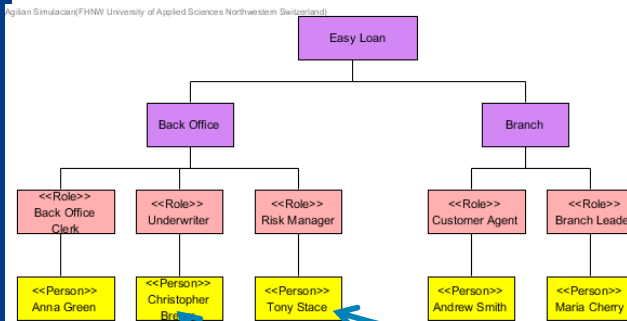
- Process models represent the flow of work.
- Processes are related to other aspects of business
- These are represented by references to other models.

An element in a process map corresponds to a process diagramm

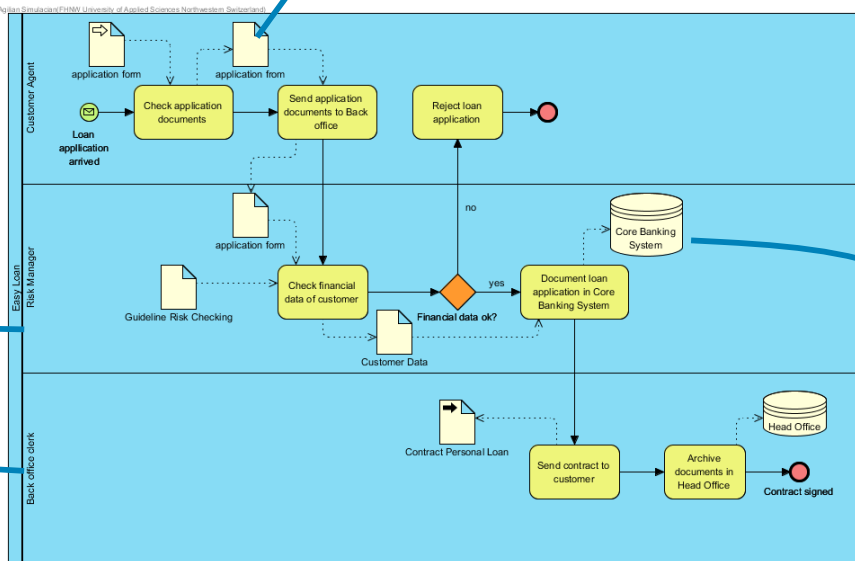


Data Objects can refer to

- data models
- document models



Lanes refer to elements in an organisation model



Data stores may refer to IT model



Relationships from and to Business Process Diagrams

There are two kinds of relations from/to BPMN

- Relations **to** process **models as a whole**
 - ◆ Process maps
 - ◆ Business motivations
- Relations **from** process model elements to **elements** in other models
 - ◆ data objects in document models and data models
 - ◆ organisation units in organisation models
 - ◆ applications and application services in IT models
 - ◆ business rules

References in BPMN

- Artifacts in BPMN stand for data objects
 - ◆ Data object in BPMN can represent different kinds of data
 - structured data
 - documents
 - ◆ Data store (applications)
- Lanes and pools represent organisational elements
 - ◆ organisation units
 - ◆ roles
 - ◆ people

Data and organisation are modeled in their own models; their elements can be referenced from BPMN