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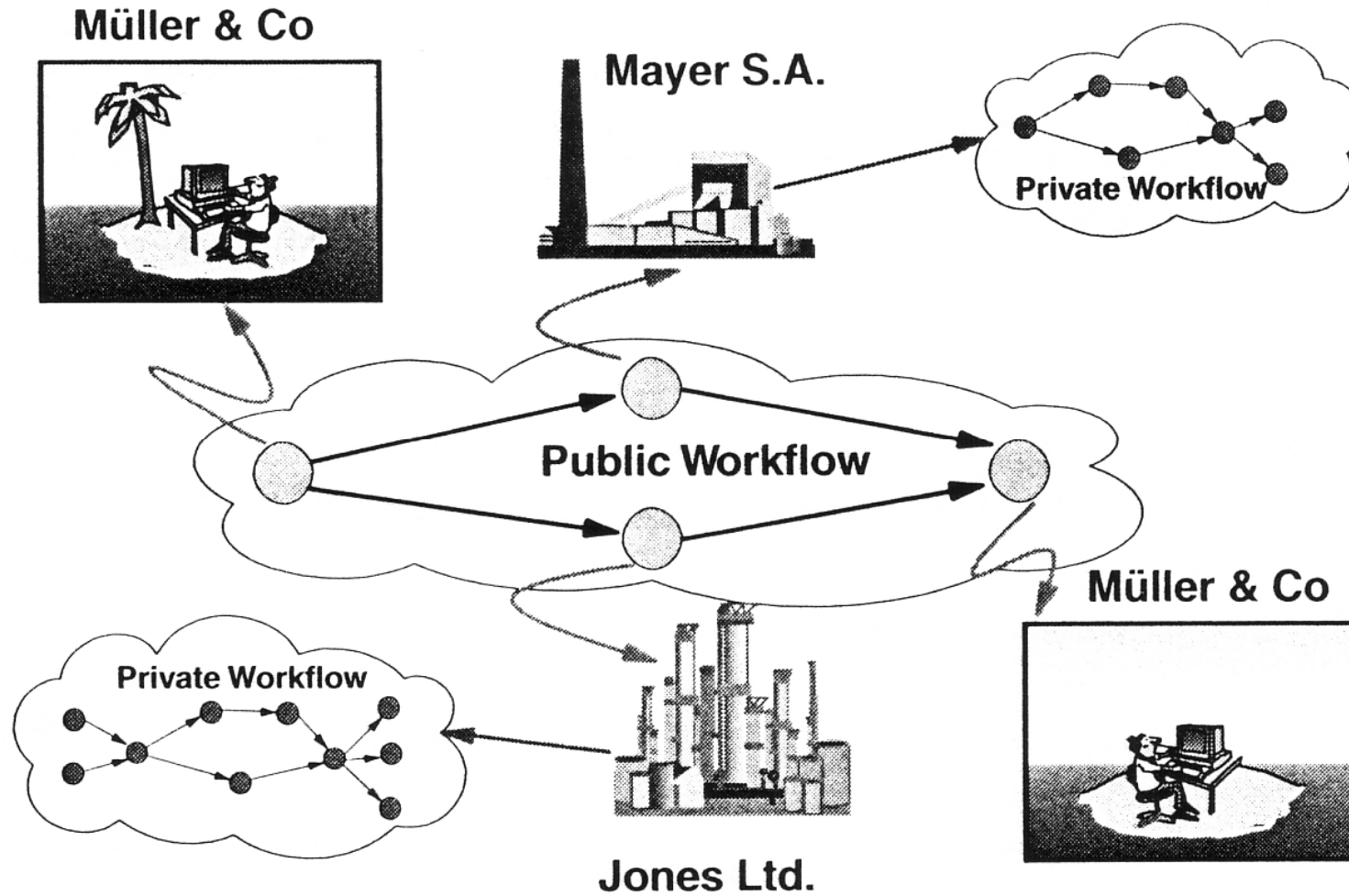
Business Process Modelling - Conventions and Modelling Aspects



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
 - Detailed process flow for each partner

Public and Private Workflows



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 that 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.

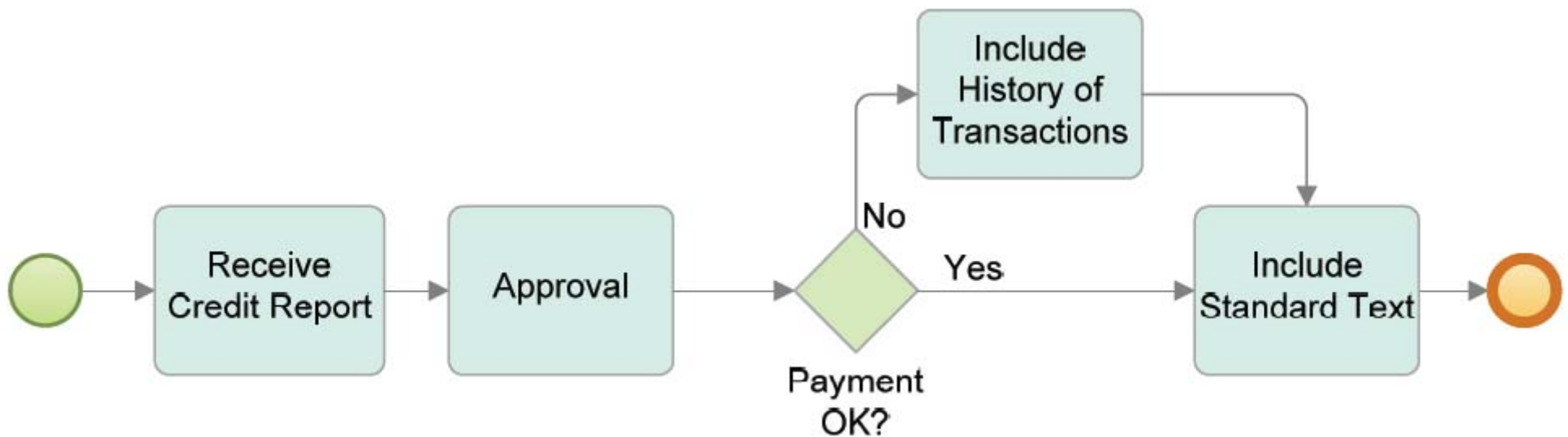
Orchestration vs. Choreography

- 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 BPMN diagram may contain more than one *orchestration*. If so, each *orchestration* appears within its own container called a Pool.
- 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 focus 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.

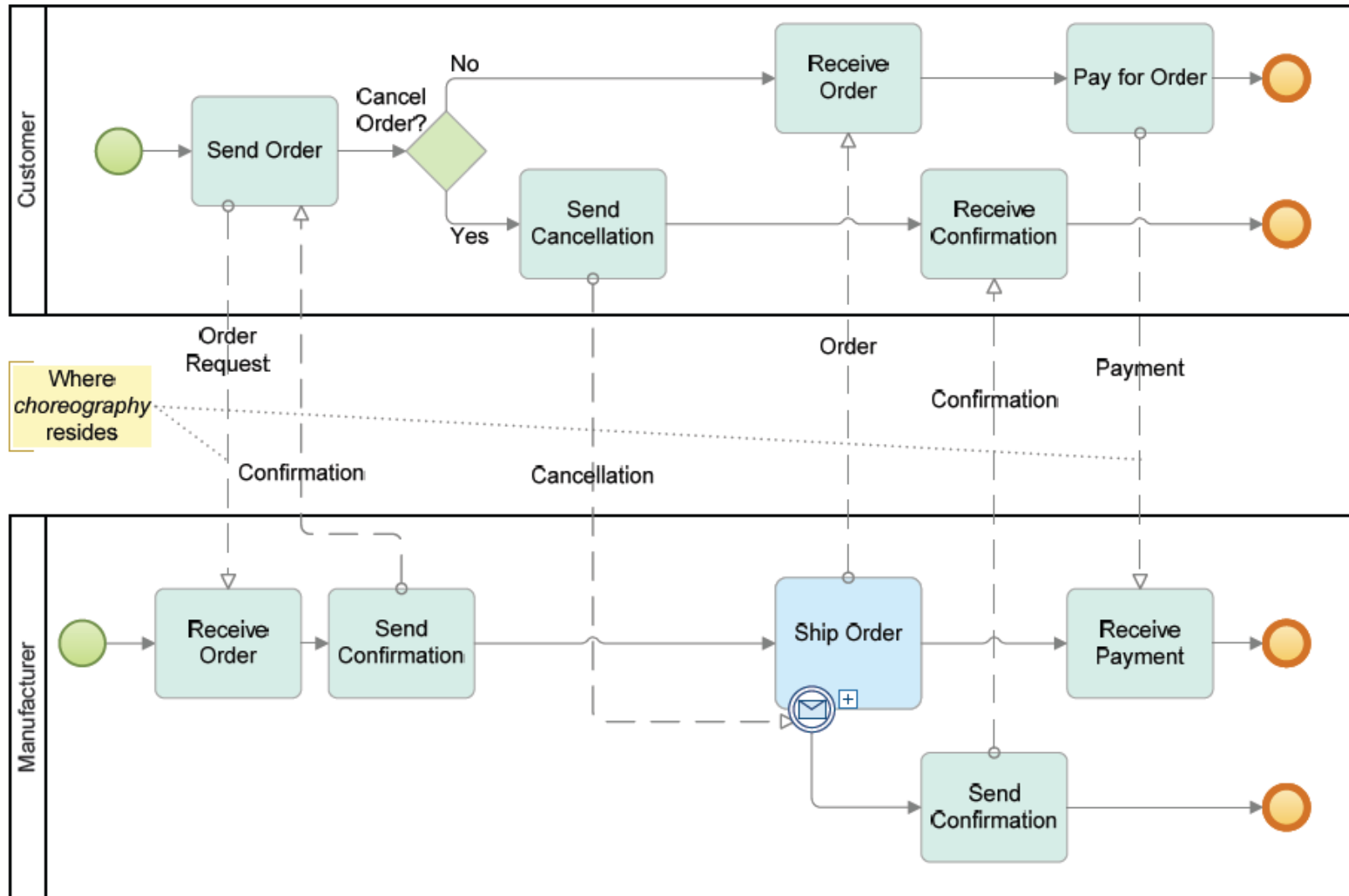
Used mainly in the technical community, "Process Orchestration" is often aligned with Web Service languages such as BPEL

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.

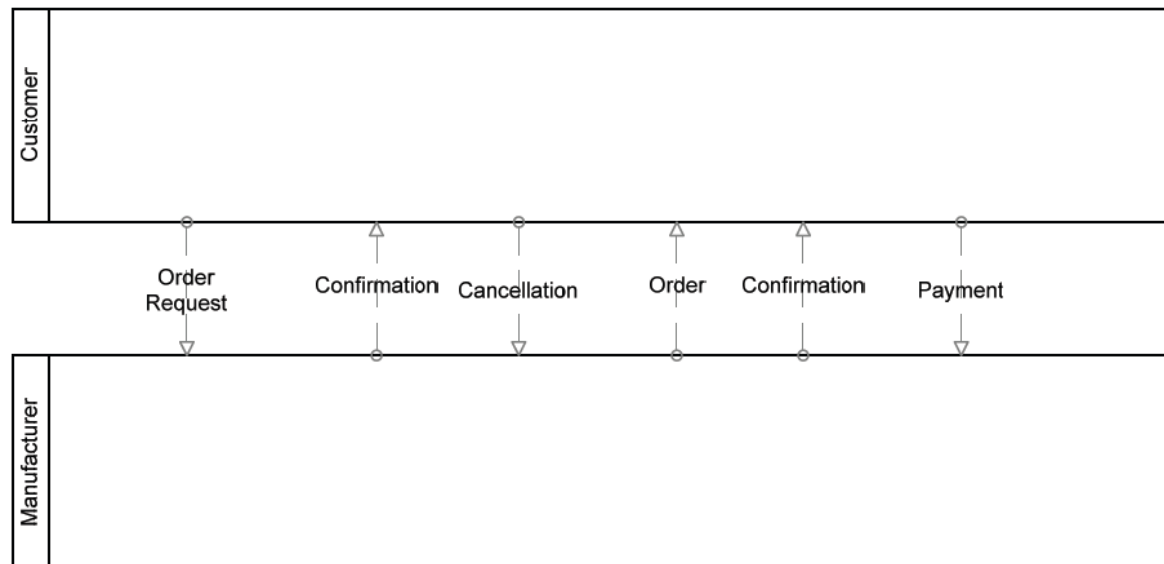


Choreography Example



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.



Good Models

Some Criteria for good models

- Salient – selectively represent those things that are most relevant to the task at hand
- Accurate – The model should precisely encode the actual state of affairs and not an erroneous or biased view
- Completeness vs. parsimonious – The model should be as simple as possible , but no simpler
- Understandable – The audience must be able to make sense of the model; it should not be too complicated or unfamiliar
- Coherent – Models do not exist in isolation but in interlocking systems, thus any particular model should be coherent with other related models.

Source. M. Clemens, <http://www.idiagram.com/ideas/models.html>



Principles of Proper Modelling

- Correctness
- Relevance
- Economics
- Understandability
- Comparability
- systematic construction

The principles can be clarified by explicit modelling conventions

Modelling Conventions

- Objective:
 - ◆ consistent use of modelling techniques
 - ◆ reduce variability of modelling
 - ◆ improve understandability of models
- Categories of conventions
 - ◆ modelling elements
 - ◆ naming conventions
 - ◆ layout conventions
 - ◆ granularity – level of detail

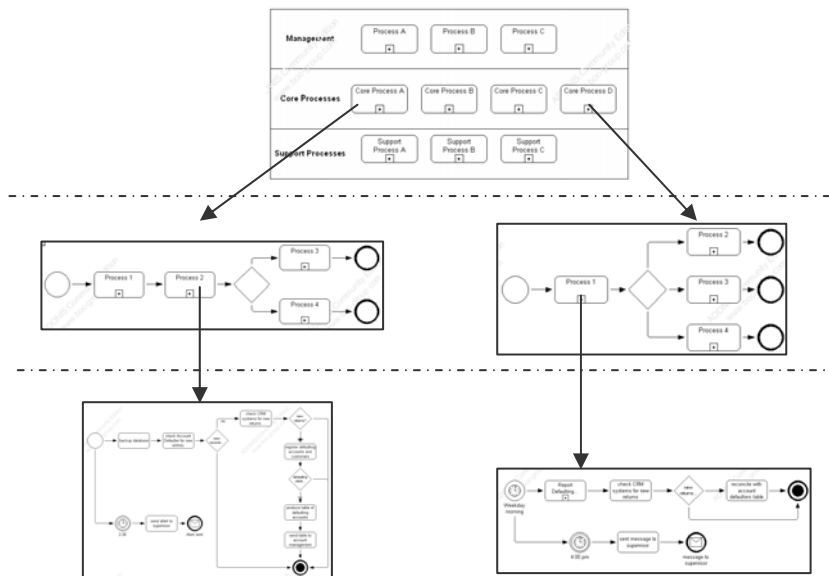
Granularity – Level of Detail

BPMN covers all different levels of modelling details:

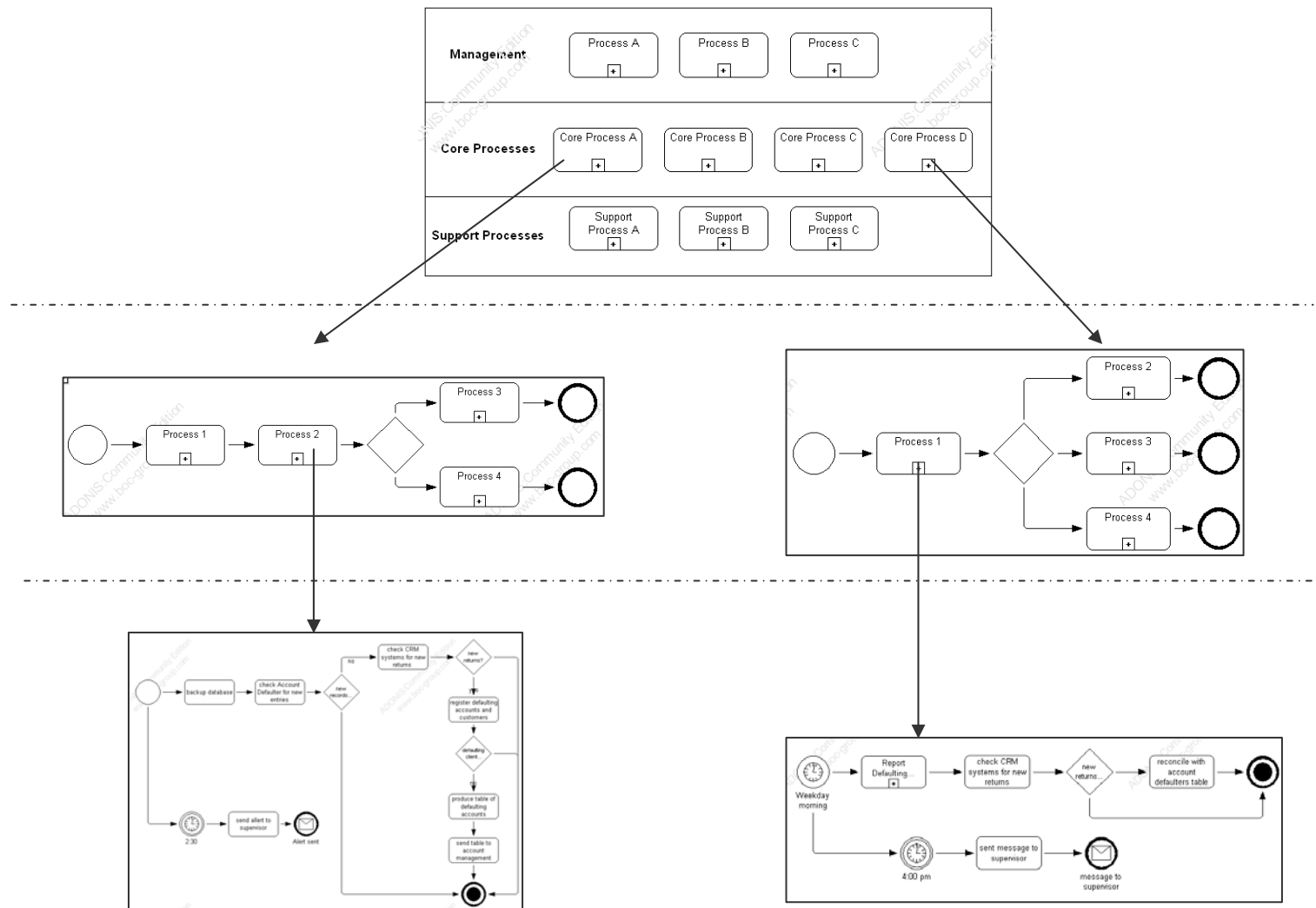
- **Process Maps** – simple flow-charts of the activities; a flow diagram without a lot of detail other than the names of the activities and perhaps the broad decision *conditions*.
- **Process Descriptions** – provide more extensive information on the process, such as the people involved in performing 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



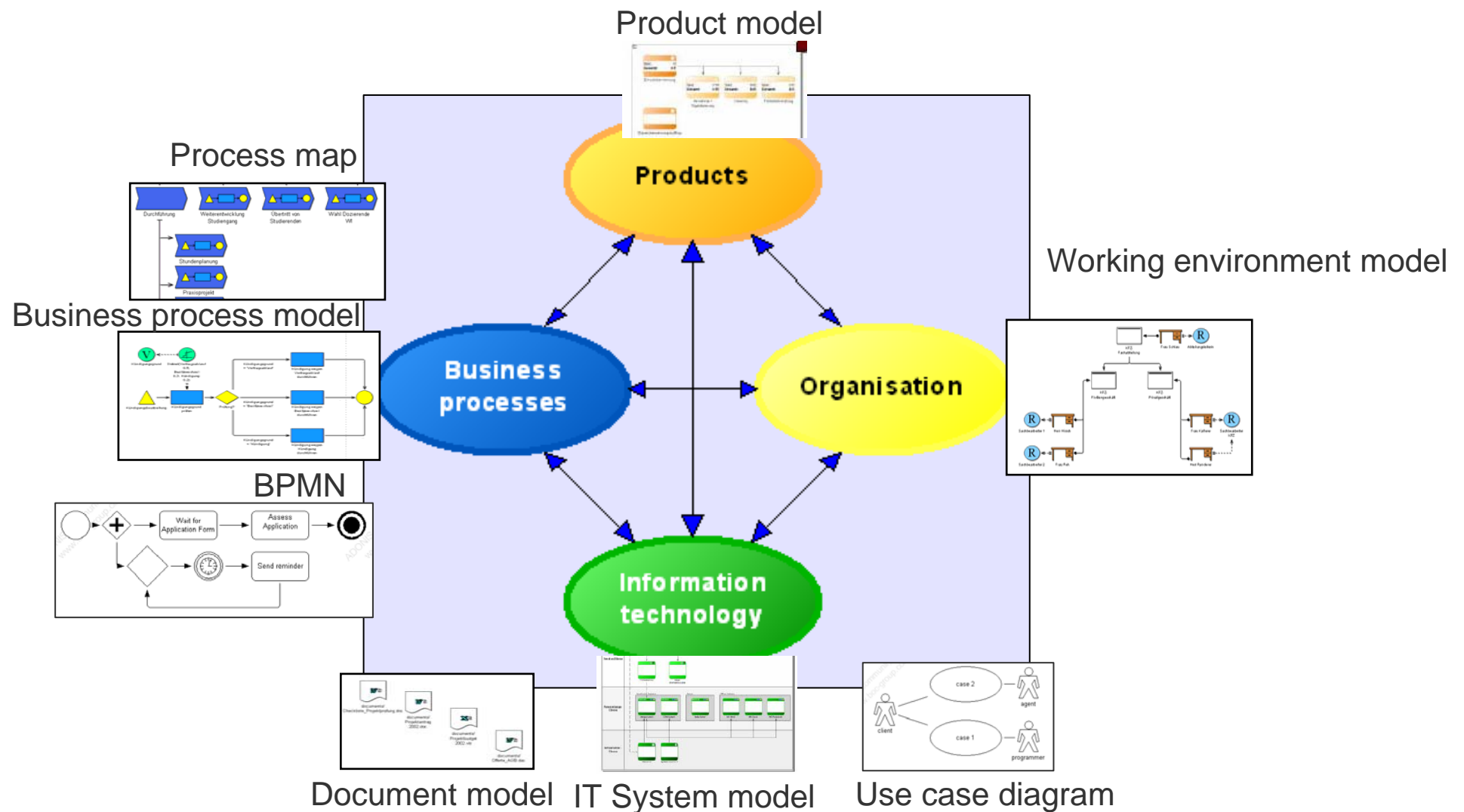
Naming and Layout Conventions

- 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 preferred 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

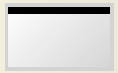
- All models at the same level should have comparable level of detail
- Finding a good level of detail is a core question of modelling
 - ◆ "as detailed as necessary"
 - ◆ "less details as possible"
- There are no general "objective" criteria for the adequate level of detail
 - ◆ adequate level of detail 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

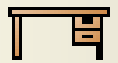


Working Environment Model

Modelling Objects:



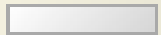
Organisational Unit



Performer



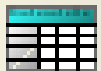
Role



Position



Resource



Cost Center



Aggregation



Note

Relations:



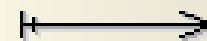
is subordinated



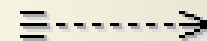
has resource



belongs to



is manager



has role



has position



uses resource

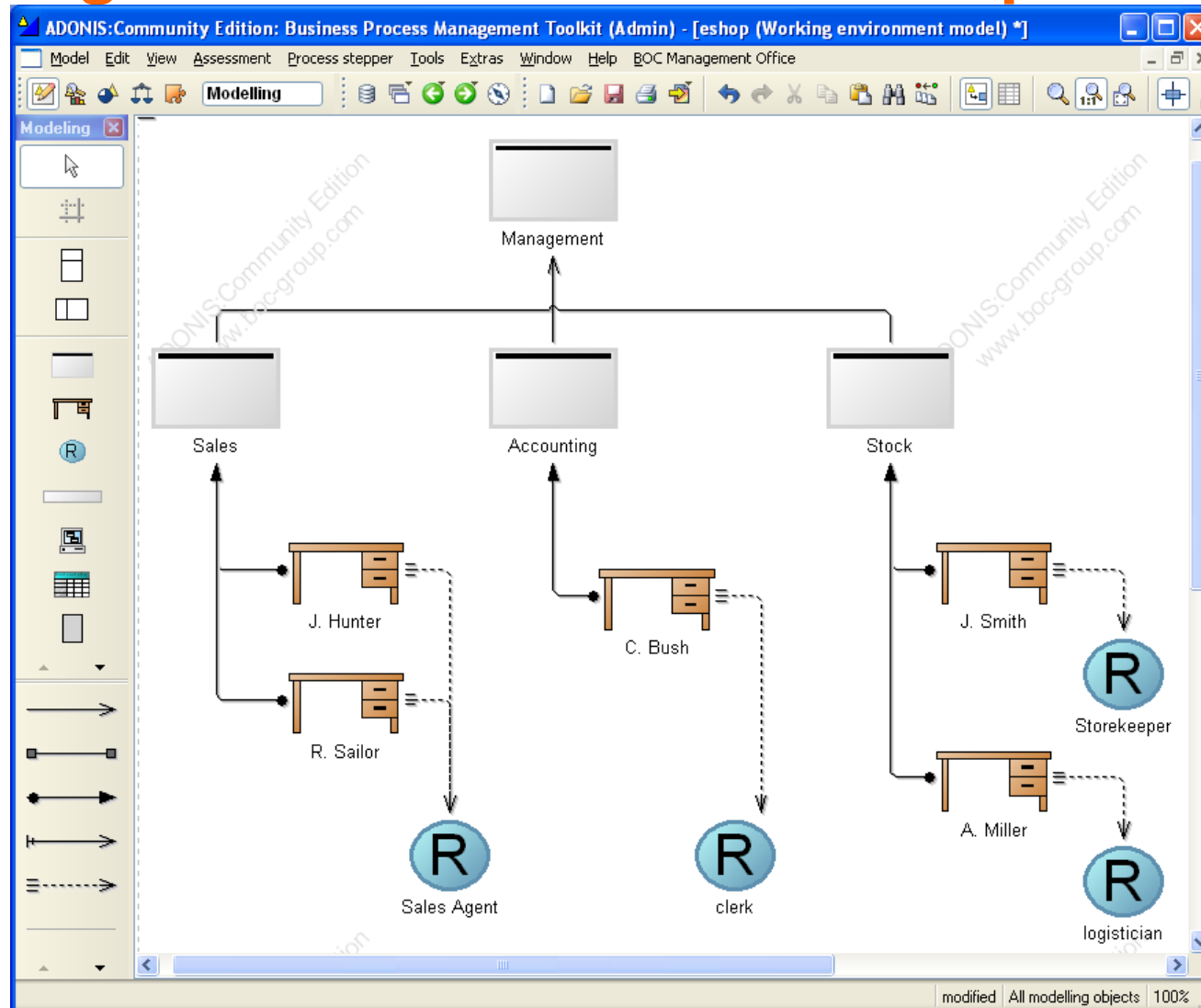


is charged to



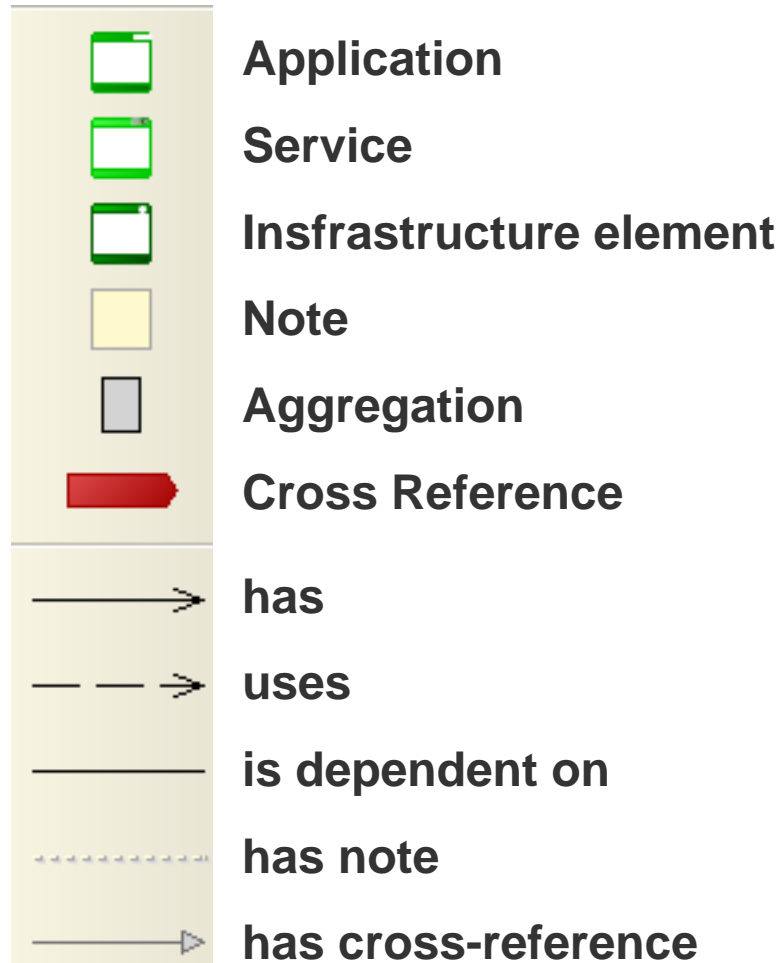
cost center manager

Working Environment Model: Example

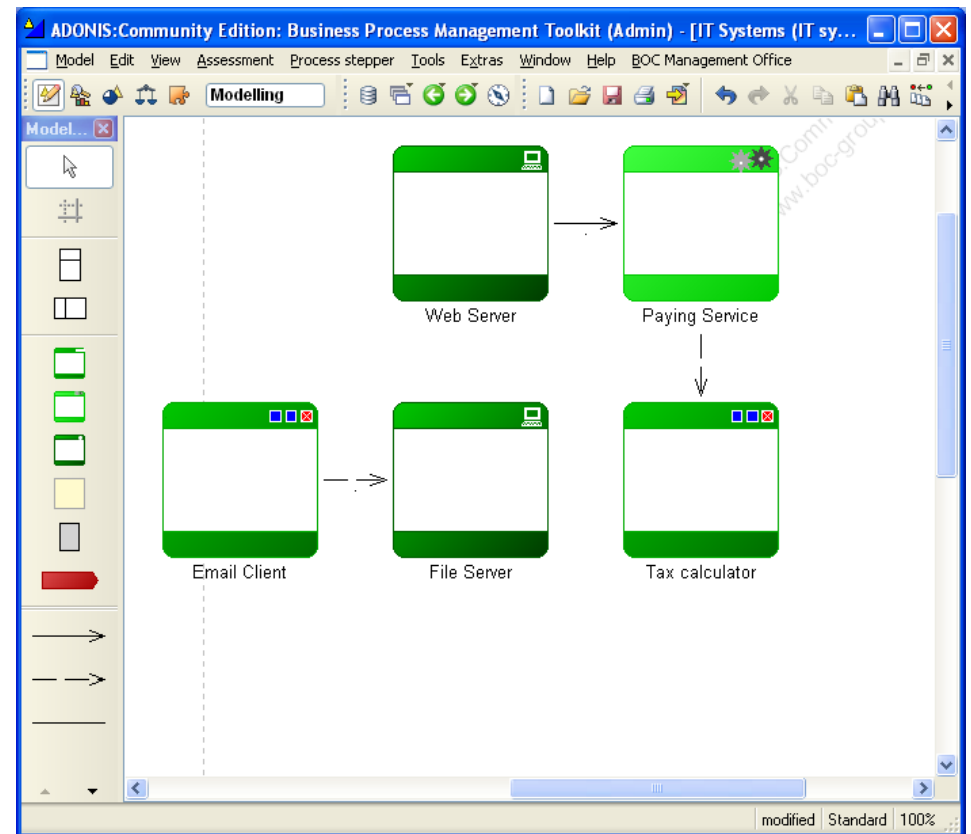


IT Systems Model

Modelling Objects



A Sample IT Systems Model



Document Model

Modelling Objects



Document



Note



Aggregation



Cross Reference



has Subdocument

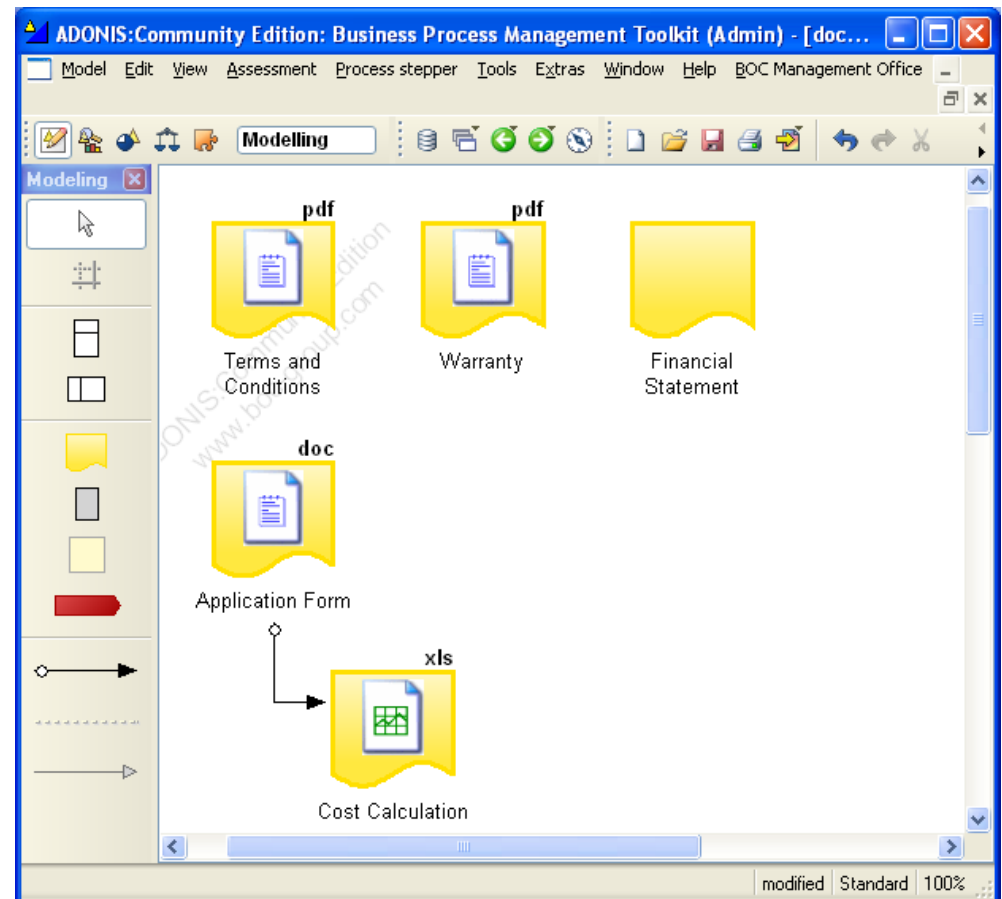


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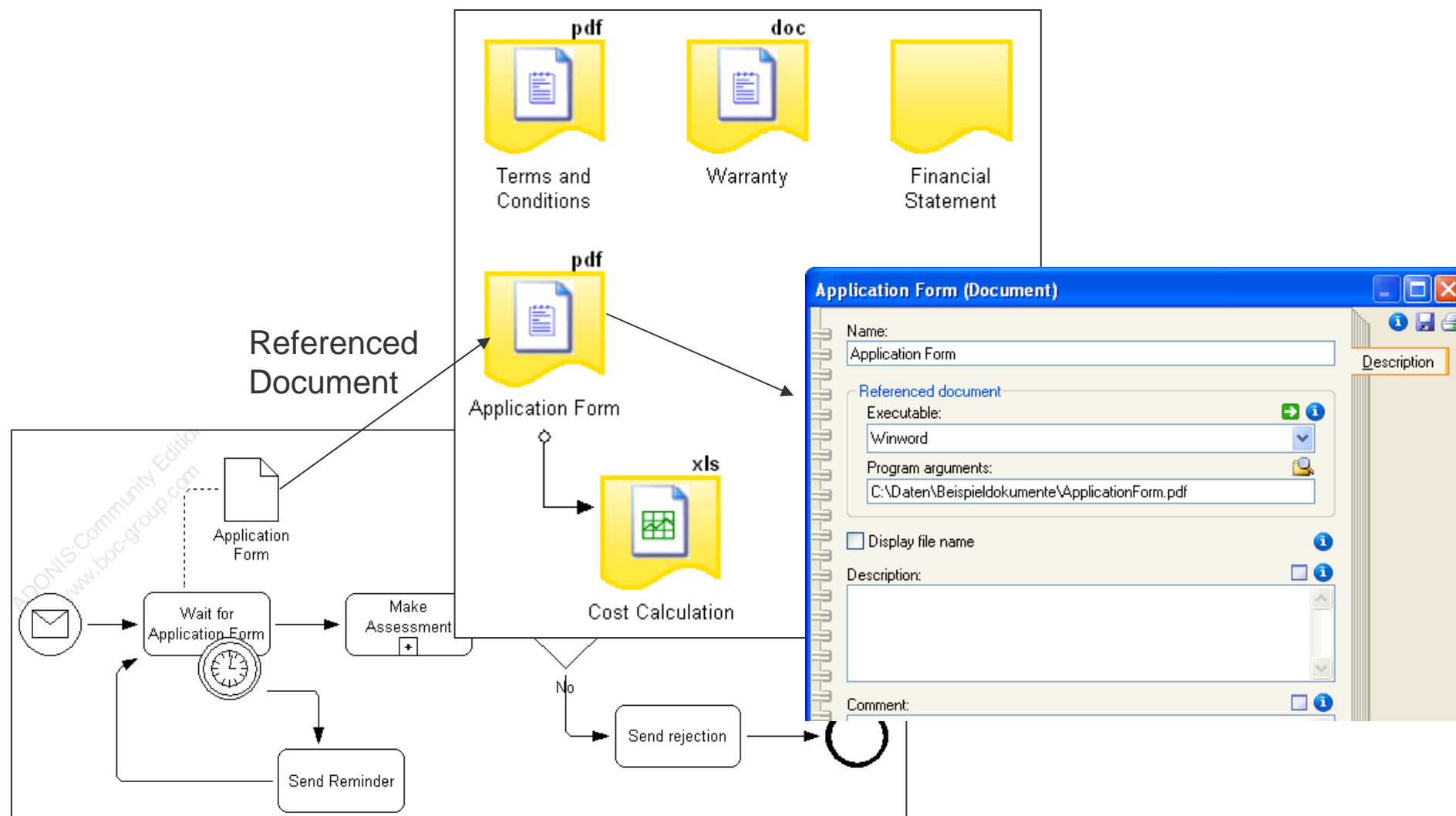


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A Sample Document Model



Relating Documents to BPMN



- What is the relation between
 - ◆ Public/Private Workflow
 - ◆ Orchestration/Choreography?