BPMN Fundamentals

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OMG BEIDTF Meeting

Atlanta – September 12, 2005

Topics

BPMN Status

Notation

Directions for 2005-2006

Background

History

Definition of BPMN

Initial Charter

Within the OMG

History

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.

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 28 companies that have implementations of BPMN and there are 5 companies developing implementations.

Merger with OMG

June, 2005, BPMN 1.x was in development. BPMN 1.0 is OMG IP, but an RFC is proposed to establish as an OMG specification and to allow continuation of work.

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 (v1.1).

There is a question as to what to do with the mapping to BPEL within the OMG work.

BPMN Initial Charter

Excerpts from the Charter:

The BPMN 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.

BPMN Initial 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.

BPMI.org Hourglass

Audiences:

Strategy Consultants

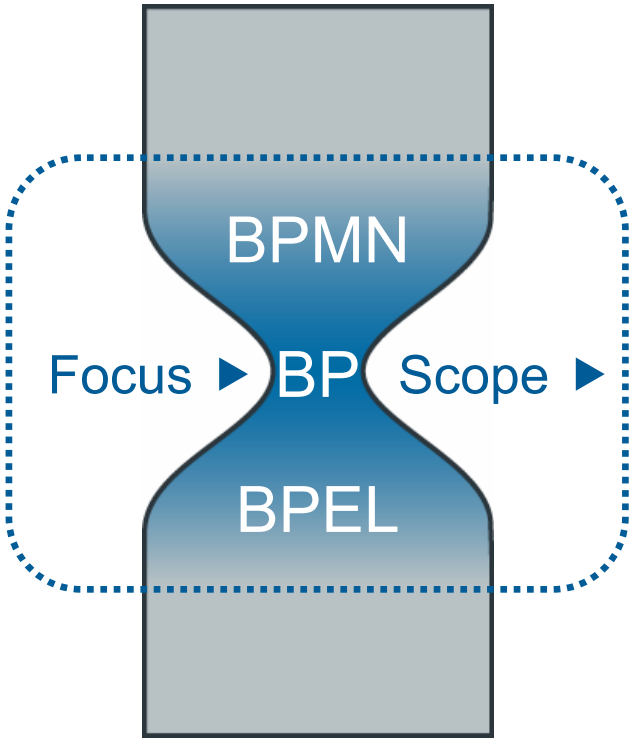
Business Analysts

Process Designers

System Architects

Software Engineers

Business Environment



Technology Implementation

Purposes:

Modeling

Execution

Within the OMG

Business Enterprise Integration (BEI) Domain Task Force (DTF)

- BEI is developing a Business Process Definition Metamodel (BDPM)
- BPDM could possibly serve as the Metamodel for BPMN
  - *The Metamodel would be used to generate a BPMN schema for exchange of BPMN Diagram Semantic information*
- RFC is proposed to establish BPMN 1.0 as an OMG Standard
  - This would allow the continuation of BPMN development– an immediate FTF, a future RFP(?)

Other OMG Work

- Has developed UML2, which includes an Activity Diagram
  - *The Activity Diagram is often used by IT specialists for process modeling, but not many business analysts (which use BPMN)*
  - *The merging of BPMN and UML Activity Diagrams would bring together the two modeling audiences*
- Has developed an XML Interchange Format (XMI) for the exchange of diagrams
  - *XMI could be used for the exchange of BPMN Diagram Layout information*

Topics

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Notation

Business Process Diagram Elements

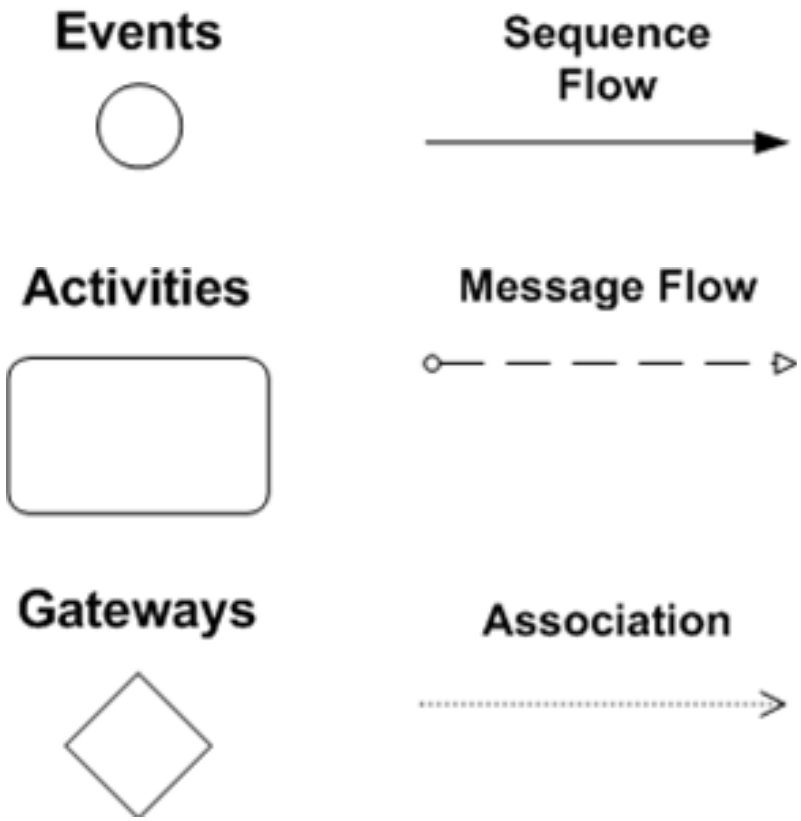
- Core Set of Diagram Elements
- Complete Set of Diagram Elements

Business Process Diagram Samples

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

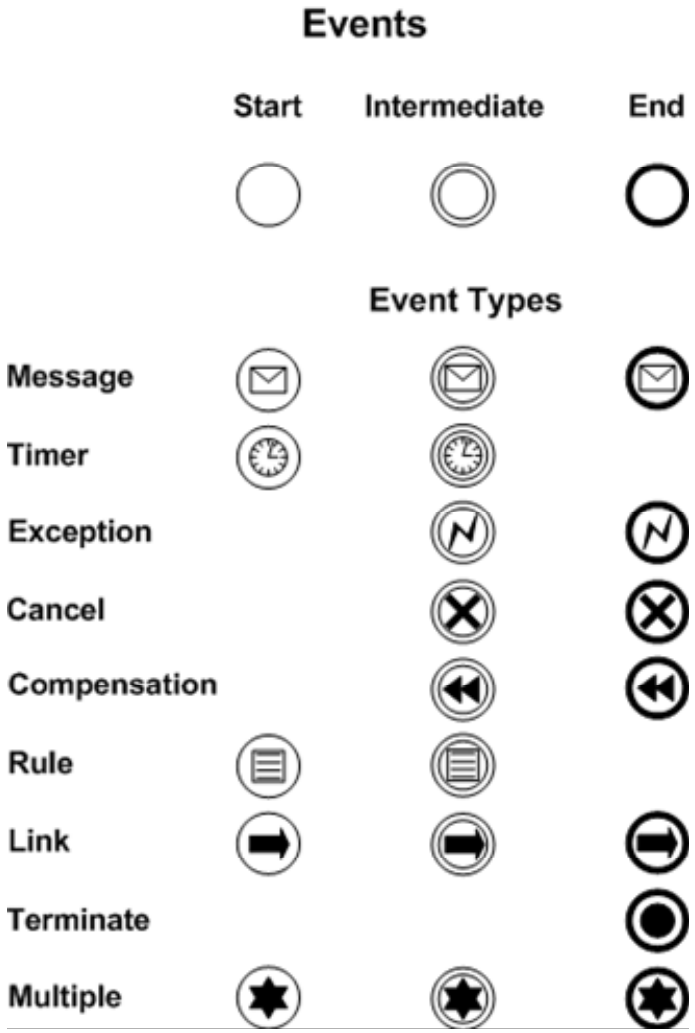
Mapping to BPEL4WS 1.1 Sample

Core Set of Diagram Elements



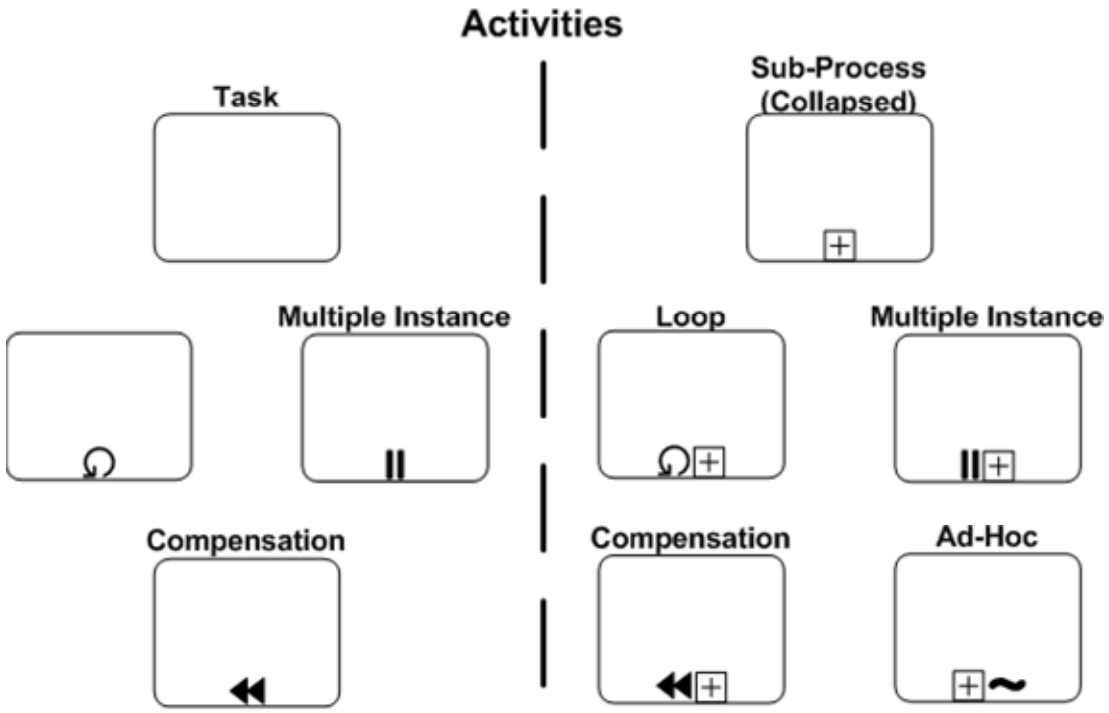
The core set of modeling elements enable the easy development simple Business Process Diagrams that will look familiar to most Business Analysts (a flowchart diagram)

Complete Set of Diagram Elements, Events



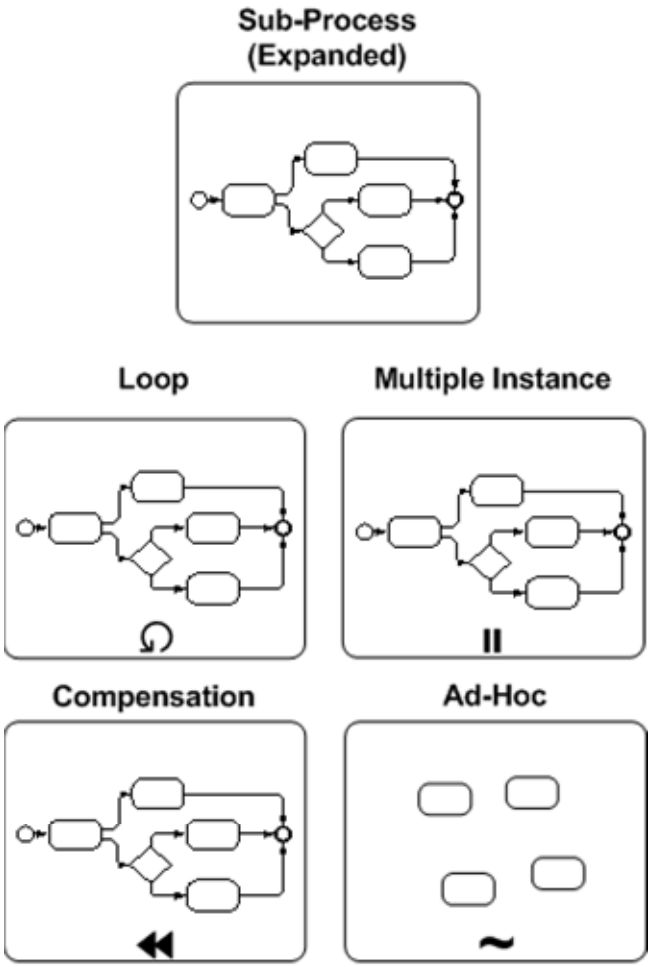
An Event is something that "happens" during the course of a business process. These Events affect the flow of the Process and usually have a trigger or a result. They can start, interrupt, or end the flow.

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.

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.

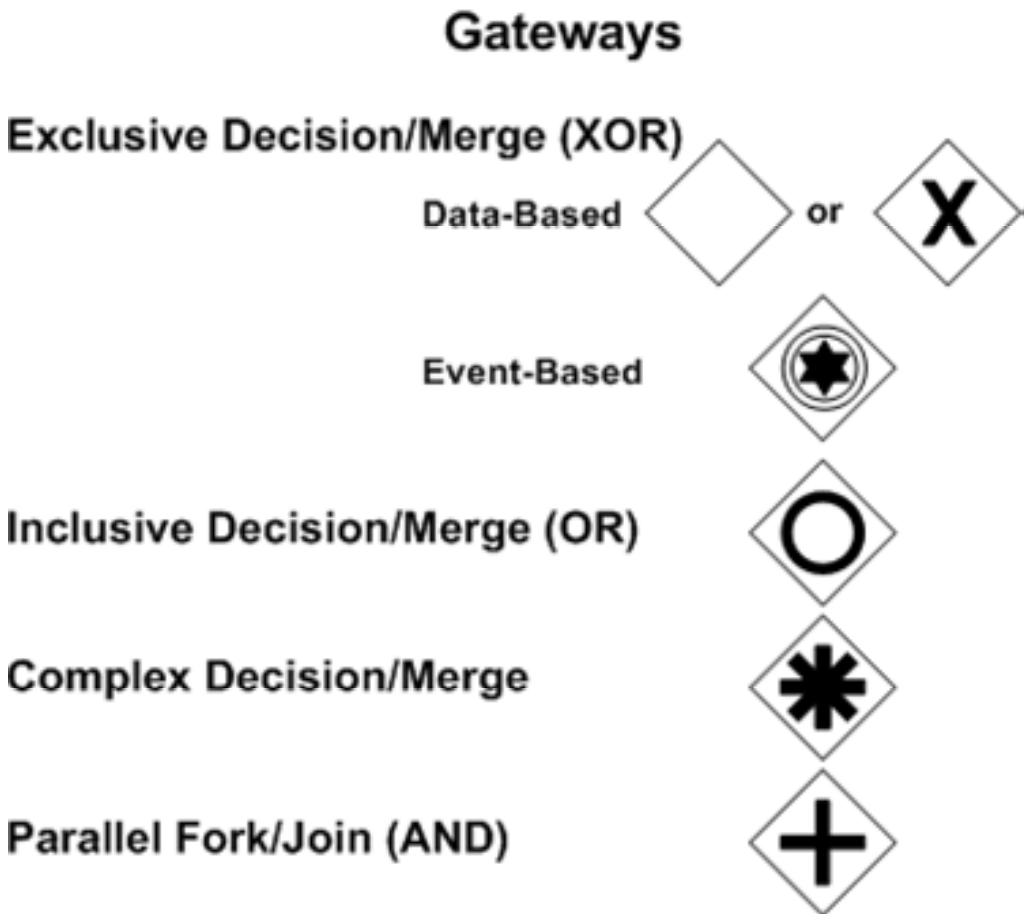
Complete Set of Diagram Elements, Connections

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.

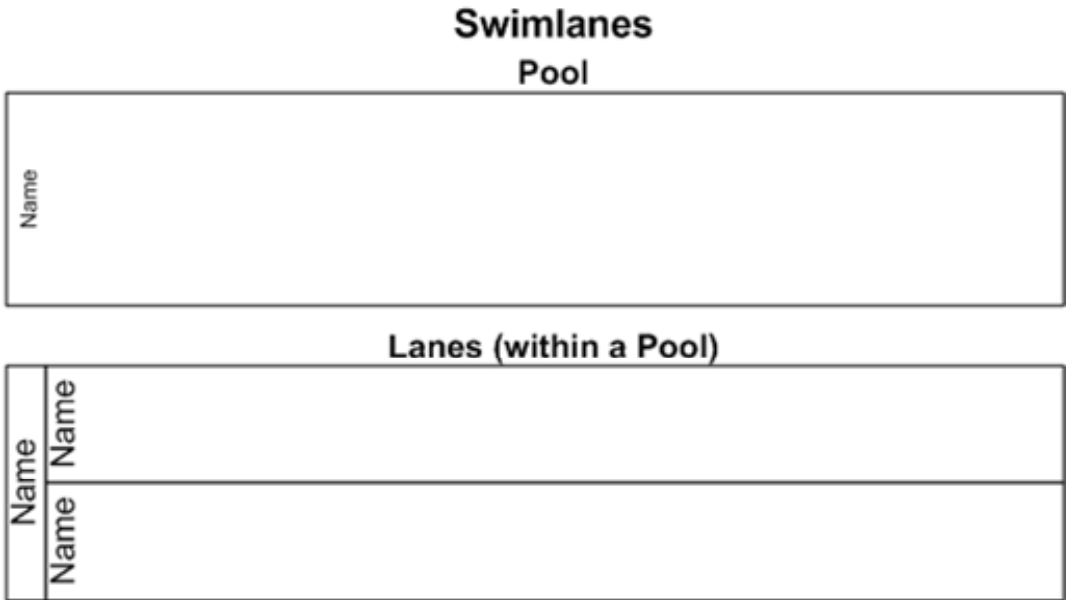
An Association is used to associate information and artifacts with flow objects.

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.

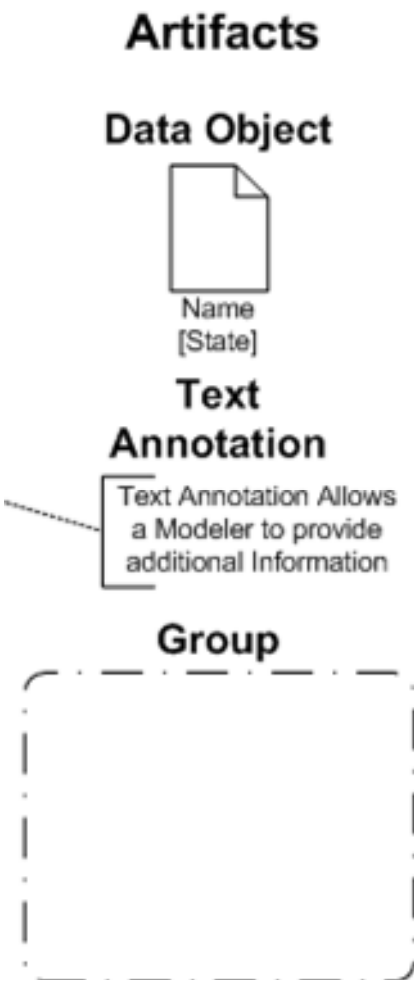
Complete Set of Diagram Elements, Swimlanes



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.

Complete Set of Diagram Elements, Artifacts

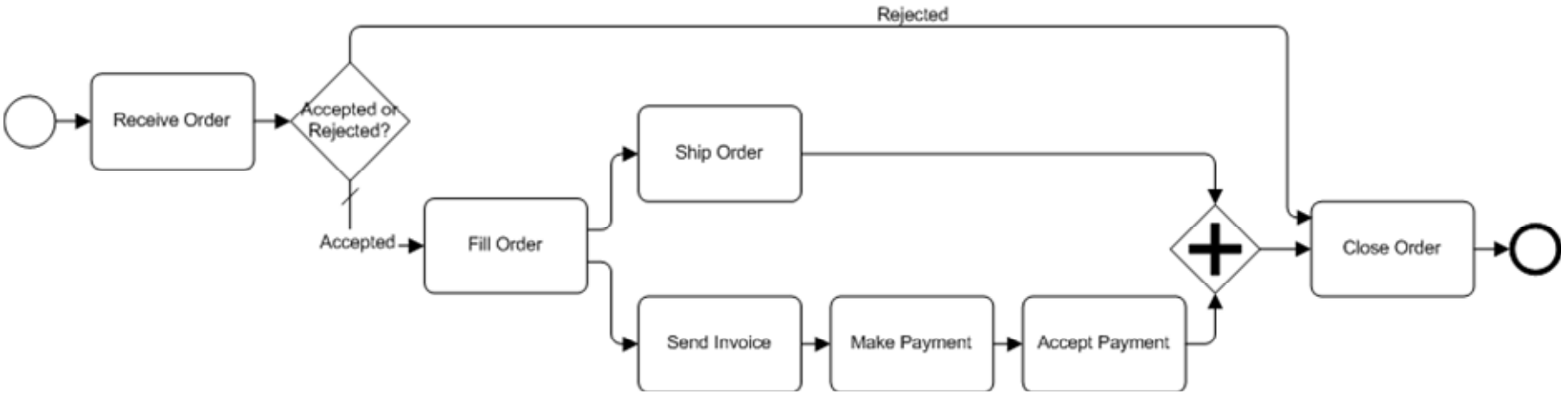


Data Objects are not flow objects (i.e., connected through Sequence Flow), but they do provide information about how documents, data, and other objects are used and updated within a Process.

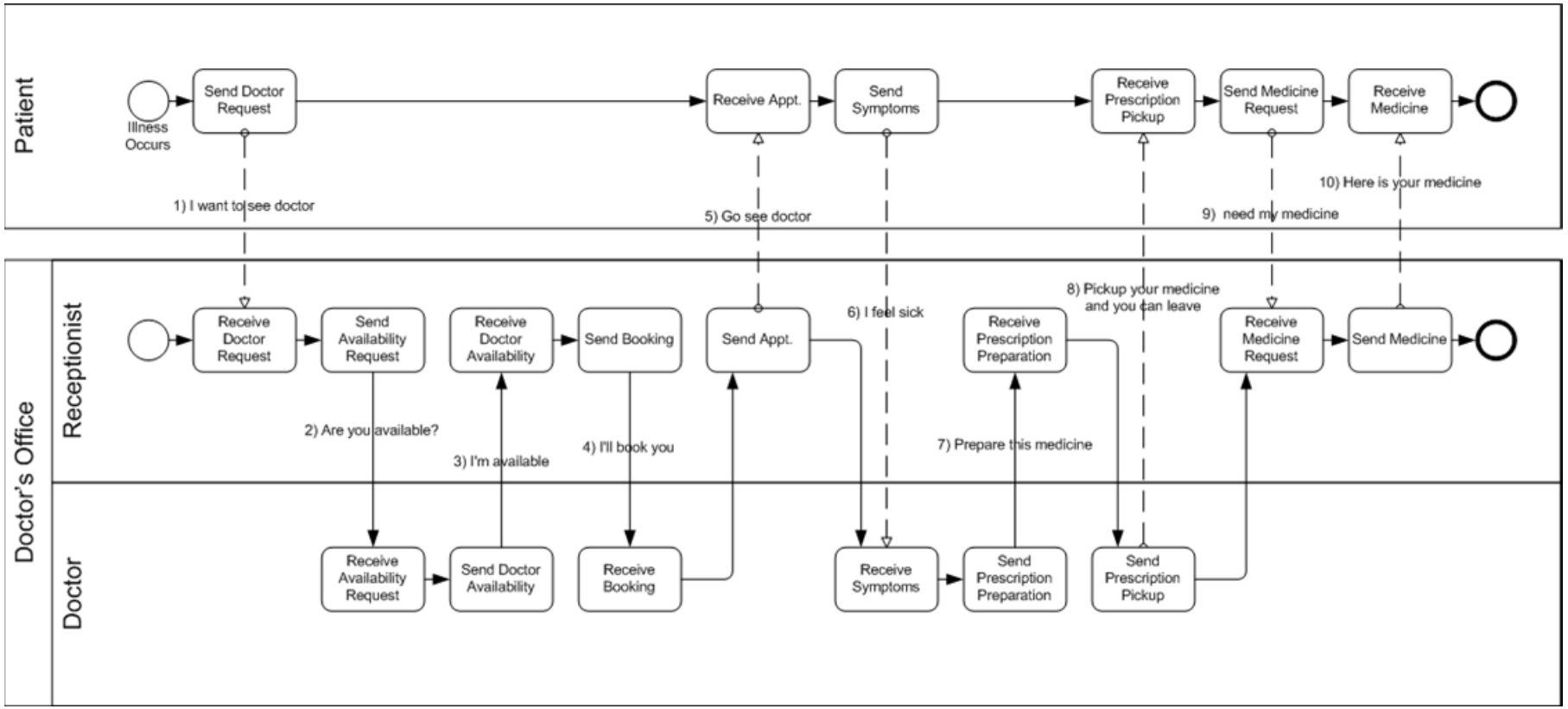
Text Annotations are a mechanism for a modeler to provide additional information for the reader of a BPMN diagram.

Groups provide a mechanism to visually organize activities

Normal Flow

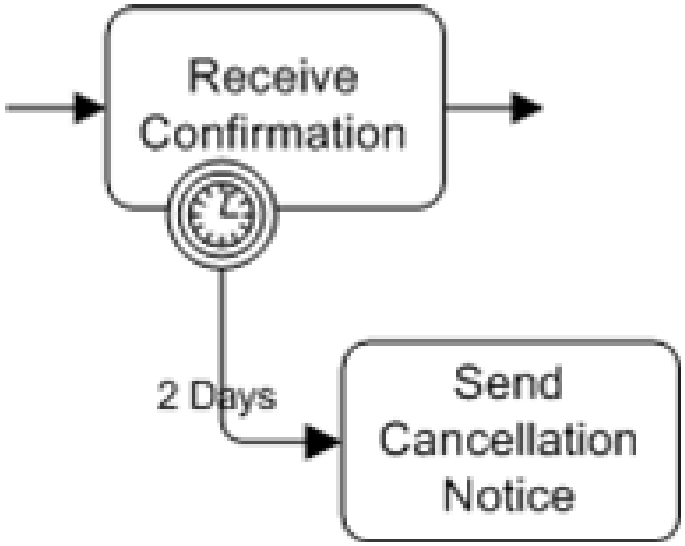


B2B Modeling



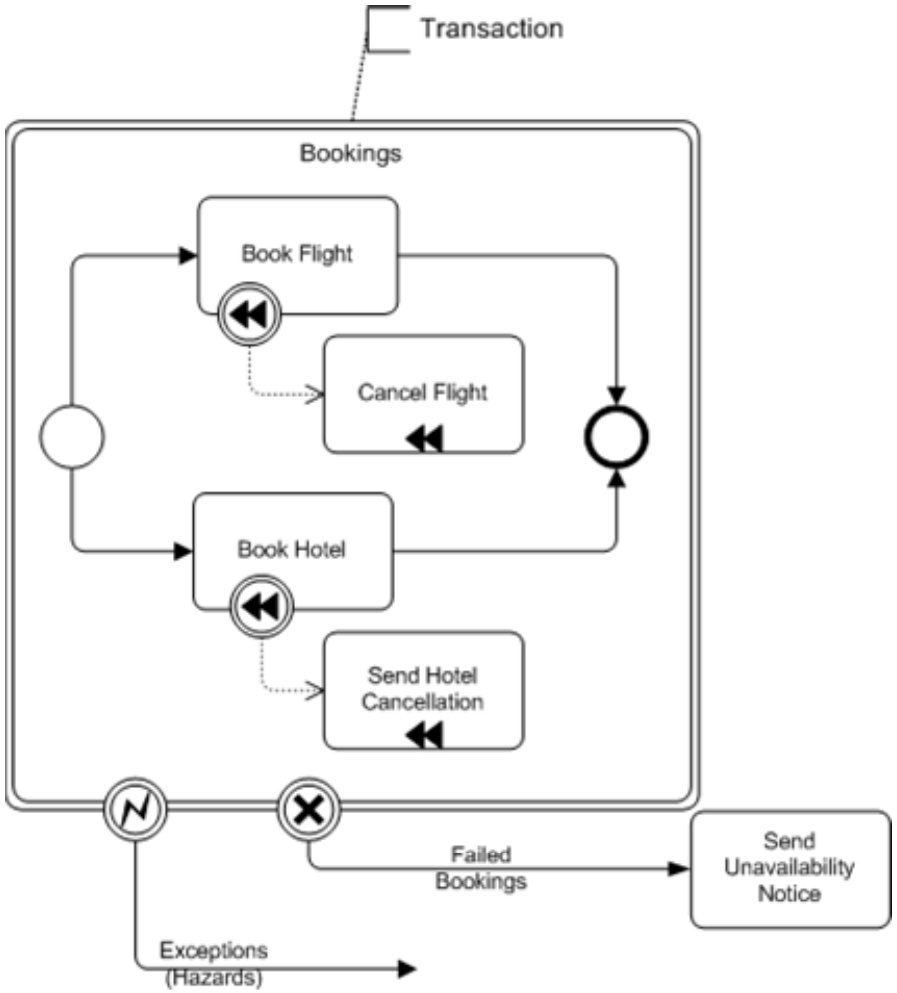
Enhancements are being considered for BPMN 1.x

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.

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).

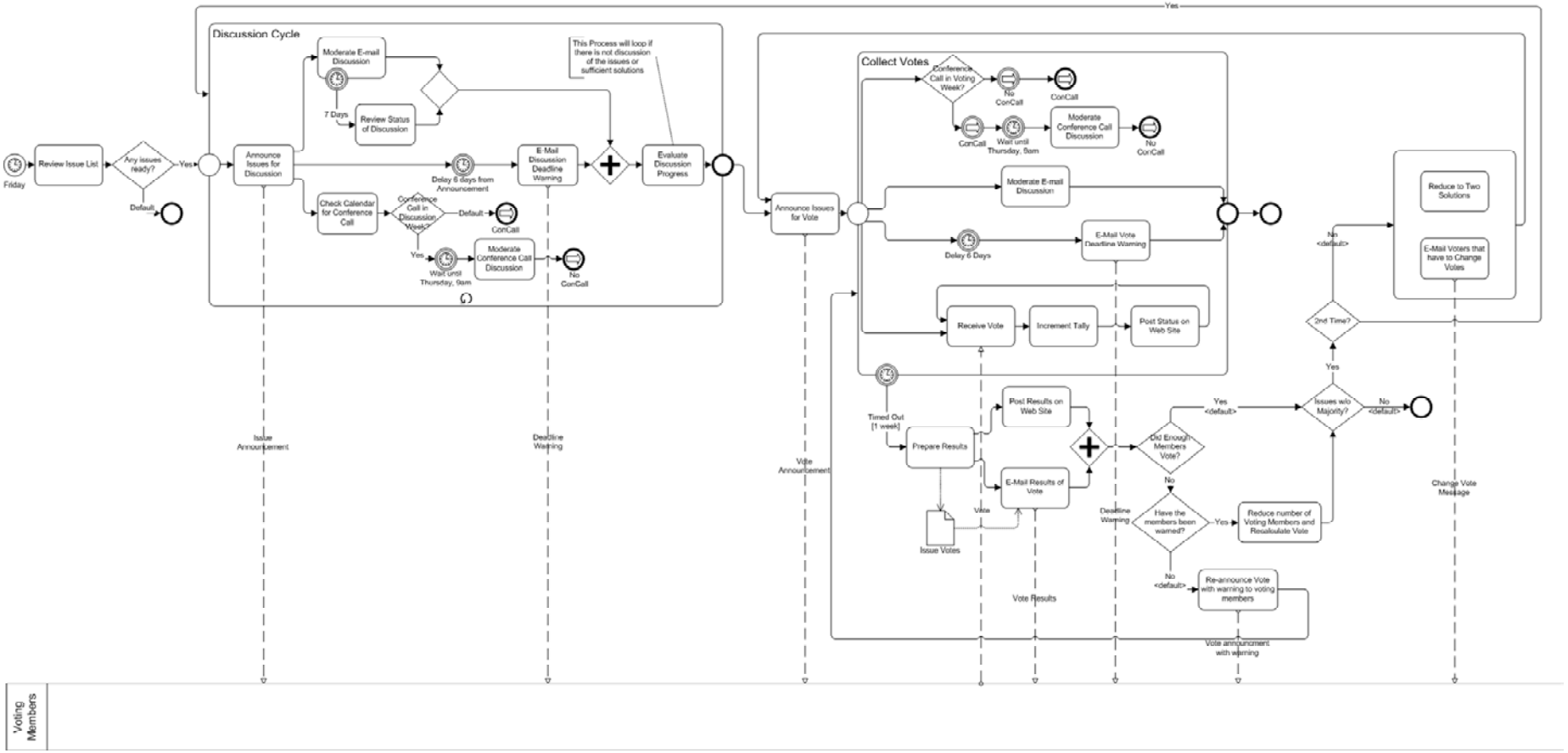
Normal Outgoing Sequence Flow represents the path to follow a successful completion.

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

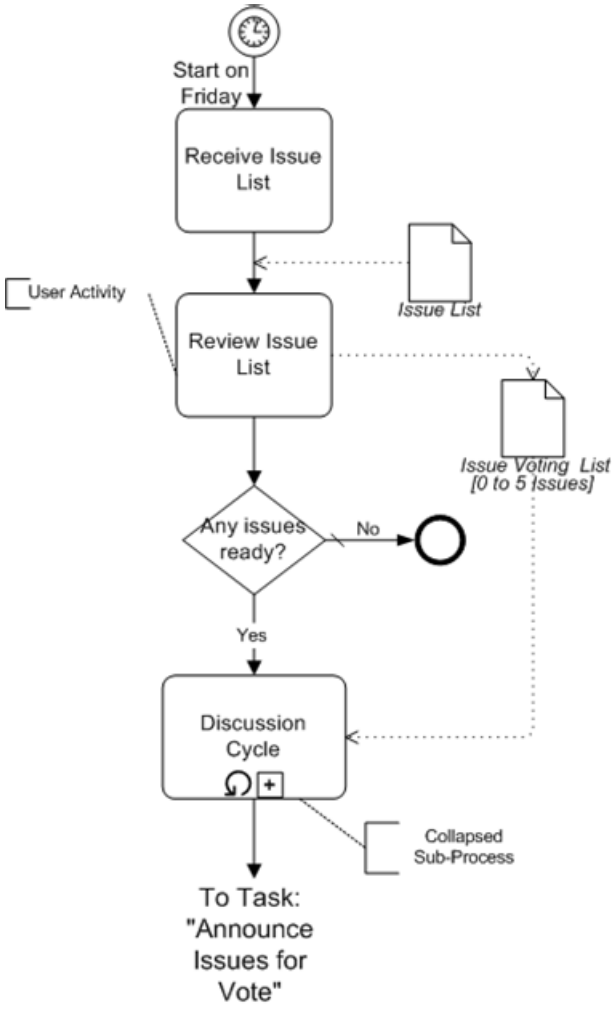
An Exception Intermediate Event represents the path to follow a transaction hazard.

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

A Complex Process



Mapping to BPEL4WS 1.1 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>
```

Topics

Status

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Directions for 2005-2006

Directions for 2005-2006

BPMN 1.x Specification (Maintenance Release)

- Fix specification errors and inconsistencies
- Add/modify elements for modeling Collaboration Processes – based on suggestions from OASIS ebXML BP TC
- Mapping to BPEL (BPEL4WS 1.1 or WSBPEL 2.0)?

BPMN Serialization

- Accept a Metamodel (BPDM and/or XPDL) for BPMN to generate a schema to store and transport diagram semantic information
- Use XMI to store and transport diagram layout information

High-Level BPMN Extensions

- Explore how executive and other levels of business modeling extend or are layered on top of BPMN
  - *See Hourglass on Slide #5*

BPMN Conformance Certification (?)