

Business Process Diagram Graphical Objects

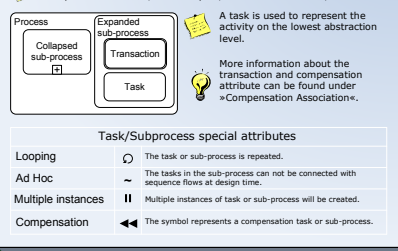
Events

An event is something that «happens» during the process. These events affect the flow of the process and usually have a cause (trigger) or an impact (result).
Examples: «Email received», «3 o'clock», «Warehouse empty», «Critical error»...

| Event type | Event flow | | | Description |
|--------------|------------|--------------|-----|--|
| | Start | Intermediate | End | |
| General | | | | The Start Event indicates where a particular process will start. Intermediate Events occur between a Start Event and an End Event. It will affect the flow of the process, but will not start or (directly) terminate the process. The End Event indicates where a process will end. |
| Message | | | | A message arrives from a participant and triggers the Event. This causes process to start, continue, end) if it was waiting for a message, or changes the flow if a exception happens. End type of message event indicates that a message is sent to a participant at the conclusion of the process. |
| Timer | | | | A specific time or cycle can be set that will trigger the start of the Process or continue the process. Intermediate timer can be used to model the time-based delay. |
| Error | | | | This type of End indicates that a named Error should be generated. This Error will be caught by an Intermediate Event within the Event Context. |
| Cancel | | | | This type of Event is used within a Transaction Sub-Process. This type of Event MUST be attached to the boundary of a Sub-Process. It SHALL be triggered if a Cancel End Event is reached within the Transaction Sub-Process. |
| Compensation | | | | This is used for compensation handling-both setting and performing compensation. It calls for compensation if the Event is part of a Normal Flow. It reacts to a named compensation call when attached to the boundary of an activity. Very useful for modelling roll-back actions within the transaction. |
| Rule | | | | This type of event is triggered when the conditions for a rule become true. Rules can be very useful to interrupt the loop process, for example: «The number of repeats = N». Intermediate rule is used only for exception handling. |
| Link | | | | A link is a mechanism for connecting the end (Result) of one Process to the start (Trigger) of another. Typically, these are two Sub-Processes within the same parent Process. It can be used, for example, when the working area (page) is too small - go to another page. |
| Multiple | | | | This type of event indicates that there are multiple ways of triggering the Process. Only one of them will be required to start, continue, end) the Process. |
| Terminate | | | | This type of End indicates that all activities in the Process should be immediately terminated. This includes all instances of Multi-Instances. The Process is terminated without compensation or event handling. |

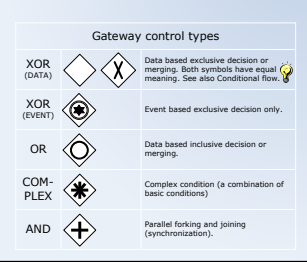
Activities

An activity is a generic type of work that a company performs. An activity can be atomic (task) or compound (process, sub-process).
Examples: «Send a letter», «write a report», «calculate the interests»...



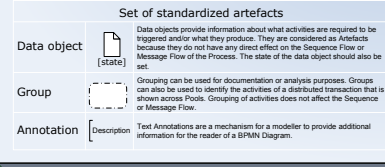
Gateways

A gateway is used to split or merge multiple process flows. Thus it will determine branching, forking, merging and joining of paths. Examples: «Condition true?», «yes/no», «Choose colour?», «red/green/blue»...



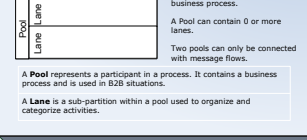
Artefacts

Artefacts are used to provide additional information about the process. If required, modellers and modelling tools are free to add new artefacts.
Examples of data objects: «A letter», «email message», «XML document», «Confirmation»...



Swimlanes

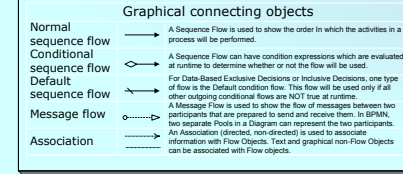
Pools and lanes are used to represent organizations, roles, systems and responsibilities. Examples: «University», «Sales division», «Warehouse», «ERP system»...



Business Process Diagram Connecting Objects

Graphical connecting objects

There are three ways of connecting Flow objects (Events, Activities, Gateways) with each other or with other information - using sequence flows, message flows or associations.

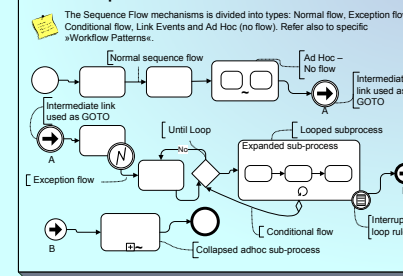


Sequence Flow and Message Flow rules

Only objects that can have an incoming and/or outgoing Sequence Flow / Message Flow are shown in the Tables Below.

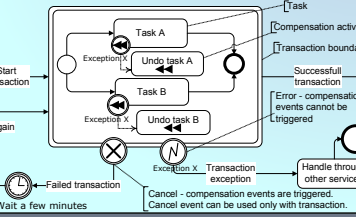
| | To: | To: |
|-------|-----|-----|
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Sequence flow mechanism



Compensation Association

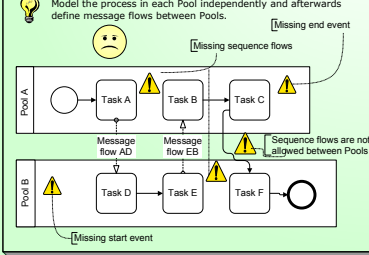
In case of transactions it is desired that all activities which constitute a transaction are finished successfully. Otherwise the transaction fails and rollback (compensation) activities occur which undo done activities.



Business Process Diagram Notation - Common Patterns and Antipatterns

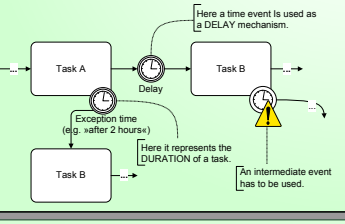
Wrong use of flows in/between pools

When modelling Pools, sequence flows and start/end events are often missing, because it is wrongly presumed that message flows substitute sequence flows. Additionally, sequence flows are incorrectly used to connect pools.



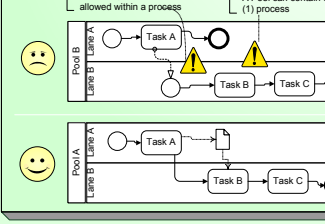
(Wrong) Use of time events

There are two common mistakes when using time events. First, starting events are often used instead of intermediate events. Second, intermediate events are often used as a delay mechanism but modelled as an exception mechanism (representing the duration of a task) and vice-versa (see the right use below).



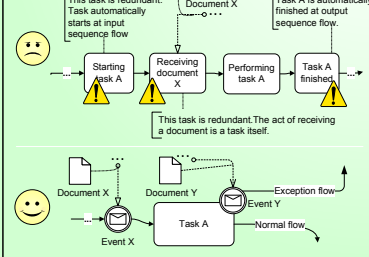
Use of flows within lanes

Lanes are often wrongly used in similar ways as Pools. They wrongly contain more business processes or contain message flows between different lanes.



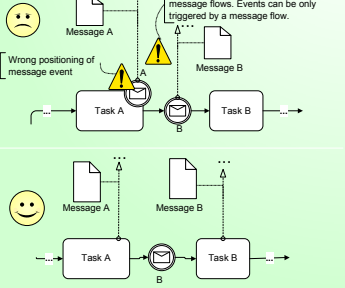
Use of tasks and events

Analysts often wrongly model events and tasks. For example: events are wrongly modelled as tasks, task states are modelled as new tasks.



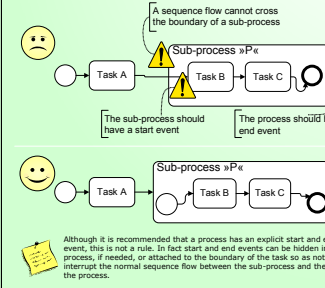
Use of message events and message flows

Starting and intermediate events can not be sources of message flows. Both examples are wrong - intermediate message events can not produce message flows. Events can be only triggered by a message flow.



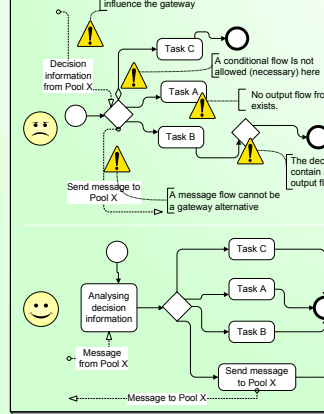
Use of the sequence flow mechanism

When using expanded sub-processes, sequence flows should be connected to the boundaries of sub-processes. Processes and sub-processes should start and end properly!



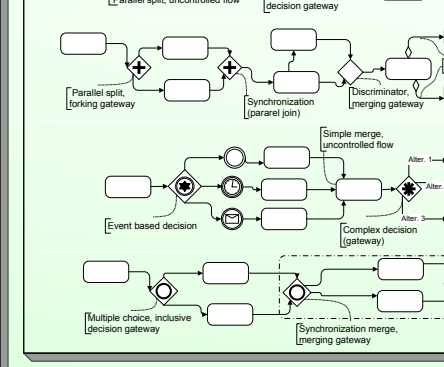
Use of gateways

Gateways are connected only with sequence flows. Also avoid potential deadlocks when using gateways.



Workflow patterns

Normal sequence flow, Multiple merge, uncontrolled flow, Parallel split, uncontrolled flow, Exclusive choice with decision gateway, Simple merge, uncontrolled flow, Multiple choice, Synchronization (parallel join), Discriminator, merging gateway, Event based decision, Complex decision (gateway), Multiple choice, inclusive decision gateway, Synchronization merge, merging gateway, Example of a deadlock.



Explanation of Poster Symbols

| | |
|--|---|
| | Important note, explanation |
| | Warning or error in the BPMN model |
| | Recommendation |
| | Wrong model |
| | Right (corrected) model |

About the BPMN Poster

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Literature used: BPMN Specification 1.0 @ <http://www.bpmi.org>

<http://bpmn.itposter.net>