

7 Swimlane & Message flow

▷ Pool

▷ Lane

▷ Message flow



Activities



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.



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









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



A Call Activity is a wrapper for a Task or Process reused in the current call to a Process is marked with a .








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.

Condition

has a condition assigned whether flow is used.

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 .

A Conversation Link connects Conversations and Participants.

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 .

Choreography Diagram

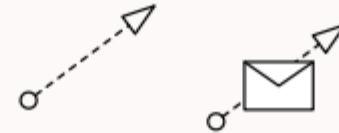
Events

None: Untyped events, indicate start point, state changes or final states.

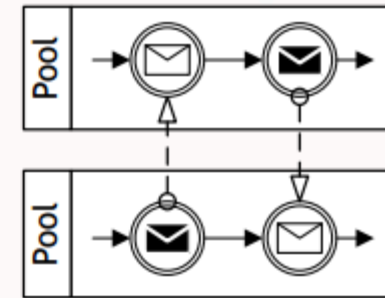
Message: Receiving and

	Start	Intermediate	End
Standard			
Event Sub-Process Interrupting			
Event Sub-Process Non-Interrupting			
Catching			
Boundary Interrupting			
Boundary Non-Interrupting			
Throwing			
Standard			

Swimlanes

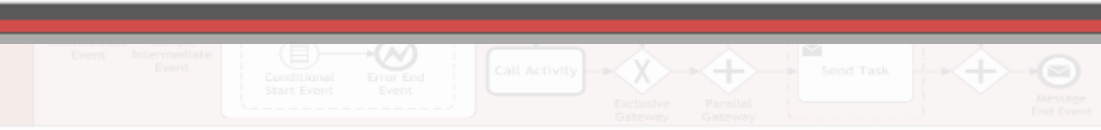


Message Flow symbolizes information flow across organizational boundaries. Message flow can be attached to pools, activities, or message events. The Message Flow can be decorated with an envelope depicting the content of the message.



The order of message exchanges can be specified by combining message flow and sequence flow.

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.



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Swimlanes

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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.

A Data Input is an external input for the entire process. A kind of input parameter.

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.

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.



Gateways



When splitting, it routes the sequence flow to one of the outgoing branches. When 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.



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



Each occurrence of a subsequent event starts a new process instance.



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



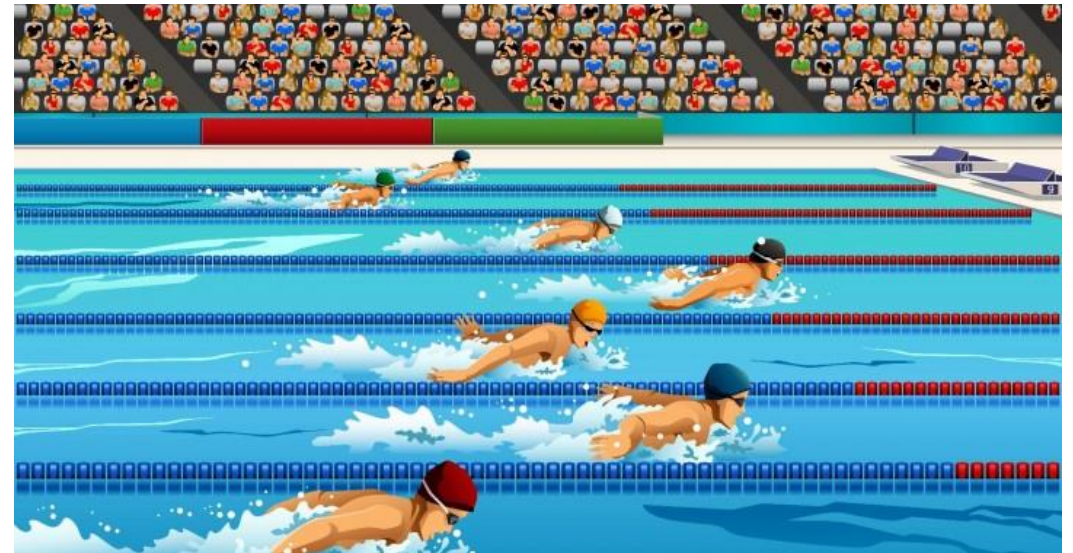
The occurrence of all subsequent events starts a new process instance.

Swimlane

- In a swimming pool, there are lanes designated for swimmers. Swimmers get their own lanes to swim in without swimming across another.
- Swimlanes may be **arranged horizontally or vertically**.
- For horizontal swimlanes, process flows from left to right, while process in vertical swimlanes flow from top to bottom.

A Swimlane is a graphical container for **partitioning a set of activities** from other activities.

BPMN has two different types of Swimlanes “Pool” and “Lane.”

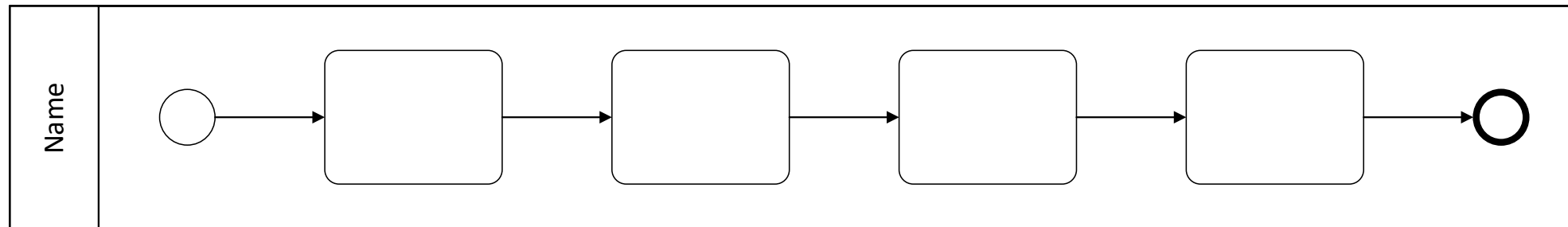


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Pool

Pool

- Pools represent participants in a business process
- A Pool is a container for partitioning a Process from other Pools/Participants
- A Pool is the graphical representation of a Participant in a Collaboration
- It can be a specific entity (e.g. Partner Company , Department)
- A Pool acts as a container for Sequence Flows between Activities (of a contained Process)



Pool Notation

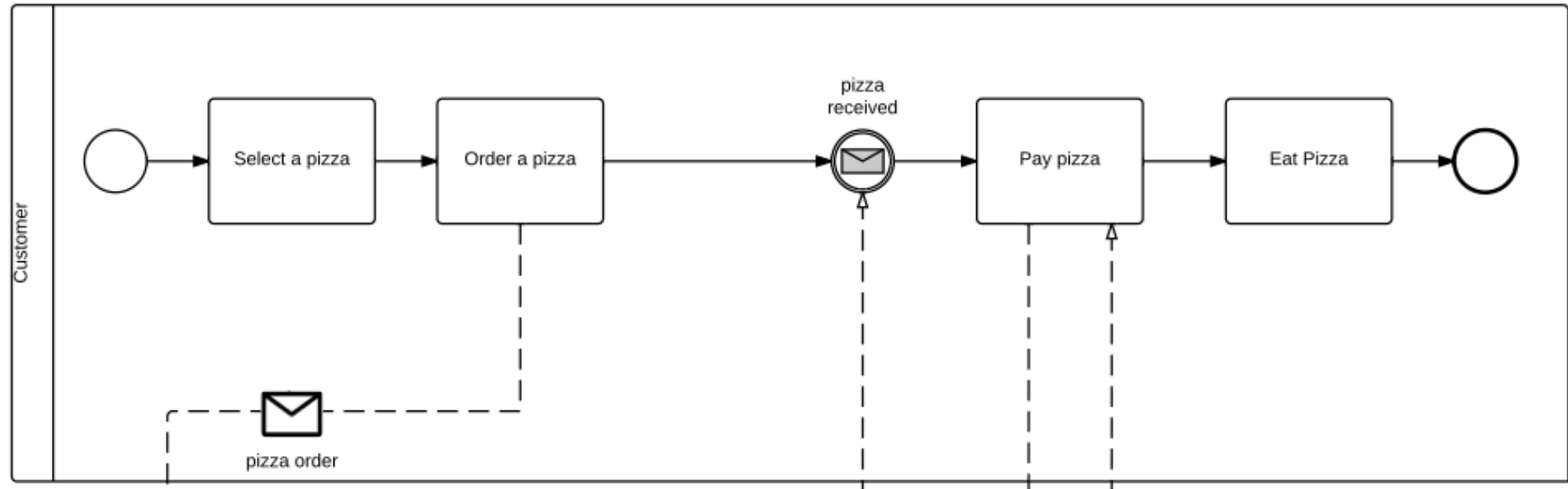
Pool – Black box

- A Pool is not required to contain a Process, i.e., it can be a “black box.”
- Blackbox pool is often used when modeling entities external to the business process.
- As it is external, its internal flow does not have any impact on the process being modeled, hence can be skipped, producing a Blackbox



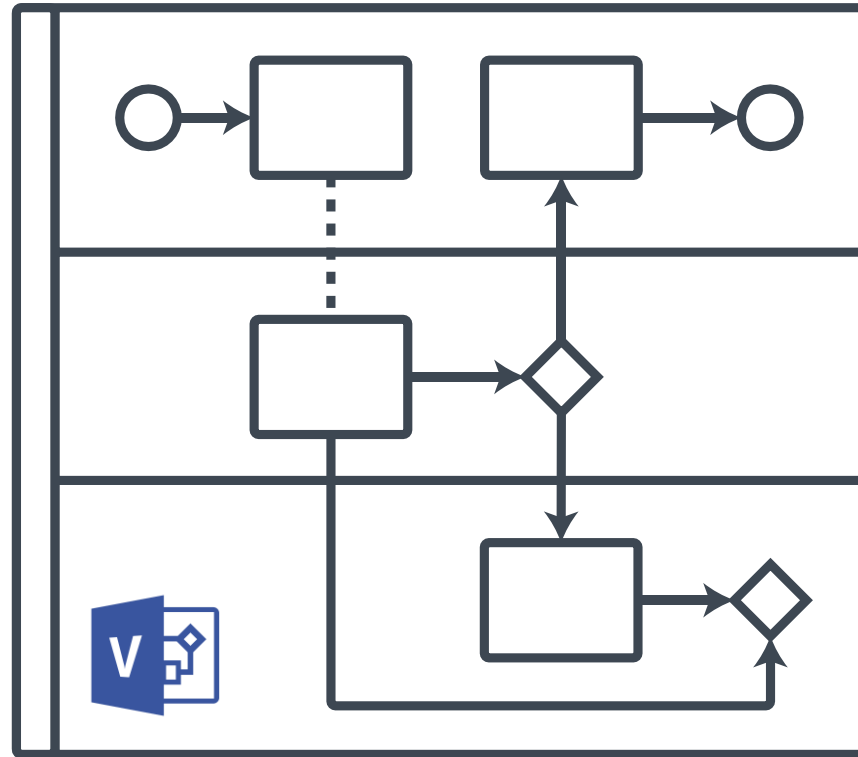
Blackbox Pool Notation

Pool – BPMN Example



Customer Pool Example

Pool – BPMN Example



BPMN Demo using Microsoft Visio

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Lane

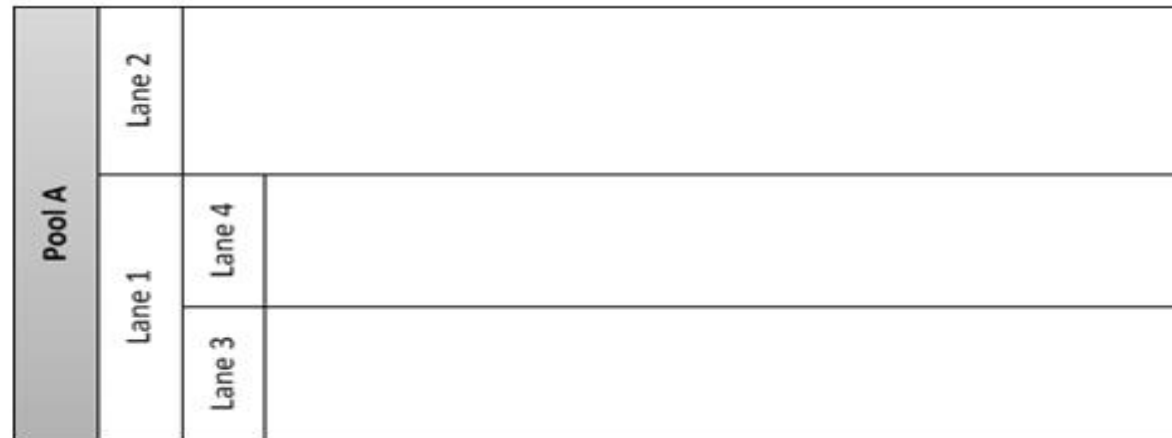
Lane

A Lane is a sub-partition within a Process(often within a Pool).

Lanes should represent specific roles. For instance, when you have a pool Department, you may have Department Head and General Clerk as lanes.

BPMN Lanes should not represent individuals. (represent Role not individual)

Lanes may contain other lanes to form a nested structure when needed.



Lane within Pool Notation

Lane – Real world Example



Admin



Editor



Author



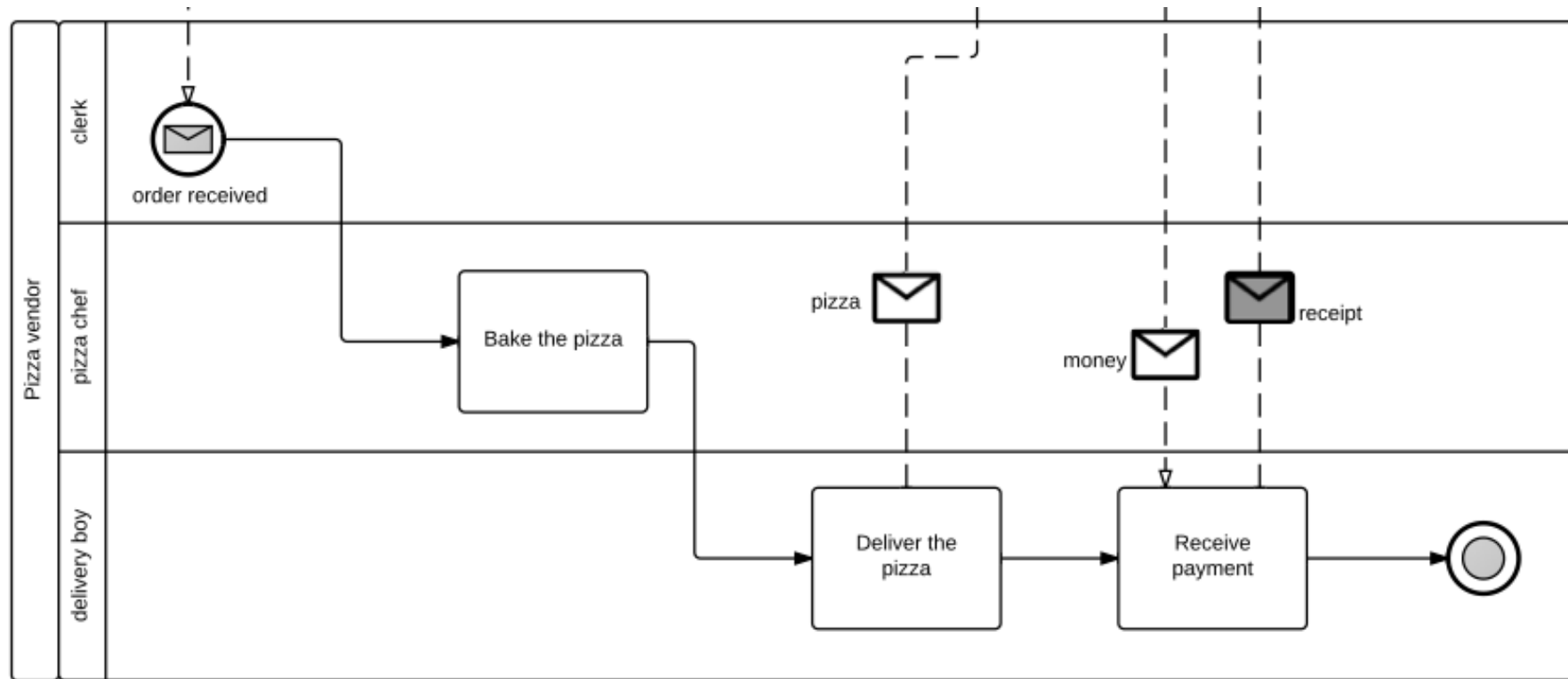
Contributor



Subscriber

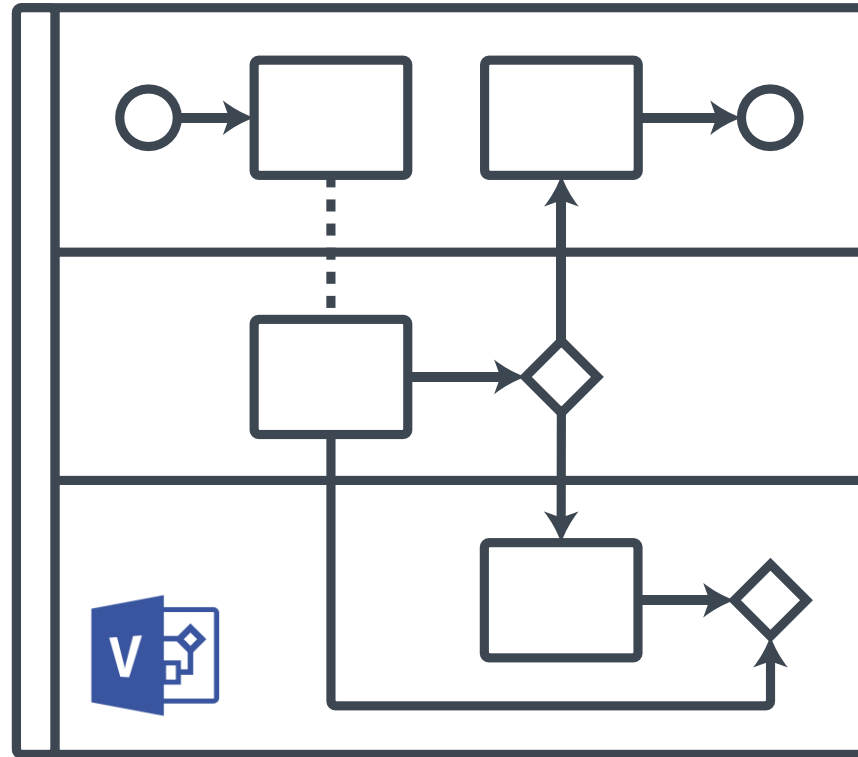
Word press User Roles Example

Lane – BPMN Example



Pizza Vendor Roles Example

Lane – BPMN Example



BPMN Demo using Microsoft Visio

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Message Flow

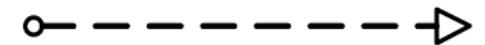
Message flow

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

A Message Flow MUST connect two separate Pools. They connect either to **Pool boundary** or to **Flow Objects within the Pool boundary**.

Message flows can be attached to a pool, activity or event.

Message Flows cross the boundaries of a pool , An activity or event in one pool can initiate a message to another pool.



Message Flow
Notation

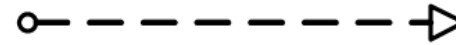
Message flow VS Sequence flow

Message Flows cross the boundaries of a pool, and represent exchange of information between participants.

whereas **Sequence Flows** represent sequence of flow between flow objects within a specific participant (will never cross over the boundaries of a pool)



Sequence Flow
Notation



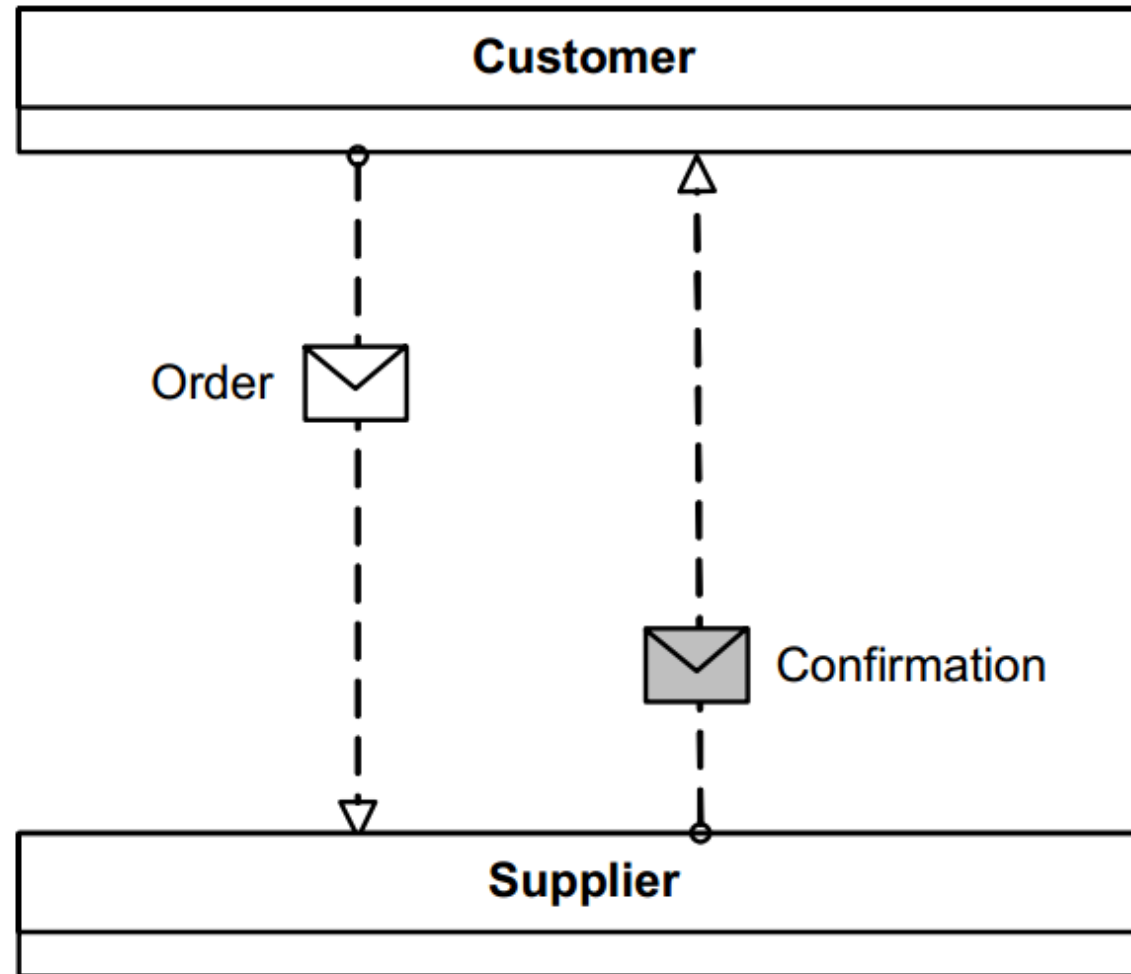
Message Flow
Notation

Message Flow – Real world Example



Supply chain exchange messages between Process participants

Message Flow – BPMN Example



Message flow with attached message

Collaboration Diagram

BPMN Collaboration Diagram

- A Collaboration represents interactions between two or more business entities.
- A Collaboration depicts a global point of view. It shows the interactions between participants in general
- A Collaboration contains two or more pools, representing participants in the collaboration , even with external participants
- Messages exchanged between participants are shown by message flows that connect two pools together (or objects within the pools)

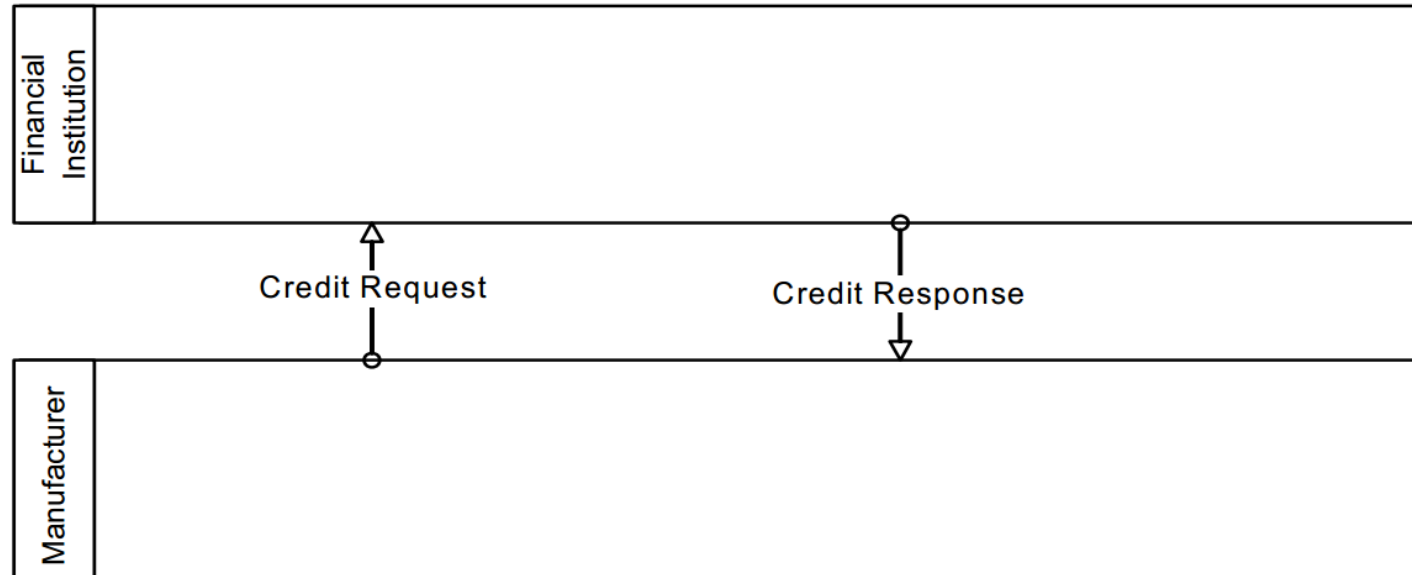


BPMN Collaboration Diagram – Real world Example



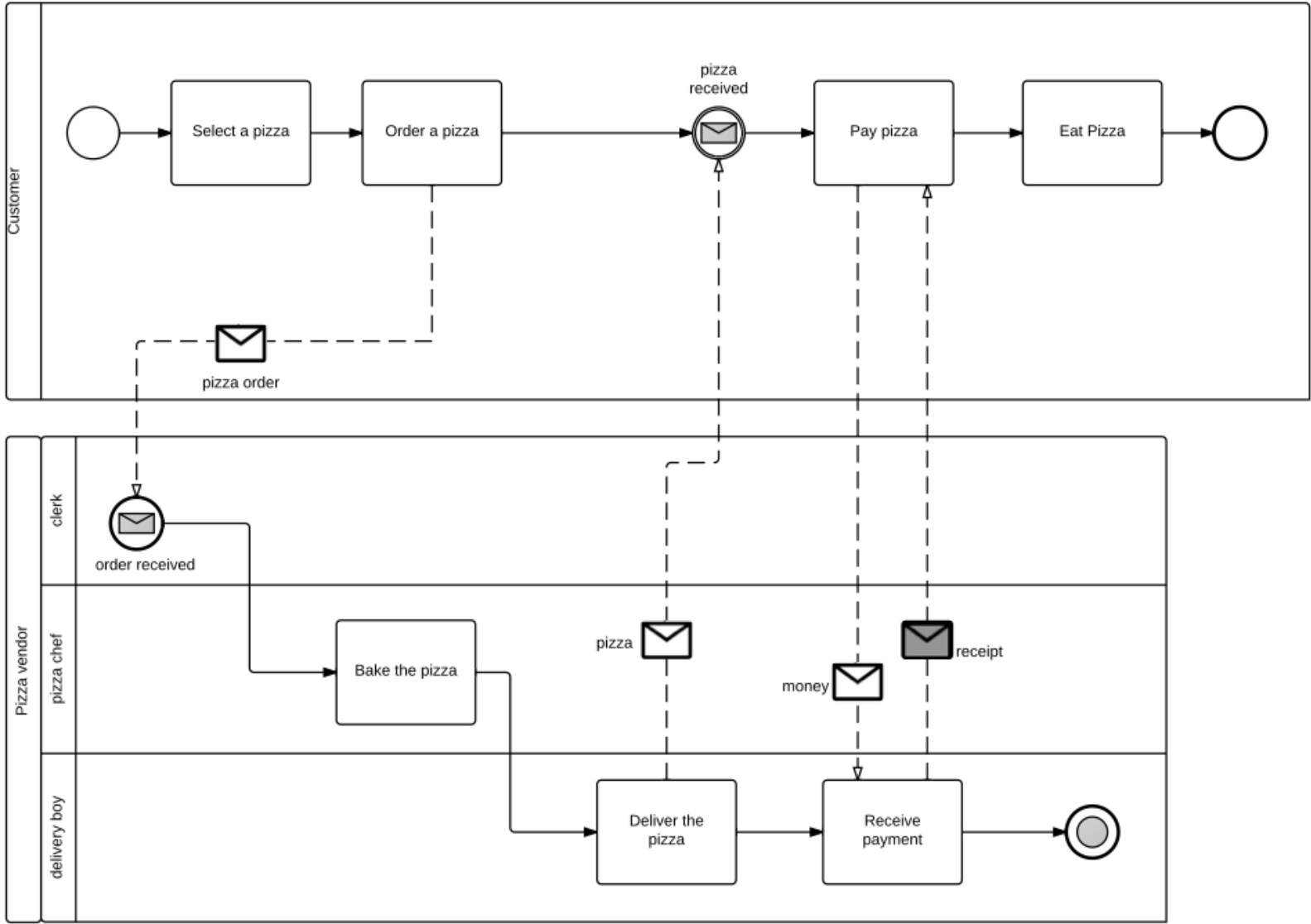
Team Work Collaboration

BPMN Collaboration Diagram - Example



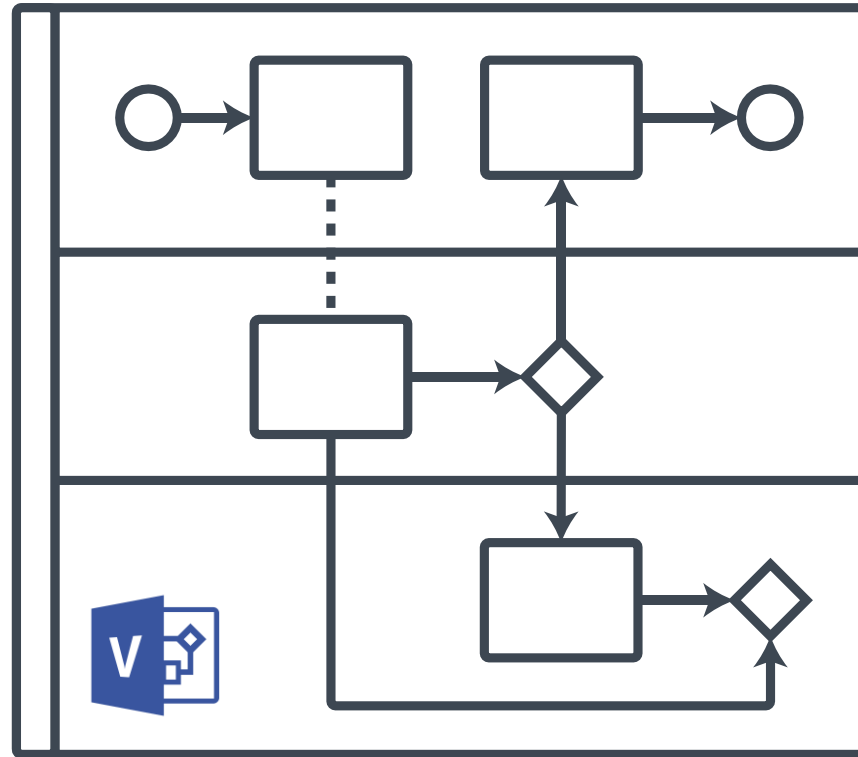
Collaboration diagram with two Black Box Pools

BPMN Collaboration Diagram - Example



Collaboration diagram with two Pools showing process

BPMN Collaboration Diagram – BPMN Example



BPMN Demo using Microsoft Visio

References



[Togaf Online Documentation](#)

[Process Group for Togaf](#)

[Open 2 Study Course](#)

[Togaf Arabic Playlist](#)



To Be continue .. 😊

Thanks!

Any questions?

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