Object Oriented and Net Based Modeling of Business Processes

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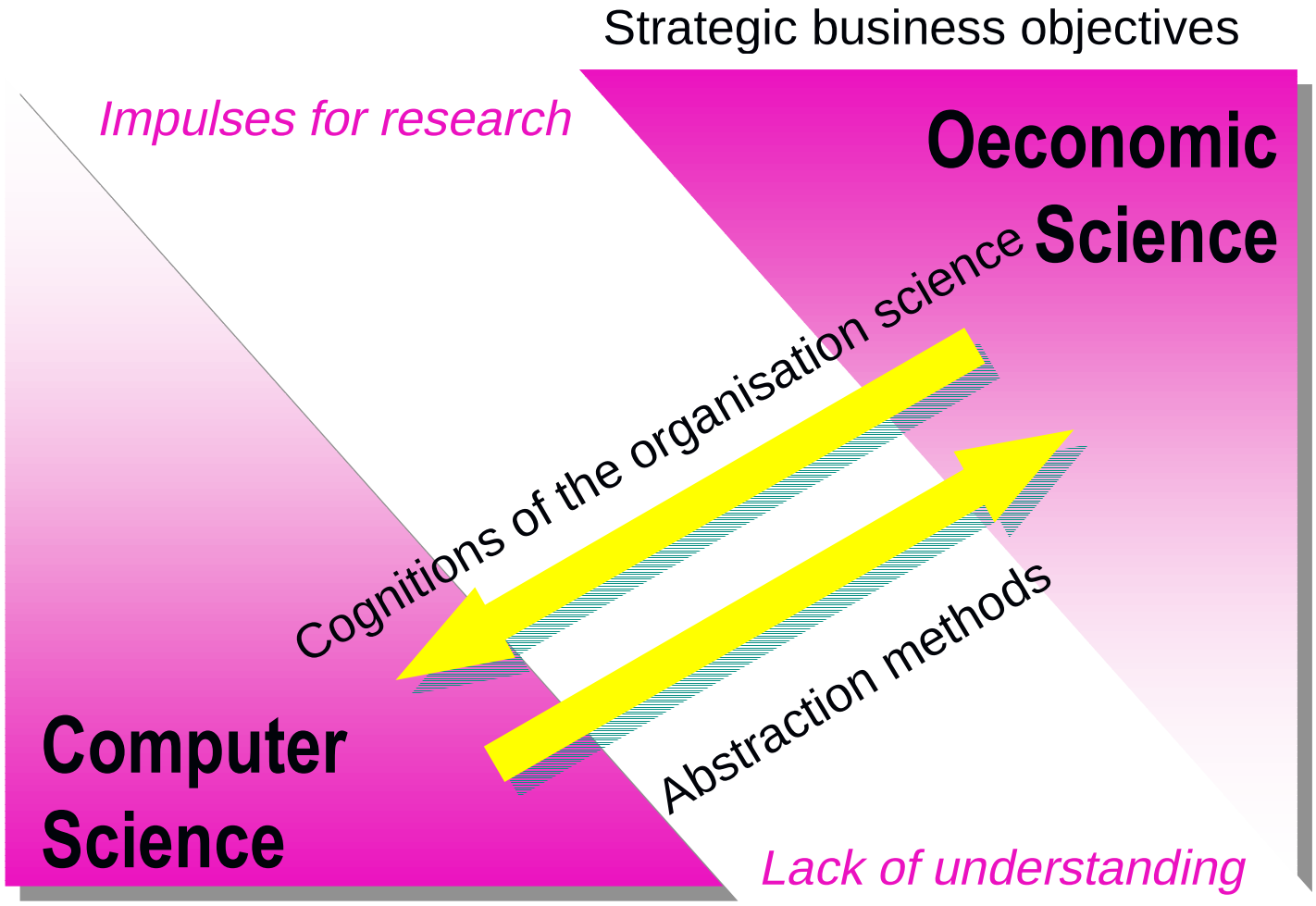
Topics

- 1. Introduction
- 2. UML as standard for OO Modeling
- 3. The Object Process Net
- 4. Creating a business process model
- 5. Tool support
- 6. Summary and further works

Motivation

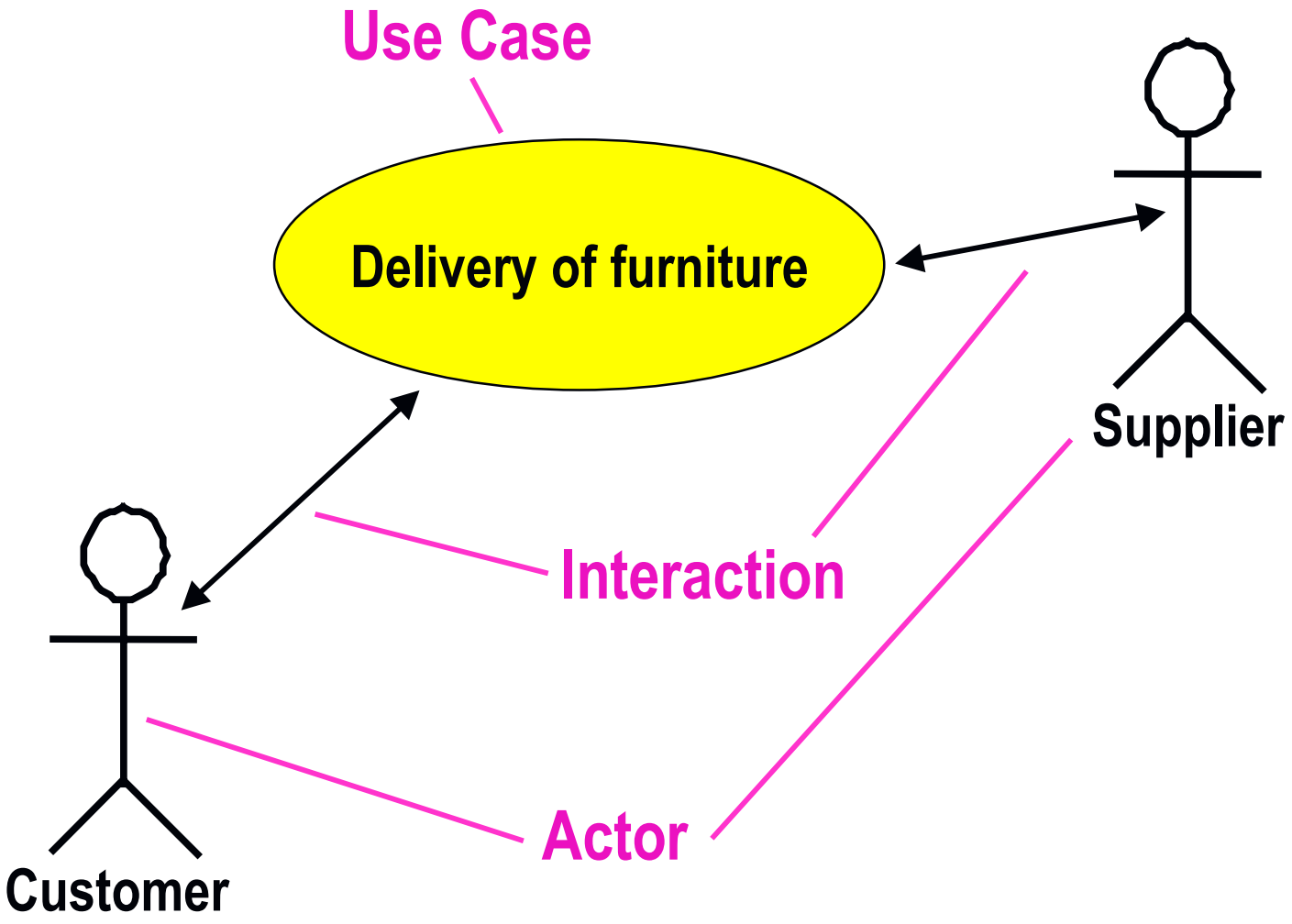

Strategic business objectives
Impulses for research
Oeconomic Science
Cognitions of the organisation science
Abstraction methods
Computer Science
Lack of understanding
Preparation of Tools

Unified Modeling Language

- Unification and development of several modeling methods (Booch, Rumbaugh and Jacobson)
- Language for visualizion, specification, construction and documentation
- Family of diagrams with common graphical notation
- Diagrams represent different views to the model
- Given elements can be adapted by stereotypes
- Accepted as standard by the OMG

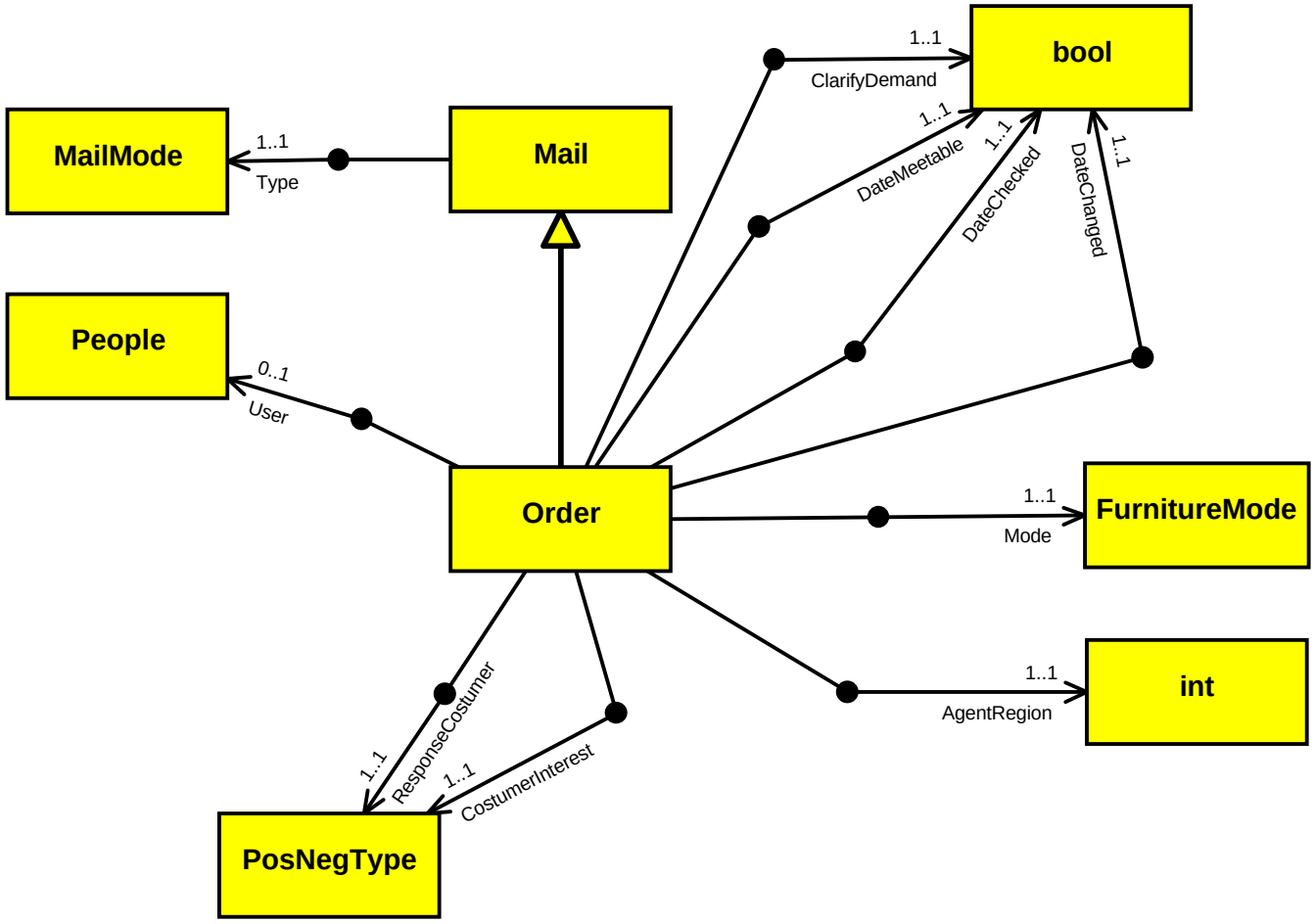
- Software engineering process is missing
- Static aspects are preferred
- Few simulation possibilities

Use Case Diagram

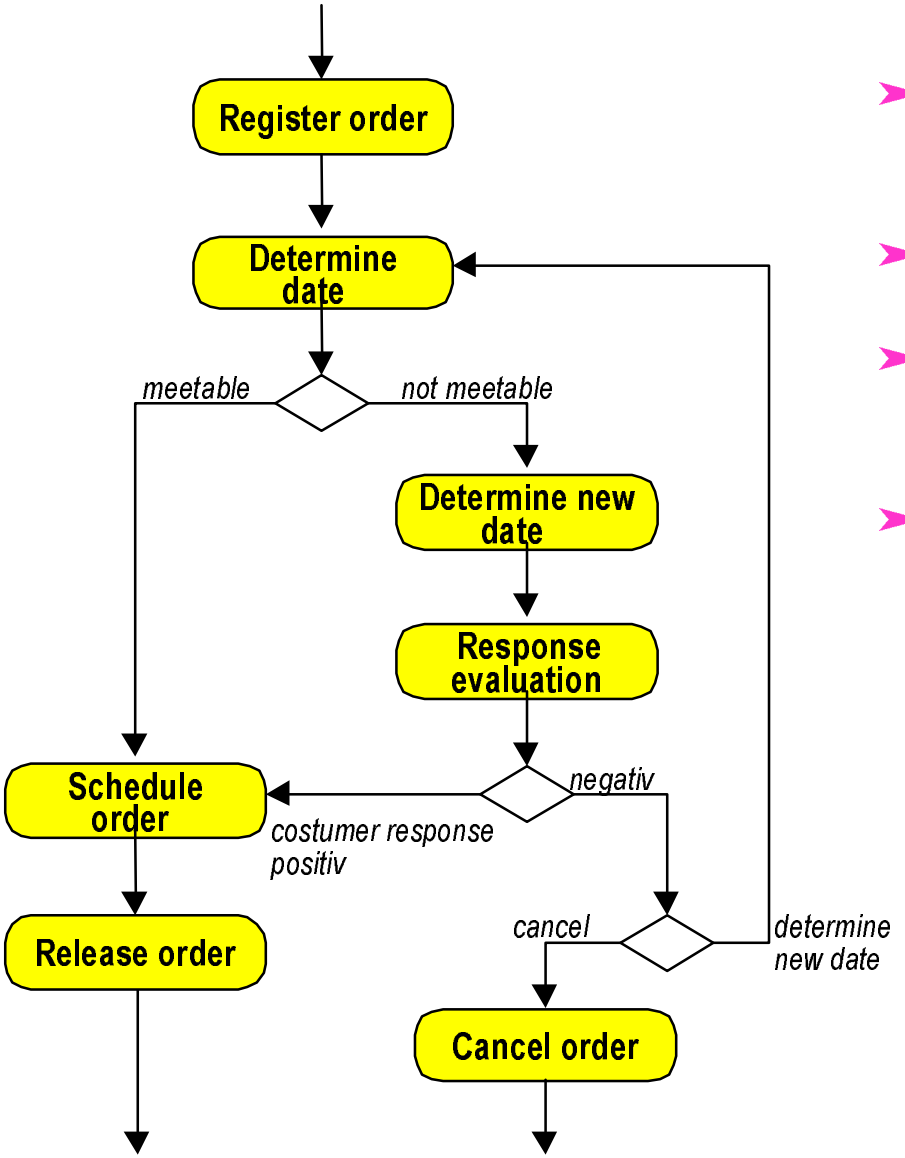


Class Structure Diagram

- Static and structural aspects of a system



Activity Diagrams



- Models dynamic behaviour
- Special kind of state chart
- Parallelisms and splits can be represented
- Basic structures of business processes defined by

can be captured

Petri Net Based Method for OO Modeling of Processes

- *Inheritance*
- *Re-Use*
- *Polymorphism*

Object - Process - Net

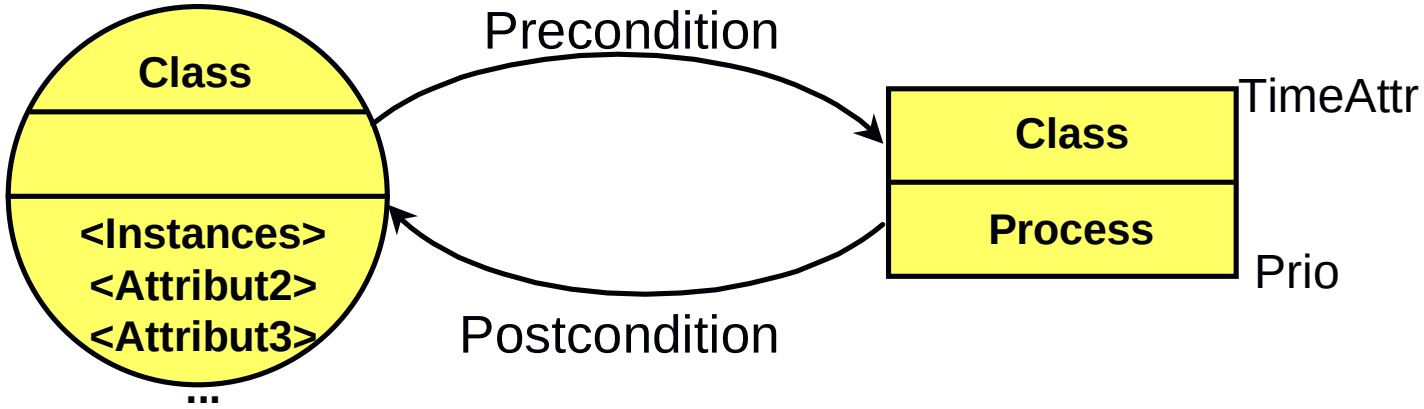
Description of the **dynamic aspects** of a system

- *Simulation*
- *Formalism*
- *Verification*

Object Process Net

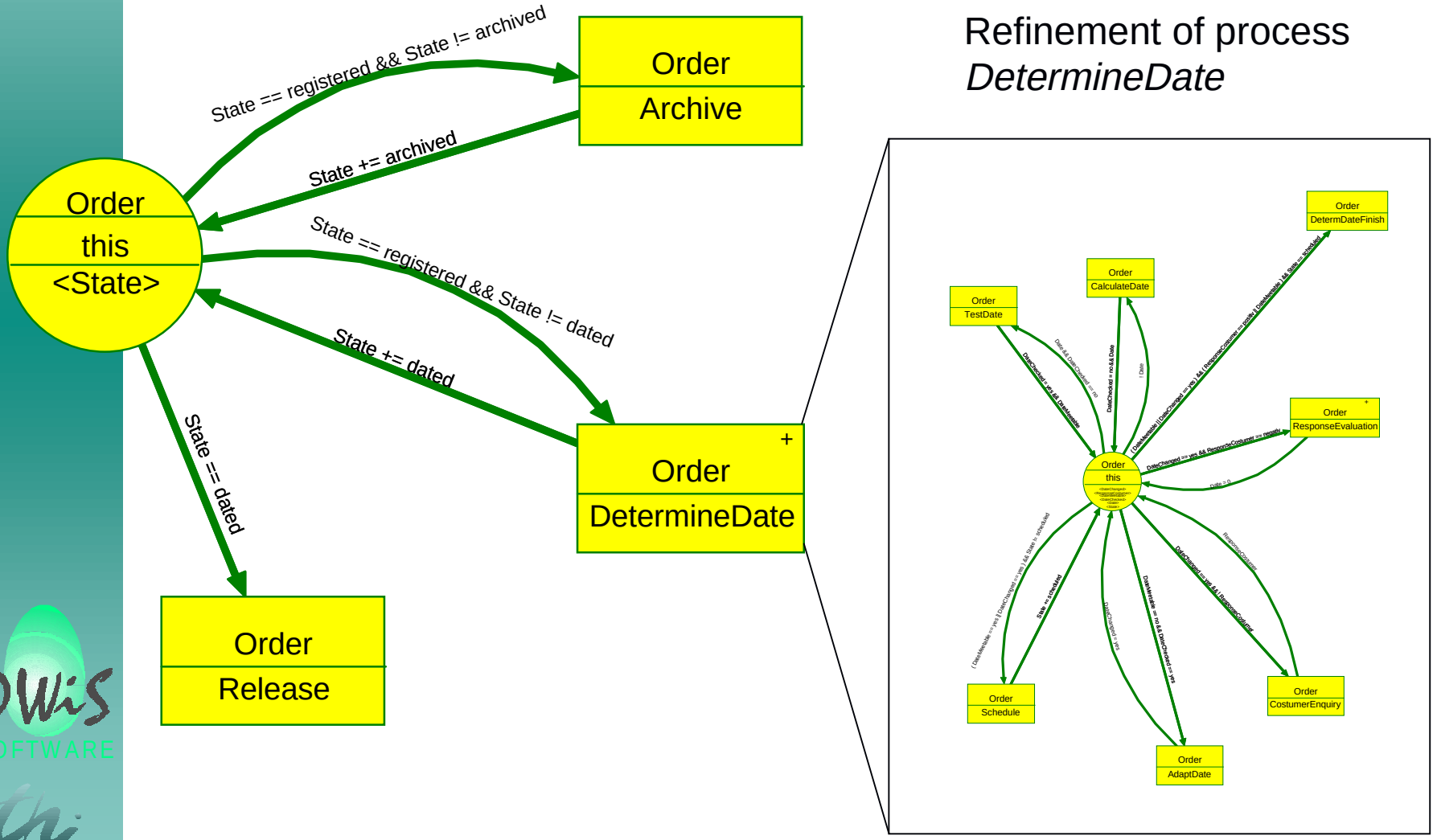
Abstract object (class)

Process
method of the related class

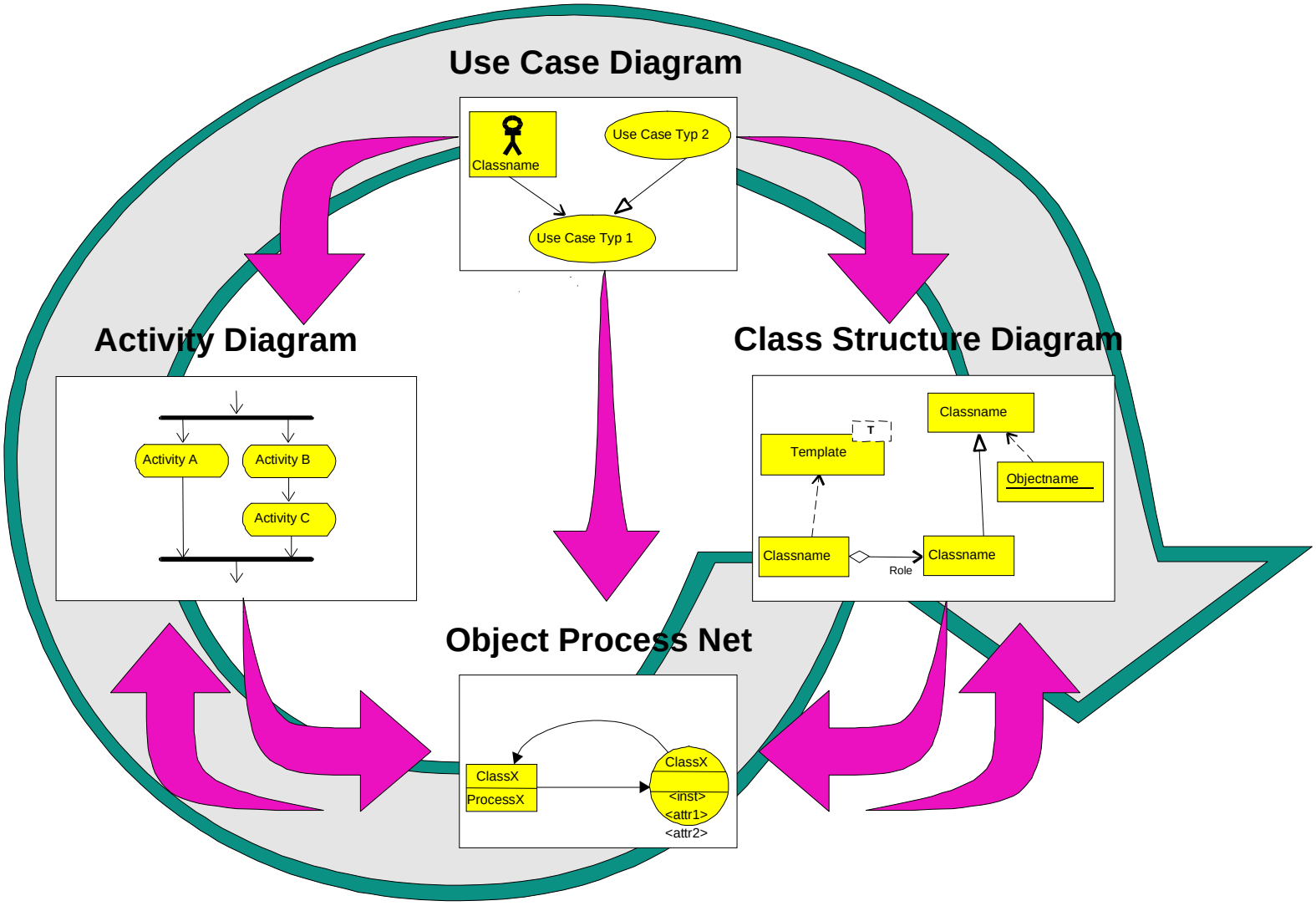


directed arcs
conditions related to the attributes of the object

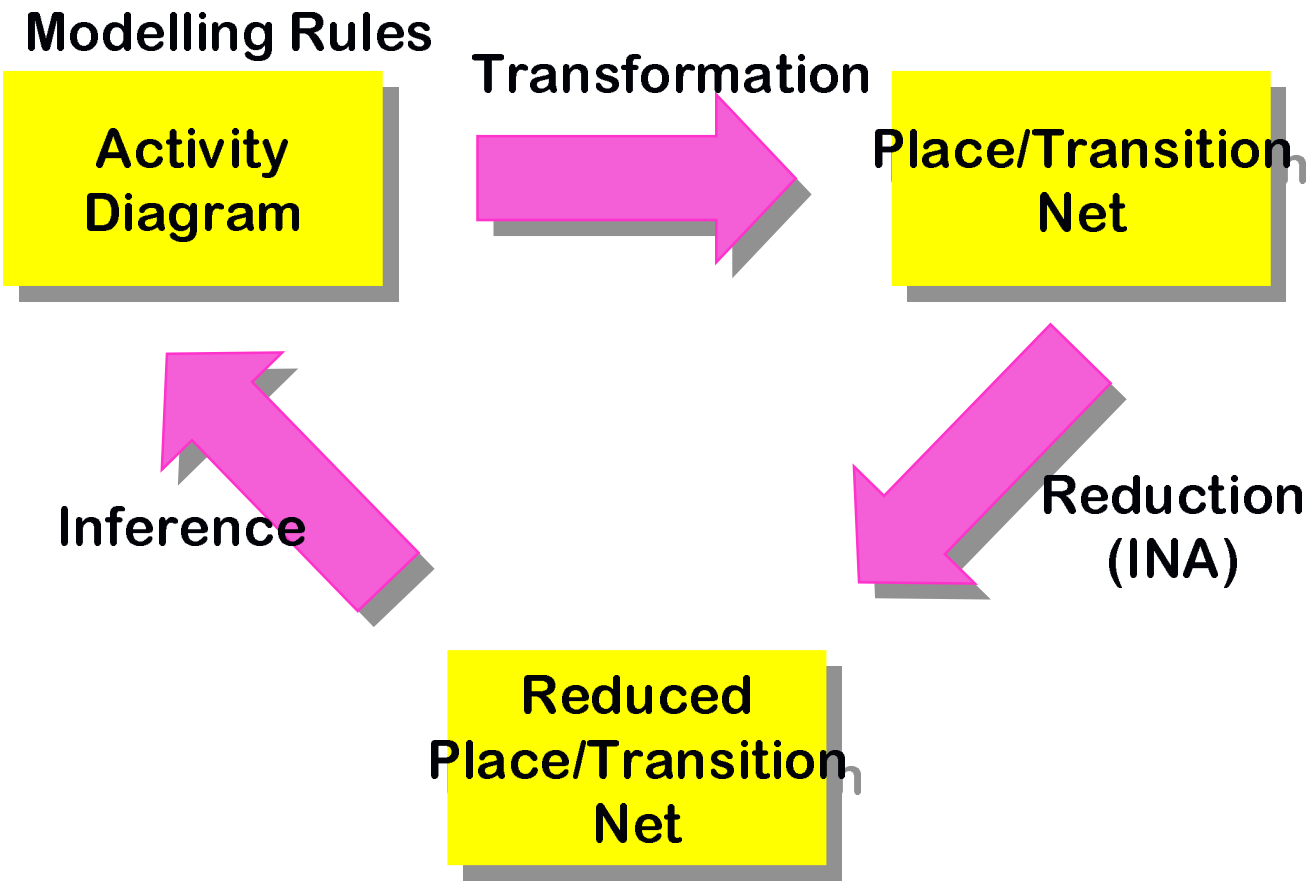
Refinement of a Process (Example)



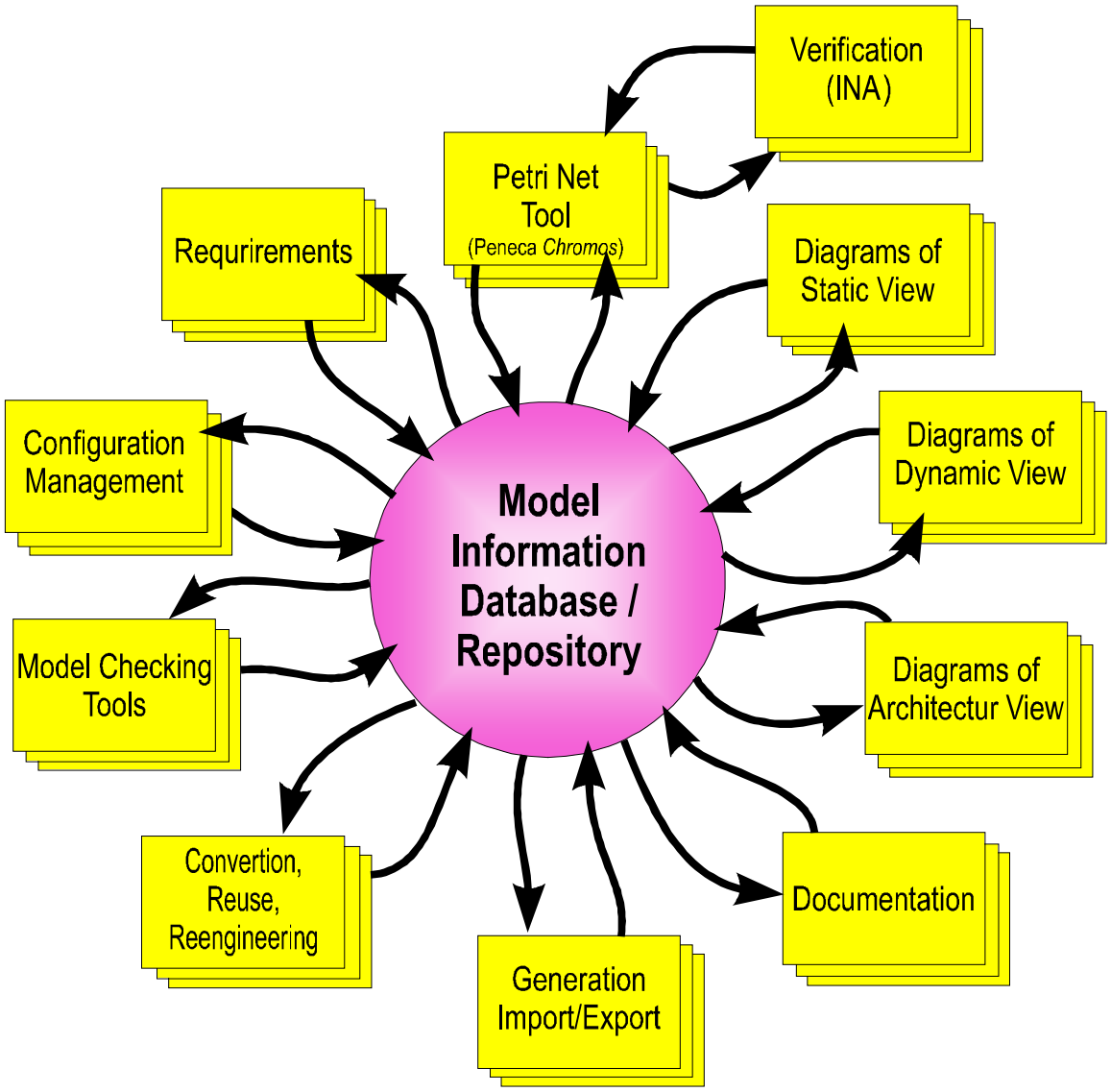
Creating a Business Process Model



Verification



Tool support - *OTW®2*



Modelchecking

- **Evaluation of diagrams**

  Evaluation of diagram clarity using a set of fuzzy rules.

- **Static check of consistency**

  Checking of
  - the consistency of the different diagrams
  - validity of object oriented relations
  - adjustment with other kinds of representation

- **Active modelchecking**

  Simulation of the OPN

- **Passive modelchecking**

  Checking the consistency of the model and the generated application code during the execution of it

Summary and Further Work

- UML as standard for object oriented modeling in an incremental way
- OPN as add-on for dynamic aspects:
  - Description
  - Simulation
  - Verification
- Automatic transformation of OPN into HLPN
- Examinations about reduction rules for activity diagrams