* What is BMPN?

Business process modeling and notation (BPMN) is the global standard for modeling business processes. It is a fundamental part of [business process management](https://www.ibm.com/think/topics/business-process-management) (BPM). BPMN diagrams allow stakeholders to visualize business processes, making it easier to streamline [workflows](https://www.ibm.com/topics/workflow).

It resolves the ambiguities of textual process specifications by visually depicting the sequence of business activities and information flows needed to complete a specific process.

* Elements of BMPN

1. Flow objects

flow objects are descriptive objects that define a process, such as events, activities and gateways.

Events:

An event is something that begins a process, for example, a timer or an error message. They will be shown using circles on the map and may have other symbols within the circle to show the different functions of a given event.

vents are triggers that start, alter or conclude a process. *Start events* initiate a process, *intermediate events* occur during a process and *end events* conclude a process. Events can include messages, timers and dates, transactions, errors, escalations, requests and more.

Activity:

Activities will refer to a specific task that is a step in the process. It will be denoted by a rounded-corner rectangle. There may be further symbols used, such as double or dotted lines that will denote a subprocess.

Gateways:

A gateway is a point in the business process where adjustments to the rest of the process can be made depending on what has occurred up to this point. Gateways will be denoted in diamonds. There will be further symbols within the diamond that give more information about the decision point, such as an exclusive or parallel even based decision point.

* **Exclusive gateways** forward the workflow down one of several mutually exclusive pathways—the workflow must proceed down only one of the available options. They are depicted as diamonds containing an X.
* **Inclusive gateways** also offer multiple paths forward, but the options are not mutually exclusive. They are shown as diamonds containing a circle.
* **Parallel gateways** break a process into multiple flows without requiring a decision. The workflow simply splits into multiple simultaneous processes, which are shown as diamonds containing a plus sign.
* **Parallel event-based gateways** split a workflow into multiple concurrent pathways as the outcome of a triggering event. The symbol for parallel event-based gateways combines that of inclusive and parallel gateways with a diamond containing a plus sign enclosed in a circle.
* **Complex gateways** are reserved for highly complex processes. They are depicted as diamonds containing an asterisk.

1. Connecting objects
   * Arrows will denote the order that the steps that will need to be performed.
   * dashed line depicts “pool flows” which are discussed below.
   * Dotted lines are used to associate an artifact with flow objects.

* **Sequence flows** link activities in the order that they are performed within the business process. They are drawn as solid lines with arrows indicating the order of events. *Default flows* are the standard response to a triggering event, while *conditional flows* occur instead when a specified condition is met.
* **Message flows** are communications that flow between *pools*—discrete departments or other groups. They are depicted as dashed lines with a circle at the sender and an arrow at the receiver.
* **Associations** are dotted lines that link events, activities and gateways to supplemental information about those flow objects.

1. Swimlanes
   * The “pool” features “lanes” that depict major stakeholders in a business process. From these lanes will flow roles or activities for relevant parties.
   * wimlanes are containers that separate one set of activities from others. In BPMN standard notation, pools represent the major participants in a process. A different pool might be a different company, department or customer involved in the process. Lanes within a pool show the activities and flow for a certain role or participant, defining who is accountable for specific parts of a process.
2. Artifacts

Artifacts are any added information that provides necessary detail about a step or part in a process. There are three main types of artifacts: data object, group, and annotation.

* + A data object indicates that a certain bit of data is necessary for a step in the business process
  + A group shows common sense groupings, but this will not change the flow or direction of the steps that need to be followed
  + The annotation will give more detailed information about a part of the diagram if it is complex
  + data object shows the data that is necessary for an activity and can represent either data input or data output. A group shows a logical grouping of activities, while an annotation gives details about what’s happening in a part of the diagram.

Events (Start, Intermediate, End)

* **Start Event:** Indicates the beginning of a process. Different types of BPMN events exist, including:
  + **Start Event (None):** A simple start event.
  + **Start Event (Message):** Triggered by an incoming message.
  + **Start Event (Timer):** Triggered by a specific time or schedule.
* **Intermediate Event:** Represents something that happens during the process. Examples include:
  + **Intermediate Event (Timer):** Represents a delay or waiting period.
  + **Intermediate Event (Message):** Indicates the receipt or sending of a message.
* **End Event:** Marks the conclusion of a process. Common types include:
  + **End Event (None):** A simple end event.
  + **End Event (Message):** Indicates that a message is sent at the end of the process.

Activities (Tasks, Sub-Processes)

* **Task:** Represents a single unit of work performed by a participant. Different types of BPMN symbols or a task are available:
  + **User Task:** A task performed by a human.
  + **Service Task:** An automated task performed by a system.
  + **Script Task:** A task executed by a script.
* **Sub-Process:** Represents a complex activity that can be further broken down into a more detailed process.
  + **Embedded Sub-Process:** A sub-process contained within the parent process.
  + **Call Activity:** A reusable sub-process that is defined separately.

Gateways

* Gateways control the flow of the process, determining the path that the process will take based on certain conditions. Some common BPMN gateway symbols include:
  + **Exclusive Gateway (Data-Based):** A decision point where only one path is taken based on data conditions.
  + **Parallel Gateway:** Allows multiple paths to be executed concurrently.
  + **Inclusive Gateway:** Allows one or more paths to be taken based on data conditions.

A helpful way to describe a ”which of the following best describes the purpose of a gateway in a business process modeling notation (BPMN) activity diagram?” It controls the process.

Connecting Objects: Linking the Pieces Together

Connecting Objects define the relationships between BPMN flow objects. There are three primary types:

* **Sequence Flow:** Shows the order in which activities are performed.
* **Message Flow:** Shows the exchange of messages between participants.
* **Association:** Connects artifacts (data objects, groups, text annotations) to flow objects. Use “association bpmn” as the link. In terms of “”bpmn notation guide””, this helps connect events.

Swimlanes: Defining Participants and Responsibilities

Swimlanes visually represent the different participants or organizational roles involved in the process. They help to clarify responsibilities and identify handoffs between different actors.

* **Pools:** Represent major participants in a process (often different organizations).
* **Lanes:** Represent individual roles or departments within a pool (Lane Sets).

Data Objects: Managing Information Flow

Data Objects represent the information that is used or produced during the process. Examples include:

* **Data Input:** Data required for an activity to begin.
* **Data Output:** Data produced as a result of an activity.
* In the same manner as using the “association bpmn” code, use ”BPMN data object symbol”.

These core concepts use what is known as ”process flow notation”.

Artifacts: Adding Context and Detail

Artifacts provide additional information about the process, without directly affecting the flow. There are 3 important “BPMN artifacts” to remember

* **Text Annotation:** Adds descriptive text to the diagram.
* **Groups:** Visually group related activities.
* **Data Store:** Represents a repository of data (e.g., a database).