Languages for Modeling Business Processes

Slides based upon the following sources:

. INFO-H-420: Business Process Management taught at Universit é libre de Bruxelles

- Slides for the book: “Modern Business Process Automation”
- BPMN standard (c) OMG
- BPMN by example non-normative document (c) OMG

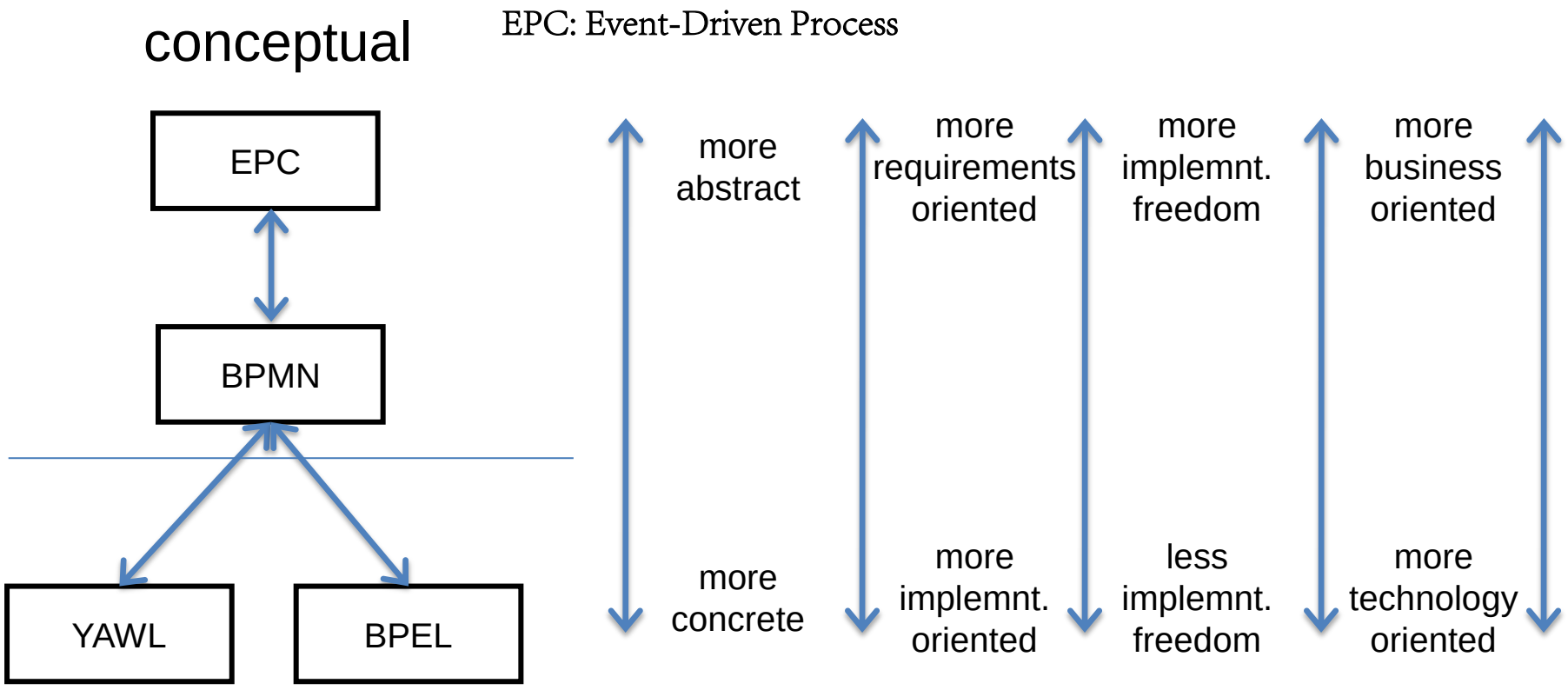
Overview

- Business Process Modeling Notation (BPMN)
  - Object Management Group (OMG) standard
  - Modeling oriented; business oriented
  - From version 2.0: formal execution semantics
    - Translation to BPEL

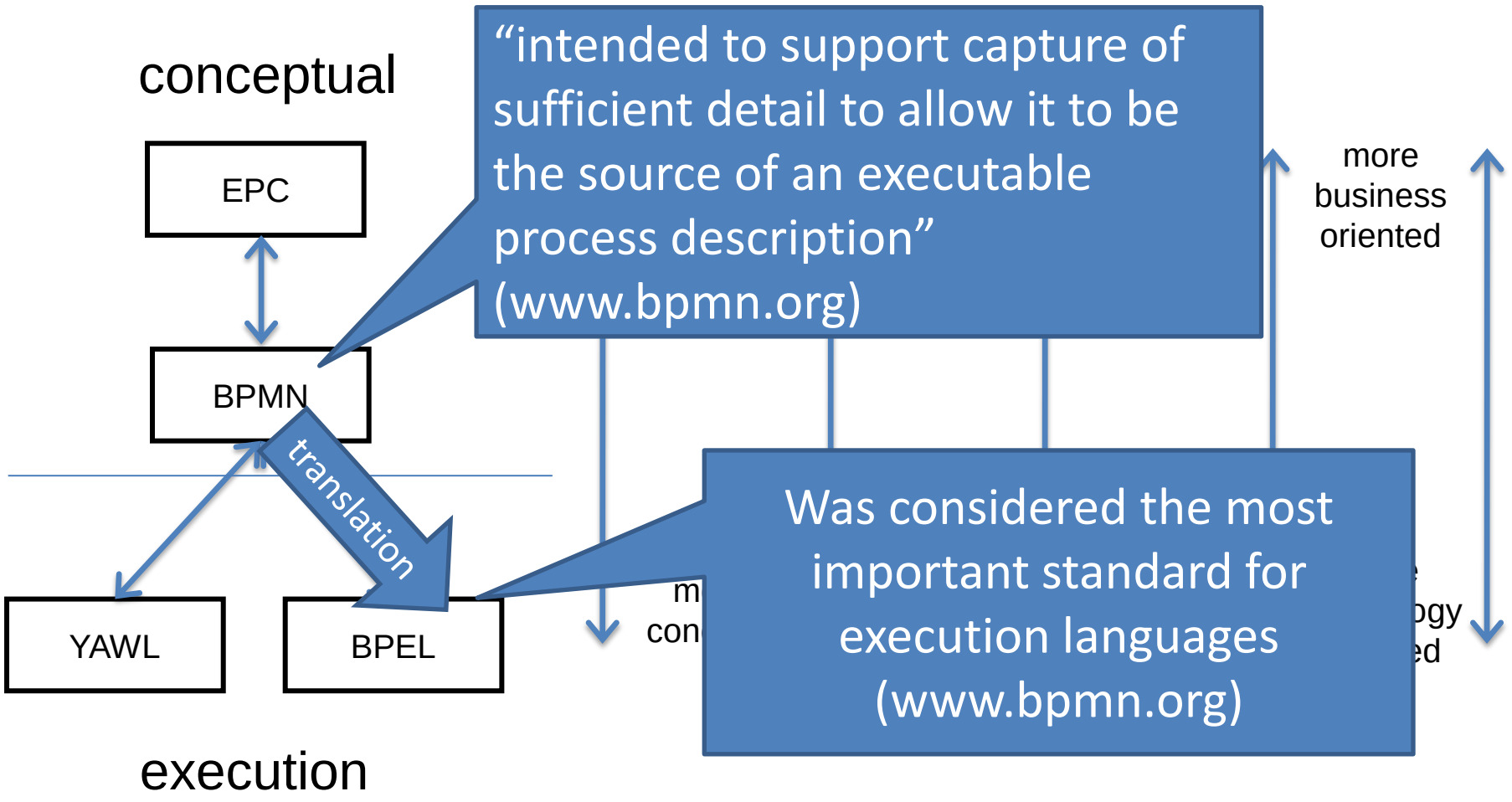
Overview

- Business Process Execution Language
  - Originally for composition of web services
  - No notion of “human task”
  - De facto standard for process execution
  - Based upon XML format
  - Flow constructions more limited than BPMN, YAWL

Positioning of the Languages



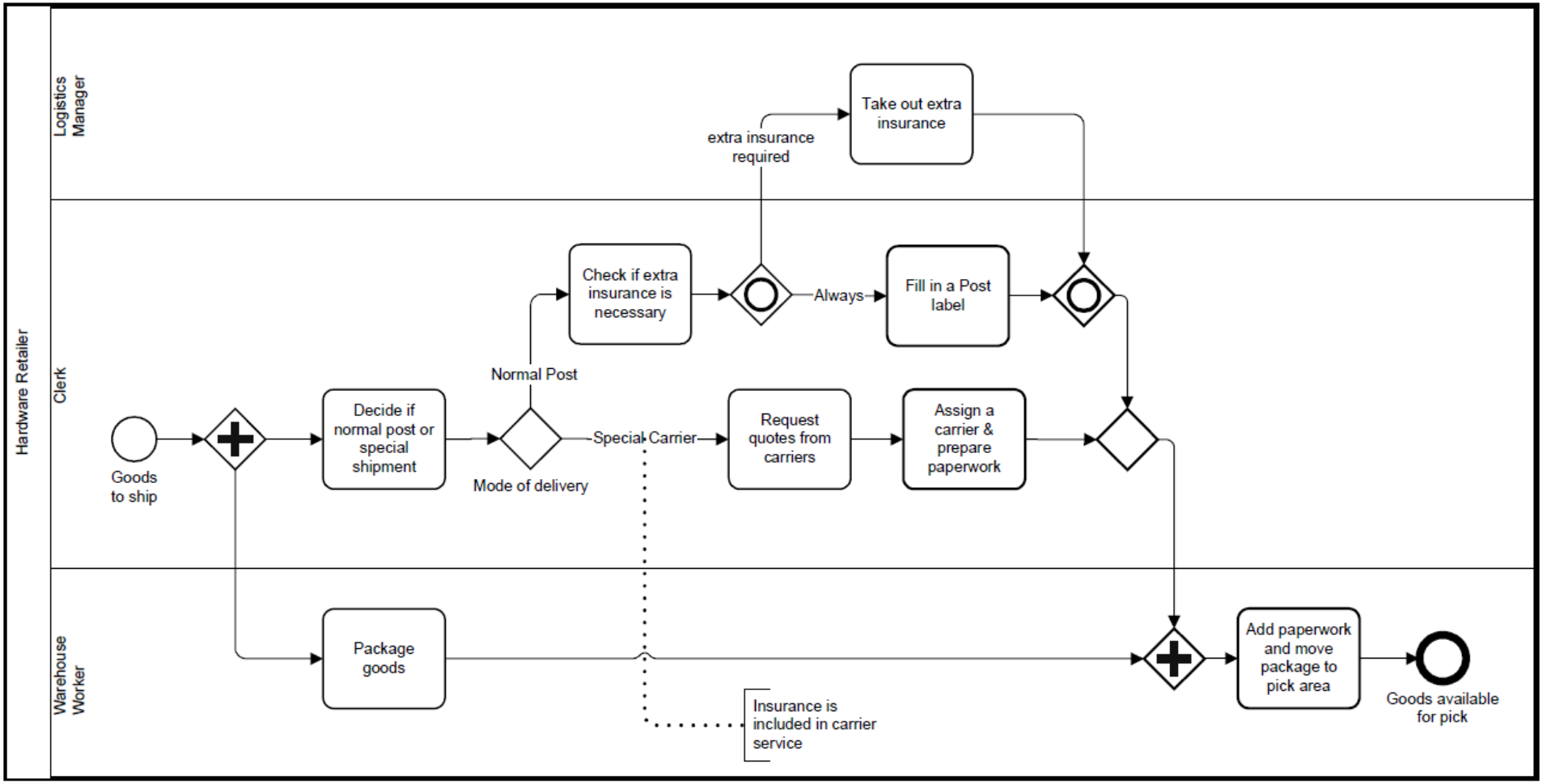
Positioning of the Languages



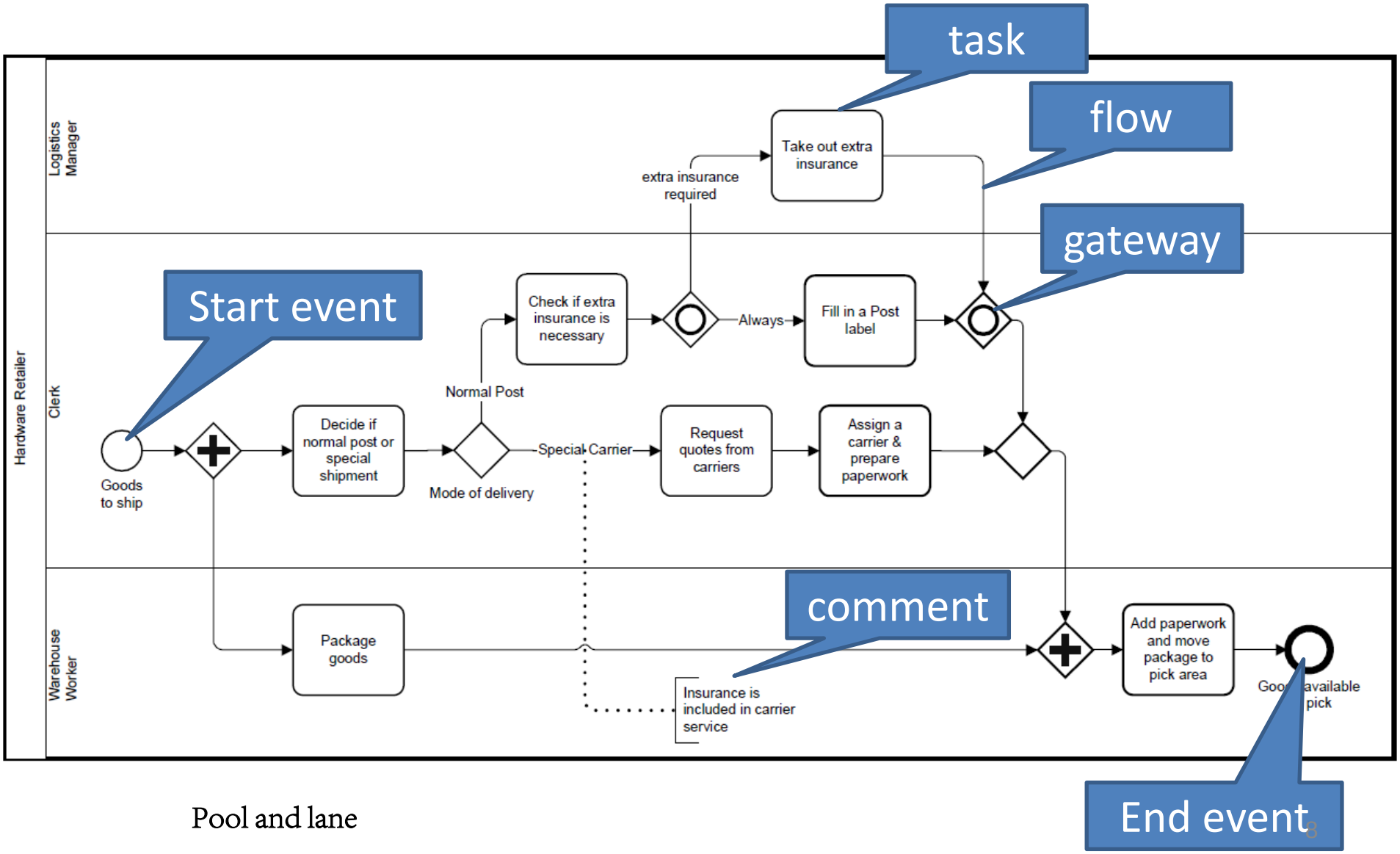
BPMN

- http://www.bpmn.org/
- Main constructs in BPMN:
  - Control Flow
    - Event, Activity, Gateway, Flow
  - Data
  - Artifact: visually represent outside objects
  - Resouces: referenced by activities

BPMN - Example



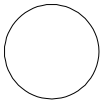
BPMN - Example



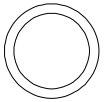
Pool and lane

Modelling with BPMN – Control Flow

Events



start event



intermediate event

end event

decorations:

message

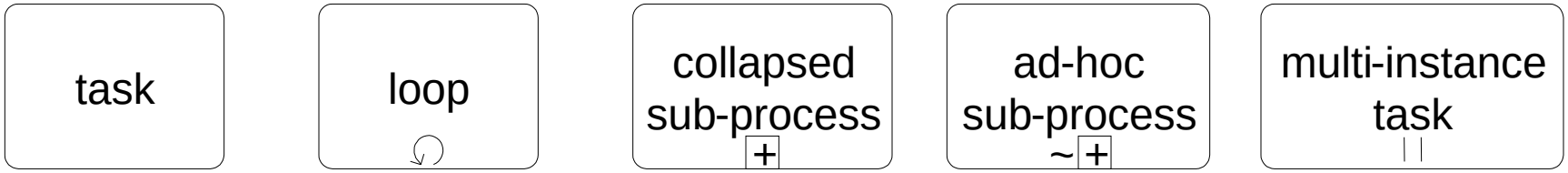
error

time

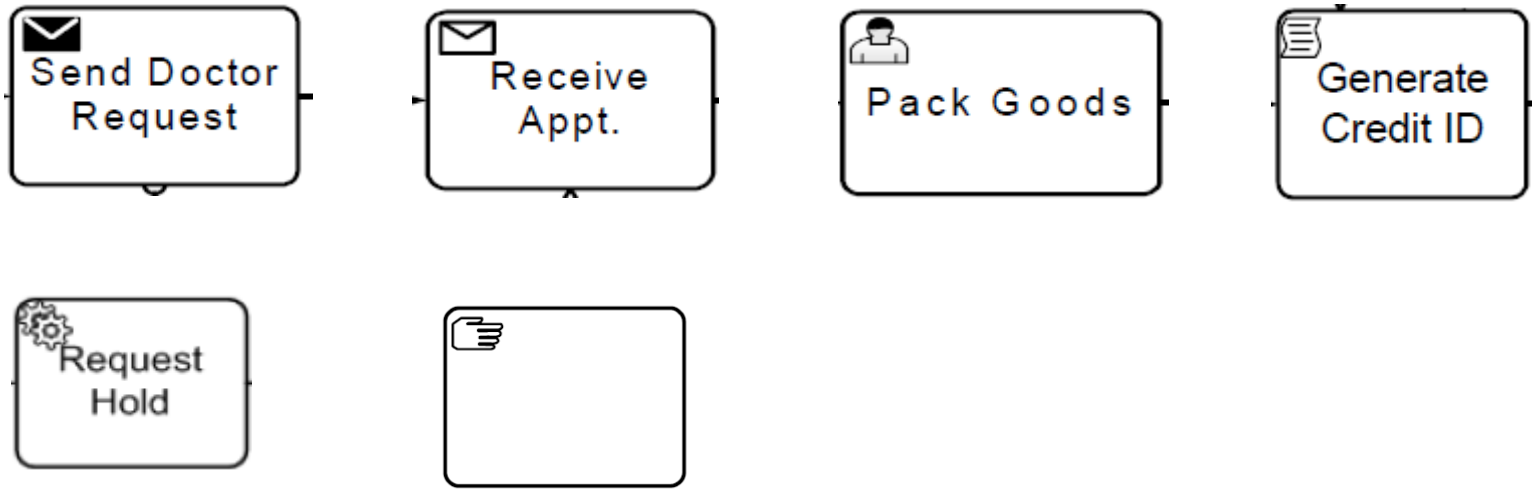
Something that “happens”

Modelling with BPMN – Control Flow

Activities

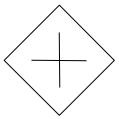


Can be decorated with a *type*

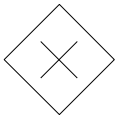


Modelling with BPMN – Control Flow

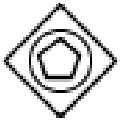
Gateways



AND



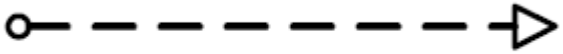
XOR



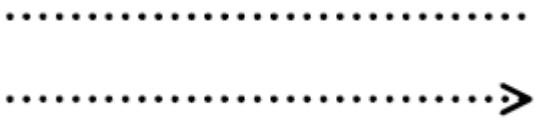
Event-based

OR

Sequence flow



Message flow

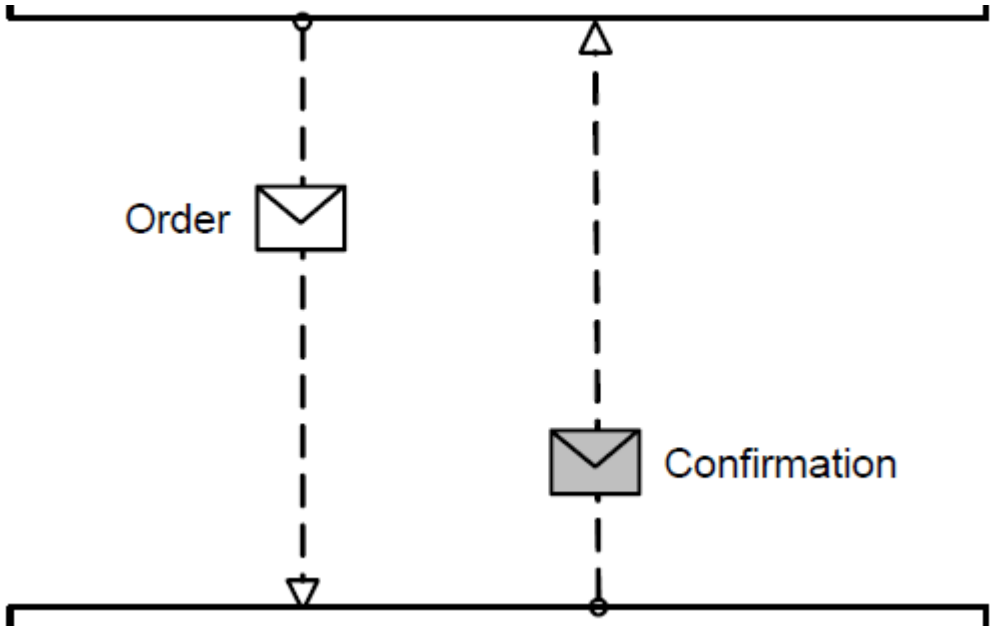


Association

associate extra info such as data, annotations

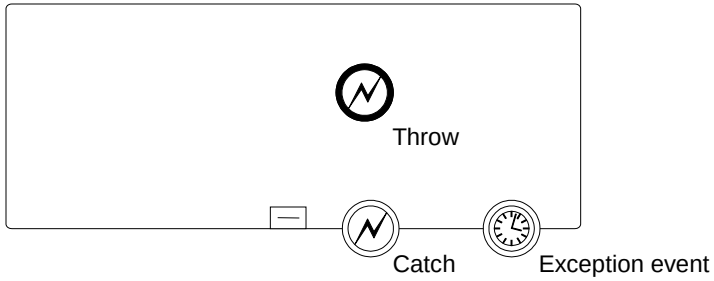
Messages

- send messages between two parties



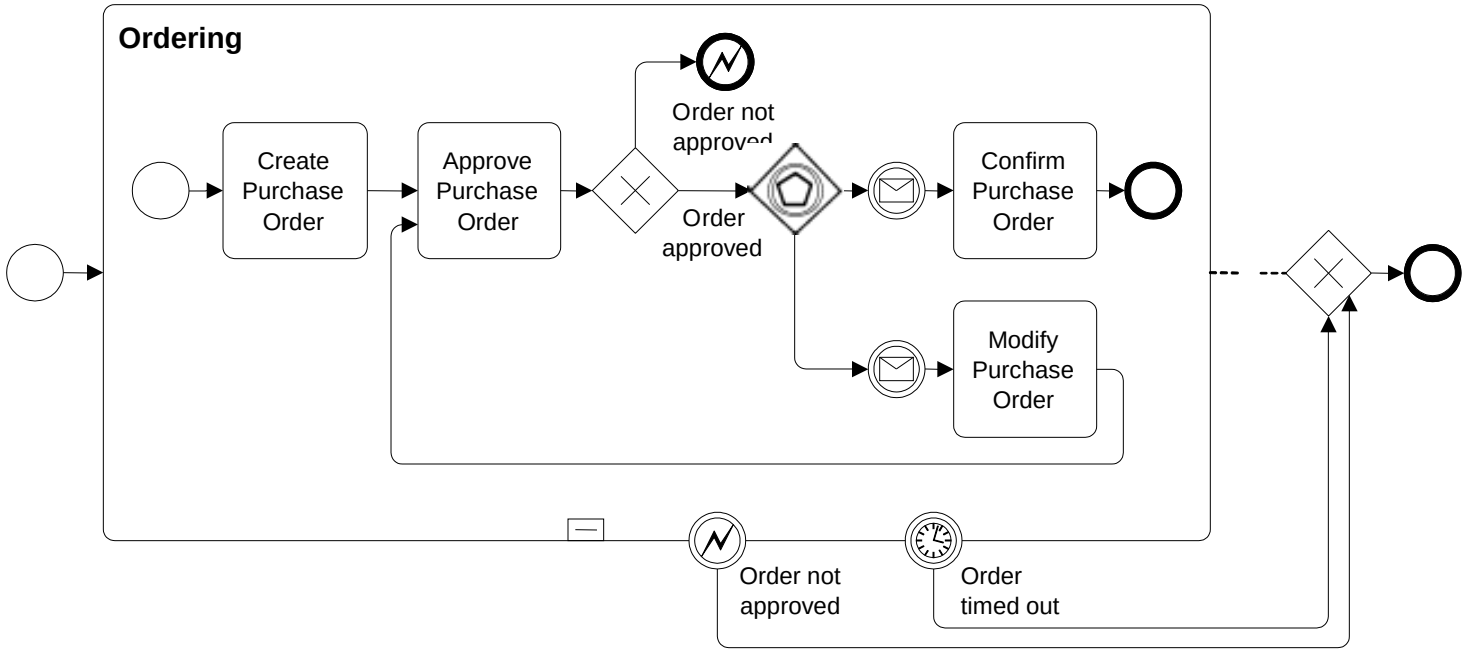
Modelling with BPMN – Exception

- Exception events
- 'Throw' events
- 'Catch' events

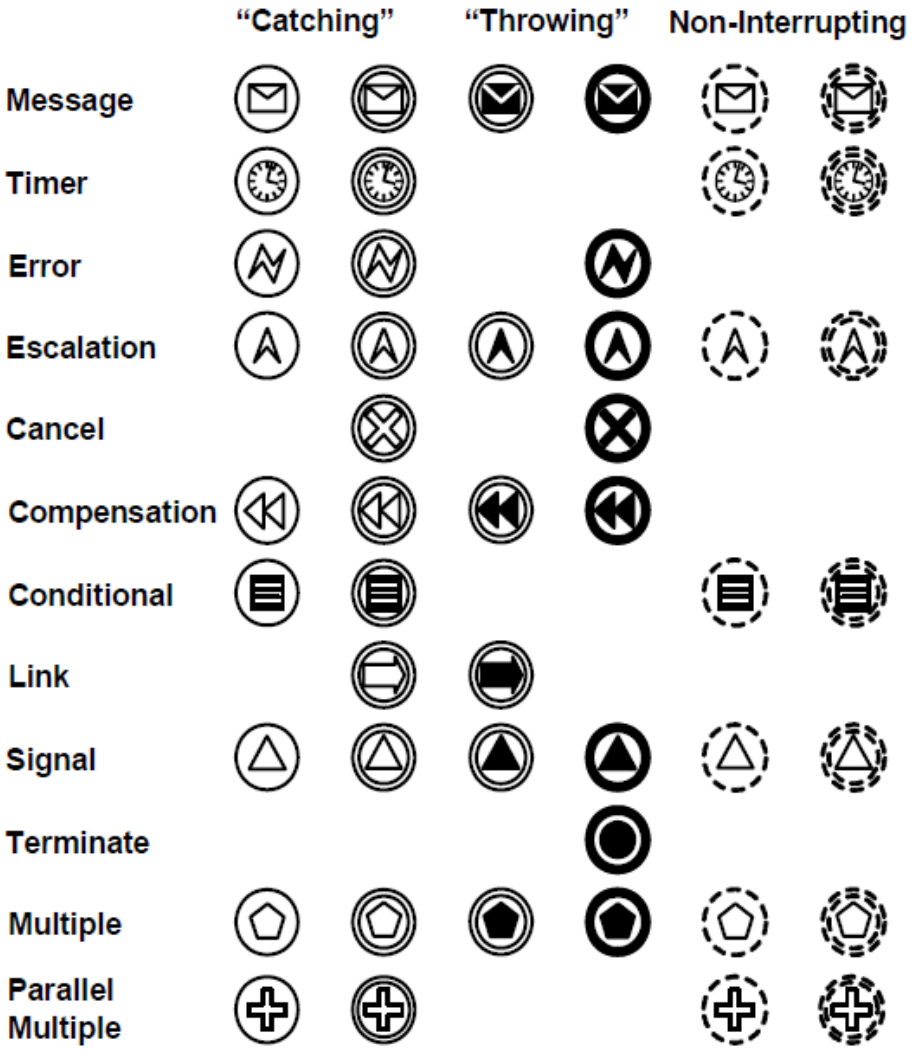


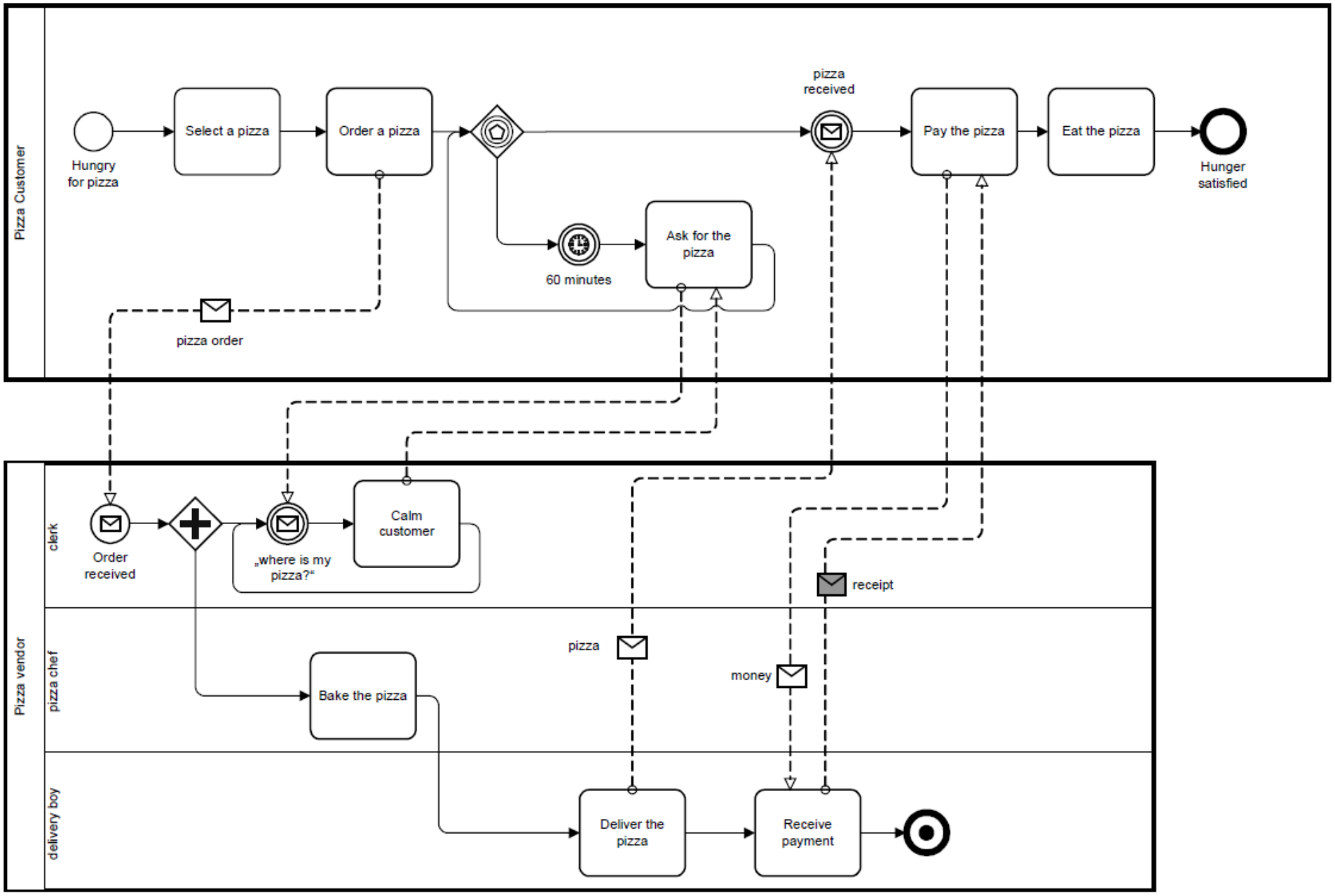
Modelling with BPMN – Exception

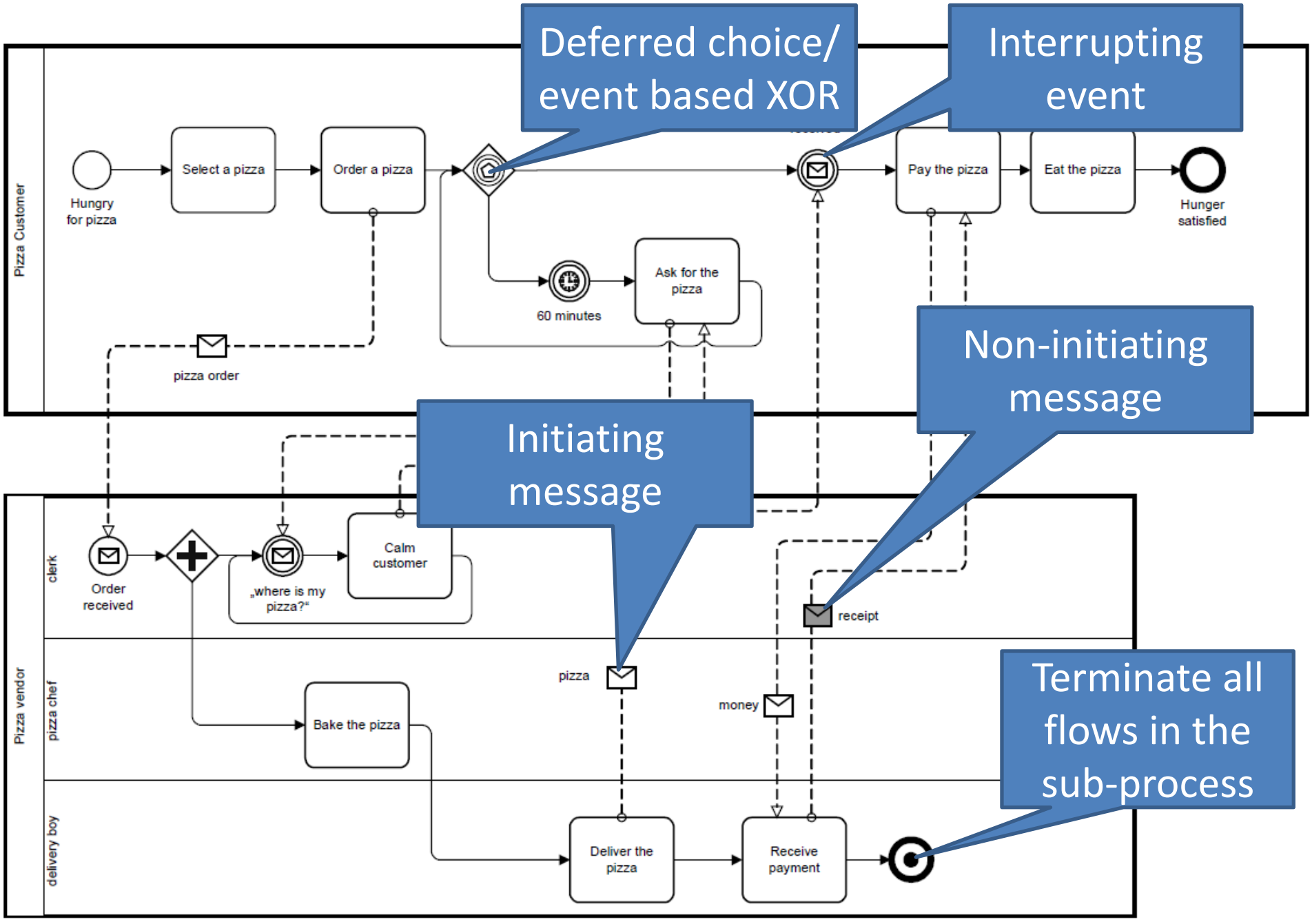
Example



BPMN - Events

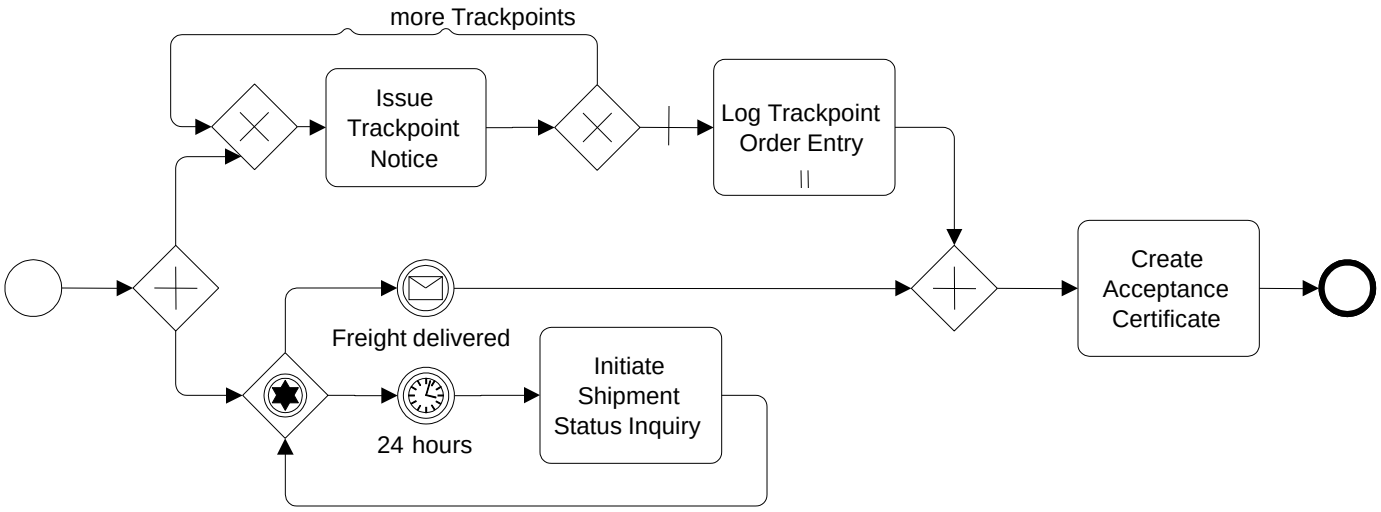

"Catching"
"Throwing"
Non-Interrupting
Message
Timer
Error
Escalation
Cancel
Compensation
Conditional
Link
Signal
Terminate
Multiple
Parallel Multiple


Pizza Customer
Hungry for pizza
Select a pizza
Order a pizza
pizza received
Pay the pizza
Eat the pizza
Hunger satisfied
60 minutes
Ask for the pizza
pizza order
Pizza vendor
clerk
Order received
„where is my pizza?“
Calm customer
receipt
pizza chef
pizza
money
Bake the pizza
delivery boy
Deliver the pizza
Receive payment


Deferred choice/ event based XOR
Interrupting event
Pizza Customer
Hungry for pizza
Select a pizza
Order a pizza
Pay the pizza
Eat the pizza
Hunger satisfied
60 minutes
Ask for the pizza
pizza order
Non-initiating message
Initiating message
Pizza vendor
clerk
Order received
„where is my pizza?“
Calm customer
receipt
pizza chef
pizza
money
Bake the pizza
Terminate all flows in the sub-process
delivery boy
Deliver the pizza
Receive payment

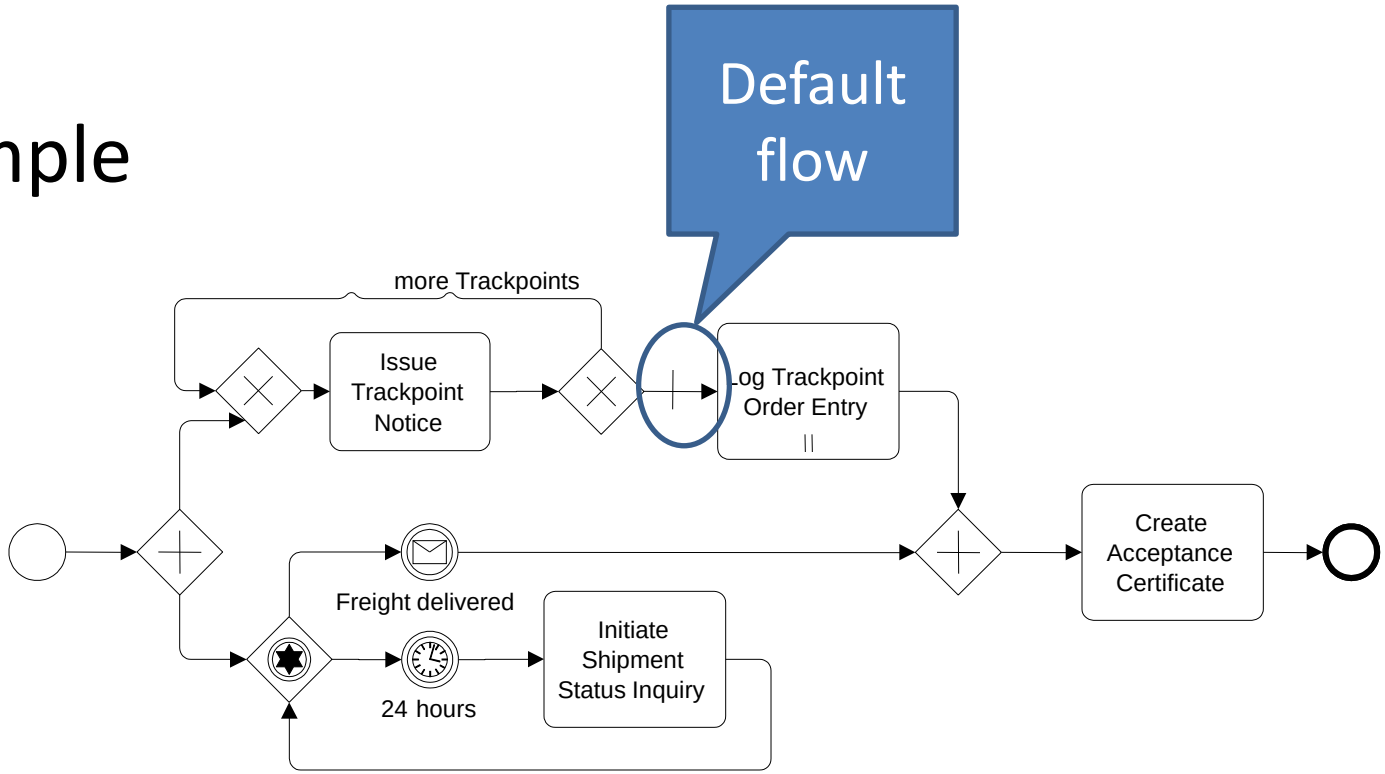
Modelling with BPMN – Control Flow

Example



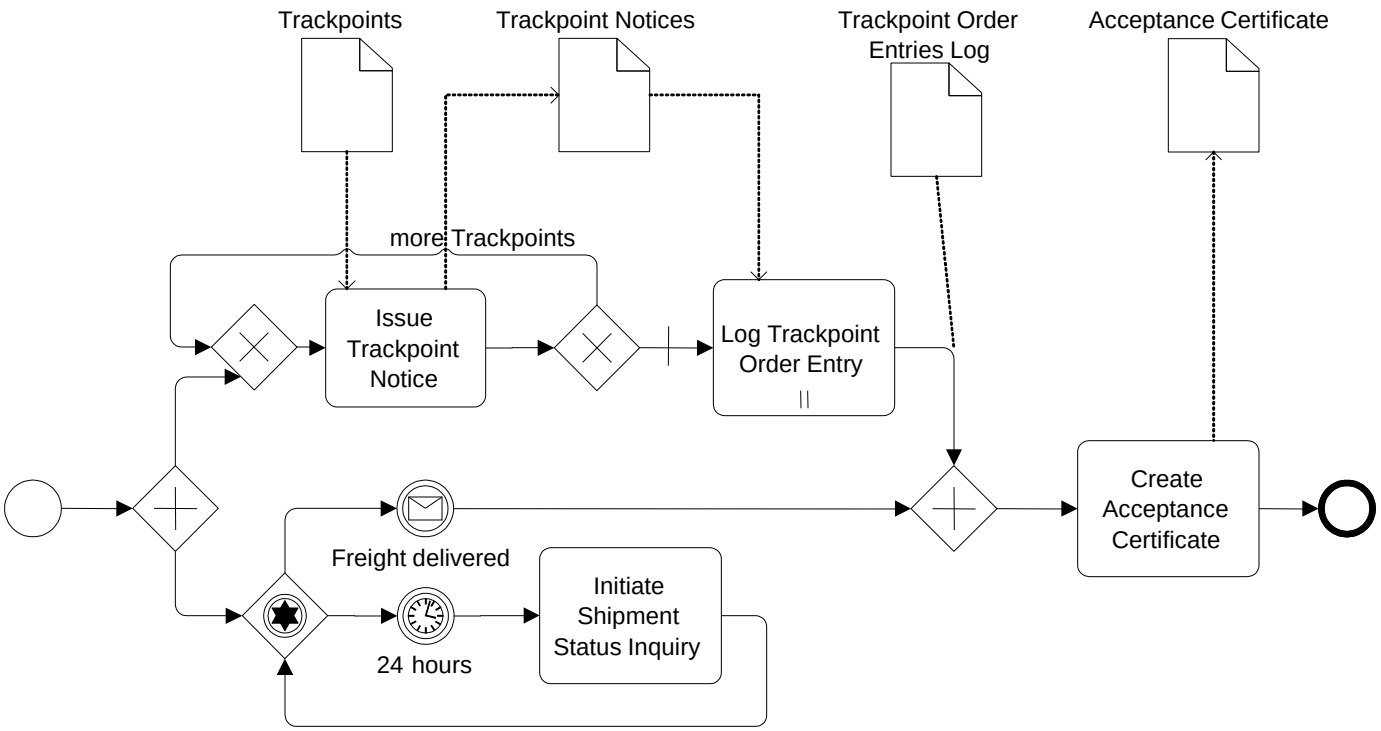
Modelling with BPMN – Control Flow

Example



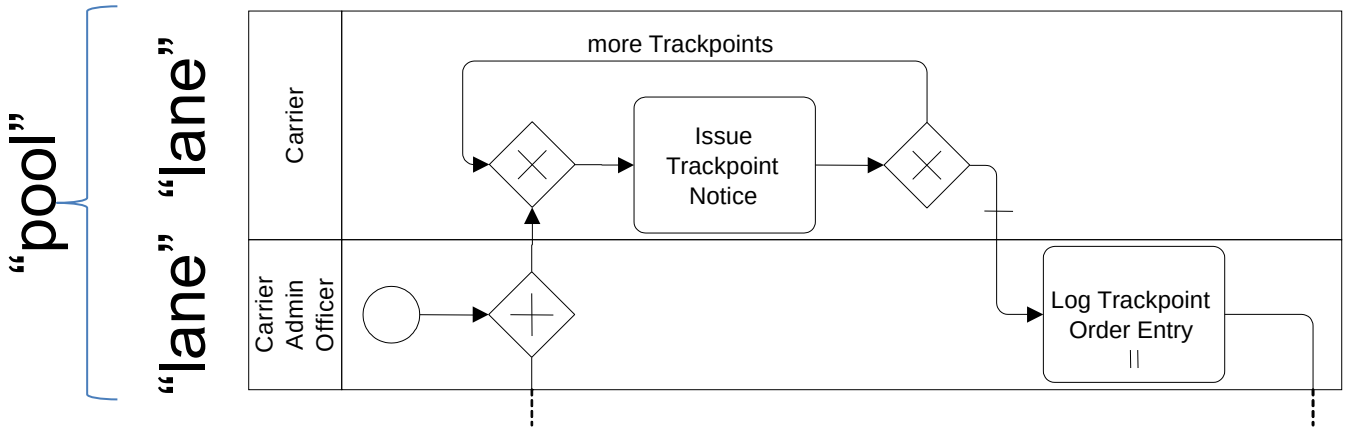
Modelling with BPMN – Data

Example



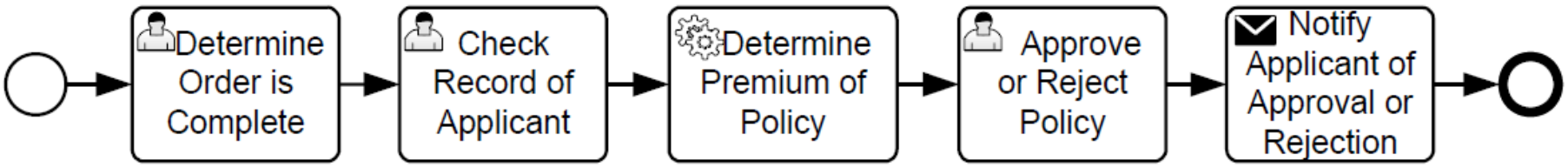
Modelling with BPMN – Resource

Example

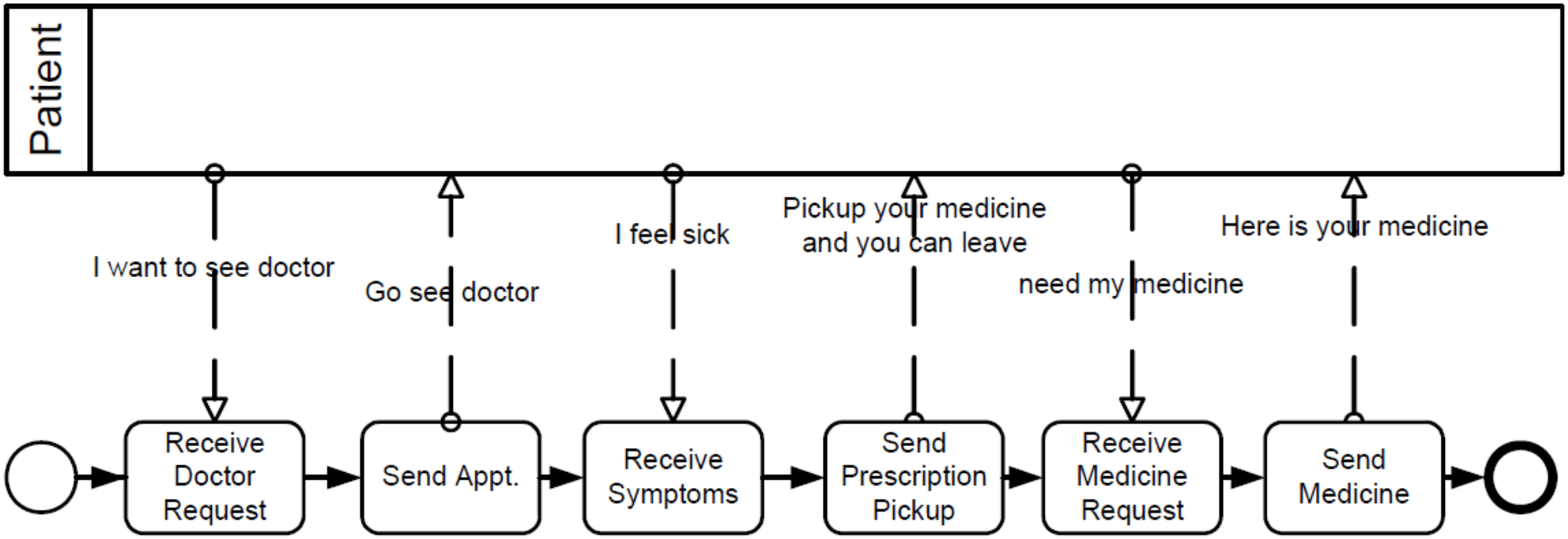


Very intuitive and convenient way to denote who does what.

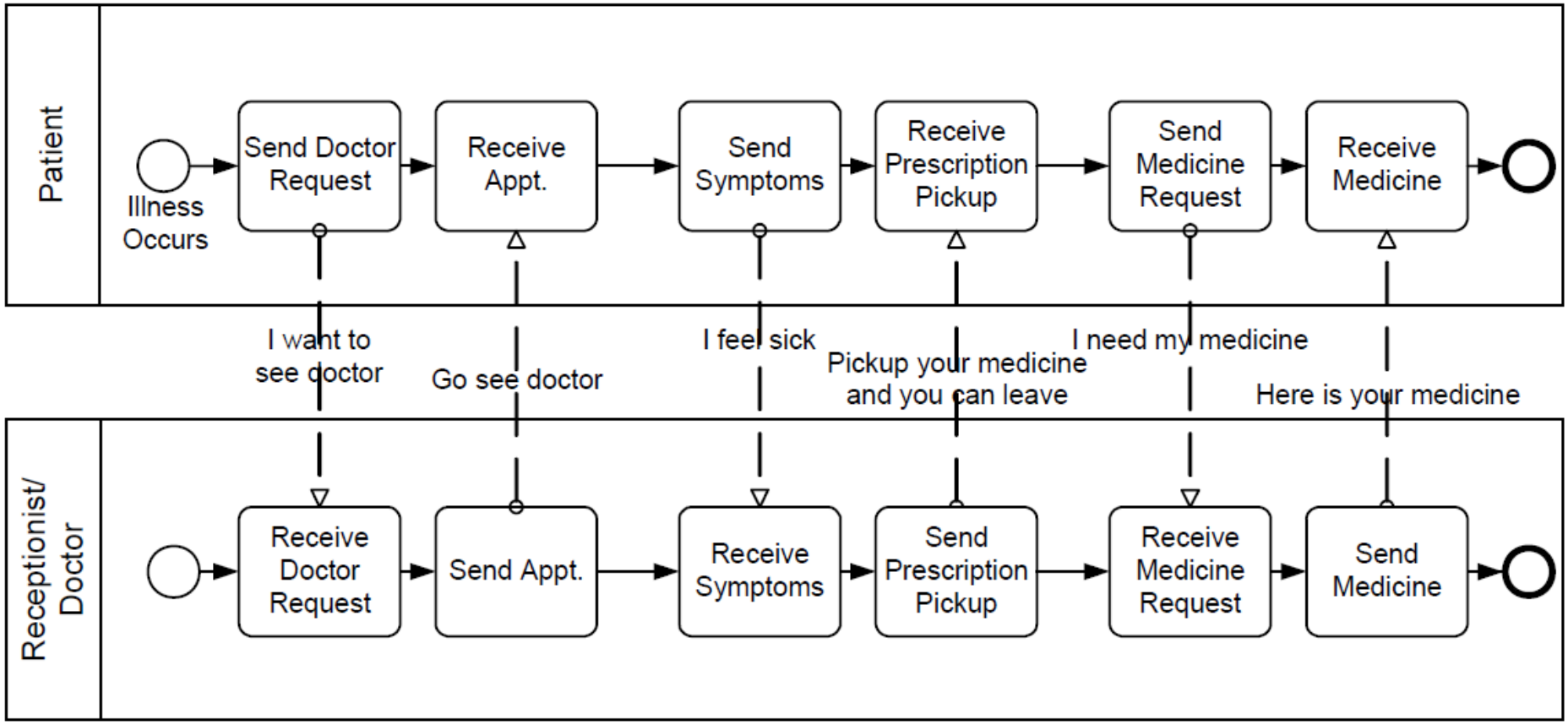
Private Process



Public Process



Collaborative Process



- Process choreography