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BPMN Fundamentals

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OMG BEIDTF Meeting – Joint BPMI-OMG Meeting

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Topics

Background

Relationship to Standards Organizations

Notation

Summary

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Background

History

Definition of BPMN

Working Group Charter

Benefits of BPMN

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History

BPMI Meeting #3

March, 2001, BPMI members began discussing the idea of creating a notation to go along with the executable BPML.

BPMI Meeting #4

June, 2001, BPMI members agree to form a Notation Working Group. The intent of the notation is to help communicate a BPML business process.

Formation of Notation Working Group

August, 2001, the Notation Working Group is formed. Currently, the Notation Working Group is composed of 58 members representing 35 companies, organizations, or individuals.

BPMI Meeting #5

October, 2001, Kick-off meeting of the Notation Working Group.

BPMN 0.9 Draft

November, 2002, the BPMN 0.9 draft specification was released to the public

BPMN 1.0 Draft

August, 2003, the BPMN 1.0 draft specification was released to the public

BPMN 1.0

May, 2004, the BPMN 1.0 specification was released to the public.

Currently, there are 7 companies that have implementations of BPMN and there are 11 companies developing implementations.

Definition of BPMN

Business Process Modeling Notation (BPMN)

The BPMN will provide businesses with the capability of defining and understanding their internal and external business procedures through a Business Process Diagram, which will give organizations the ability to communicate these procedures in a standard manner. BPMN will also be supported with an internal model that will enable the generation of executable BPEL4WS.

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Working Group Charter

Excerpts from the Charter:

The BPMN Working Group will ensure that the notation will:

- Be acceptable and usable by the business community.
- Be constrained to support only the concepts of modeling that are applicable to business processes.
- Be useful in illuminating a complex executable process.
- The BPMN notation of a business process must be unambiguous. There should be a mapping from one or more BPMN notation instances to an execution level instance.

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Working Group Charter, Cont.

Excerpts from the Charter:

In the course of its work the BPMN Working Group will:

- Seek to minimize the technical constraints placed upon the business user when modeling business processes. This principle is paramount.
- Determine the Business Process modeling concepts that are applicable to the graphical notation.
- Consider issues and opportunities of information sharing and dissemination in areas of common and related interest with other working groups and standards bodies.

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Audiences:

Strategy Consultants

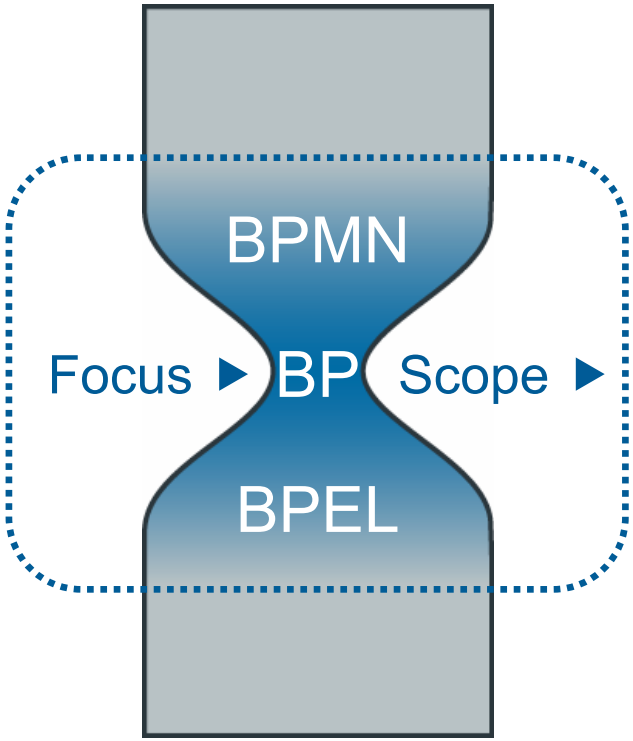
Business Analysts

Process Designers

System Architects

Software Engineers

Business Environment



Technology Implementation

Purposes:

Modeling

Execution

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Benefits of BPMN

BPMN will Provide:

- A standardized notation for defining internal and external business processes
  - *The notation will be understandable across all organizations and modelers*
- A formal mechanism to generate an executable business process (BPEL4WS) from the Business Level notation
  - *This type of standardized mechanism does not exist (although being developed in the BPDM response)*
  - *The business process developed by a business analyst can be directly applied to a BPM engine instead of going through human interpretations and translations into other languages*

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Relationship with Standards Orgs.

OMG

The OMG has an RFP to develop a new UML business process definition (BDP) metamodel, to which BPMN can be a diagram view.

WfMC

The WfMC has not developed a notation for XPDL. They may adopt BPMN. WfMC members are working with the BPMI Notation Working Group to build a mapping from BPMN to XPDL. WfMC sees XPDL as the transport mechanism (XML Schema) for BPMN.

OASIS – WSBEL

This TC is developing the next version of BPEL4WS. BPMN will be eventually mapped to this version (V1.1).

OASIS – ebXML

The ebXML BPSS may have a mapping from BPMN. There is current collaboration between the two organizations.

W3C – Choreography

There may be a mapping from BPMN to the output of this working group.

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Topics

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Relationship to other BPM Notations/ Languages and to Standards Organizations

Notation

Summary

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Notation

Business Process Diagram Elements

- Core Set of Diagram Elements
- Complete Set of Diagram Elements

Business Process Diagram Samples

- Normal Flow
- B2B Modeling
- Exception Handling
- Compensation Handling
- A Complex Process

Mapping to BPEL4WS Sample

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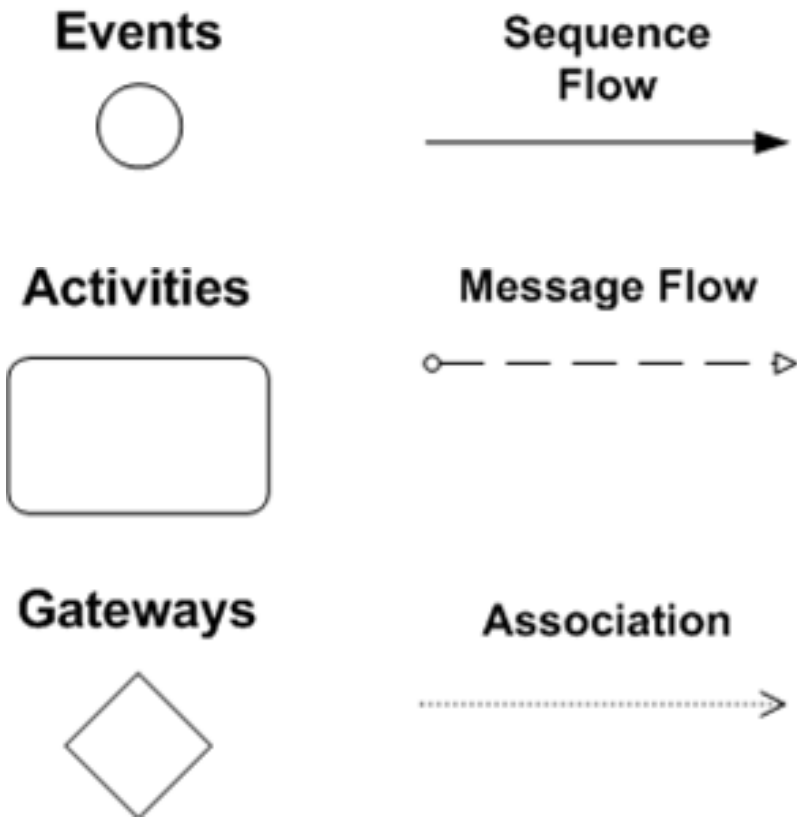
Core Set of Diagram Elements



The core set of modeling elements enable the easy development simple Business Process Diagrams that will look familiar to most Business Analysts (a flowchart diagram)

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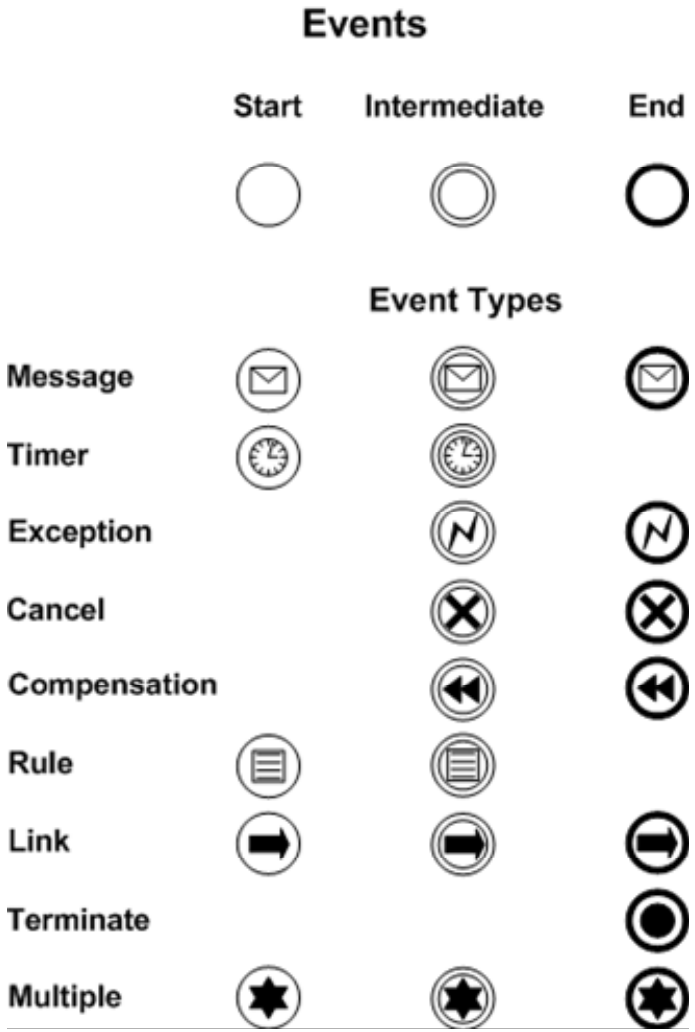
Complete Set of Diagram Elements, Events



An Event is something that "happens" during the course of a business process. These Events affect the flow of the Process and usually have a trigger or a result. They can start, interrupt, or end the flow.

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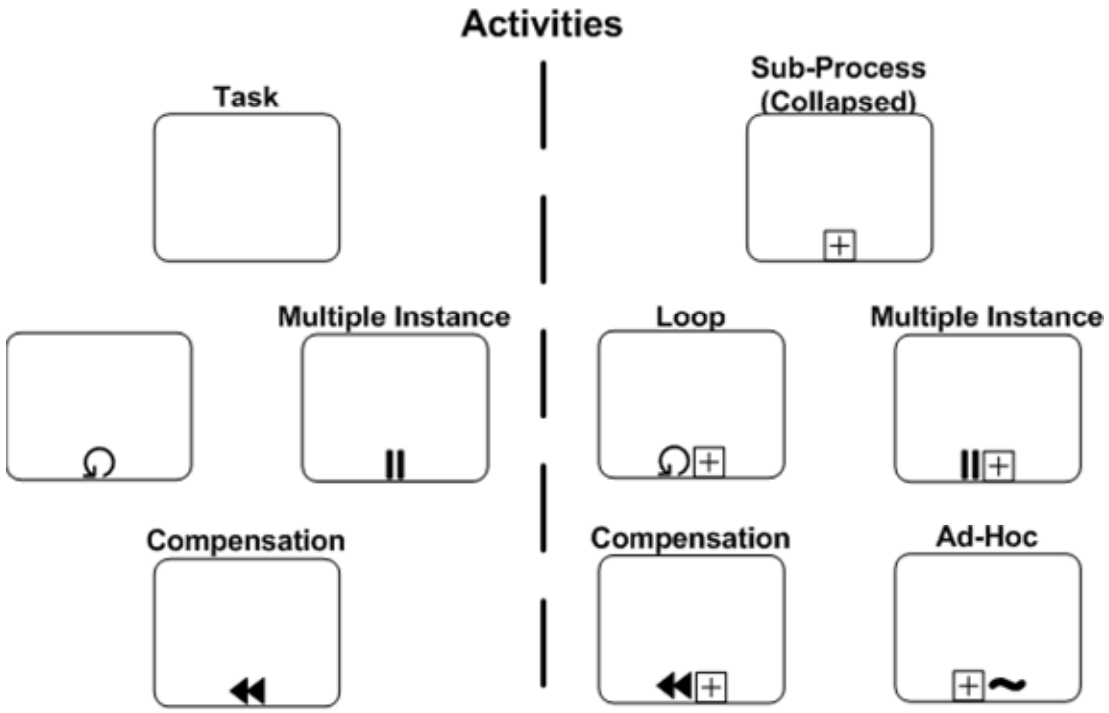
Complete Set of Diagram Elements, Activities



An activity is work that is performed within a business process. An activity can be atomic or non-atomic (compound). The types of activities that are a part of a Process Model are: Process, Sub-Process, and Task.

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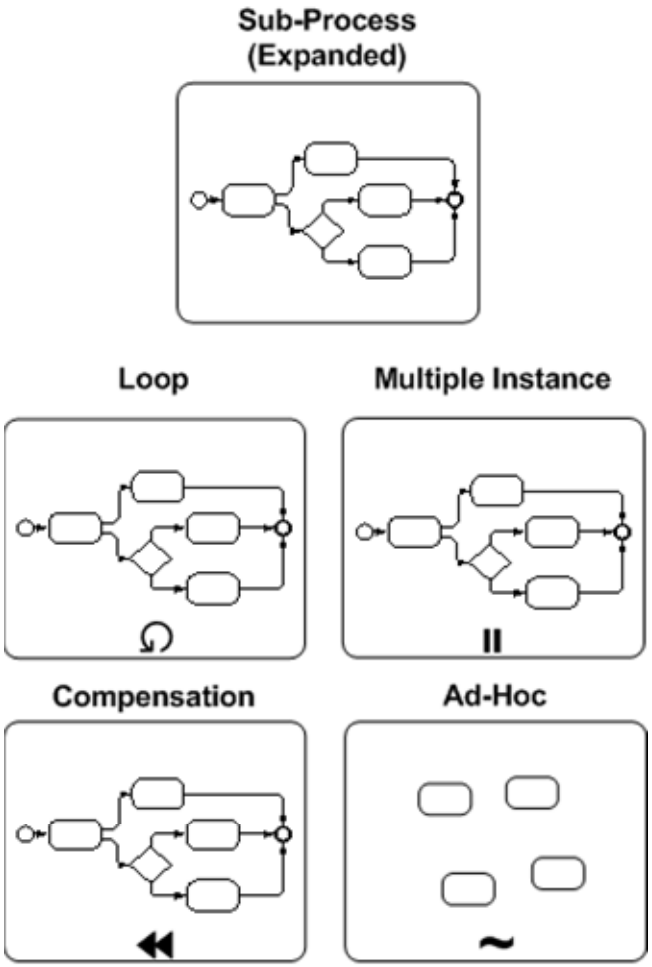
Complete Set of Diagram Elements, Activities, Cont.



A Sub-Process can be in an expanded form that shows the process details of the a lower-level set of activities.

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Complete Set of Diagram Elements, Connections

A Sequence Flow is used to show the order that activities will be performed in a Process.

A Message Flow is used to show the flow of messages between two entities that are prepared to send and receive them.

An Association is used to associate information and artifacts with flow objects.

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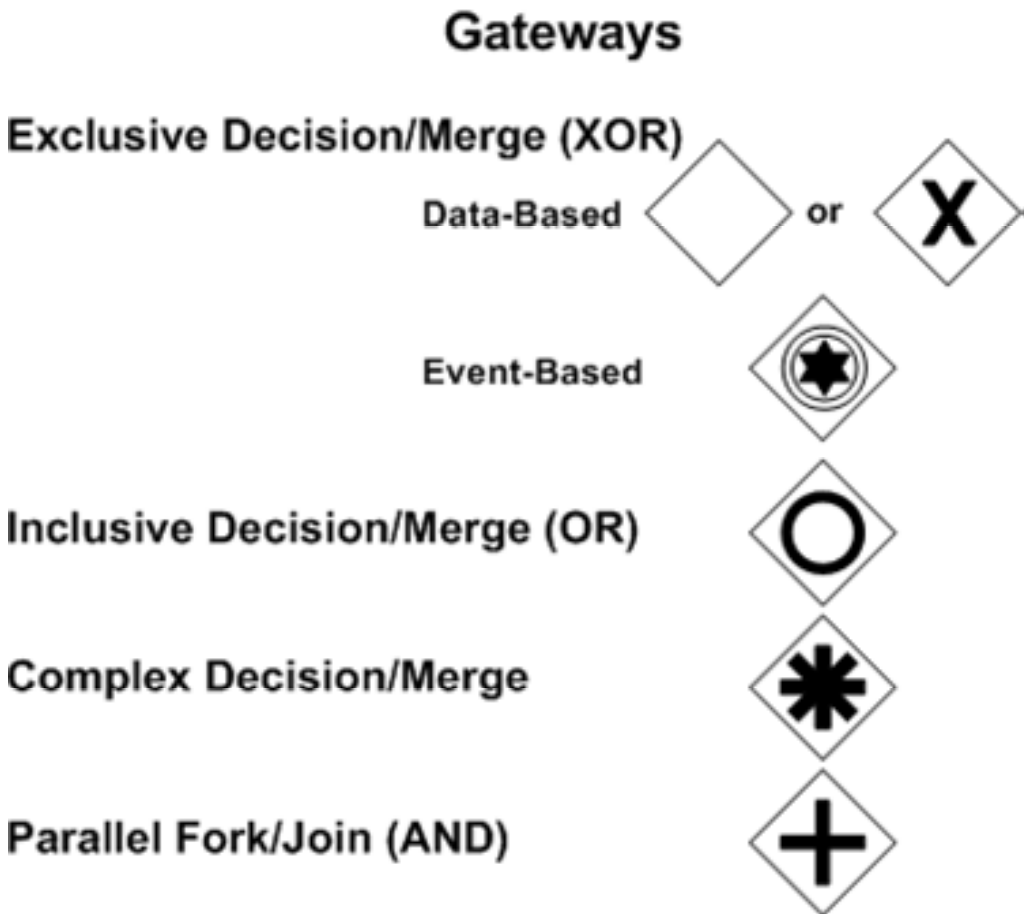
Complete Set of Diagram Elements, Gateways



Gateways are modeling elements that are used to control how Sequence Flows interact as they converge and diverge within a Process. If the flow does not need to be controlled, then a Gateway is not needed.

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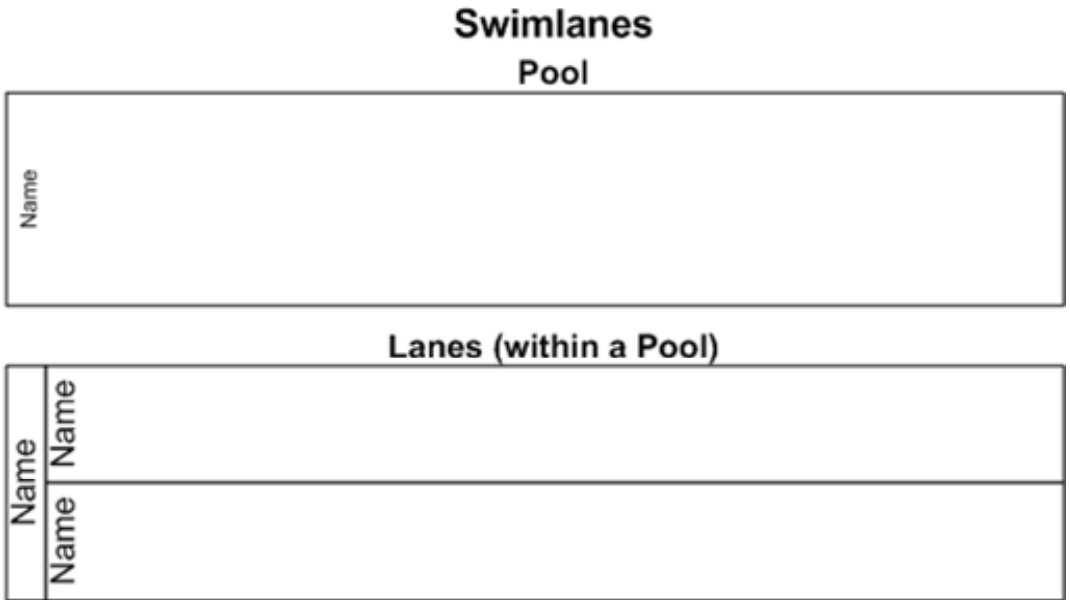
Complete Set of Diagram Elements, Swimlanes



A Pool is a “swimlane” and a graphical container for partitioning a set of activities from other Pools, usually in the context of B2B situations.

A Lane is a sub-partition within a Pool and will extend the entire length of the Pool, either vertically or horizontally.

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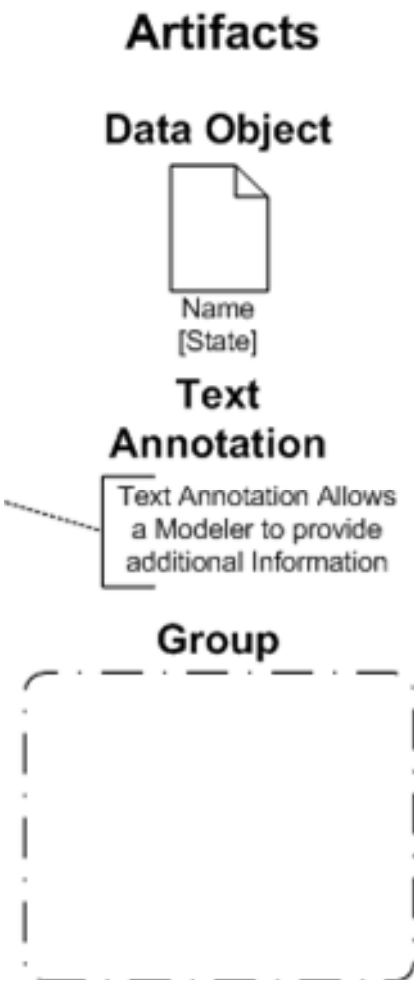
Complete Set of Diagram Elements, Artifacts



Data Objects are not flow objects (i.e., connected through Sequence Flow), but they do provide information about how documents, data, and other objects are used and updated within a Process.

Text Annotations are a mechanism for a modeler to provide additional information for the reader of a BPMN diagram.

Groups provide a mechanism to visually organize activities

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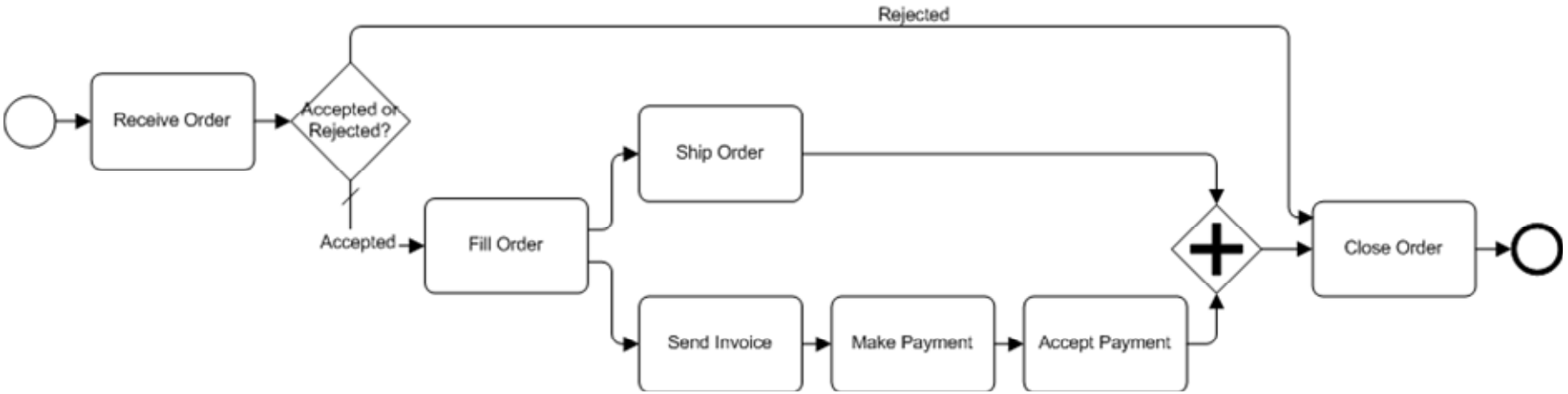
Normal Flow



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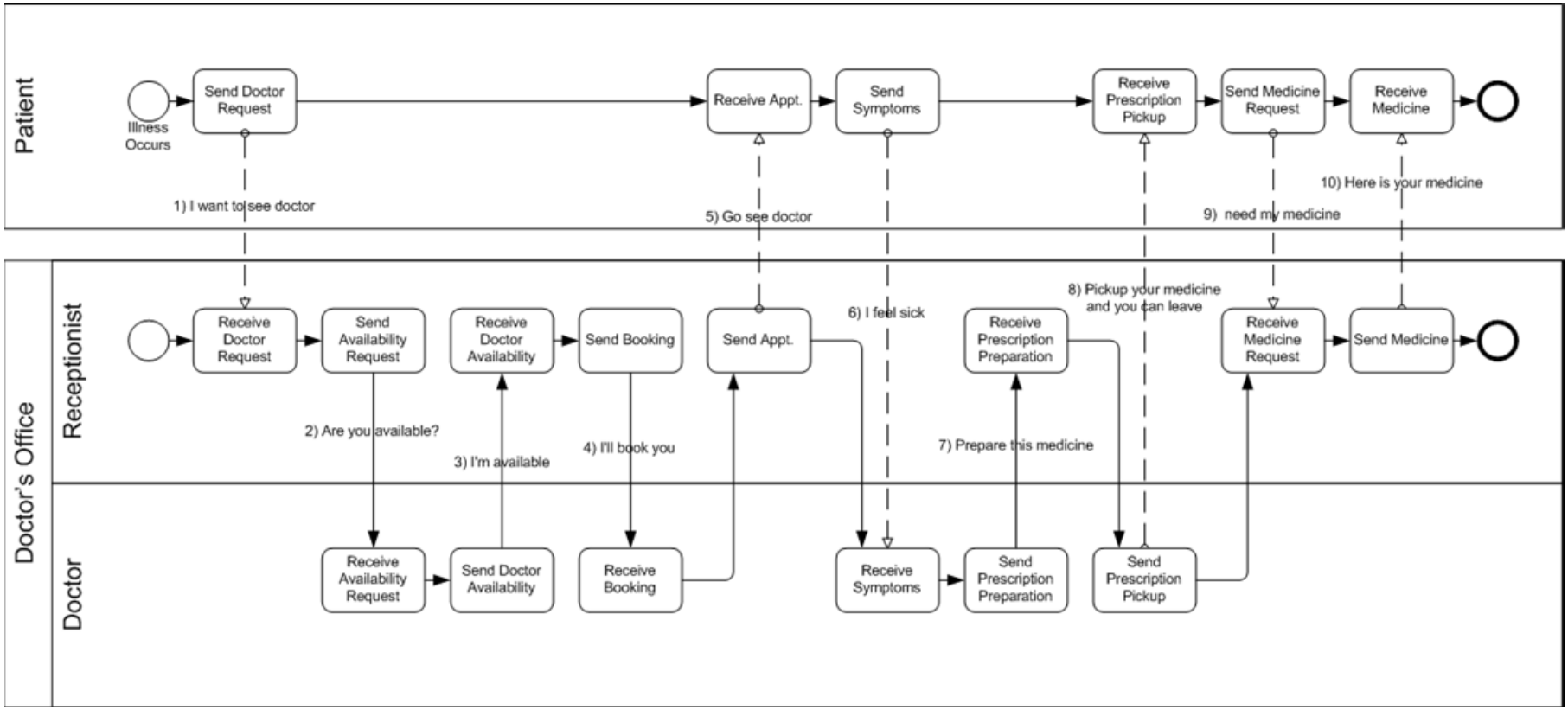
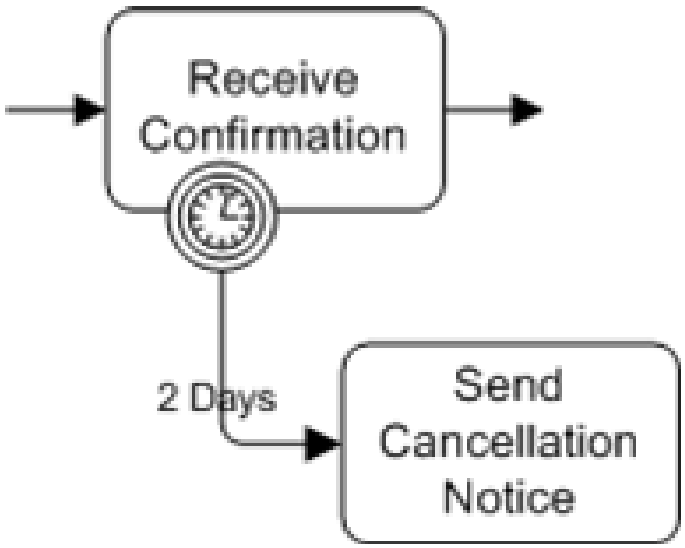
B2B Modeling



Exception Handling



Intermediate Events attached to the boundary of an activity represent triggers that can interrupt the activity. All work within the activity will be stopped and flow will proceed from the Event. Timer, Exceptions, Messages, etc. can be Triggers.

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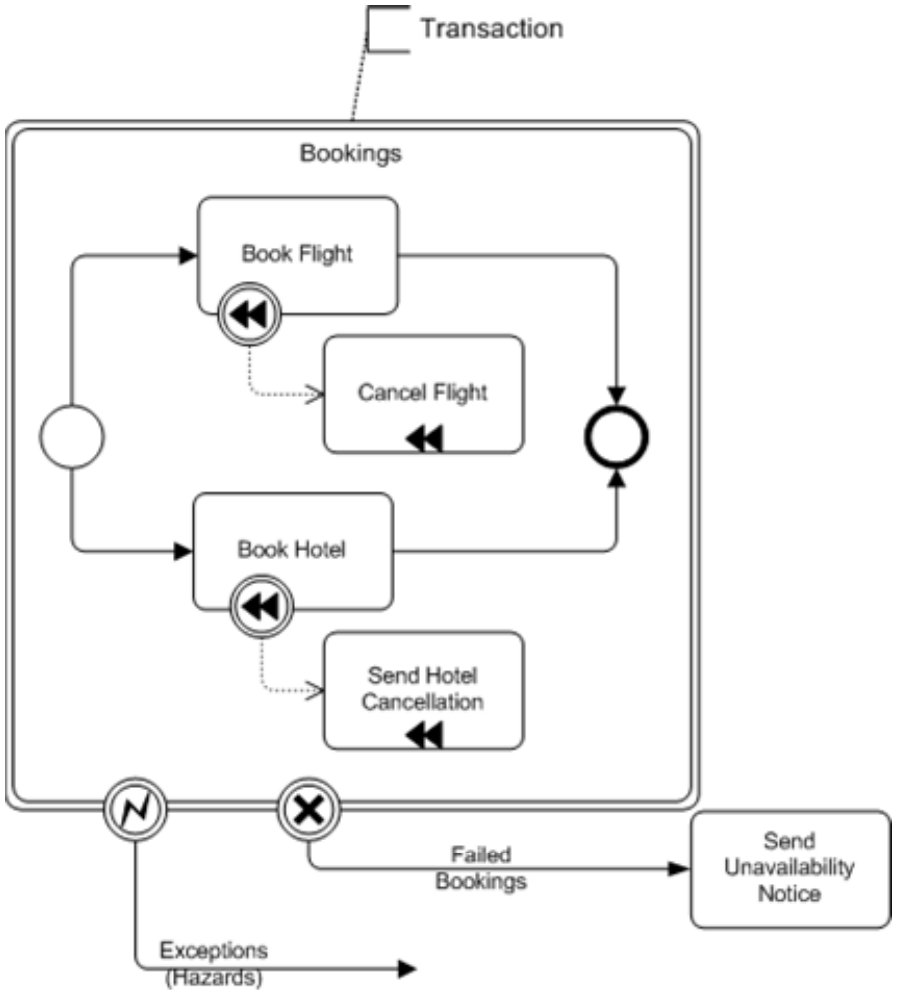
Compensation Handling and Transactions



A Transaction is an activity that has a double border. Transactions are supported by a transaction protocol (e.g., WS-Transaction).

Normal Outgoing Sequence Flow represents the path to follow a successful completion.

A Cancel Intermediate Event represents the path to follow a cancelled completion.

An Exception Intermediate Event represents the path to follow a transaction hazard.

Activities used for compensate (with marker) are outside normal flow and are Associated normal activities.

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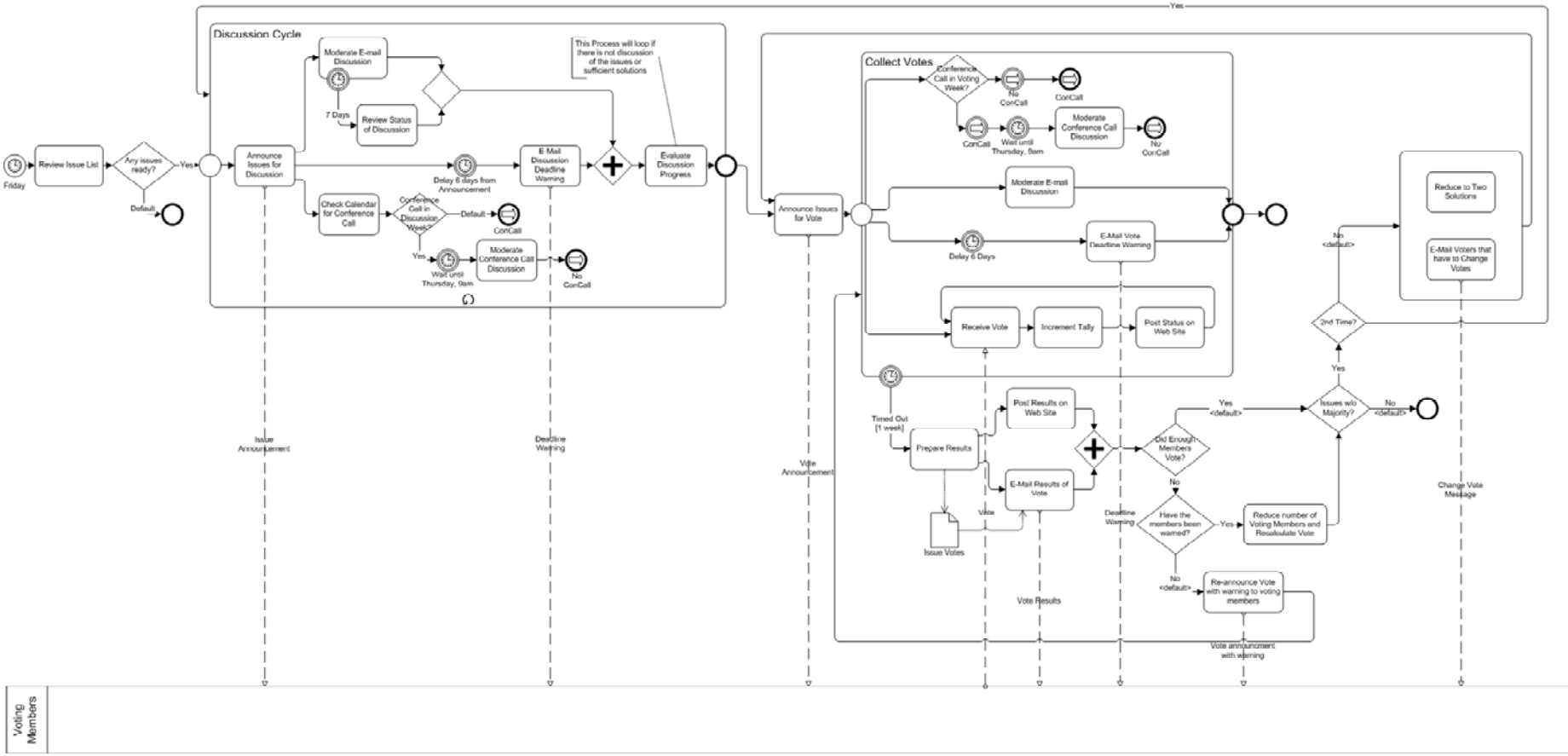
A Complex Process



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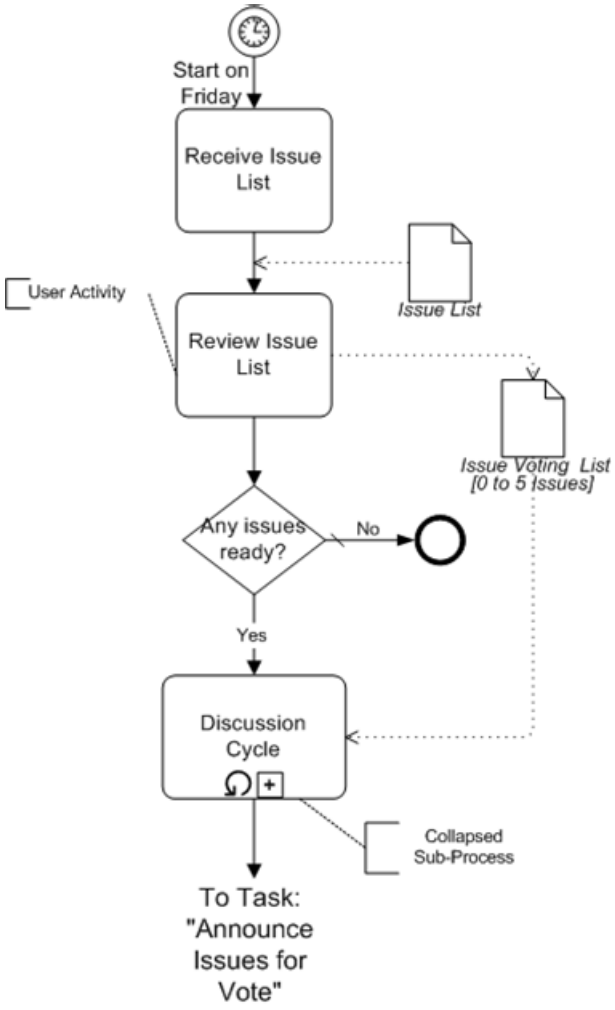
Mapping to BPEL4WS Sample




```
<process name="EMailVotingProcess">
   <!-- The Process data is defined first-->
   <sequence>
      <receive partnerLink="Internal" portType="tns:processPort"
               operation="receiveIssueList" variable="processData"
               createInstance="Yes"/>
      <invoke name="ReviewIssueList" partnerLink="Internal"
              portType="tns:internalPort" operation="sendIssueList"
              inputVariable="processData" outputVariable="processData"/>
      <switch name="Anyissuesready">
         <!-- name="Yes" -->
         <case condition="bpws:getVariableProperty(ProcessData,NumIssues)>0">
            <invoke name="DiscussionCycle" partnerLink="Internal"
                    portType="tns:processPort" operation="callDiscussionCycle"
                    inputVariable="processData"/>
            <!- Other Activities not shown -->
         <!--name="No" -->
         </case>
         <otherwise>
            <empty/>
         </otherwise>
      </switch>
   </sequence>
</process>
```

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Topics

Background

Relationship to Standards Organizations

Current Status

Summary

Summary

BPMN will provide a standard notation for defining and communicating complex business processes

- The core modeling elements provide simple Business Process Diagrams that will look familiar to most Business Analysts (a flowchart diagram)
- The complete set of modeling elements provide complex Business Process Diagrams that will handle all (most) business situations
- Designed for modeler and modeling tool extensibility (e.g., for vertical markets)

BPMN will provide a formal mechanism to create an executable business processes (BPEL4WS)

- Non-graphical executable elements supported by object attributes