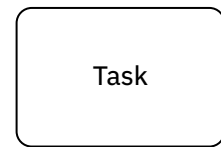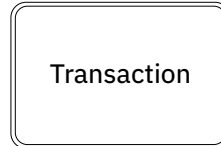# BPMN 2.0 - Business Process Model and Notation
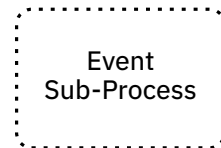
Activities

Task — A Task is a unit of work, the job to be performed. When marked with a + symbol it indicates a Sub-Process, an activity that can be refined.

Transaction — A Transaction is a set of activities that logically belong together; it might follow a specified transaction protocol.

Event Sub-Process — An Event Sub-Process is placed into a Process or Sub-Process. It is activated when its start event gets triggered and can interrupt the higher level process context or run in parallel (noninterrupting) depending on the start event.

Call Activity — A Call Activity is a wrapper for a globally defined Task or Process reused in the current Process. A call to a Process is marked with a + symbol.

Activity Markers
Markers indicate execution behavior of activities:

- ⊞ Sub-Process Marker
- ↻ Loop Marker
- ‖‖‖ Parallel MI Marker
- ☰ Sequential MI Marker
- ∼ Ad Hoc Marker
- ◅◅ Compensation Marker

Task Types
Types specify the nature of the action to be performed:

- Send Task
- Receive Task
- User Task
- Manual Task
- Business Rule Task
- Service Task
- Script Task

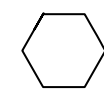**Sequence Flow** — defines the execution order of activities.

Default Flow — is the default branch to be chosen if all other conditions evaluate to false.

Conditional Flow — has a condition assigned that defines whether or not the flow is used.

Gateways

Exclusive Gateway — When splitting, it routes the sequence flow to exactly one of the outgoing branches. When merging, it awaits one incoming branch to complete before triggering the outgoing flow.

Event-based Gateway — Is always followed by catching events or receive tasks. Sequence flow is routed to the subsequent event/task which happens first.

Parallel Gateway — When used to split the sequence flow, all outgoing branches are activated simultaneously. When merging parallel branches it waits for all incoming branches to complete before triggering the outgoing flow

Inclusive Gateway — When splitting, one or more branches are activated. All active incoming branches must complete before merging.

Exclusive Event-based Gateway (instantiate) — Each occurrence of a subsequent event starts a new process instance.

Complex Gateway — Complex merging and branching behavior that is not captured by other gateways.

Parallel Event-based Gateway (instantiate) — The occurrence of all subsequent events starts a new process instance.
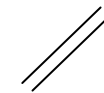
Conversations

A Conversation defines a set of logically related message exchanges. When marked with a + symbol it indicates a Sub-Conversation, a compound conversation element.
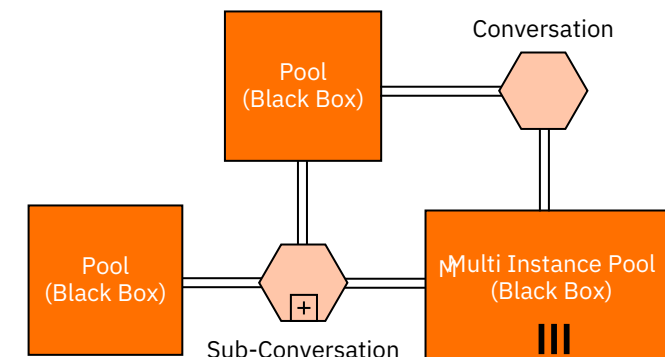
A Call Conversation is a wrapper for a globally defined Conversation or Sub-Conversation. A call to a Sub-conversation is marked with a + symbol.
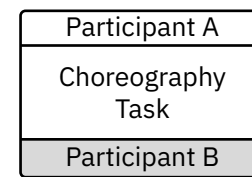
**A Conversation Link** connects Conversations and Participants.

Conversation Diagram

Pool (Black Box), Conversation, Pool (Black Box), Sub-Conversation, Multi Instance Pool (Black Box)

Multiple Participants Marker — ‖‖‖ denotes a set of Participants of the same kind.

Message — a decorator depicting the content of the message. It can only be attached to Choreography Tasks.
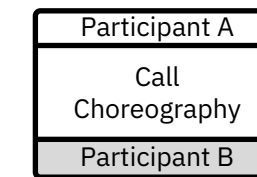
Choreographies

A Choreography Task represents an Interaction (Message Exchange) between two Participants.
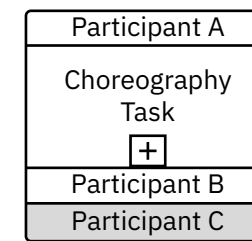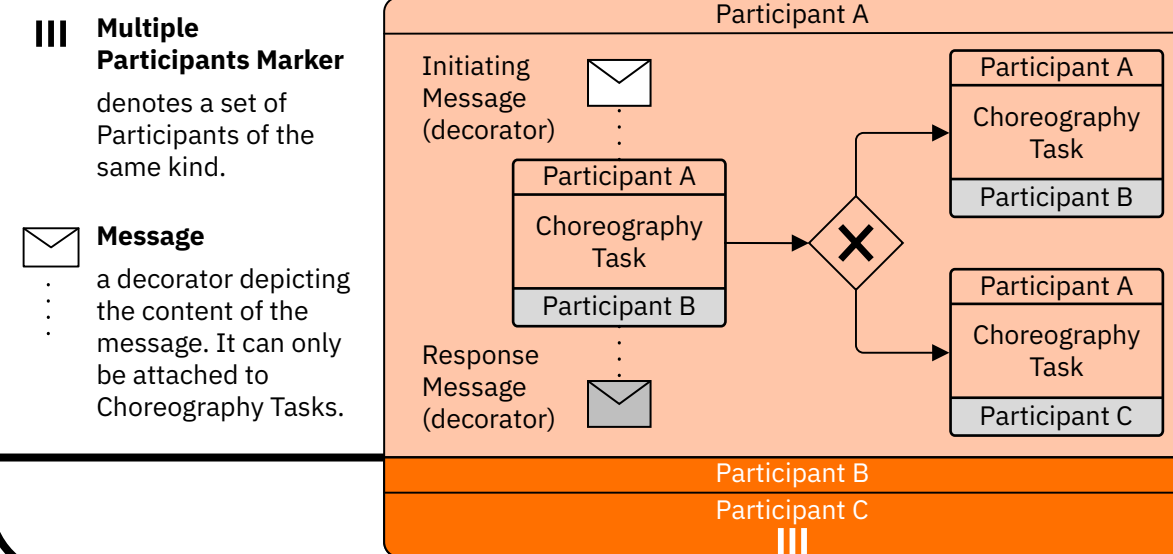
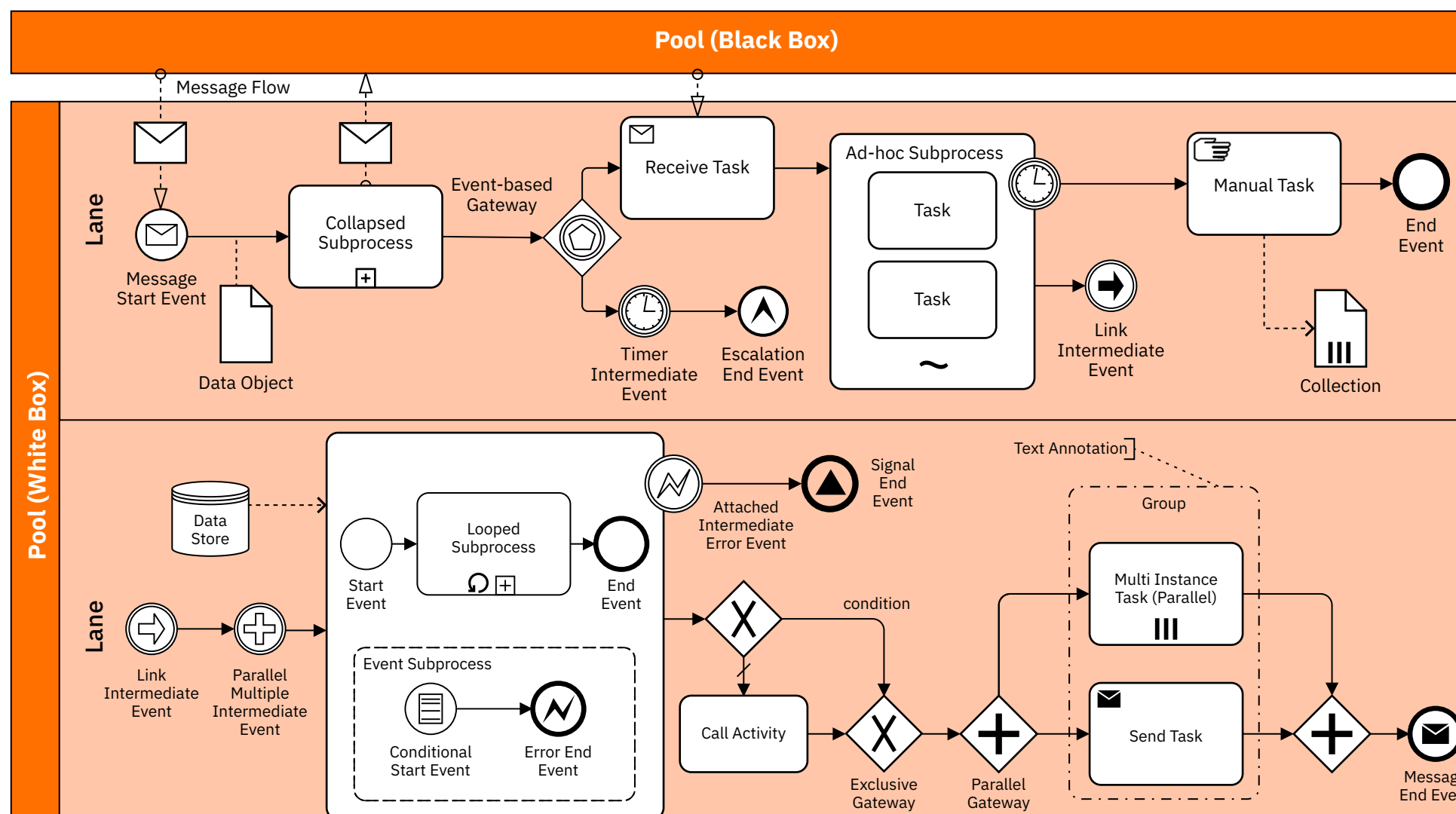A Sub-Choreography contains a refined choreography with several Interactions.

A Call Choreography is a wrapper for a globally defined Choreography Task or Sub-Choreography. A call to a Sub-Choreography is marked with a + symbol.

Choreography Diagram

Participant A, Choreography Task, Participant B, Participant C, Participant A, Call Choreography, Participant B

Initiating Message (decorator), Response Message (decorator)

Collaboration Diagram

Pool (Black Box), Pool (White Box), Lane, Message Flow, Message Start Event, Data Object, Collapsed Subprocess, Event-based Gateway, Receive Task, Ad-hoc Subprocess, Task, Manual Task, End Event, Timer Intermediate Event, Escalation End Event, Link Intermediate Event, Collection, Data Store, Start Event, Looped Subprocess, End Event, Attached Intermediate Error Event, Signal End Event, Text Annotation, Group, Multi Instance Task (Parallel), Event Subprocess, Conditional Start Event, Error End Event, Call Activity, Exclusive Gateway, Parallel Gateway, Send Task, Message End Event, Link Intermediate Event, Parallel Multiple Intermediate Event, condition

Events

	Start	Intermediate	End

|	Standard	Event Sub-Process Interrupting	Event Sub-Process Non-Interrupting	Catching	Boundary Interrupting	Boundary Non-Interrupting	Throwing	Standard
None: Untyped events, indicate start point, state changes or final states.	○							○
Message: Receiving and sending messages.	✉	✉	✉	✉	✉	✉	✉	✉
Timer: Cyclic timer events, points in time, time spans or timeouts.	⏲	⏲	⏲	⏲	⏲	⏲		
Escalation: Escalating to an higher level of responsibility.	⌃	⌃	⌃	⌃	⌃	⌃	⌃	⌃
Conditional: Reacting to changed business conditions or integrating business rules.	▤	▤	▤	▤	▤	▤		
Link: Off-page connectors. Two corresponding link events equal a sequence flow.				▷			▷	
Error: Catching or throwing named errors.	◹		◹	◹	◹			◹
Cancel: Reacting to cancelled transactions or triggering cancellation.					⊗			⊗
Compensation: Handling or triggering compensation.	◅◅		◅◅	◅◅	◅◅		◀◀	◀◀
Signal: Signalling across different processes. A signal thrown can be caught multiple times.	△	△	△	△	△	△	▲	▲
Multiple: Catching one out of a set of events. Throwing all events defined.	⬠	⬠	⬠	⬠	⬠	⬠	⬟	⬟
Parallel Multiple: Catching all out of a set of parallel events.	✛	✛	✛	✛	✛	✛		
Terminate: Triggering the immediate termination of a process.								●

Data
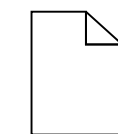
A Data Object represents information flowing through the process, such as business documents, e-mails, or letters.

A Collection Data Object represents a collection of information, e.g., a list of order items.
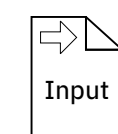
Input — A Data Input is an external input for the entire process. A kind of input parameter.
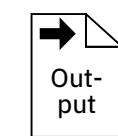
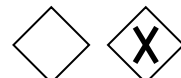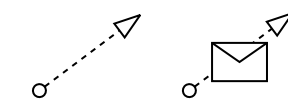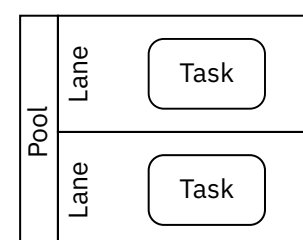**Output** — A Data Output is data result of the entire process. A kind of output parameter.

A Data Association is used to associate data elements to Activities, Processes and Global Tasks.

Data Store — A Data Store is a place where the process can read or write data, e.g., a database or a filing cabinet. It persists beyond the lifetime of the process instance.

Swimlanes

Pools (Participants) and Lanes represent responsibilities for activities in a process. A pool or a lane can be an organization, a role, or a system. Lanes subdivide pools or other lanes hierarchically.

Message Flow symbolizes information flow across organizational boundaries. Message flow can be attached to pools, activities, or message events. The Message Flow can be decorated with an envelope depicting the content of the message.
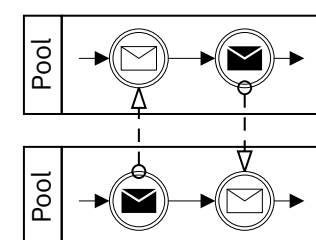
The order of **message exchanges** can be specified by combining message flow and sequence flow.

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