

Business Process Model & Notation (BPMN)

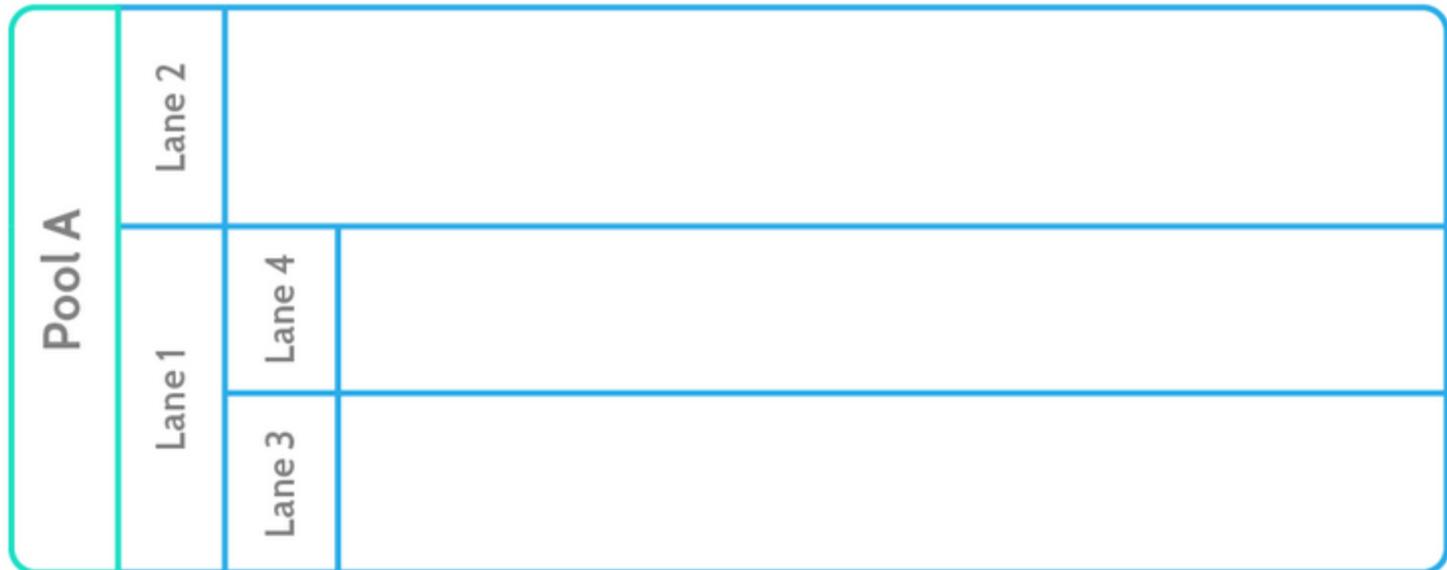
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Business Process Model & Notation

- Standardized way to visually represent processes.
- Similar to a flow chat.
- Information moves between teams.
- Departments can work in parallel on the same process.
- With it you can:
 - See how the business works
 - Eliminate unneeded tasks => save time
 - Enhance the productivity of employees

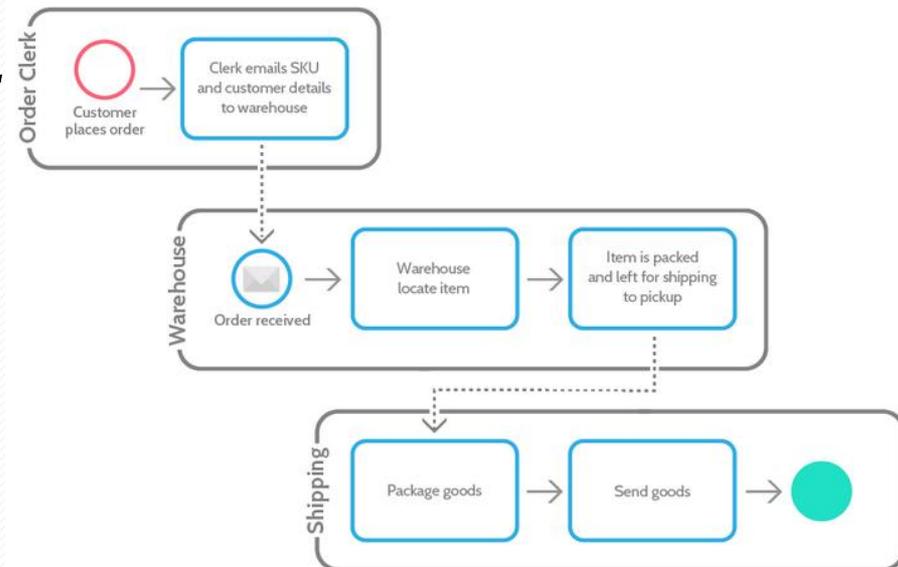
Lanes and pools

- Lanes = different teams/individuals who works in the same organization
- Pools = different organizations or processes which are entirely separated



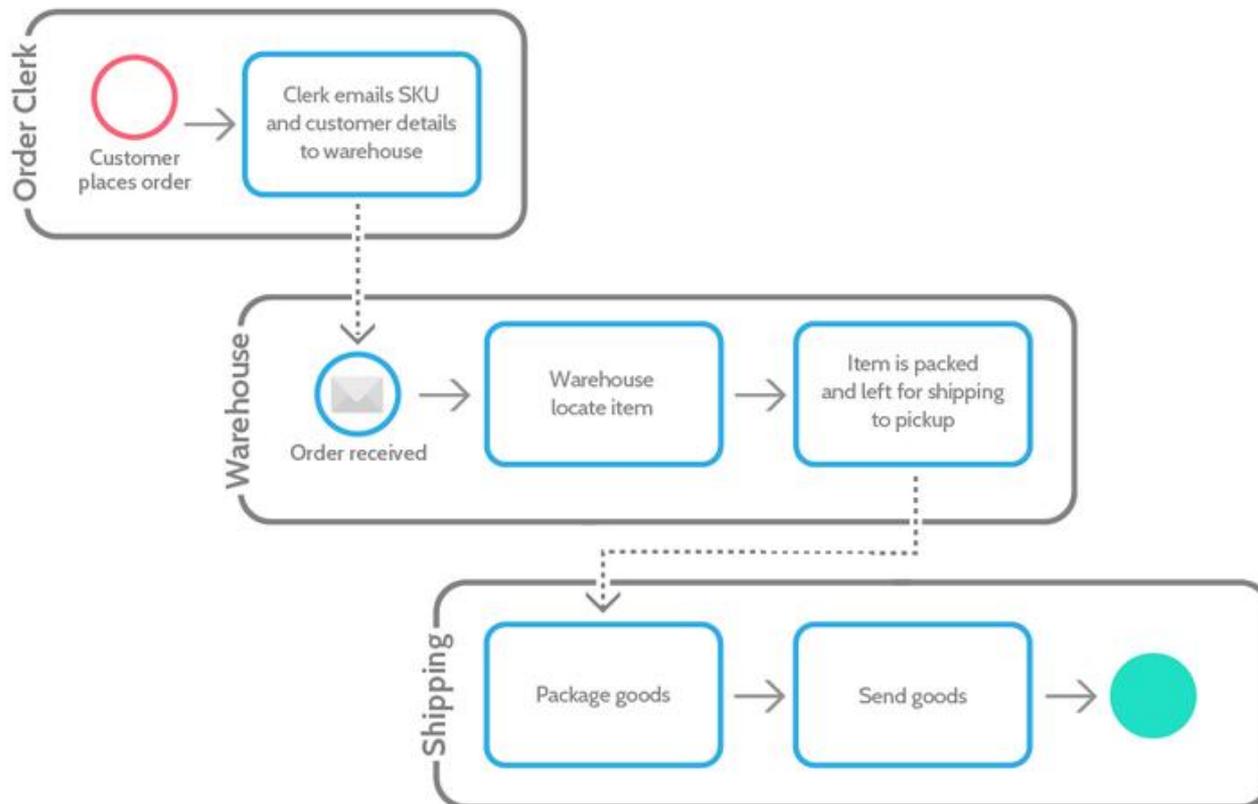
Lanes

- Departments interact with each other.
- For example:
 - Customer places order over the telephone with credit card
 - Order clerk charges credit card
 - Clerk notes down stock keeping unit (SKU) and customer details
 - Clerk emails SKU and details to the warehouse
 - Item is packaged up with label
 - Shipping mail it to the customer

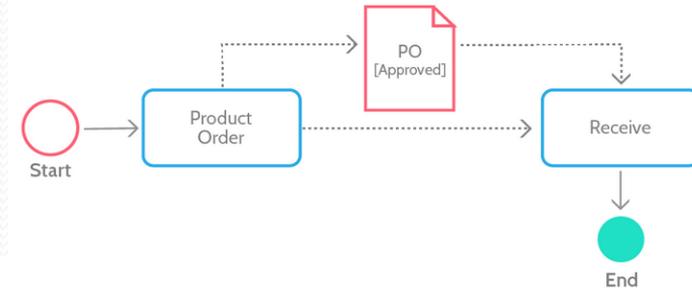


Pools

- Represent who does the task (companies / clients / departments).
- Every pool has just one process.



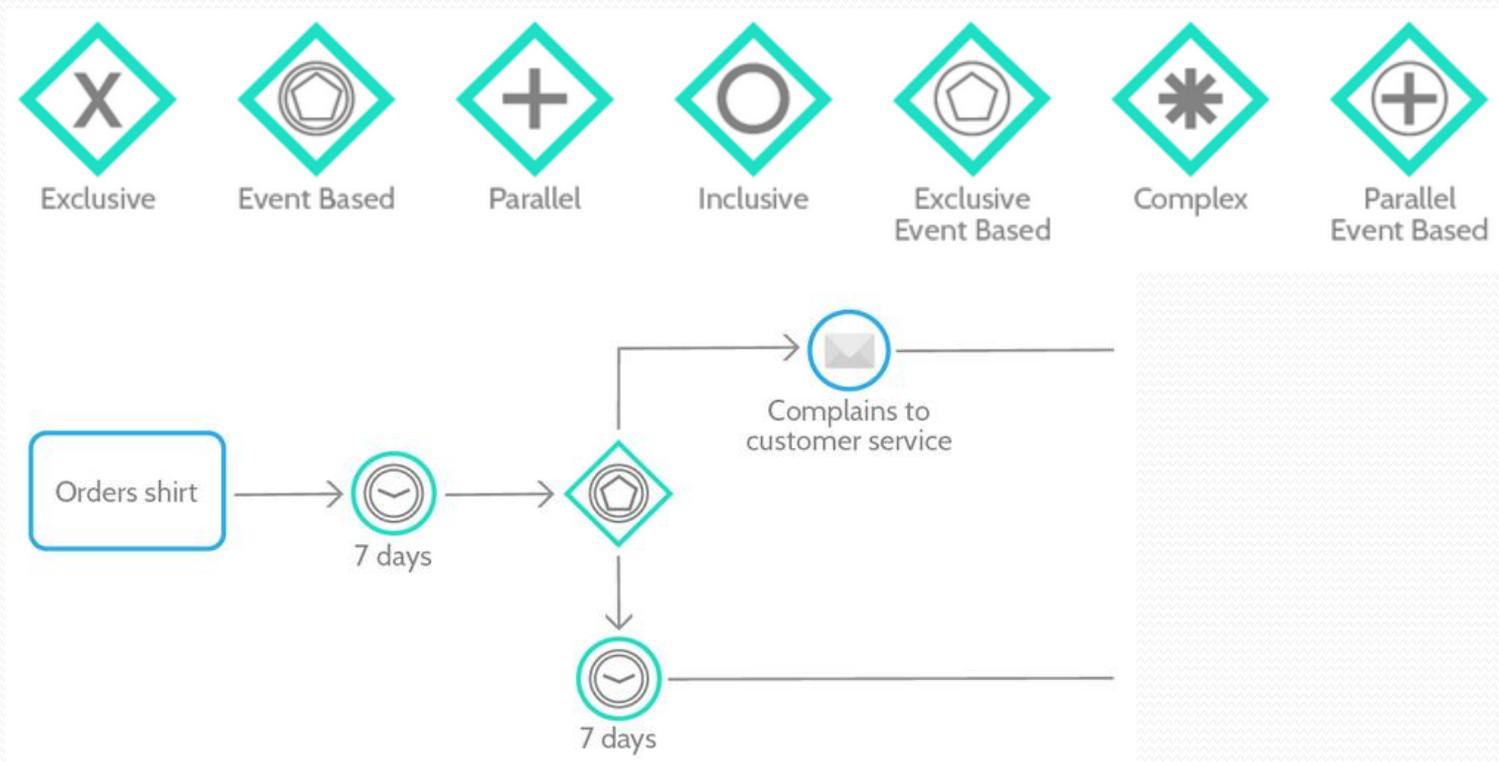
Basic notation



- Activity**  An Activity is work that is performed within a Business Process
- Event**  An Event is something that “happens” during the course of a Process
- Gateway**  A Gateway is used to control the divergence, and convergence of Sequence Flows in a Process
- Flow**  Two major flow elements are core to BPM:
 - 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 Participants of a Process
- Message Flow**  Represents messages from one process participant to another.
- Sequence Flow**  Connects flow objects in proper sequential order.
- Association**  Shows relationships between artifacts and flow objects.

Gateways

- Similar to diamonds in flow chats.
- Represent a split or a convergence in the process chart.



Gateways examples



Exclusive



Event Based



Parallel



Inclusive



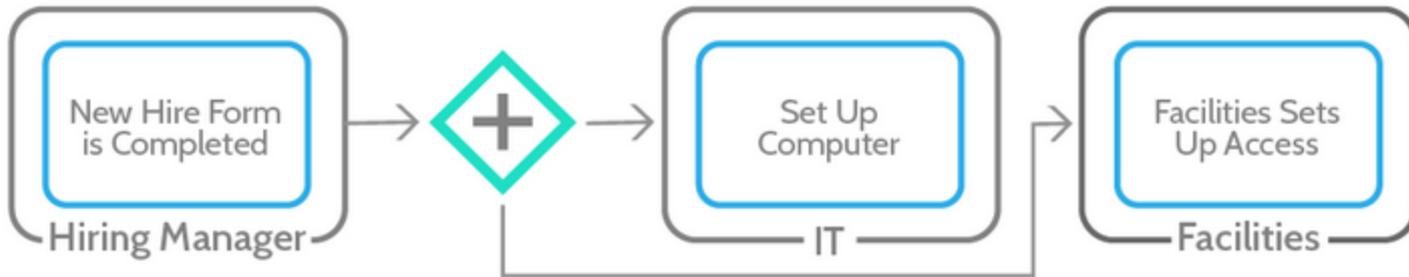
Exclusive
Event Based



Complex



Parallel
Event Based



Gateways examples



Exclusive



Event Based



Parallel



Inclusive



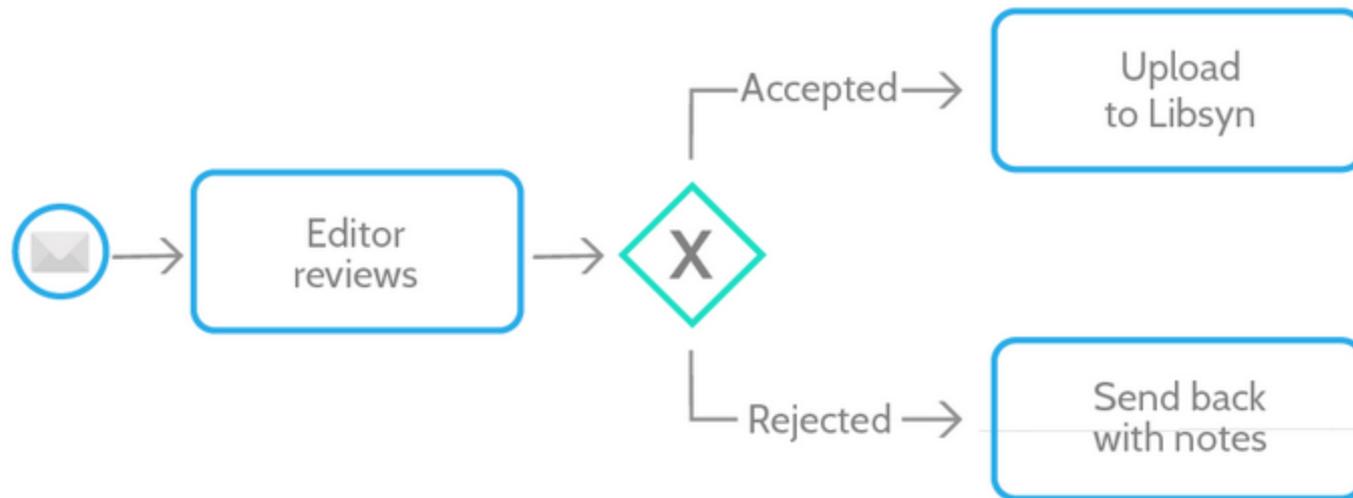
Exclusive
Event Based



Complex



Parallel
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Gateways examples



Exclusive



Event Based



Parallel



Inclusive



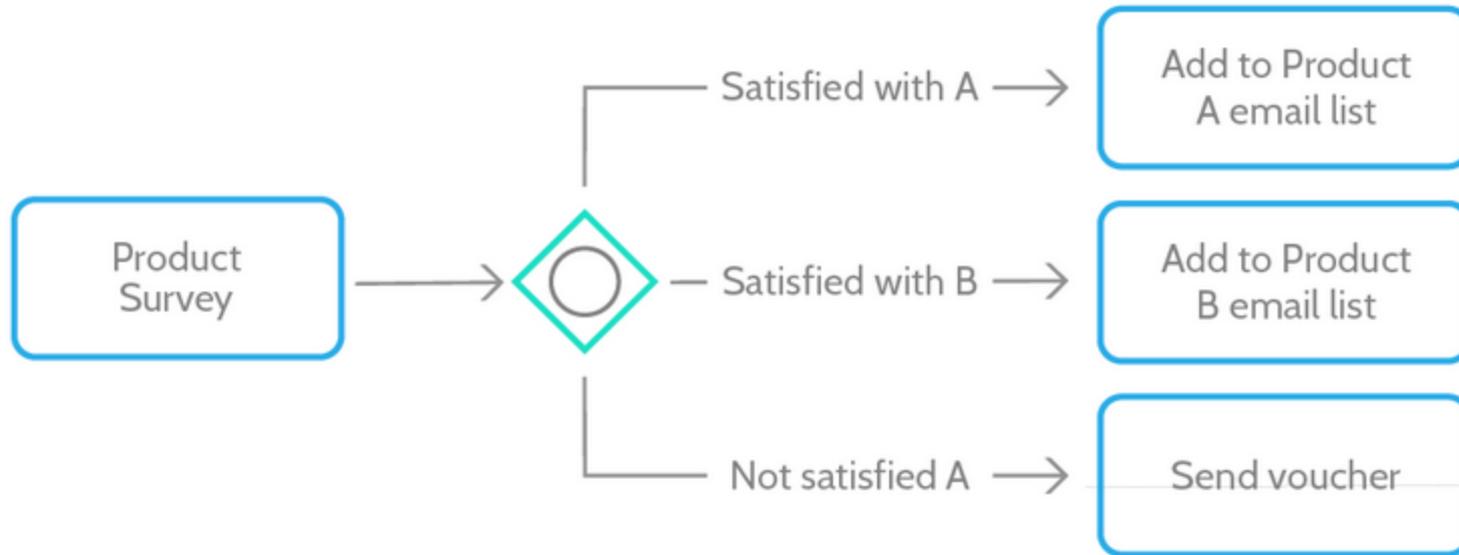
Exclusive
Event Based



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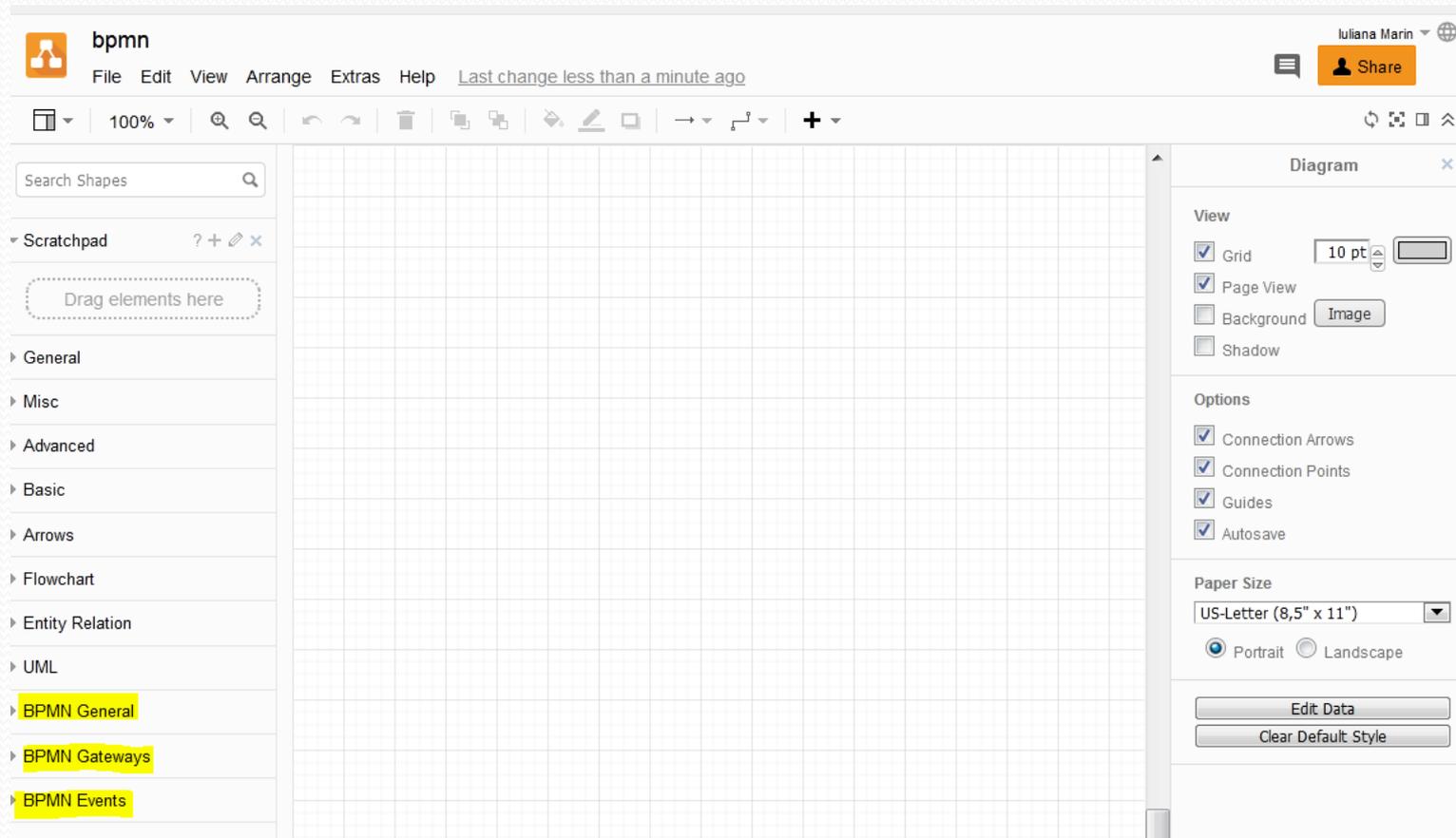


Parallel
Event Based

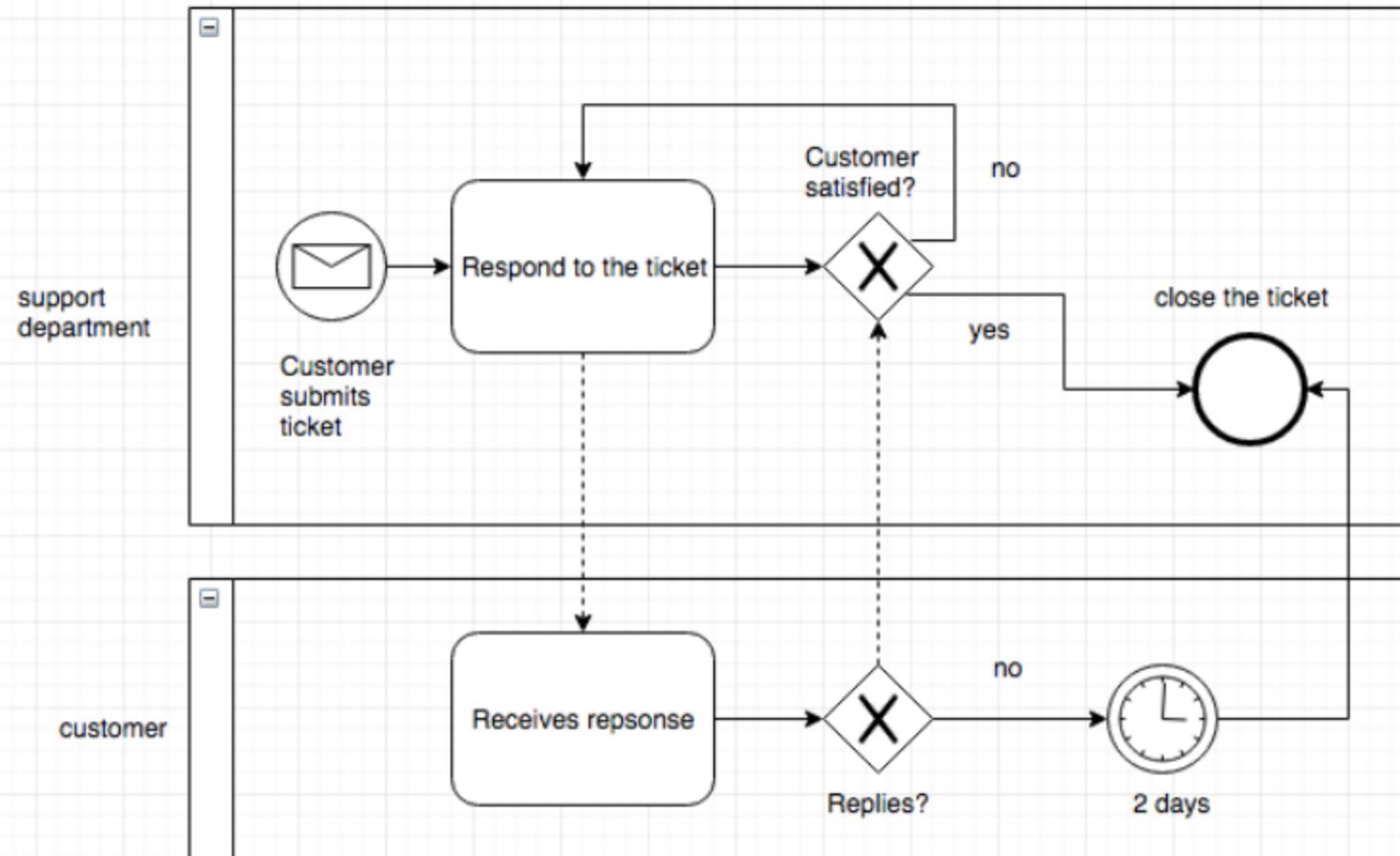


Draw.io to create BPMN diagrams

- Draw.io (<https://www.draw.io/>) is a free online tool which can be used to create BPMN diagrams.



BPMN example



Exercise

- Create BPMN diagrams with Draw.io (<https://www.draw.io/>) for the following case study:

Let assume that the owner of a shop like Hollywood Music&Film decides to buy a software system that manages the hiring of the films from this shop.

This system is used by:

- The administrator which introduces and updates information about the films in the shop;
- The cashier which uses the system in order to carry out the requests of the clients;
- The client which accesses the system, in order to hire films.

The films are available in two formats: DVD and video box. Their hiring depends on a subscription closed on a period by 8 or 12 months in exchange for 5 lei cost, respectively 8 lei.

In order to create a subscription, the customer gives the identity card to the cashier. The cashier introduces the customer's data into the system and it will memorize the last name, the first name, series and number of the identity card and the phone number of the customer. The system associates with each subscription a unique number. After the subscription creation, the contained information its automatically printed.

In order to hire a film, a customer browses a list with all the films from the shop or a list with all the films which can be hired. These lists are ordered by the film name. If the client doesn't know the name of the film, he/she may specify only the film category (horror, romance, action) or the production year and the system will display a list with the films which fulfill the requested criteria.

From these lists, the customer may choose maximum five films for which he/she has to pay in advance. For this, the customer has to specify the return date of the hired films. Using this date, the system will compute the hiring cost with the following algorithm:

- calculate the number of days between the hiring date and the return date that was specified by the client;
- calculate the hiring cost: add 4 lei/day for each video cassette and 7 lei/day for each DVD.

After the customer decided to hire some films, he/she pays to the cashier and the system has to print a recipe that contains the names of the hired films, the return date and the hiring cost. In addition, the system will mark the chosen films as hired films.

When the customer returns the hired films, the cashier notifies the system which verifies if the hiring period has been exceeded. In the affirmative case, the system will compute the cost, depending on the number of additional days, charging the customer with an additional fee of 10% from the hiring price on a day. If the customer lost a cassette/DVD, a fee of 120% from the buying price of the cassette/DVD will be charged and she/he will receive a sales slip that specifies the losing event. This operation will be memorized by the system, which should update the store data.

This operation can be requested by the system administrator, too. He/She can also request other operations, like: add new films and film categories, modify the number of copies, etc.