



NATO Communications and Information Agency

BPM Notation Explained



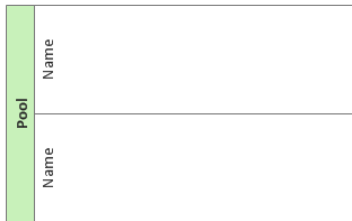
- The Unified OLCM BPM uses the Business Process Modelling Notation (BPMN) version 2.0.
- This presentation
 - Provides a summary of the BPMN modelling artefacts
 - Lists the conventions used for the Unified OLCM BPM modelling
 - Explains the modelling approach for the Logistics Collaborative Planning (LCP) BPM

Business Process Modelling

- **Business Process:** A specific ordering of work activities across time and place, with a beginning, an end, and clearly defined inputs and outputs.
- **Process Model:** A representation of one or more processes and their associations that an enterprise performs.
- **Business Process Modelling** is a mechanism for describing and communicating the current or intended future state of a business process.
- **Business Process Model and Notation (BPMN)** is a standard for business process modelling that provides a graphical notation for specifying business processes in a Business Process Diagram (BPD) based on a flowcharting technique
- The primary goal of BPMN is to provide a standard notation readily understandable by all business stakeholders (business analysts, the technical developers and the business managers)

BPMN Symbol Overview

Participants (Pools, Lanes)



Pool (with Multiple Lanes)

Activities



Task
(an atomic Activity)



collapsed Sub-Process
(a compound Activity)

Data Objects



Data

Gateways



Events

Start



begin the process

Intermediate



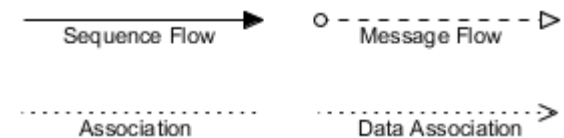
happen during process

End

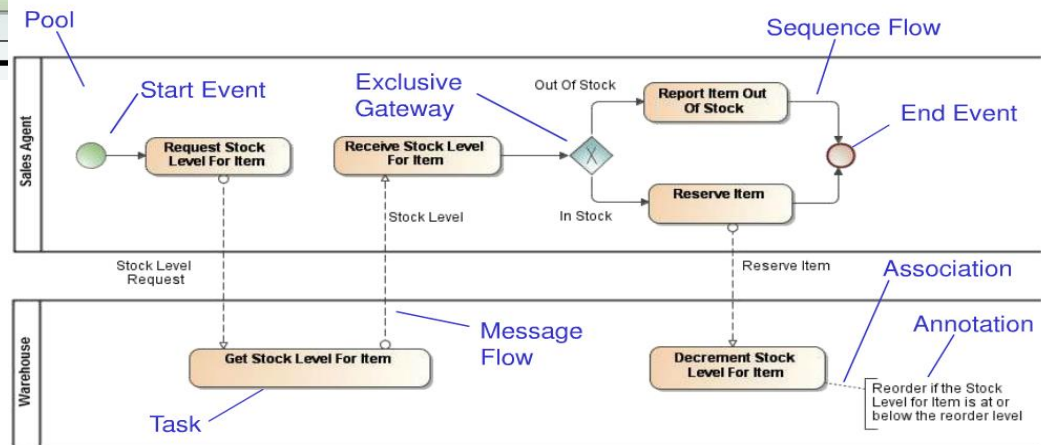
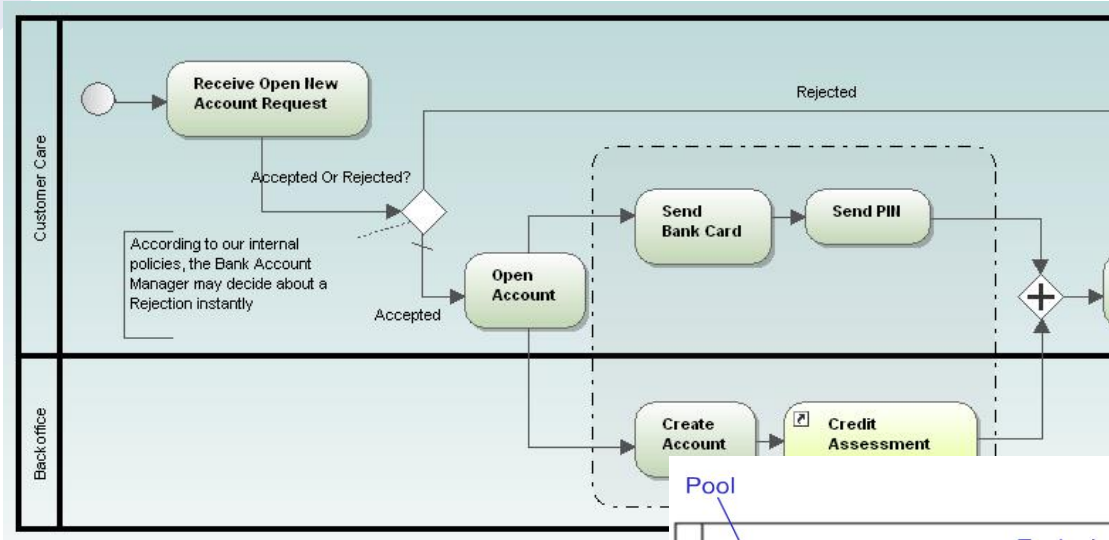


terminate the process

Connectors



Putting Things Together – a Business Process Diagram



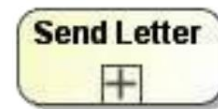
The **Business Process Diagram** is a type of flowchart written in BPMN that comprises Flow Objects (Activities, Events, Data Objects, Gateways) connected by Connecting Objects (sequence & message flows, data associations).

Activities

- An **Activity** (modelled as rounded rectangle) is work that is performed within a business process. The types of activities that are a part of a Process Model are:
 - **Sub-Process** - is a compound Activity that is included within a Process; be de-copmosed hierarchically into nested sub-processes and tasks
 Collapsed Sub-Process - The details of the Sub-Process are not visible in the Diagram, A “plus” sign in the lower-center of the shape indicates that the Activity is a Sub-Process and has a lower level of detail which is expanded in a separate diagram.
 - **Task** - is an atomic activity that is included within a Process. A Task is used when the work in the Process is not broken down to a finer level of Process Model detail

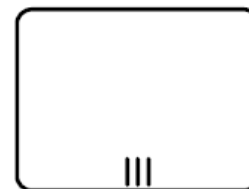
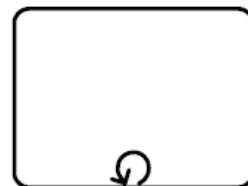


Task
(an atomic Activity)



collapsed Sub-Process
(a compound Activity)

- Activities can be performed once or can have internally defined loops. There are two types of loops: Standard (Can Loop internally) and Multi-Instance (a new Activity instance is created each time).



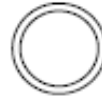
Events

- An **Event** (modelled as a circle) 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 (occur while process is executing), or end the flow

Start











Intermediate



End



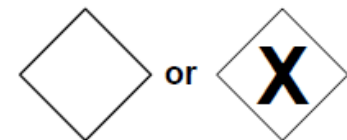
Start Events Different “Triggers” that start the Process		End Events	
	Signal Start Event: start when a specific signal is received		Signal End Event: terminate and send a signal
	Message Start Event: start when a specific message is received		Message End Event: terminate and send a message
	Timer Start Event: start when time condition becomes true		Terminate
	Rule Start Event: start when a set of conditions are met		Error

Gateways

- **Gateways** (modelled as diamonds) control Sequence Flow behaviour: Decision/ branching (exclusive, inclusive and complex), merging, forking and joining.

- **Basic Gateways**

- Exclusive decision and merging
(Only one of the possible outgoing paths can be taken when the Process is performed)



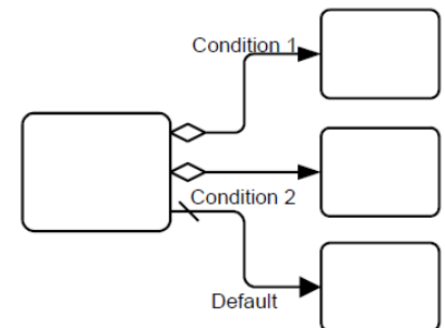
- Parallel Gateway – allows to express parallelism
 - Inclusive (OR) Gateway - decision and merging
(there is more than one possible outcome)



- Parallel (AND) Gateway - forking and joining
(multiple parallel paths are defined)



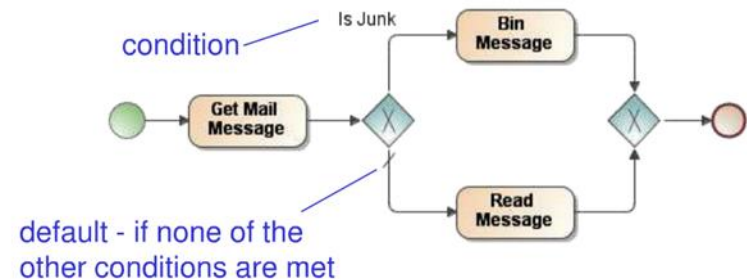
- Inclusive Decision using Conditional Sequence Flow Decision situations can use - instead of Inclusive Gateway - a collection of conditional Sequence Flows, marked with mini-diamond marker



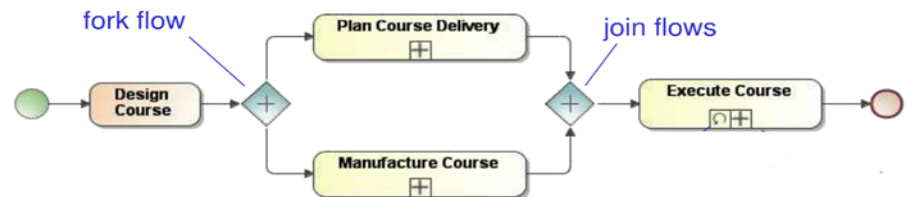
Gateways - Examples

Exclusive Gateway - Has one or more input flows, and two or more output flows. Each output flow has a condition and set of conditions must be mutually exclusive; the first one that evaluates TRUE will determine the Sequence Flow to be taken

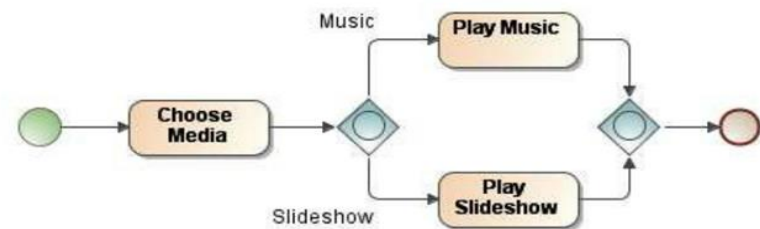
- only one gateway can be chosen;
- one of the Gates may be "default"



Parallel Gateway - has one or more inputs and two or more output flows



Inclusive Gateway Example – Photo Player System: Choose Media (music, slideshow or both) Depending on what has been chosen, the system Play(s) Music, Play(s) Slideshow or both When ALL media has finished playing, the p

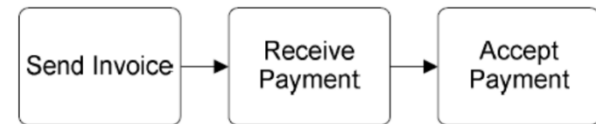


Connectors

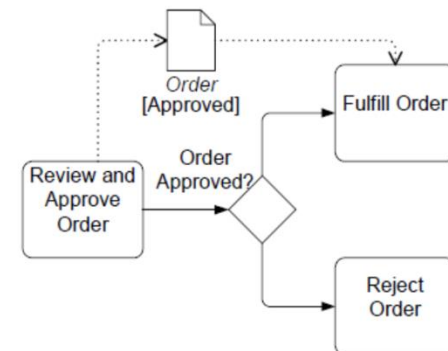
Connections



- 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 (not used within a Lane)
- An **Association** is used to associate data and artefacts with flow objects. They are used to show how data is input to and output from Activities.



More Information

- May be found at:
<http://www.omg.org/spec/BPMN/2.0/>

Unified OLCM BPM Naming Conventions

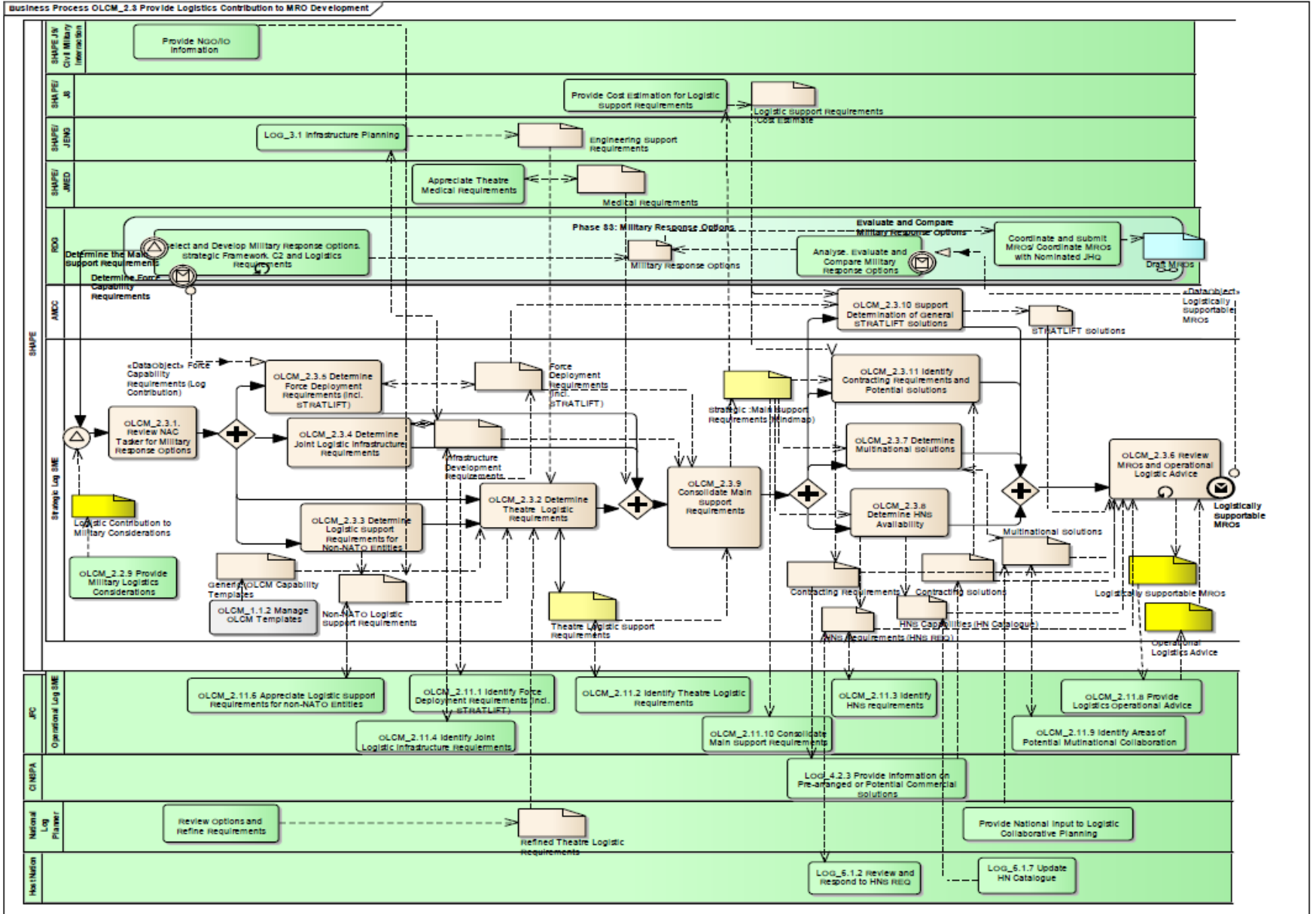
- The following Naming Conventions have been used for the Logistics Collaborative planning Model:
 - the full prefix indicates the level of the particular process (for example, OLCM_2.1.4 is a level 3 logistics planning process)
- Numbering Scheme used in this model
 - OLCM_2 – is the prefix for logistics planning processes
 - OLCM_1 - is the prefix for OLCM processes for Deployment and Sustainment
 - LOG_x - is the prefix for processes specific to a given logistic functional area
 - LOGINT_x – prefix for interfaces to non logistics processes
 - ENB_x – prefix for enabling logistic processes

Understanding LCP BPM Diagrams

- Each diagram for a level 2 logistics planning process (i.e. OLCM_2.x) describes the corresponding Level 3 sub-processes, their sequence and collaboration with external processes (interfaces), as well as the exchanged information products and/ or messages (inputs/ outputs). These level 3 processes and the lanes for the responsible roles are shown in default colour (off-white).
- The interface processes and the lanes for the coordination and information roles are shown in green colour.
- Interface processes fall in one of the two categories:
 - processes external to the OLCM BPM scope, under the governance of different Communities of Interest (not numbered) AND
 - processes that are part of the OLCM BPM scope but belong to a different main process flow described elsewhere in the document. Processes in the latter category are always numbered and they can have a prefix of OLCM_x or LOG_x (an indication of where the description of the respective sub-process and owning process flow might be found is provided by the process numbering scheme, i.e the prefix used).
- Information Products (Data Objects)
 - Recognized Information Products specific to the OPP process (Logistics Planning processes contribute towards their development but are not directly responsible for them) are coloured in blue
 - Information Products can be internal to the described process or they can be input from or output to external processes. For the LCP BPM, any logistics specific planning information product that is considered major output of a Logistics Planning process is coloured in yellow.

LCP BPM Example/ Strategic Level

OLCM_2.3 Provide Logistics Contribution to MRO Development 1/3



LCP BPM Example/ Operational Level

OLCM_2.11 Analyse Draft MROs 1/3

