# Modelling Aspects

Public vs. Private Workflow

- Often multiple agencies (organisations, companies) cooperate, e.g.
  - ◆ Classical purchasing scenarios with customer, retailer and transporter
  - ◆ Partnership where different partners with their resources and know how contribute to a service or product

- In this case we can distinguish between public and private workflow
  - ◆ Public Workflow: coordinates work between partners
    - describes the inter-organisational cooperation
    - internal processes of the partners are treated as "black boxes"
    - Specifies the information and objects that are exchanges between partners
  - ◆ Private Workflow: Process within one organisation
    - Destailed process flow for each partner

Public and Private Workflows
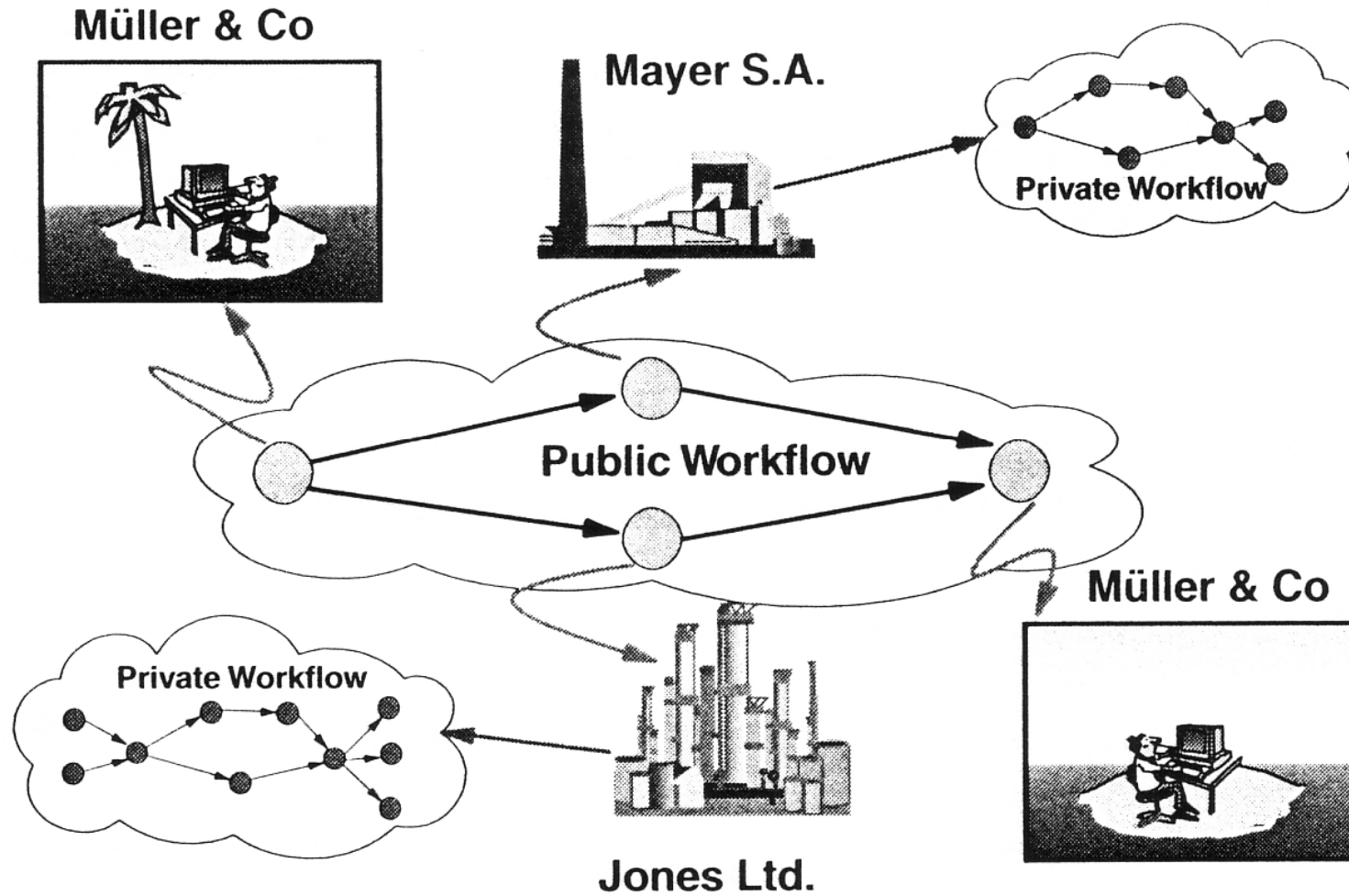
Orchestration vs. Choreography

- BPMN has sought to support three main categories of Processes:
  - Orchestration
  - Choreography
  - Collaboration

- Orchestration models tend to imply a single coordinating perspective. As such, an orchestration Process describes how a single business entity goes about things.
  - An *orchestration* is contained within a Pool and normally has a well-formed context.

- A *choreography* process model is a definition of the expected behavior between interacting *participants,*
  - *A choreography* does not exist within a well-formed context or locus of control. There is no central mechanism that drives or keeps track of a *choreography.* Therefore, there are no shared data available to all the elements of the *choreography.*
  - To place choreography within BPMN diagrams is to put them between the Pools.

- A BPMN diagram may contain more than one *orchestration.* If so, each *orchestration* appears within its own container called a Pool. Thus, *orchestrations* (i.e., Processes) are always contained within a Pool.

Used mainly in the technical community, "Process Orchestration" is often aligned with Web Service languages such as BPEL

# Private and Public Workflows in BPMN

- BPMN uses Pools when representing the interaction between an organisations and participants outside of its control.

- Each participant operates a separate process represented by Pools.

- Within a company, a single pool covers its own internal operations. It is only when it interacts with external participants thatt additional Pools are required.

- Message Flow cannot communicate between Tasks inside a single Pool. This is what Sequence Flow and data flow does.

- Message Flow moves the Process from one agency to another.

Orchestration in BPMN

- A BPMN diagram may contain more than one *orchestration.* If so, each *orchestration* appears within its own container called a Pool. Thus, *orchestrations* (i.e., Processes) are always contained within a Pool.
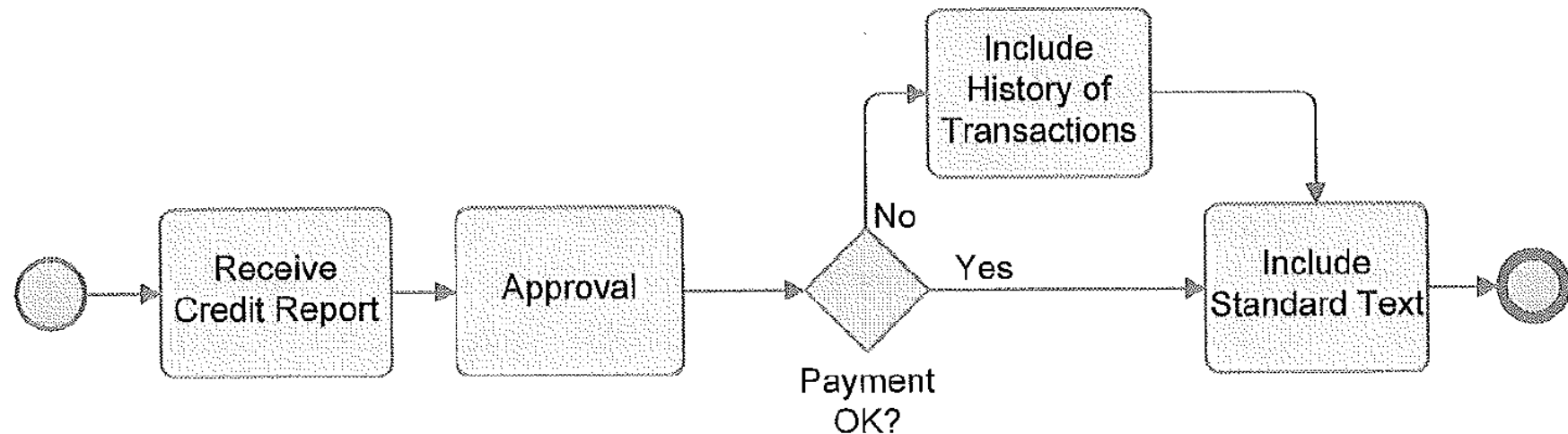
Choreography Example
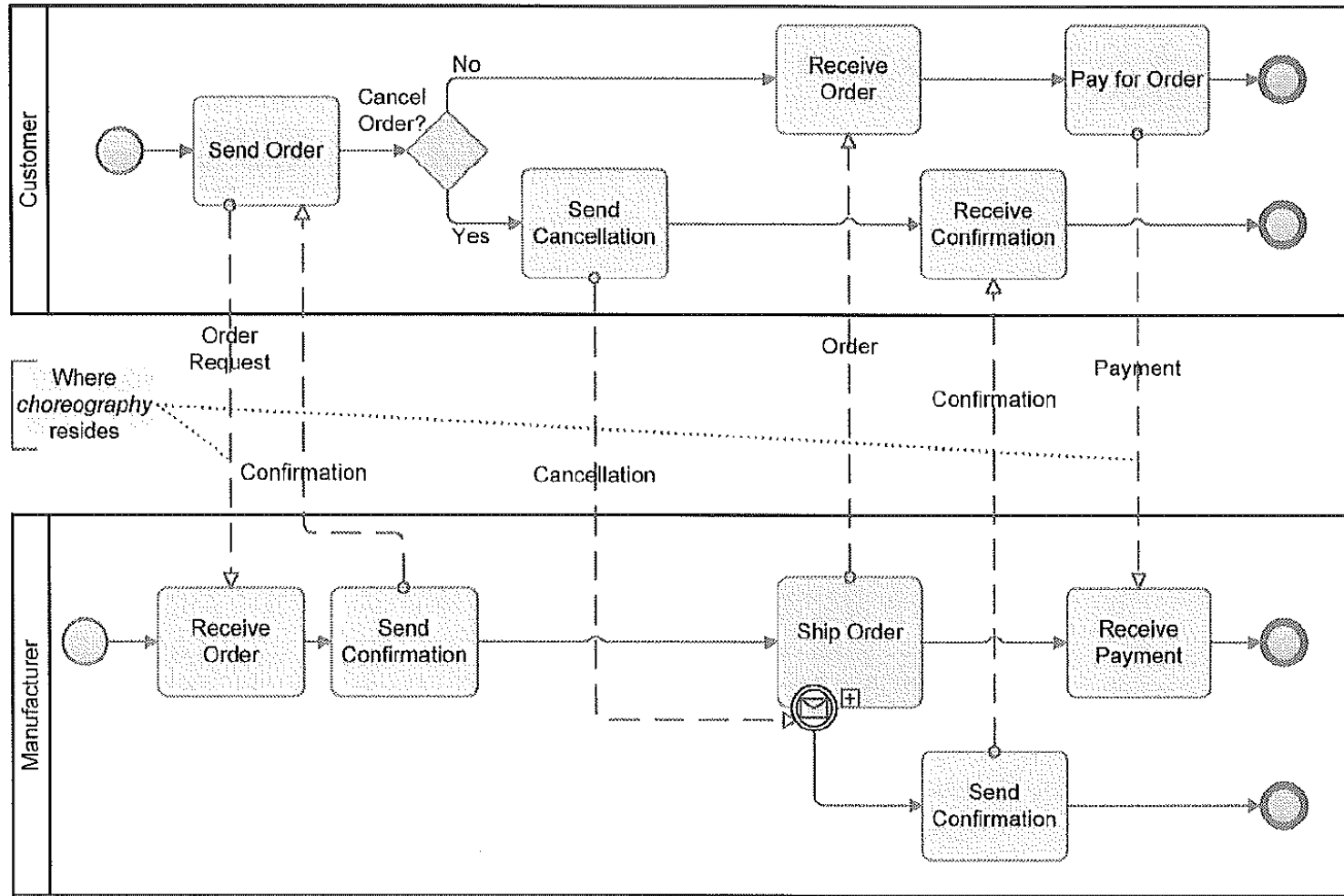
Collaboration

- Collaboration has a specific meaning in BPMN.

- Where a choreography defines the ordered set of interactions between participants, a collaboration simply shows the participants and their interactions.

- To be more specific, a collaboration is any BPMN diagram that
  - contains two or more participants as shown by Pools.
 - The Pools have Message Flow between them.
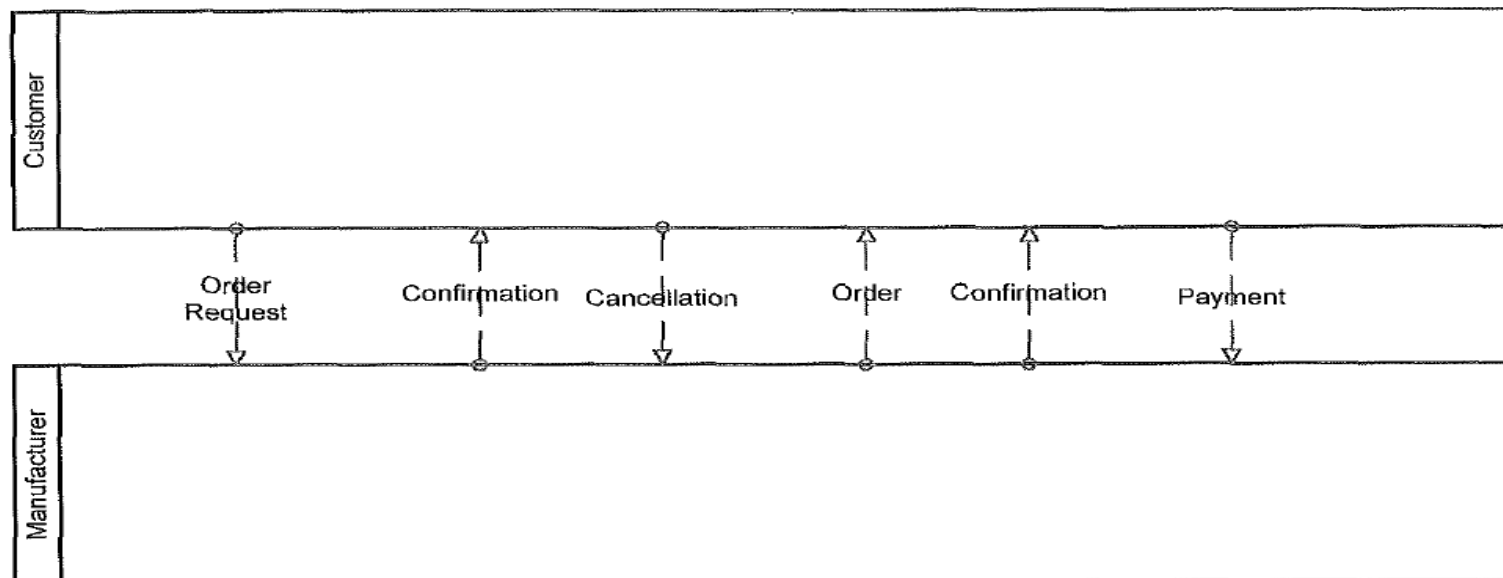
Granularity – Level of Detail

BPMN covers all different levels of modelling details:

- **Process Maps** – simple flow-charts of the activities; a flow diagram without a lot of detail other than the names of the activities and perhaps the broad decision *conditions.*

- **Process Descriptions** –provide more extensive information on the process, such as the people involved in performing the process (roles), the data, information and so forth.

- **Process Models** – detailed flow-charts encompassing sufficient information such that the process is amenable to analysis and simulation. Moreover, this more detailed style of model would also enable either direct execution of the model or import into other tools that could execute that process (with further work).

Hierarchy of Model Details

- The process models of an enterprise are typically hierarchically organised

- At least 3 levels are usually distinguished
  - Enterprise level – process map
    - Core, support and management processes of an enterprise
    - every core processes "produces" one product or service
  - Core Process Level - description
    - Describing the main activities of a core process
  - Main Processes – process model
    - Sub Processes of a core process

- For larger companies it may be useful to have a second enterprise level where processes of a business division are collected

- Also the third level can be further separated, depending on the required level of detail.
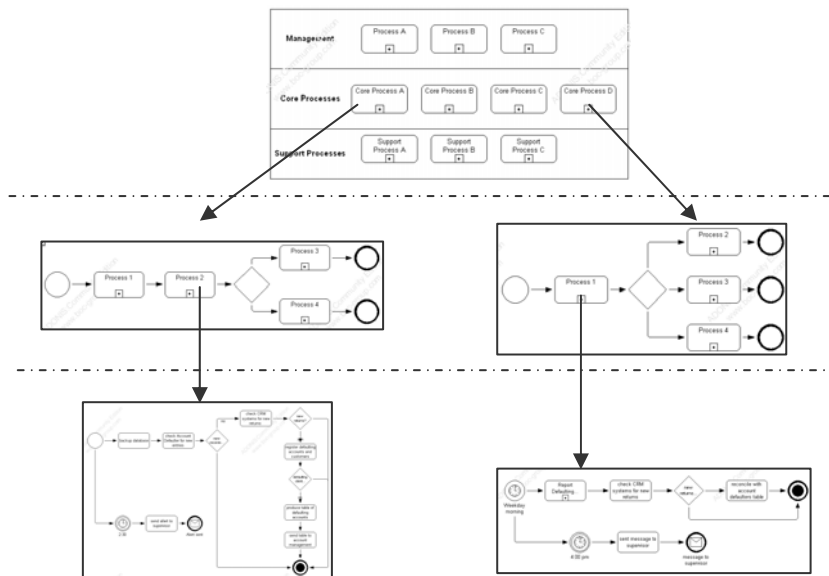
Hierarchy of Model Details
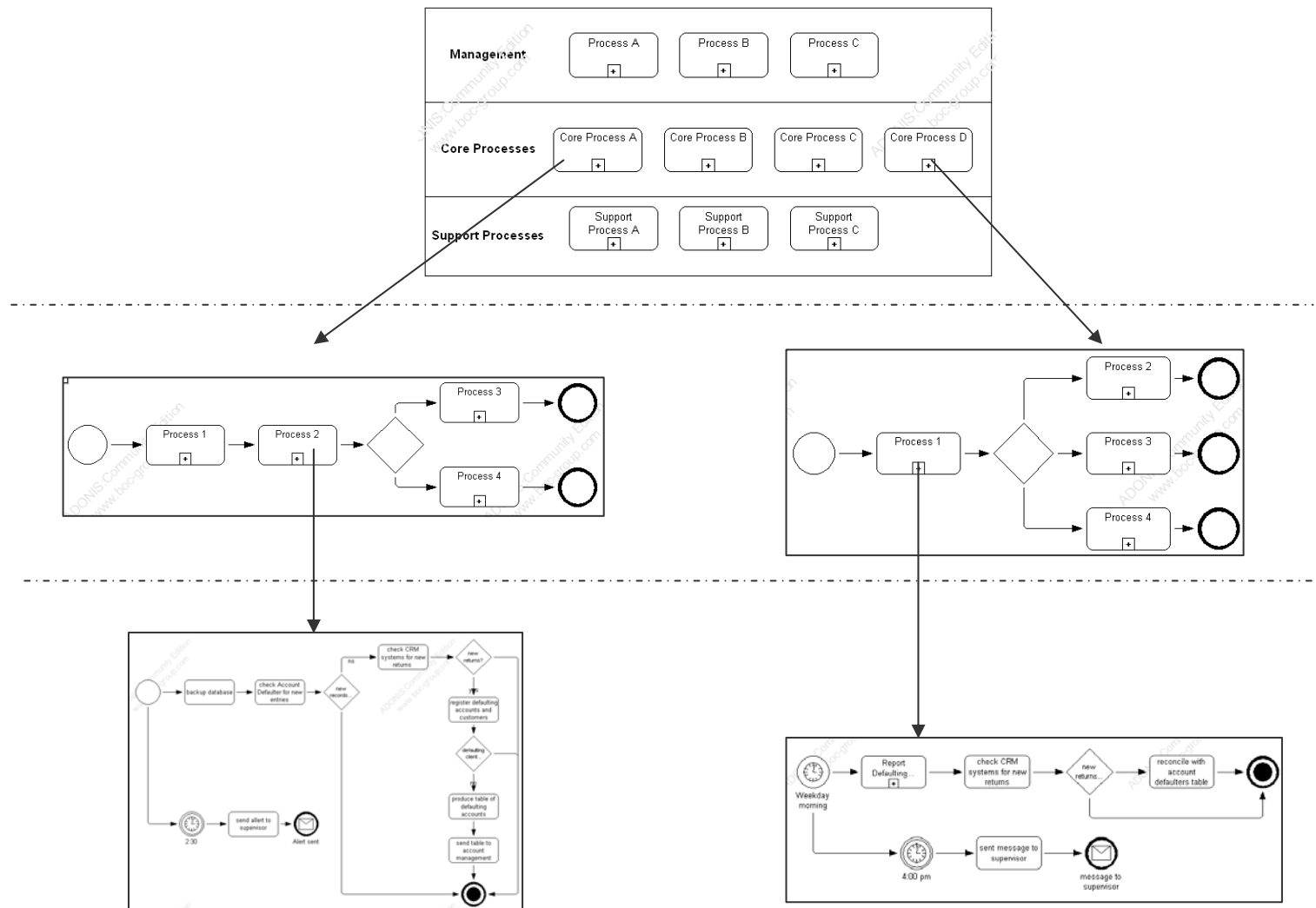
Modelling Conventions

- Objective:
    - consistent use of modelling techniques
    - reduce variability of modelling
    - improve understandability of models

- Categories of conventions
    - modelling elements
    - naming conventions
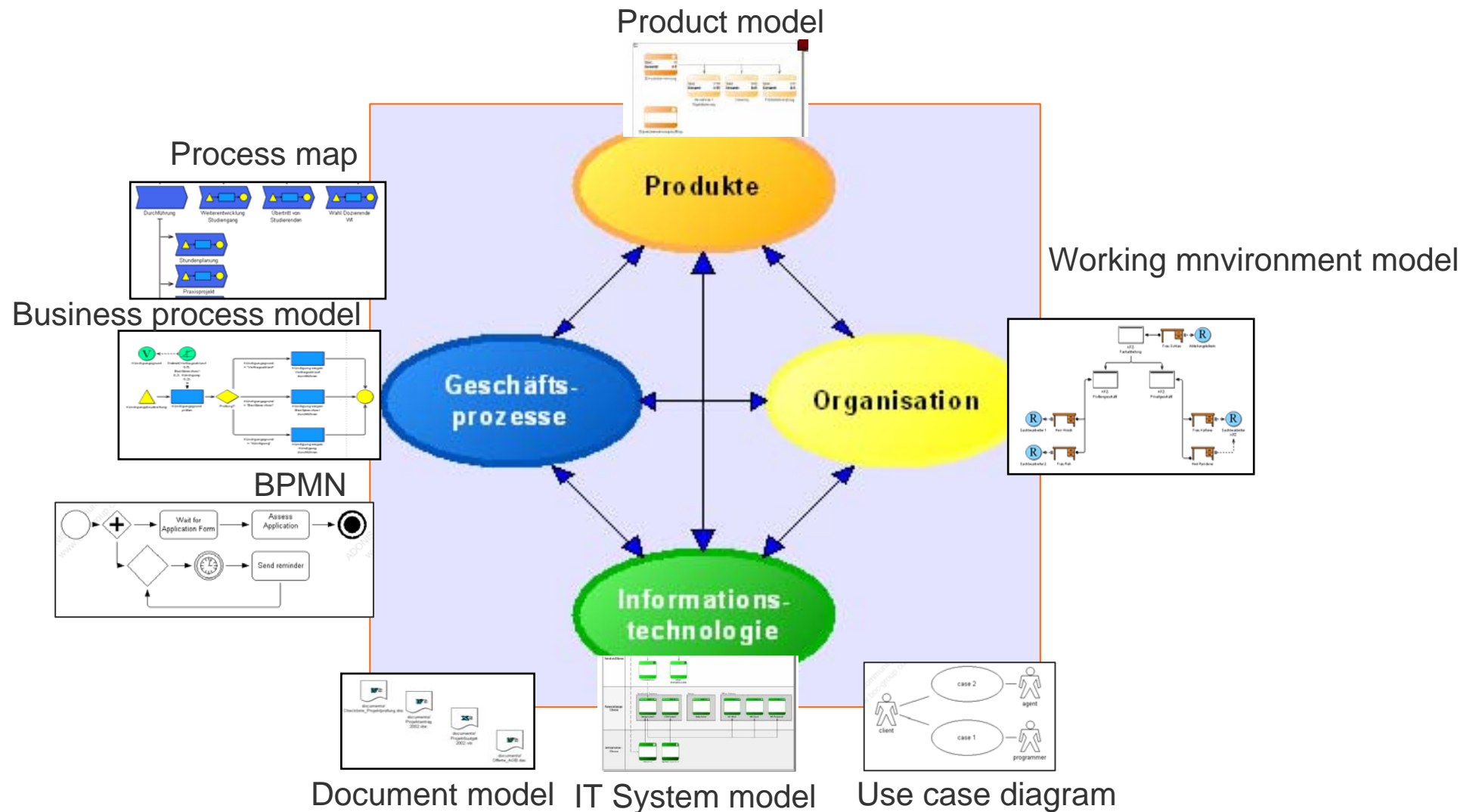   - layout conventiona
    - granularity – level of detail

Naming and Layout Conventions

- Rules for naming objects and models
  - Naming activities with verbs
    - Example: "*document requirements*" instead of "requirements documentation"
    - Reason: Verbs make clear that an activity is meant and not an object (the document with the requirements)
  - Glossary of prefered names for processes, departments, roles people etc.

- Specify visuation of objects and models
  - Specify size, form, color of objects and relations
  - Specify a preferred modelling direction and use it consistently
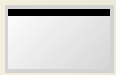   - either horizontally or vertical

Level of Detail

- All models at the same level should have comparable level of detail

- Finding a good level of detail is a core question of modelling
  - "as detailled as necessary"
  - "less details as possible"

- There are no general "objective" criteria for the adequate level of detail
  - adequate level of detail depends on the objective of the model (description vs. execution)
  - Find an adequate level by intensive consultation between modellers ("trial and error")

- Some general thoughts
  - new tasks whenever responsibility for the work changes
  - each task should process a (data) object as a whole (customer data instead of name, adress, email etc.)

Modeling Different Aspects – Model Types in Adonis

Product model

Process map

Business process model

BPMN

Working mnvironment model

Document model   IT System model   Use case diagram

Working Environment Model
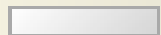
Modelling Objects:

Organisational Unit

Performer

Role

Position

Resource

Cost Center
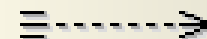
Aggregation

Note

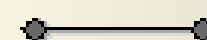## Relations:

is subordinated

has resource
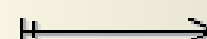
belongs to
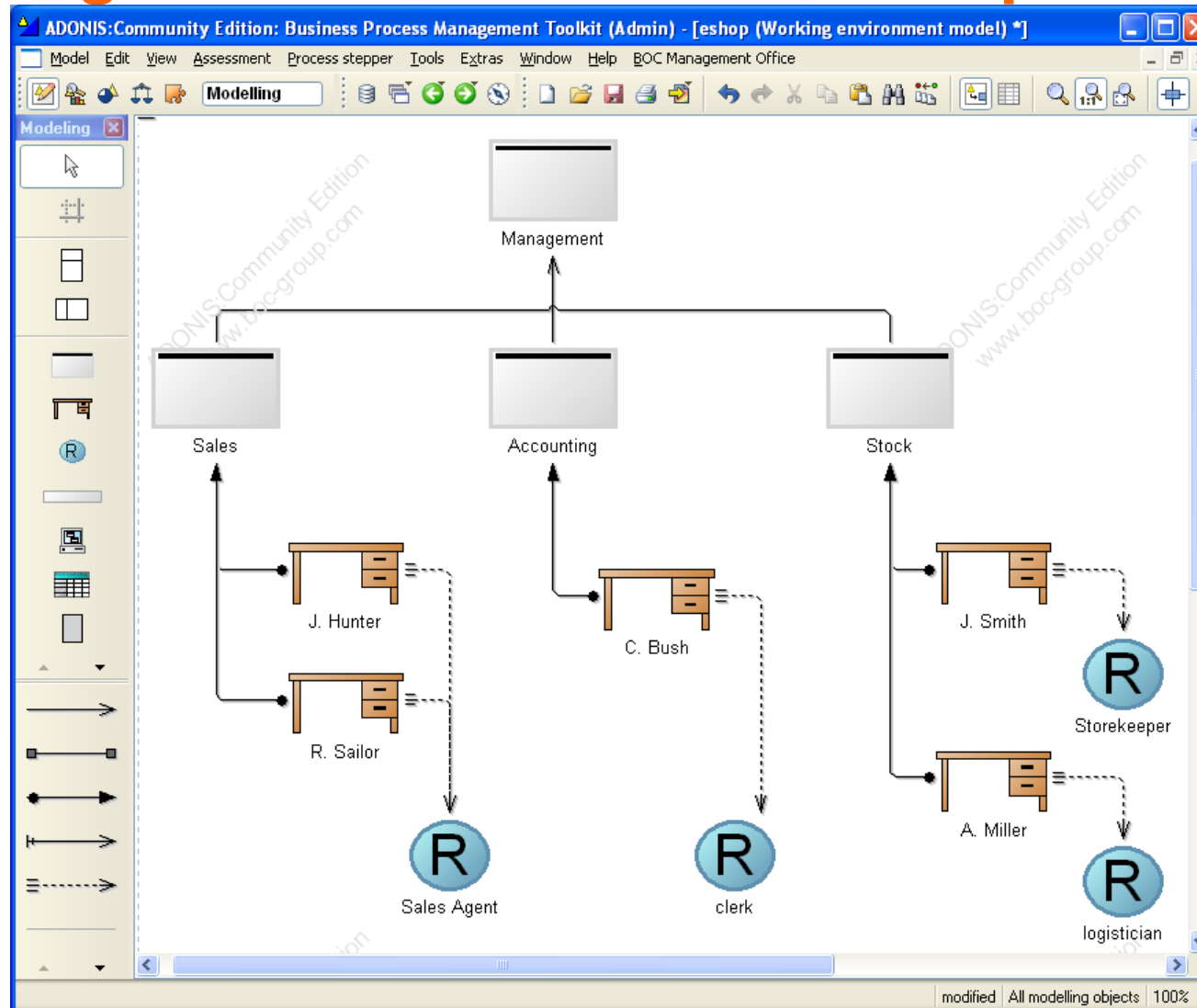
is manager

has role

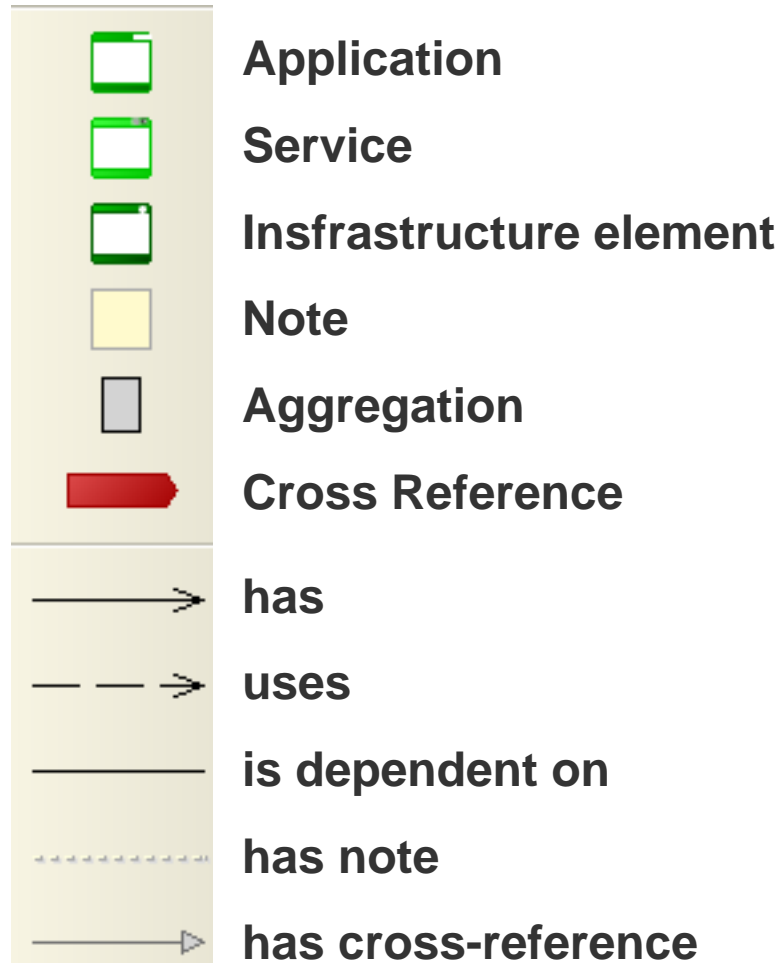has position

uses resource

is charged to
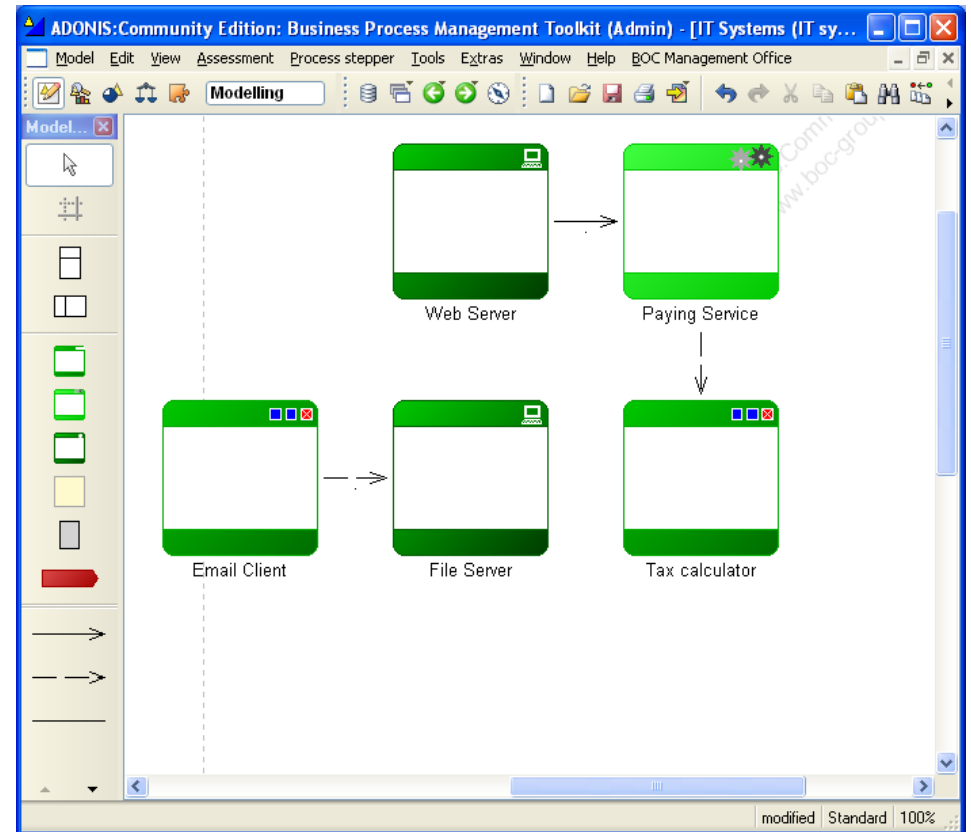
cost center manager

Working Environment Model: Example

IT Systems Model

Modelling Objects

	Application
	Service
	Insfrastructure element
	Note
	Aggregation
	Cross Reference
→	**has**
– – →	**uses**
——	**is dependent on**
··········	**has note**
——▷	**has cross-reference**

A Sample IT Systems Model

Document Model

Modelling Objects

Document

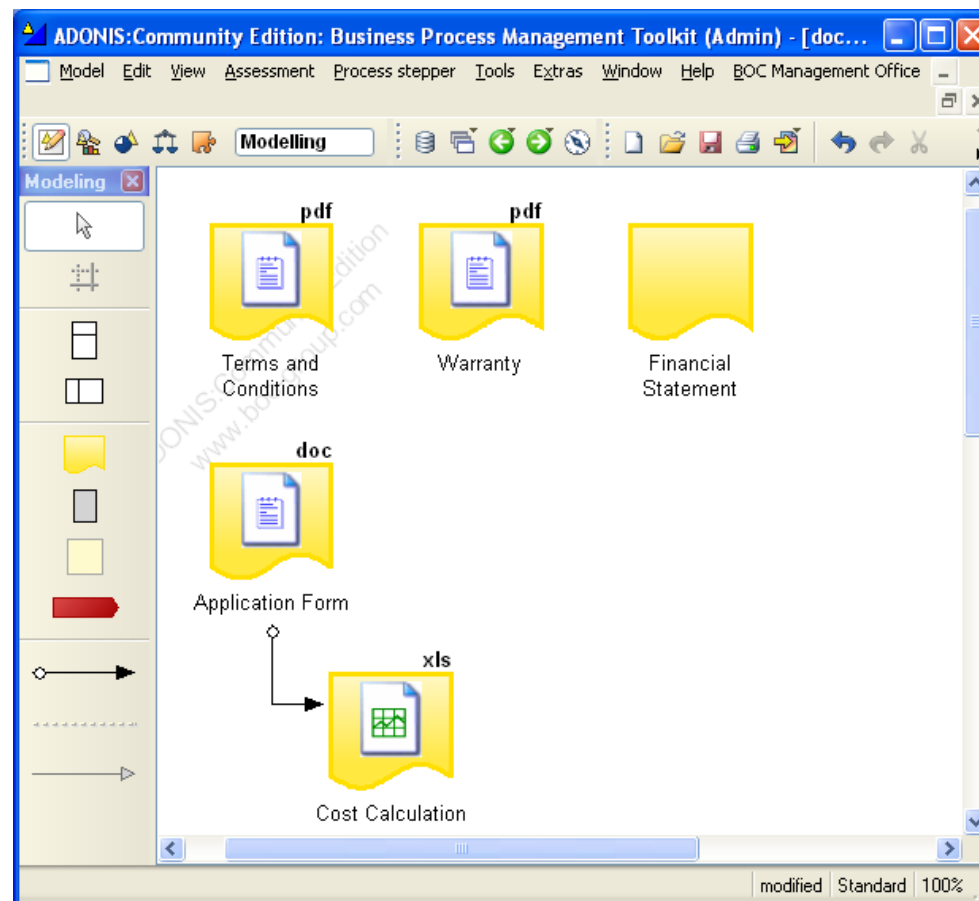Note

Aggregation

Cross Reference

has Subdocument

has note

has cross-reference

A Sample Document Model

Relating Documents to BPMN