SOM based on ADOxx
Prototyp 2

Fundamentals,
Model Transformation and
Project Overview

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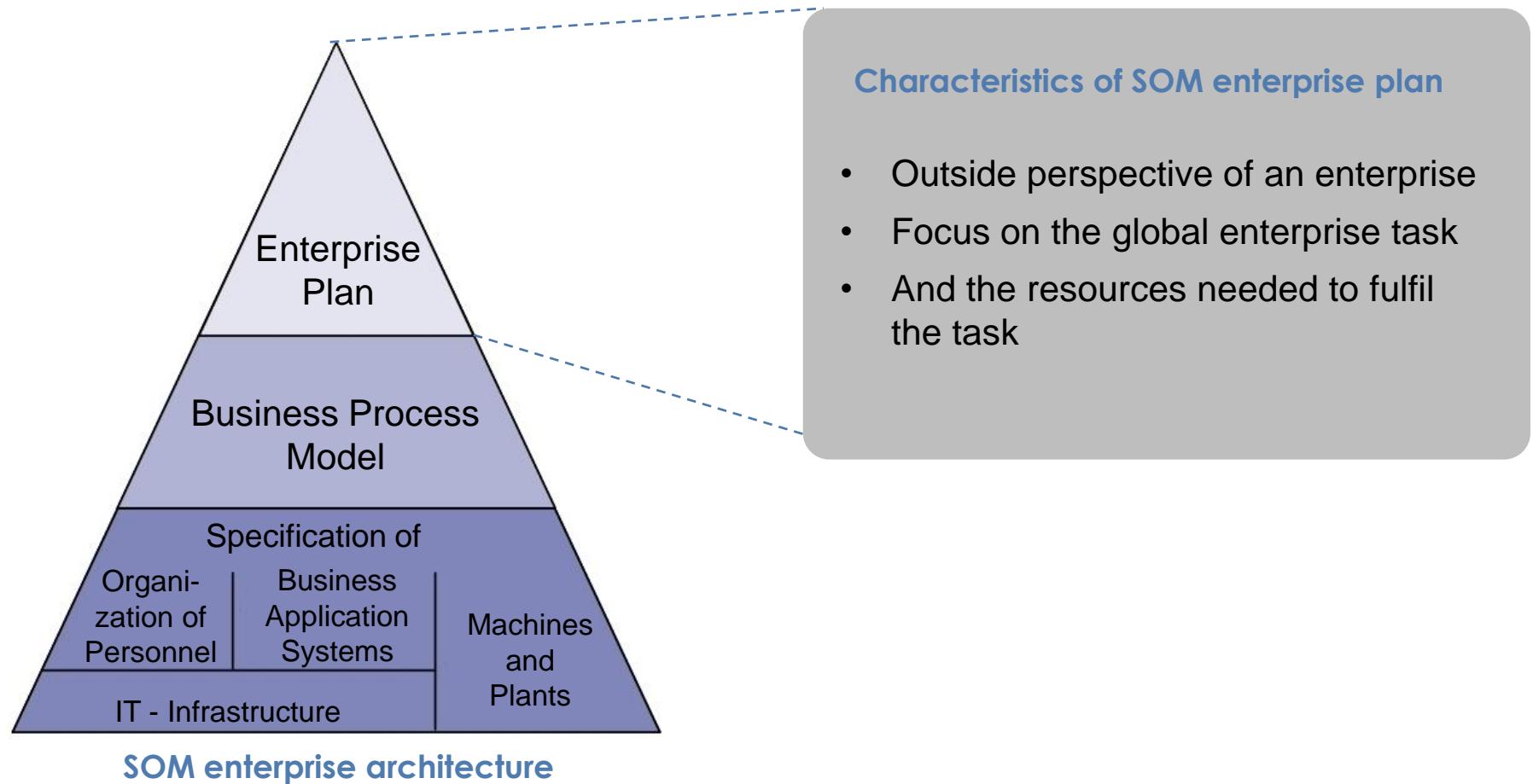
1. Semantic Object Model (SOM)

1. Charakteristics of SOM

2. A first SOM business process model

3. Process model of the SOM methodology

4. SOM decomposition rules

5. Model Transformation
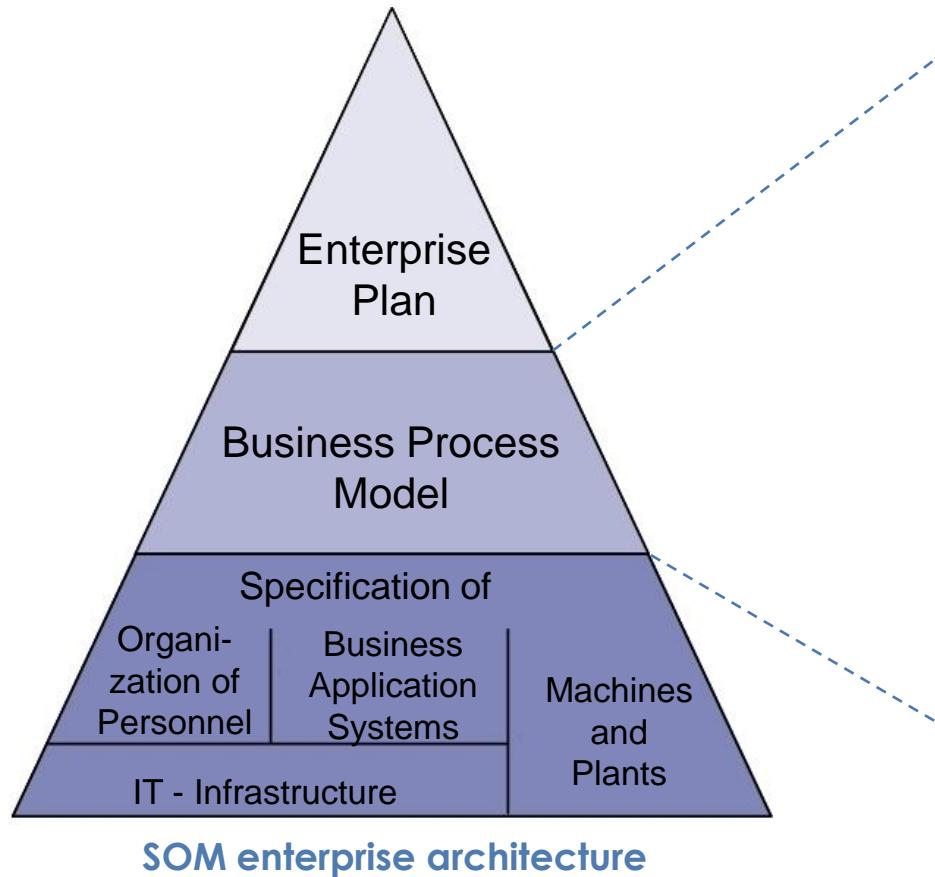
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1. Semantic Object Model (SOM)
1. Charakteristics of SOM


Characteristics of SOM enterprise plan

- Outside perspective of an enterprise
- Focus on the global enterprise task
- And the resources needed to fulfil the task

Enterprise Plan

Business Process Model

Specification of

Organi-zation of Personnel

Business Application Systems

Machines and Plants

IT - Infrastructure

SOM enterprise architecture

Source: Ferstl and Sinz, Grundlagen der Wirtschaftsinformatik

1. Semantic Object Model (SOM)
## 1. Charakteristics of SOM

SOM enterprise architecture
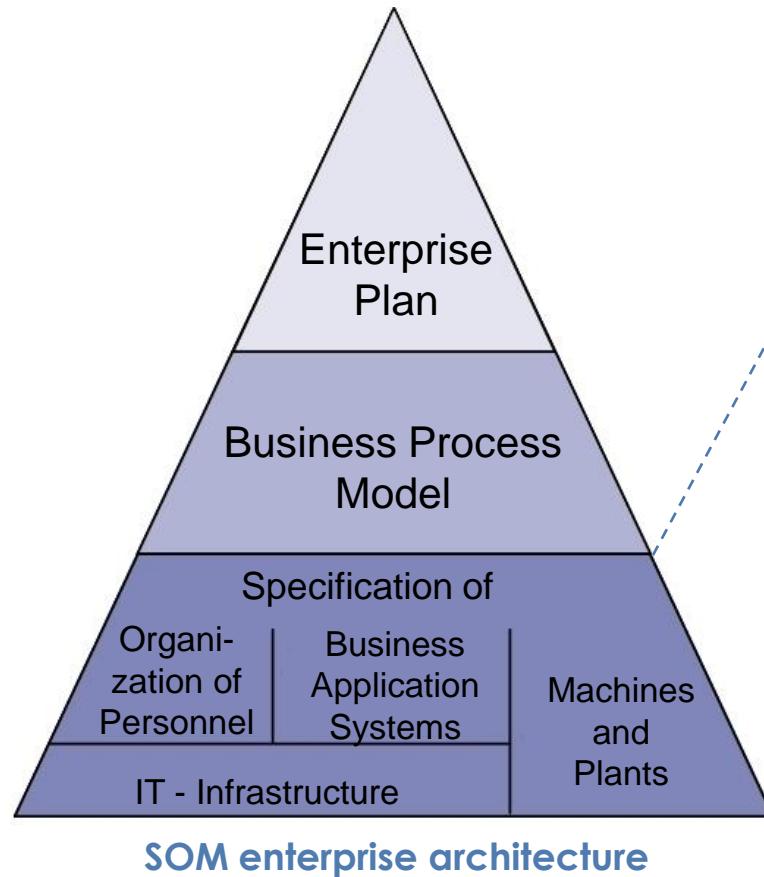
Characteristics of SOM business process modelling

- Inside perspective of an enterprise

- Specification of the task layer of an enterprise

- Modelling is grounded in systems theory and organisational theory

- Specification as a distributed system, consisting of business objects and business transactions

- Recursive refinement of business objects and business transactions

- Model representation using a graph-based multi-view approach

Source: Ferstl and Sinz, Grundlagen der Wirtschaftsinformatik

1. Semantic Object Model (SOM)
1. Charakteristics of SOM

Enterprise Plan

Business Process Model

Specification of

Organi-
zation of
Personnel

Business
Application
Systems

Machines
and
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SOM enterprise architecture

Characteristics of SOM specification of resources
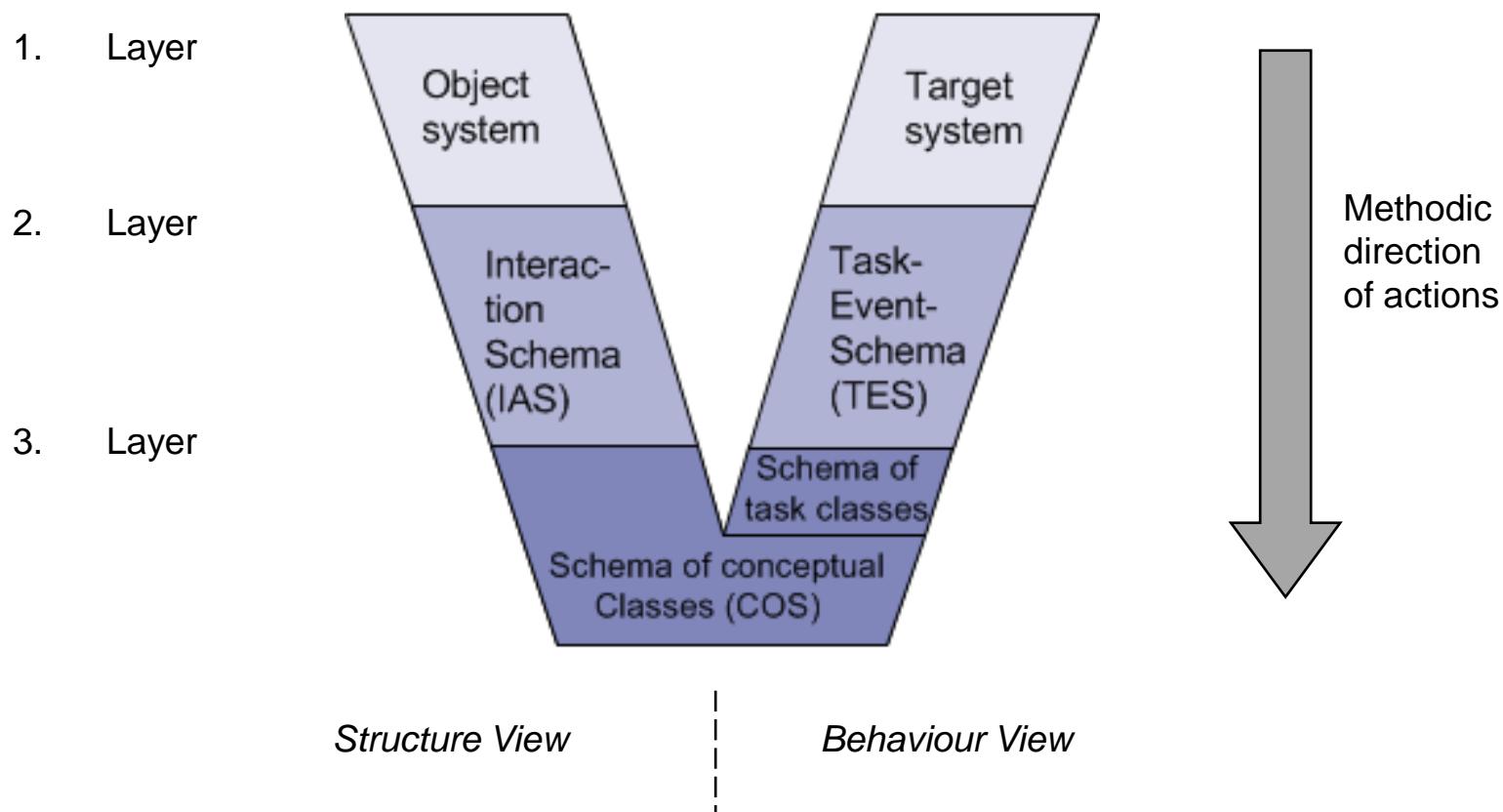
- Inside perspective of an enterprise

- Specification of the resources needed to fulfil the business processes

- Personnel for the execution of non-automated tasks

- Business application systems for the execution of automated tasks

Source: Ferstl and Sinz, Grundlagen der Wirtschaftsinformatik

1. Semantic Object Model (SOM)
3. Process model of the SOM methodology

V-Model

1. Layer

2. Layer

3. Layer

Object system

Target system

Interac-tion Schema (IAS)

Task-Event-Schema (TES)

Schema of task classes

Schema of conceptual Classes (COS)

Methodic direction of actions

Structure View   *Behaviour View*

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1. Semantisches Objektmodell (SOM)
4. SOM decomposition rules

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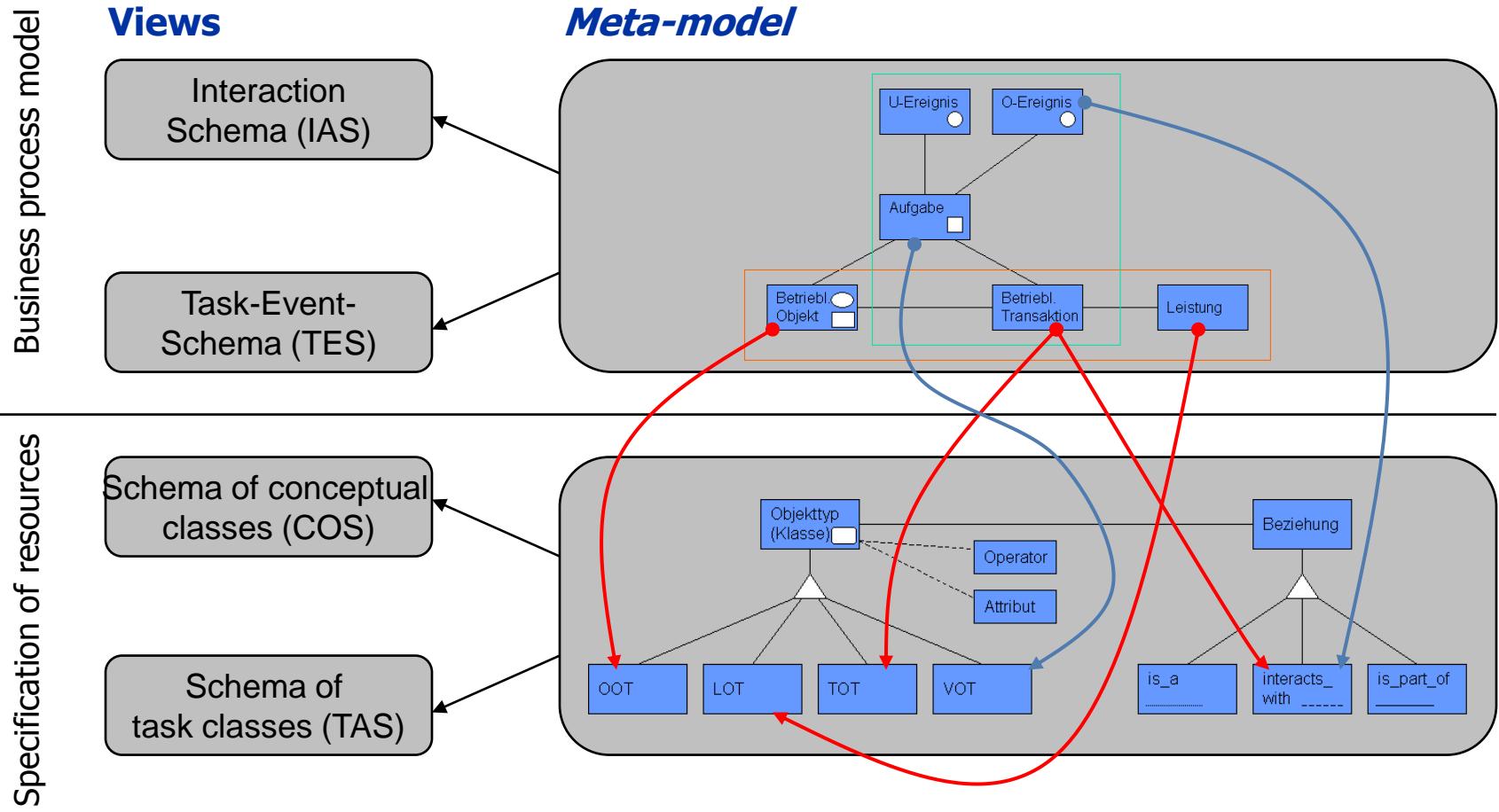
Decomposition of business objects and business transactions

Rule Nr.	Object Decomposition Rules:	
(1)	O	$::= \{ O', O'', T_r(O', O''), [T_f(O'', O')] \}$
(2)	O	$::= \{ O', O'', [T(O', O'')] \}$
(3)	O	$::= \{ \text{spez } O' \}^+$
(4)	O' | O''	$::= O$
	Transaction Decomposition Rules:	
(5)	T(O, O')	$::= [[T_i(O,O') \text{ seq}] T_c(O', O) \text{ seq}] T_e(O, O')$
(6)	T_x	$::= T'_x \{ \text{seq } T''_x \}^+ \| T_x \{ \text{par } T''_x \}^+$
		(für x = i, c, e, r, f)
(7)	T_x	$::= \{ \text{spez } T'_x \}^+$
		(für x = i, c, e, r, f)
(8)	$T_i \| T_c \| T_e$	$::= T$
(9)	$T_r \| T_f$	$::= T$

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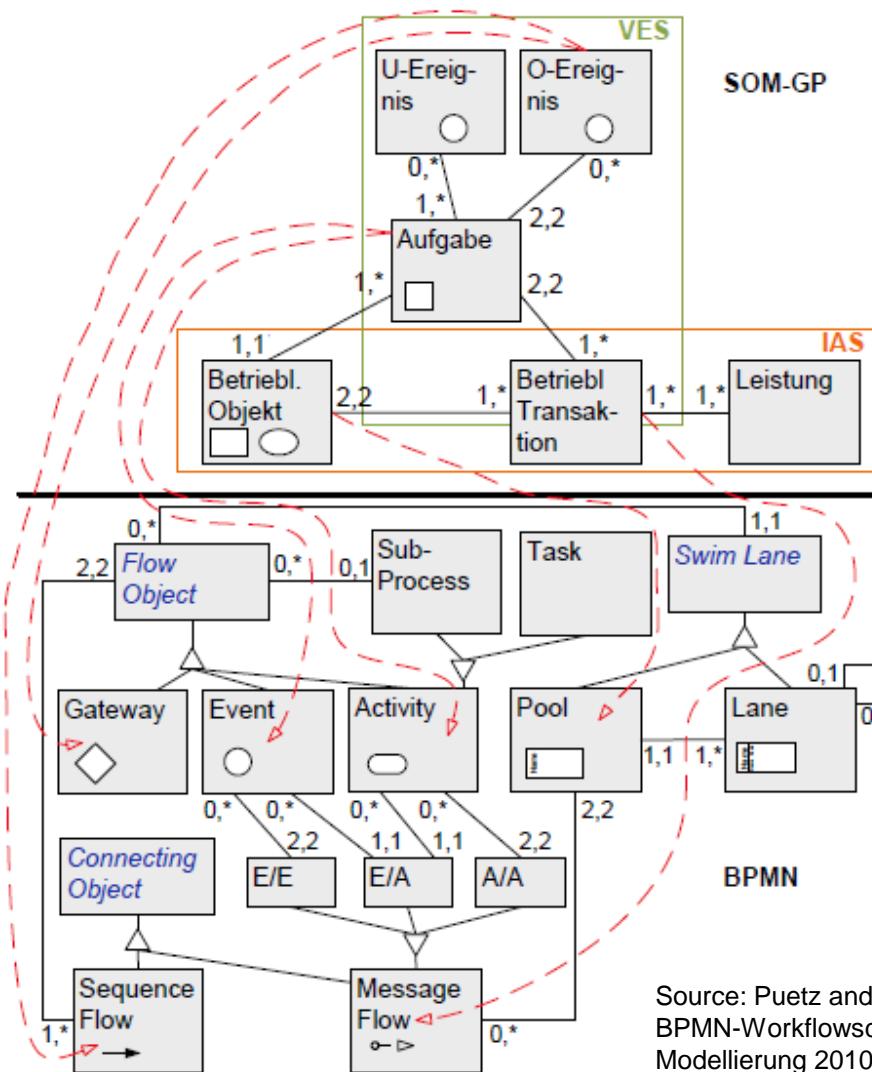
1. Semantisches Objektmodell (SOM)
5. Model Transformation 1: COS and TAS

Meta-model-based Transformation

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1. Semantisches Objektmodell (SOM)
5. Model Transformation 2: BPMN

Source: Puetz and Sinz, Modellgetriebene Ableitung von BPMN-Workflowschemata aus SOM-Geschäftsprozessmodellen, Modellierung 2010, Klagenfurt

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ToDos Dezember 2010

- Orthogonalize the operators ✅

- Improve the model transformation (COS / TAS / BPMN) ✅

- Implementation of new dialogues => context-aware! ✅

- Testing the model transformations => Debugging! ✅

- Model validating expansion ✅

- Import/Export of SOM models ❓

- Consider the feedback of the first prototyp ✅

- Expand model attributes ✅

- Comprehensive user's manual ❓

- Implementation of a „*Do-Undo-Redo*" protocol ❓

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Additional work between Dez'10 and Sep'11

- Integration of **context** in SOM business process models

- Integration of **PRE- & POST-Conditions** in TES

- Colour of model elements revised

- Improved the initial start-up of Som business process models

- Comprehensive test- and debugging phase

- Context menus depend now on the selected model

- Automatically zoom the window to the minimal visible size (Zoom)

- Improving the Usability by adding model attributes (Window-Zooming, TES ordering, etc..)

Miscellaneous

- CeBIT 2011 participation

- forFLEX working paper in development

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## 2. Project Overview and Outlook

ToDos September 2011
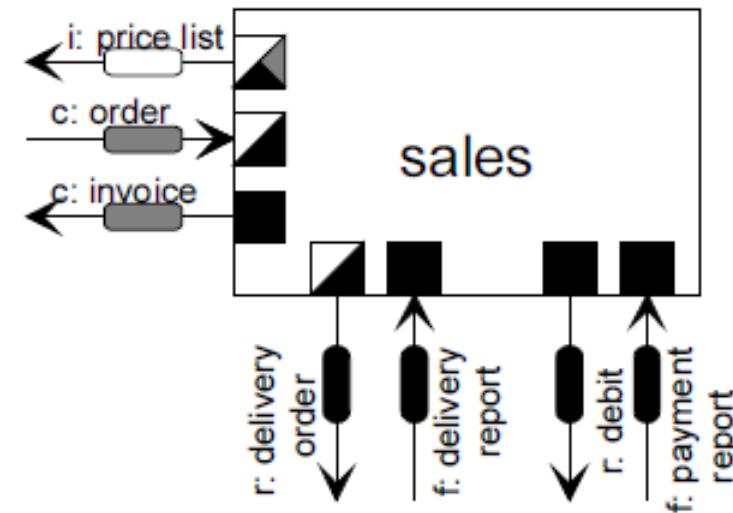
- Consider context information in COS and TAS generation

- Integration of simulation (e.g. use the simulation package ADOxx provides)

- Further improve the model transformation (COS / TAS / BPMN)

- Import/Export of SOM models

- Visualise degree of automation in SOM models (see next slide)

Miscellaneous

- Integrate the tool in teaching classes

- Configurate the client/server infrastructure at the University of Bamberg

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2. Project Overview and Outlook

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2. Project Overview and Outlook

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Functionality of the second prototype:

- No limitation to business process modelling
- Model validation (rudimental level)
- Model-driven derivation of
    - Schema of conceptual classes (COS)
    - Schema of task classes (TAS)
    - BPMN
- Modelling of context-aware business process models

Project roadmap

- WS 2011/12:
    - Usage of the tool in teaching classes at the University of Bamberg
    - Debugging based on the given feedback

- SS 2012: Prototyp 3
    - Simulation
    - Context in COS/TAS
    - etc..
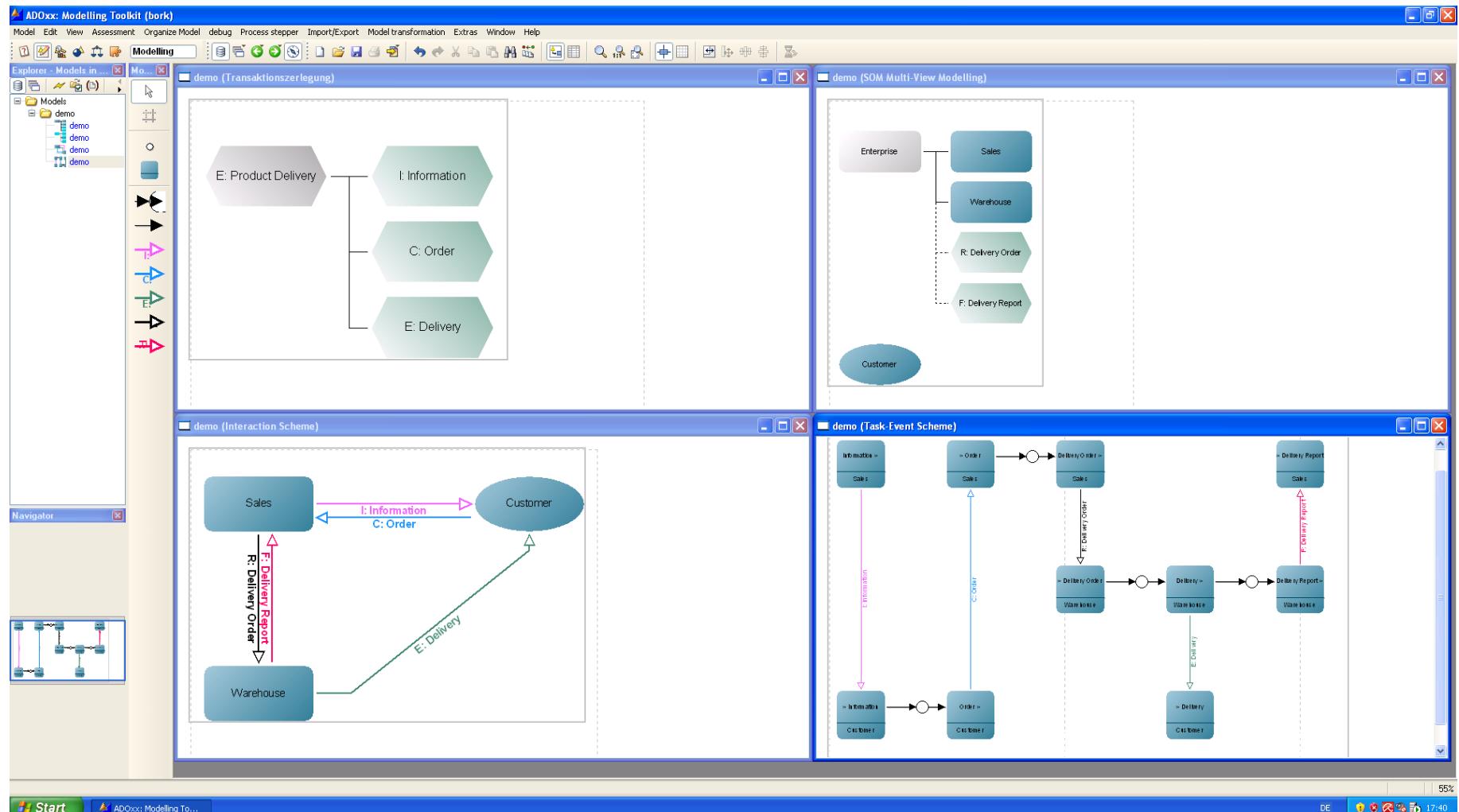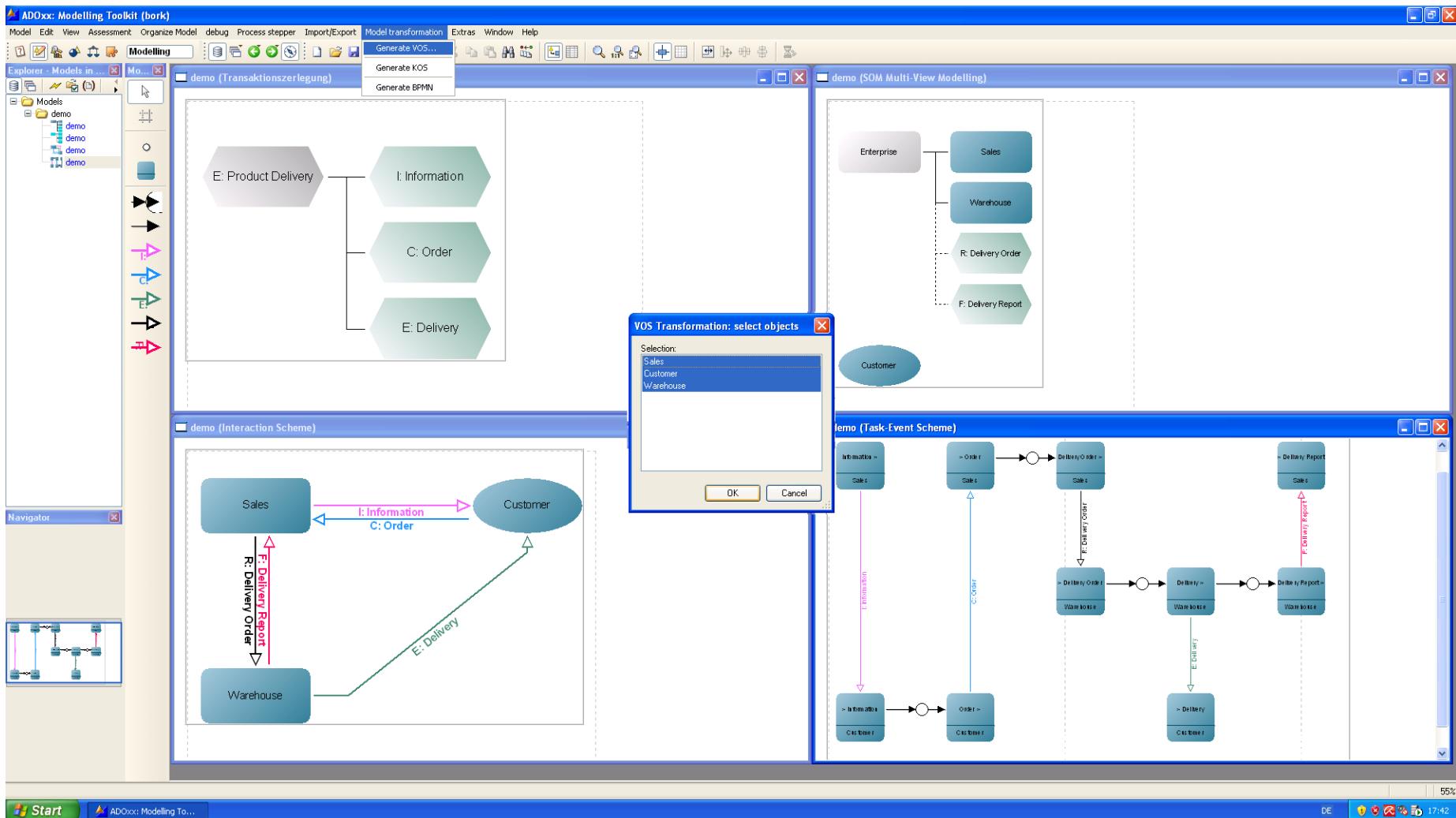
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Tool Demo

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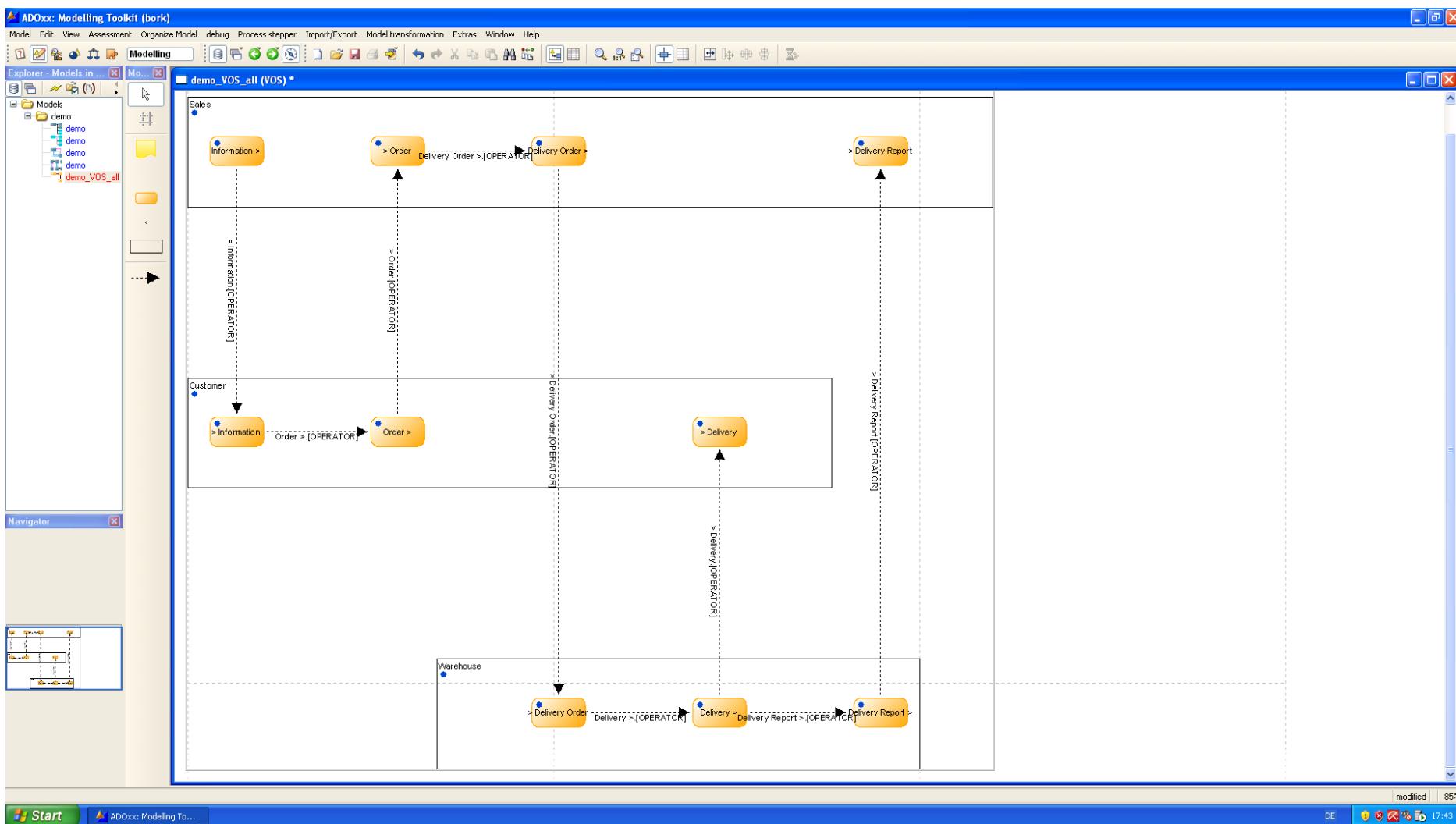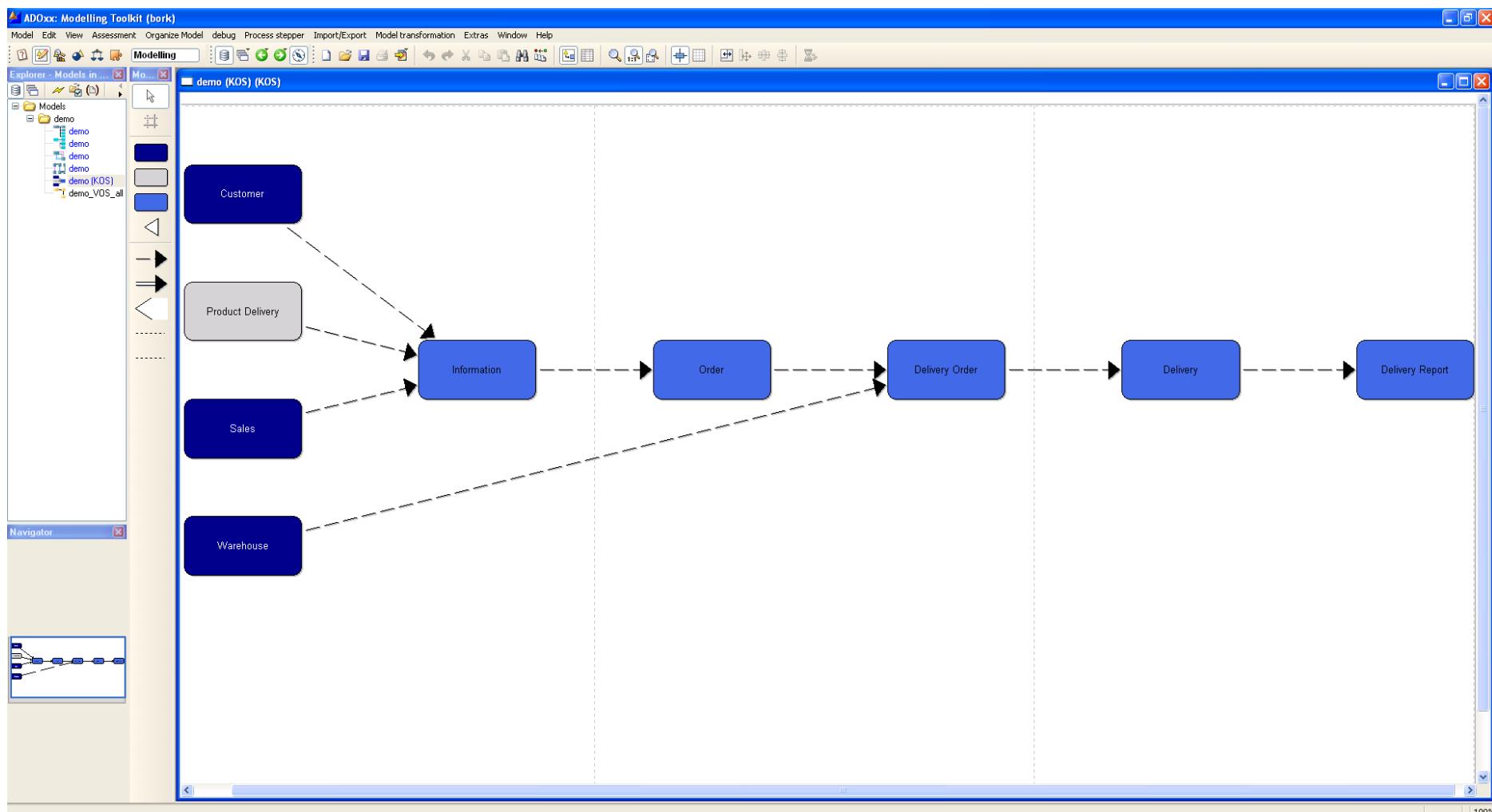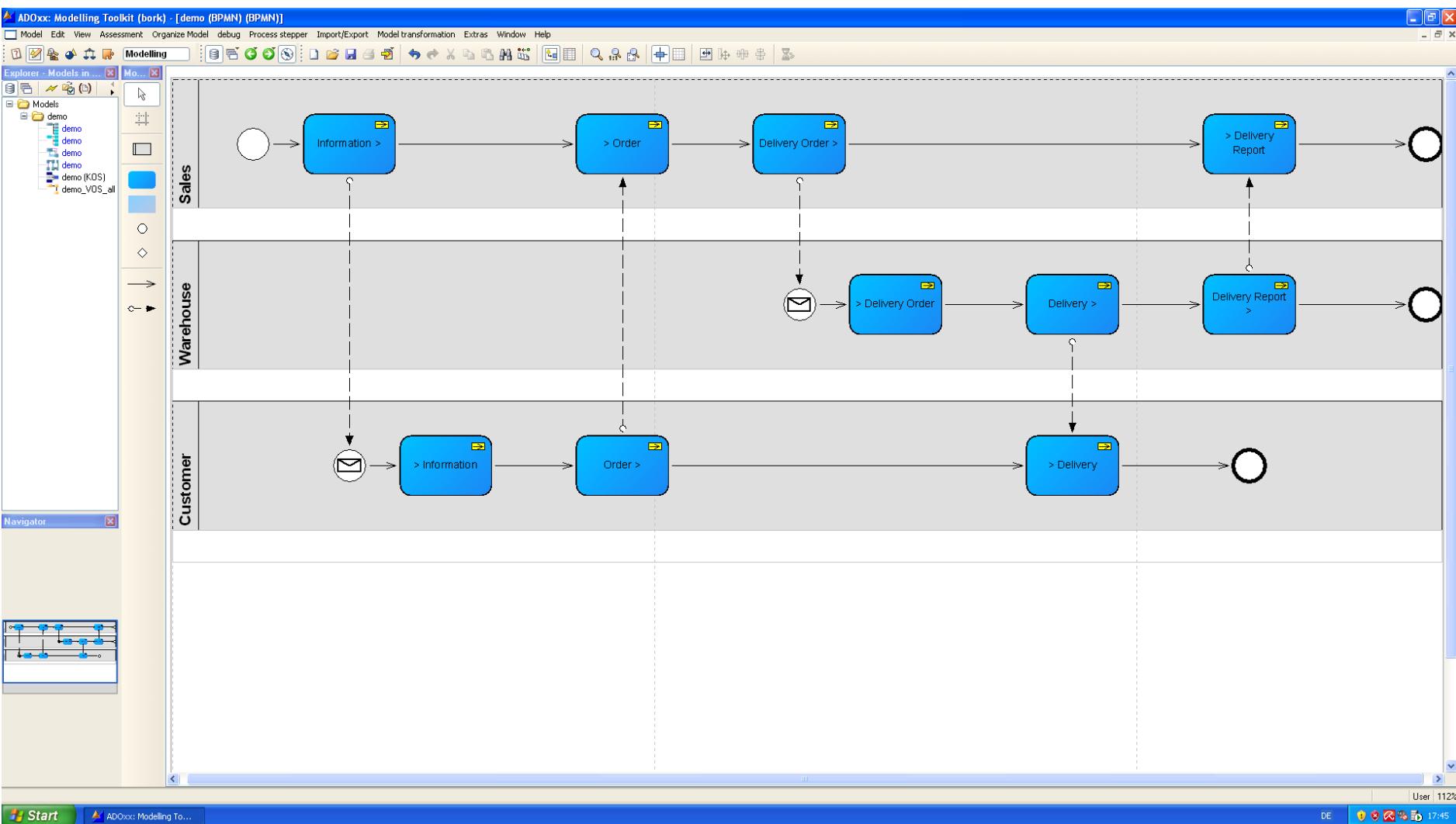
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