Introduction to BPMN 1.1

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Introduction to BPMN 1.1

- Overview
- Events
- Gateways
- Activities
- Swimlanes
- Patterns

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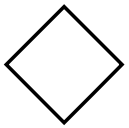
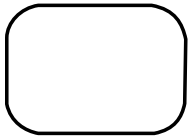
- « A **Process** is any activity performed within a company or organization. In BPMN a Process is depicted as a network of **Flow Objects**, which are a set of other activities and the controls that sequence them. » - BPMN 1.1

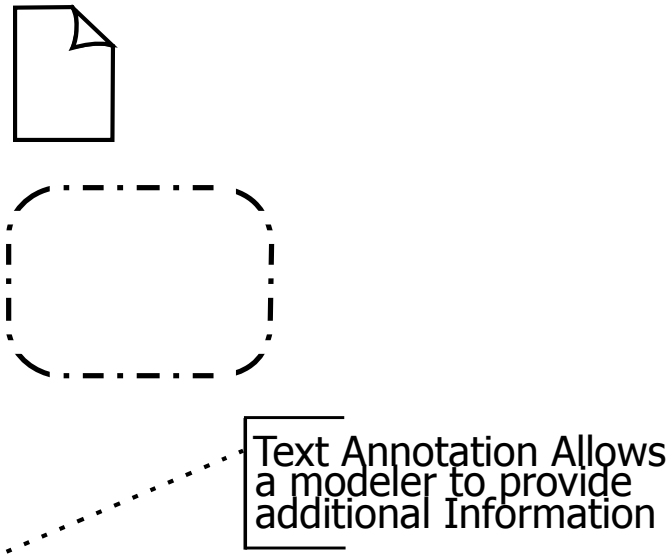
- **Flow Objects** are the main objects expressing the semantics of a process model
  - Events: 
  - Gateways: 
  - Activities: 

Overview > Connecting Objects

- **Connecting objects** are used to depict how flow objects interacts
  - Sequence Flows:
  - Message Flows:
  - Associations:

- **Pools and Lanes** are used to group the primary modeling elements
  - Pools & Lanes:

- **Artifacts** are used to provide additional information about the process:
  - Data Objects:
  - Groups:
  - Annotations:



To Be Created

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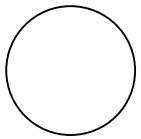
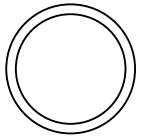
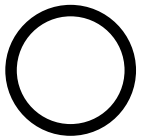
Events Definitions

- An **Event** is something that happens during the course of a business process and affects its execution flow.
- An **Event** has a cause and an impact
- BPMN defines three kinds of events:
  - Start Events 
  - Intermediate Events 
  - End Events 

Events > Start Events

- The **Start Event** indicates where a particular process will start
- The **Start Event** starts the flow of the Process
  - No Sequence Flow can connect to a Start Event
- A **Start Event** is optional
  - If a start event is not used, activities with no incoming sequence flow are considered as connected to an **implicit** Start Event
- **Start Events** might be used to:
  - Indicate how a message reception will trigger a process instance
    - e.g. Order Reception
  - Show when a process instance shall be triggered
    - e.g. End Of Month
  - ..

Events > Intermediate Events

- An **Intermediate Event** indicates where something happens during the execution of a process.
- An **Intermediate Event** affects the flow of the process
- **Intermediate Events** might be used to:
  - Indicate where a message might be received
  - Show where delays are expected
  - Disrupt the normal flow through exception handling
  - ..

Events > End Events

- An **End Event** ends the flow of the process
  - An End Event will not have any outgoing Sequence Flow
- **End Events** are optional
- **End Events** might be used to:
  - End a process flow and send a message
  - End a process flow and raise an error
  - End a process flow and request for a compensation
  - ..

Events

	"Catching"		"Throwing"	
No Trigger				
Message				
Timer				
Error				
Cancel				
Compensation				
Conditional				
Link				
Signal				
Terminate				
Multiple				

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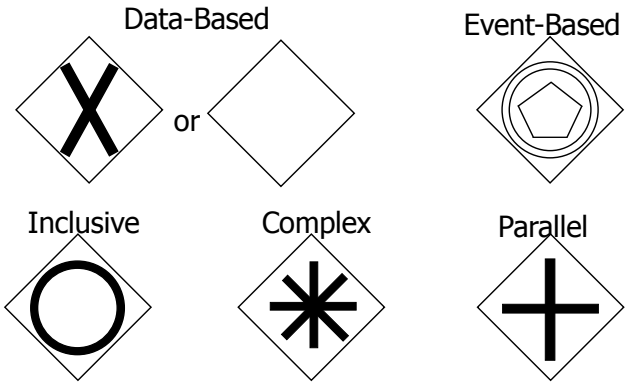
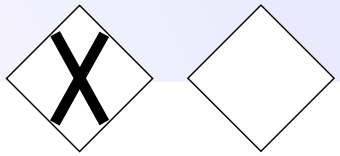
Gateways Definitions

- **Gateways** are used to control how Sequence Flows interact as they converge or diverge within a process
- Decisions, such as forks, merges and joins in the process flow are modeled with a **Gateways**
- The behavior of each type of **Gateways** will determine how many of the Gates will be available for the continuation of flow.
- BPMN defines four kinds of **Gateways**:

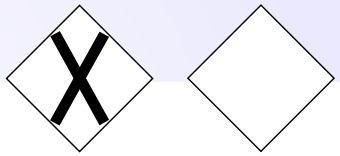


Gateways > Exclusive Data-Based

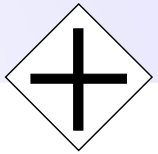


- An **Exclusive Data-Based** Gateway can be used:
  - As a decision point where several outgoing sequence flows are possible, yet they are all constrained by a condition and only one of them will be used. Such a condition will be evaluated based on the process data
  - As a way to merge several sequence flows into one. The incoming execution points will move straight through the gateway and go on

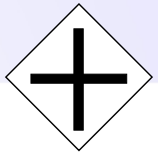
Exclusive Data-Based



Gateways > Parallel



- A **Parallel** Gateways provide a mechanism to fork and synchronize flows

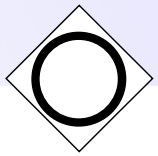


Exclusive Event-Based

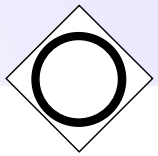
- An **Exclusive Event-Based** Gateway is similar to an Exclusive Data-Based Gateway
  - The only difference is that, instead of evaluating a set of alternatives to determine only one outgoing flow, the event based gateway will start a race between the different events the process might receive, the first one to be received wins the race and that determines which outgoing sequence flow should be used.

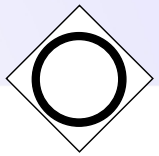
Exclusive Event-Based

Gateways > Inclusive

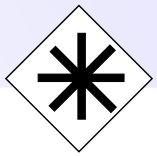


- An **Inclusive** Gateway can be used:
  - As a decision point where several outgoing sequence flows are possible, they are all constrained by conditions, each outgoing sequence flow with a condition evaluated as being true will be followed. Effectively it might spawn several execution points.
  - As a merge, the Inclusive Gateway will synchronize all the execution points produced upstream but at most one for each incoming Sequence Flow





Gateways > Complex



- The **Complex** Gateway was created to address complex cases which would require the combination of several other gateways. To avoid this, the behavior of the complex gateway can be scripted using an expression language. As a result the complex gateway can be used to handle every situations. Yet, best practice is to avoid it since it makes the process models less readable.

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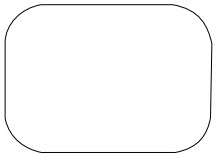
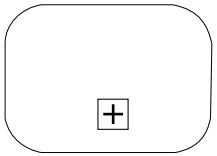
- An **Activity** is a unit of work to be performed. It might be a task, a process or a sub-process.

- BPMN defines two main kinds of activities:

  - A **Task** is an atomic activity that is included within a Process

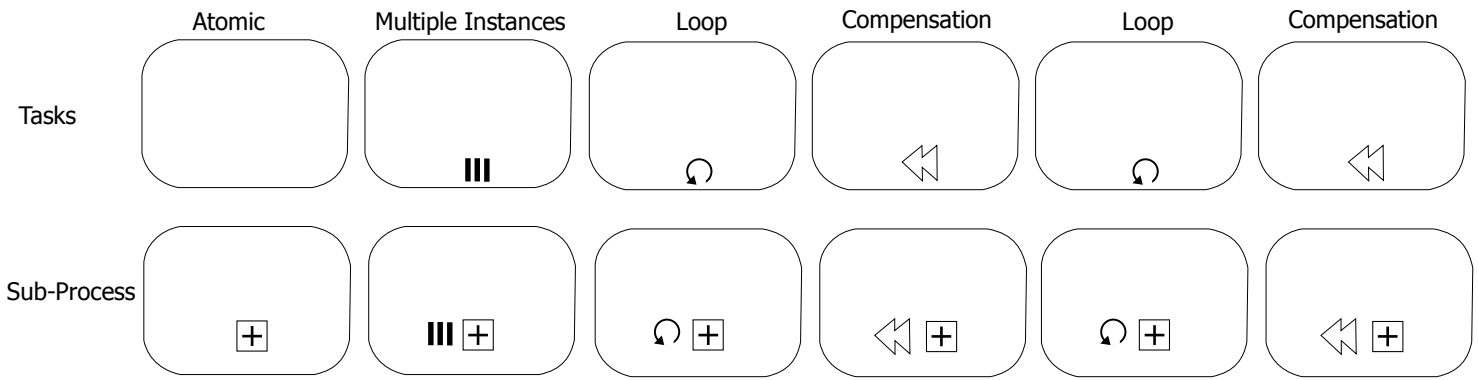


  - A **Sub-Process** is a Process that is included within another Process



Activities > Activity Markers

- Markers are defined to specify additional semantics such as loops



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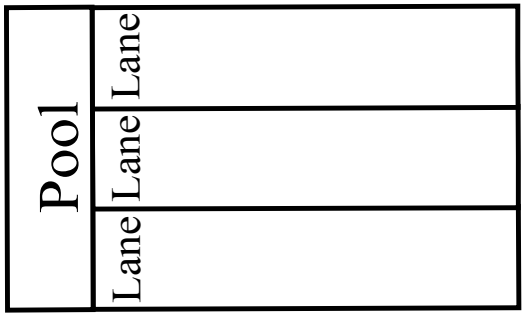
- Swimlanes might be used to organize activities and to depict the collaboration between partners. A business process is then organized inside a pool of swimlanes. A particular swimlane will present the tasks relevant to a specific business unit for instance.



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Q&A Session