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DESIGNING BETTER BUSINESSES

Gateways serve to split or join process flows. A split gateway is a point where a single inbound sequence flow diverges into two or more outbound branches. A join gateway is where multiple inbound branches of a process flow merge into a single outbound branch.

If we can determine which path to take based on information already available to the process, we can use a data-based gateway. The exclusive—or XOR—gateway corresponds to an "either-or" decision where exactly one alternative outflow is selected.

Here's an example of a process flow that utilizes an XOR-split gateway.

- The process is instantiated when a password request is received.
- An automation checks to see if the password request is associated with a valid email address.
- This is the decision activity that provides the information for processing by the subsequent data-based gateway. The data-based XOR-split gateway handles the routing of the token based on the information provided by the prior decision activity.
- Typically, the gateway is labeled with a question, "Valid email?" in this case.
- The alternative sequence flows should be labeled in a mutually exclusive and collectively exhaustive manner. Technically, however, the XOR-split gateway will route the token to the first true condition and ignore the other alternatives.

In this example, if the email is valid, a password is returned, and the process ends. Alternatively, if the email is not valid, the request is ignored, and the process ends.

The XOR-join gateway works as a pass-through. That is, every incoming token that arrives through one of its input branches immediately flows through to the output branch.

Sometimes, though, the information required to determine the process flow isn't immediately available. If the information necessary to select among alternative flows is determined by an event, an event-based gateway is used.

Consider this technical support process, in which alternative process flows are determined by the action—or inaction—of an external participant.

- The process is triggered when a user requests help and a support ticket is opened.
- The technical support team researches a solution, which is returned to the user.

At this point, the token pauses at this event-based exclusive gateway until the first of three events occurs.

- If the user positively confirms that the solution works and is accepted, the support ticket is closed, and the process ends.
- If, on the other hand, the solution doesn't work and the user rejects it, the process loops back to the "Research solution" task.
- Finally, if 5 days pass without any further communication from the user, the solution is deemed to have been accepted, and the support ticket is closed.

Note how these XOR-join gateways are simply pass-throughs that make it clear how two incoming sequence flows merge into a single outgoing flow.

To recap, a data-based exclusive gateway is used to select one path among a mutually exclusive and collectively exhaustive set of alternatives when the required information is revealed through a previous decision activity. An event-based exclusive gateway is used to route the token to the path determined by the first event (or receive task) to occur.