ENTERPRISE PLUS.TOOLS

E+ Case Story: GBI Production & GBS Retailer Case

A detailed view of the various enterprise modelling capabilities within E+

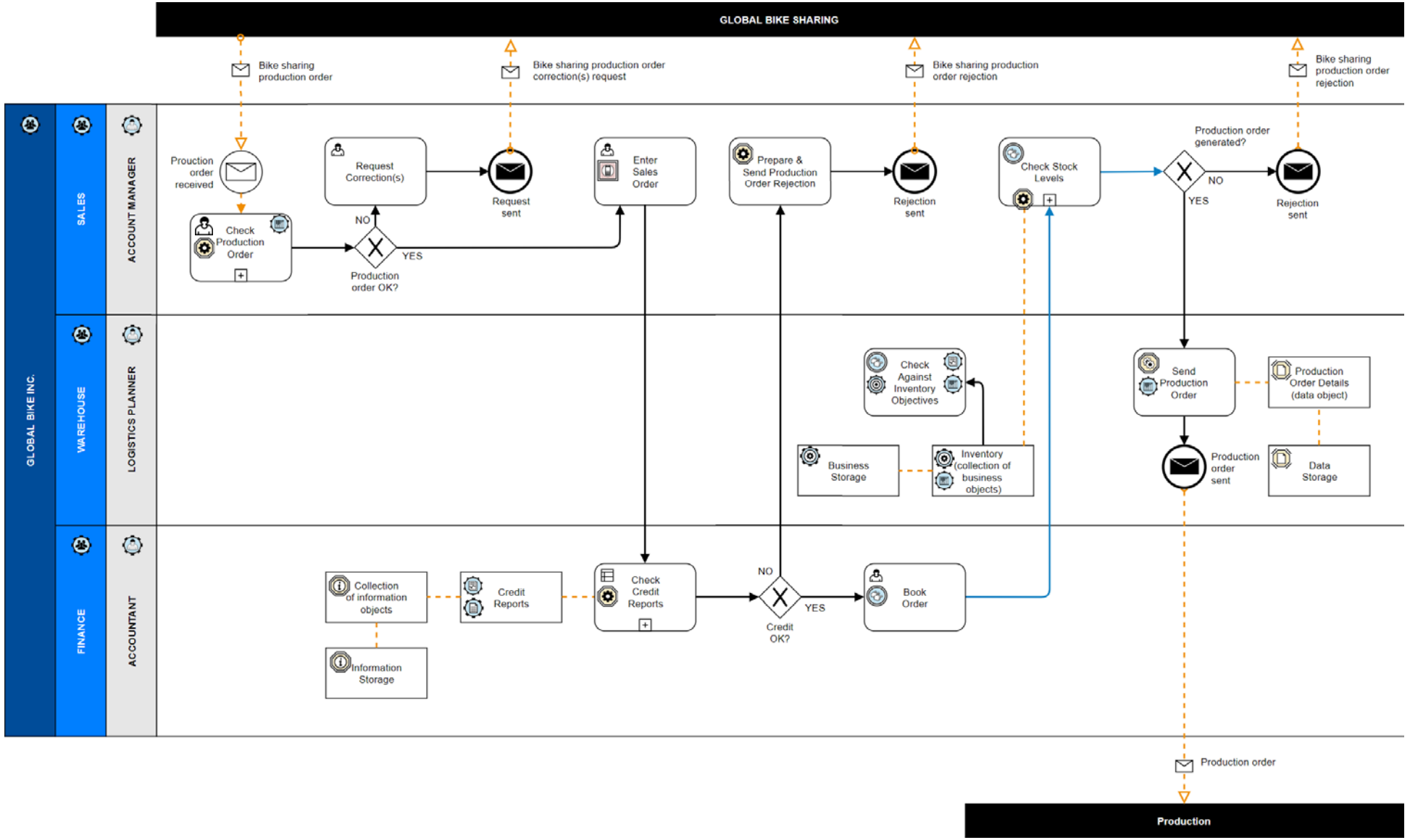
LEADING PRACTICE
We set the Enterprise Standards!

GLOBAL UNIVERSITY ALLIANCE

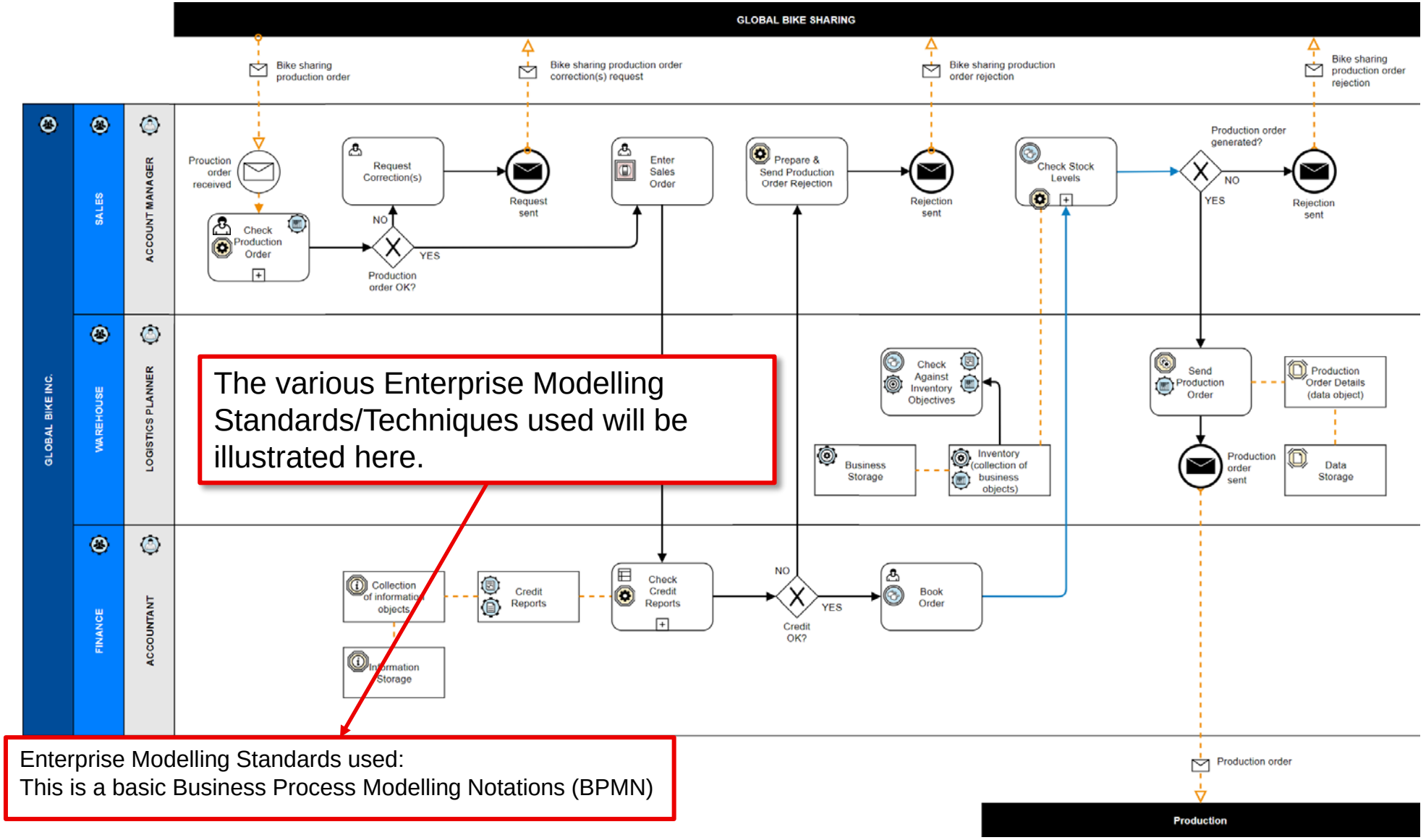
Agenda

- Overview of the GBI Production & GBS Retailer view
  - Basic Business Process Modelling Notations (BPMN) concepts
  - The Competency Modelling Notations (CMN) concepts
  - Value Modelling Notations (VMN) concepts
  - Service Modelling Notations (SMN) concepts
  - Information Modelling Notations (IMN) concepts
    - Application Modelling Notations (AMN) concepts
    - Data Modelling Notations (DMN) concepts
  - Technology Modelling Notations (TMN) concepts
    - Platform Modelling Notations (PMN) concepts
    - Infrastructure Modelling Notations (INFRMN) concepts
- Creating your Enterprise Modelling Objects
- Creating your GBI Production & GBS Retailer Model

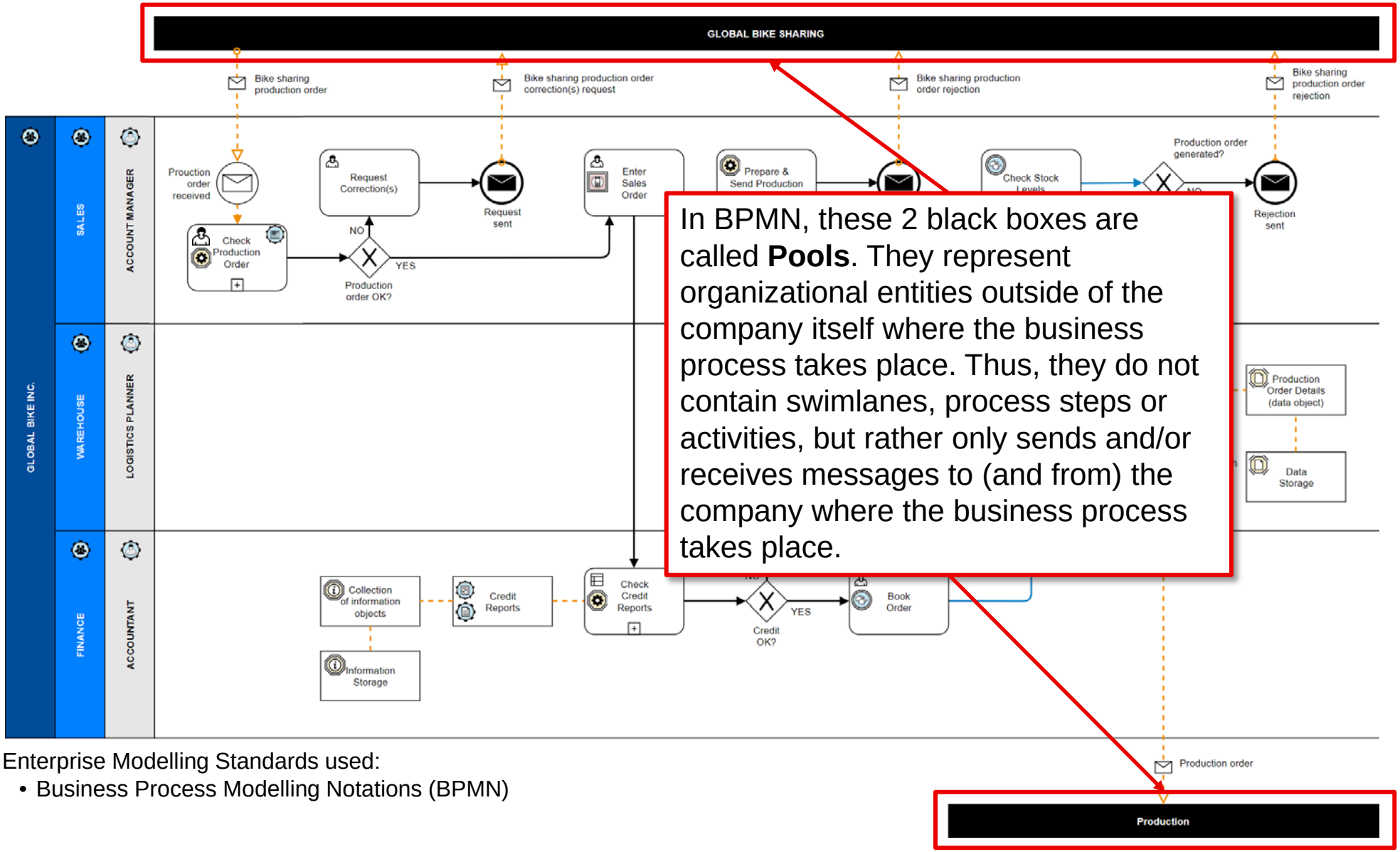
Overview of the GBI Production & GBS Retailer business process model



Overview of the GBI Production & GBS Retailer business process model



Pools

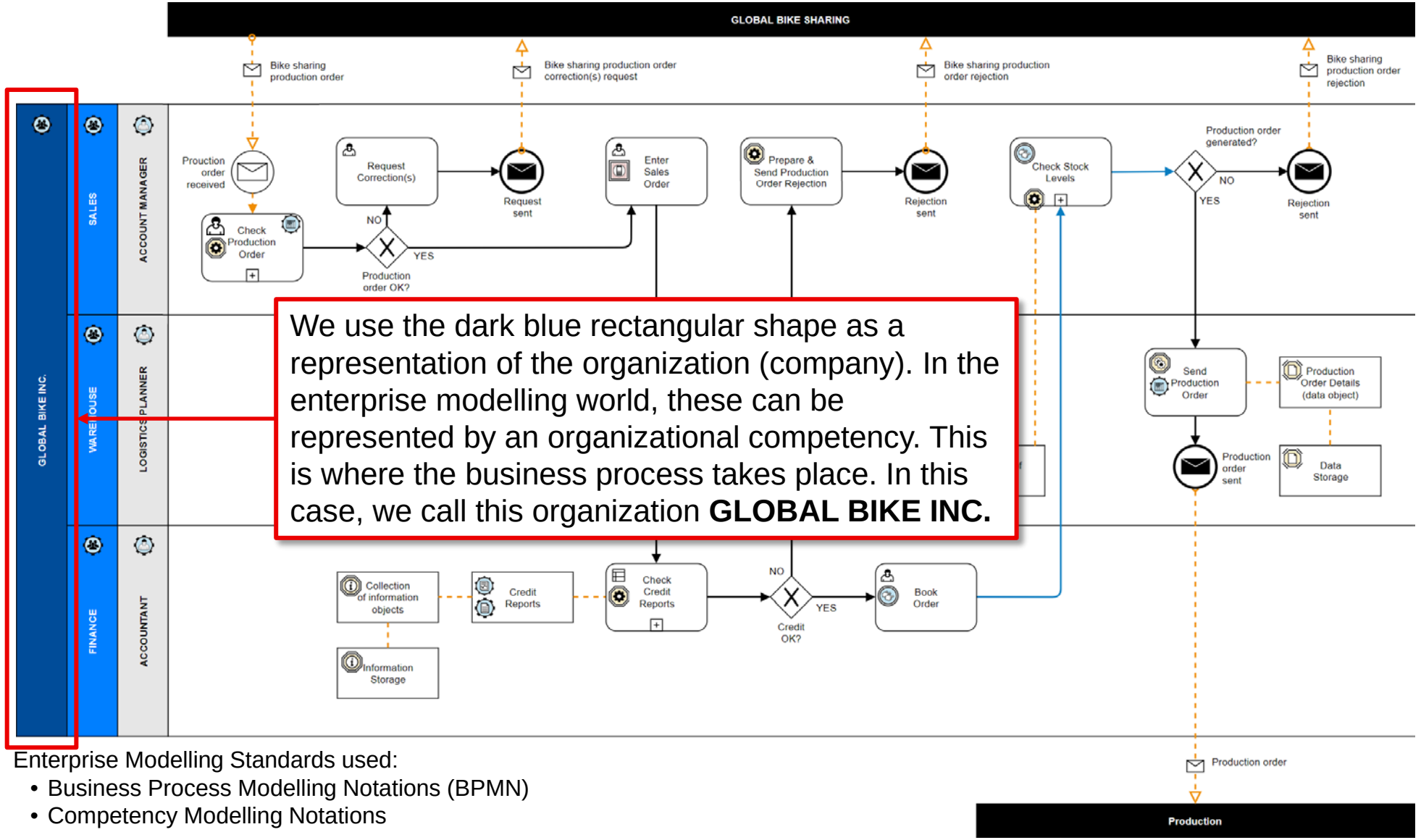


In BPMN, these 2 black boxes are called **Pools**. They represent organizational entities outside of the company itself where the business process takes place. Thus, they do not contain swimlanes, process steps or activities, but rather only sends and/or receives messages to (and from) the company where the business process takes place.

Enterprise Modelling Standards used:

- Business Process Modelling Notations (BPMN)

GLOBAL BIKE INC (Organization)

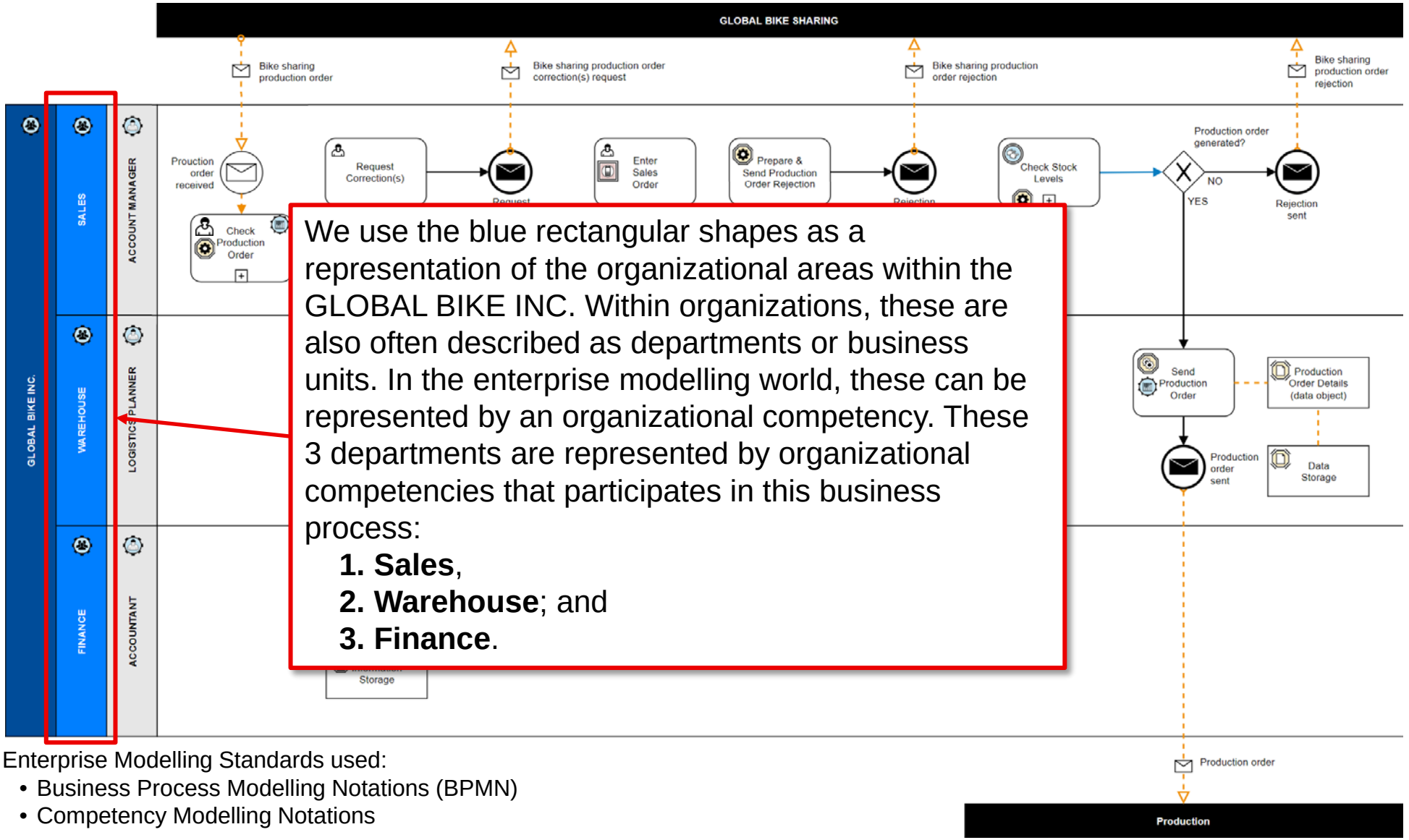


We use the dark blue rectangular shape as a representation of the organization (company). In the enterprise modelling world, these can be represented by an organizational competency. This is where the business process takes place. In this case, we call this organization **GLOBAL BIKE INC.**

Enterprise Modelling Standards used:

- Business Process Modelling Notations (BPMN)
- Competency Modelling Notations

Sales, Warehouse and Finance (Organizations)



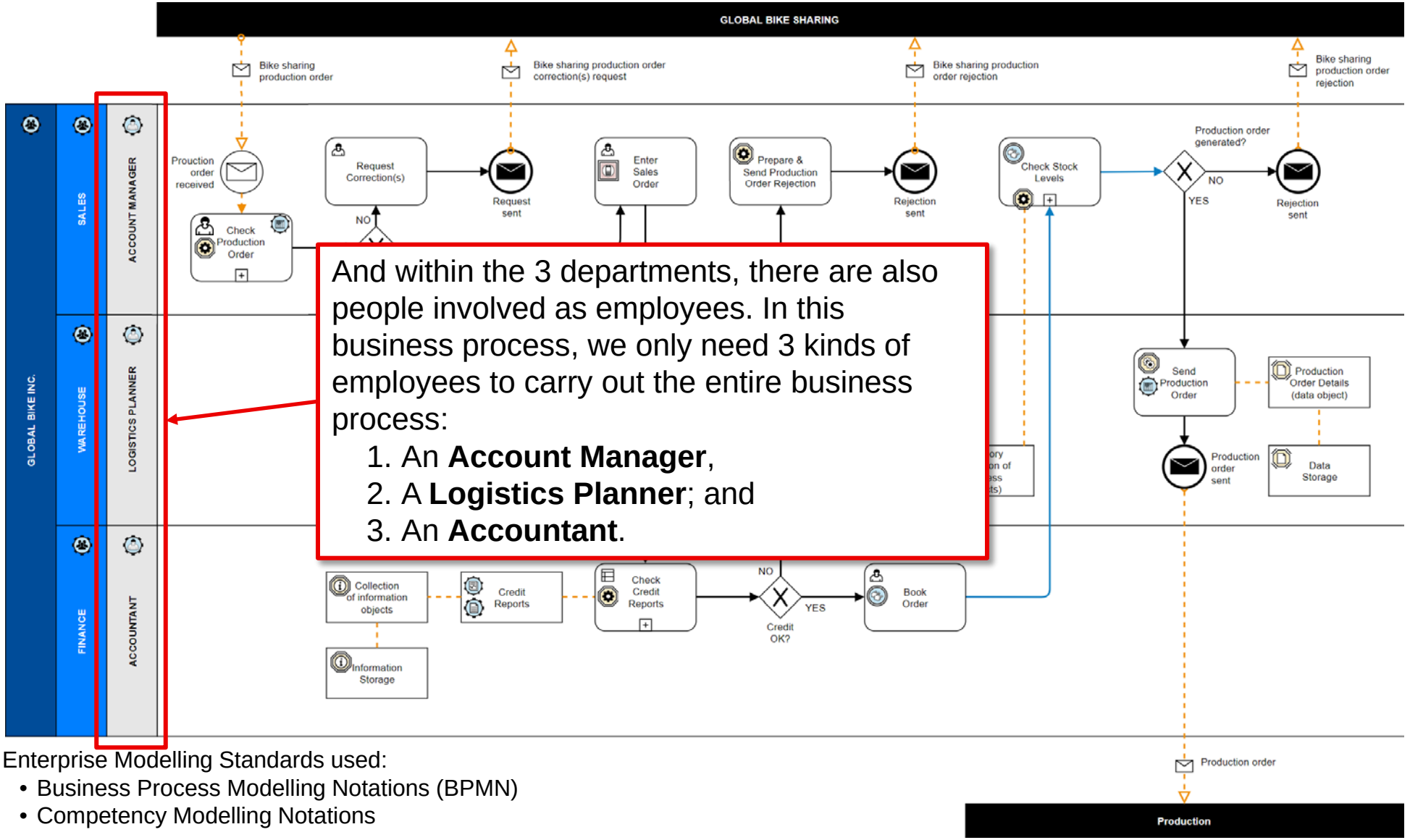
We use the blue rectangular shapes as a representation of the organizational areas within the GLOBAL BIKE INC. Within organizations, these are also often described as departments or business units. In the enterprise modelling world, these can be represented by an organizational competency. These 3 departments are represented by organizational competencies that participates in this business process:

1. **Sales**,
2. **Warehouse**; and
3. **Finance**.

Enterprise Modelling Standards used:

- Business Process Modelling Notations (BPMN)
- Competency Modelling Notations

Account Manager, Logistics Planner and Accountant (Roles)



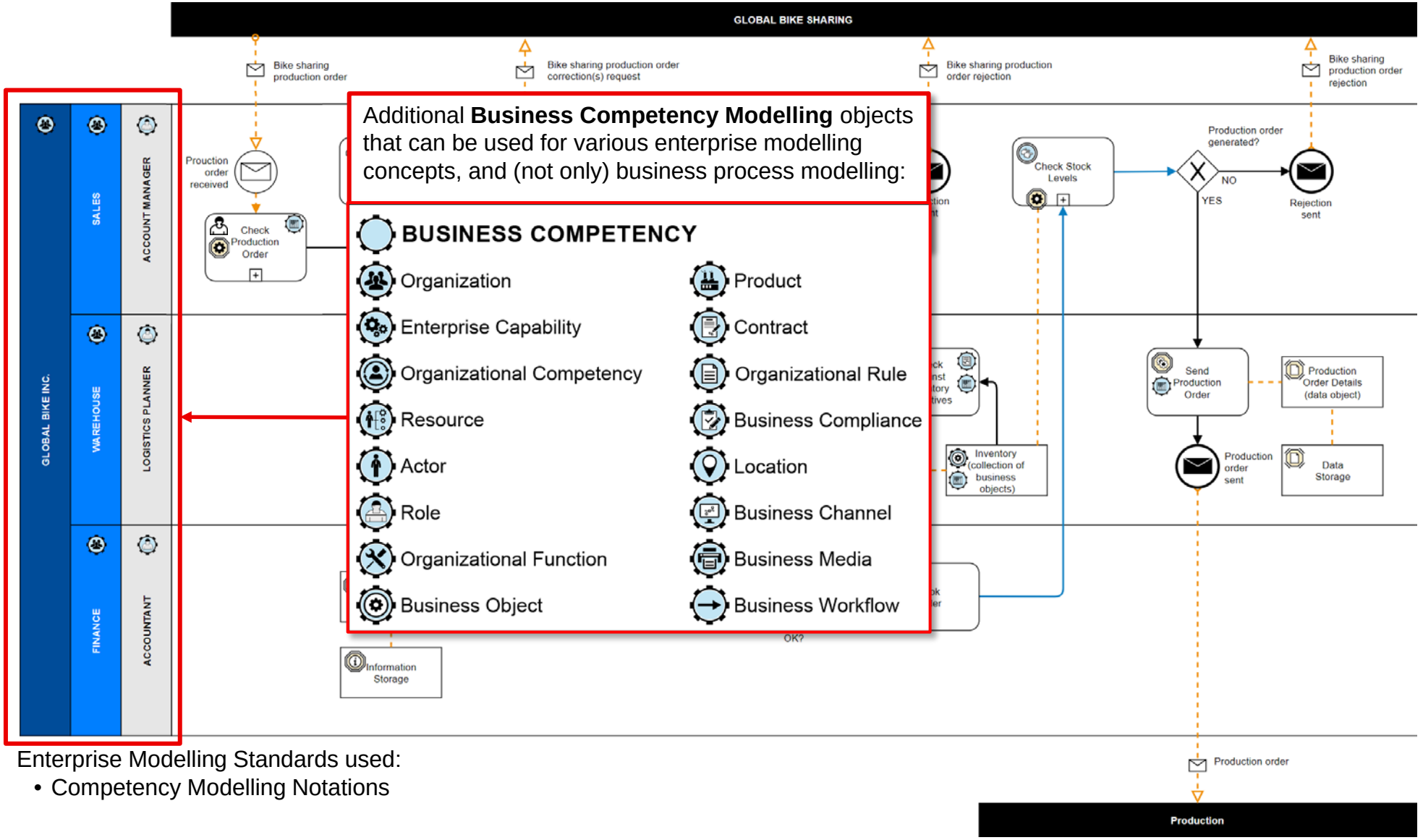
And within the 3 departments, there are also people involved as employees. In this business process, we only need 3 kinds of employees to carry out the entire business process:

1. An **Account Manager**,
2. A **Logistics Planner**; and
3. An **Accountant**.

Enterprise Modelling Standards used:

- Business Process Modelling Notations (BPMN)
- Competency Modelling Notations

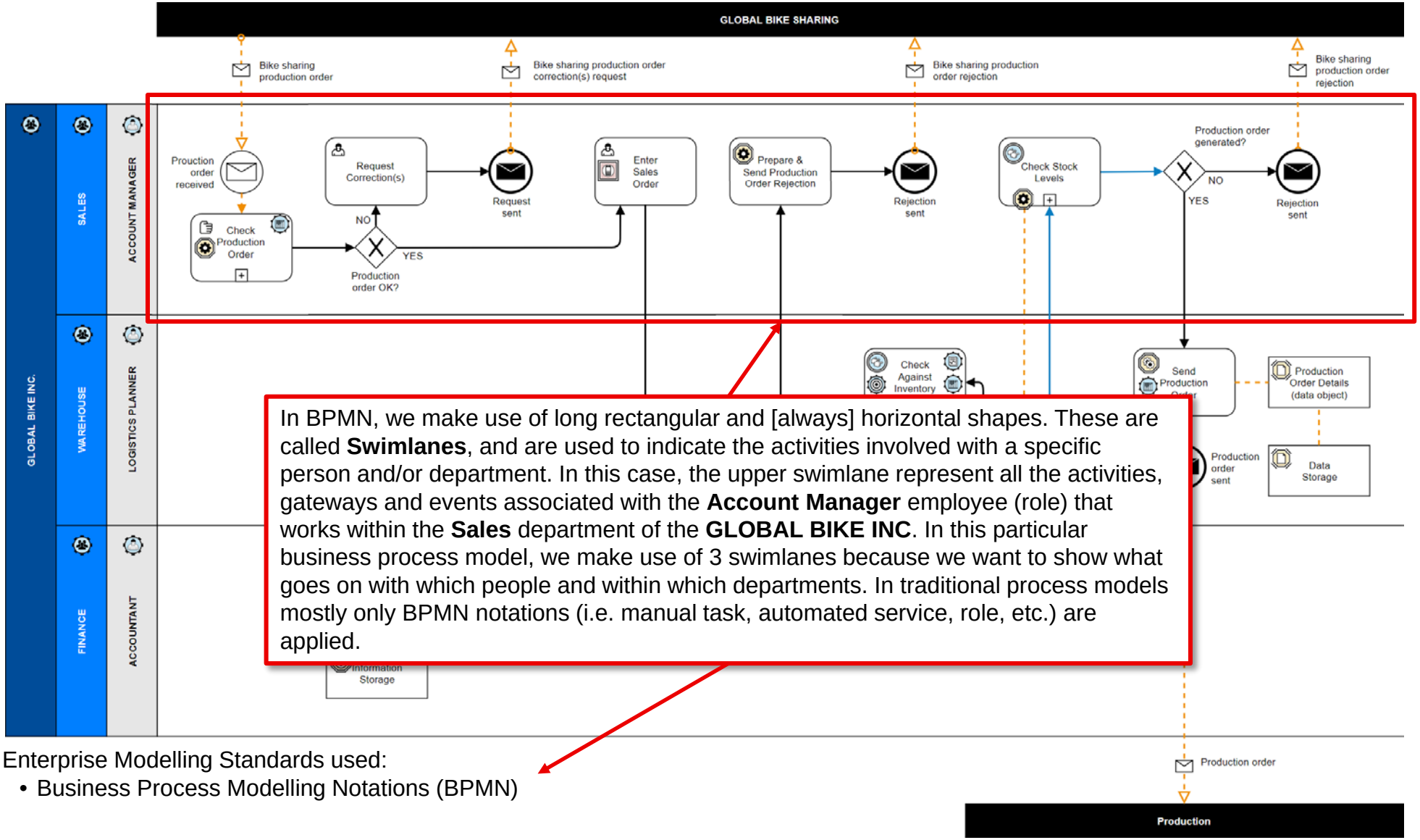
Additional Business Competency Sublayer objects that can be used



Enterprise Modelling Standards used:

- Competency Modelling Notations

Swimlanes

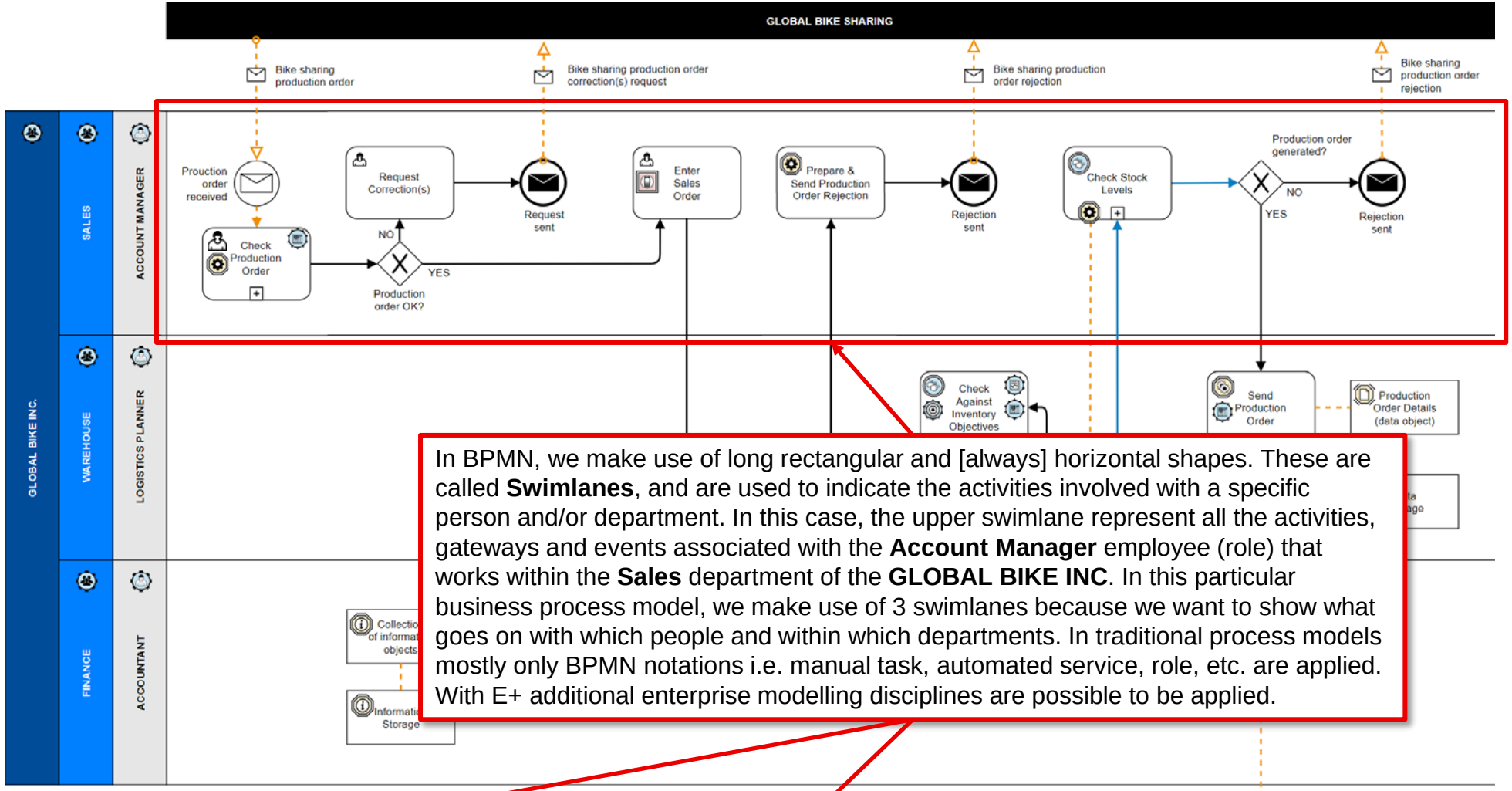


In BPMN, we make use of long rectangular and [always] horizontal shapes. These are called **Swimlanes**, and are used to indicate the activities involved with a specific person and/or department. In this case, the upper swimlane represent all the activities, gateways and events associated with the **Account Manager** employee (role) that works within the **Sales** department of the **GLOBAL BIKE INC**. In this particular business process model, we make use of 3 swimlanes because we want to show what goes on with which people and within which departments. In traditional process models mostly only BPMN notations (i.e. manual task, automated service, role, etc.) are applied.

Enterprise Modelling Standards used:

- Business Process Modelling Notations (BPMN)

Additional enterprise modelling disciplines within E+

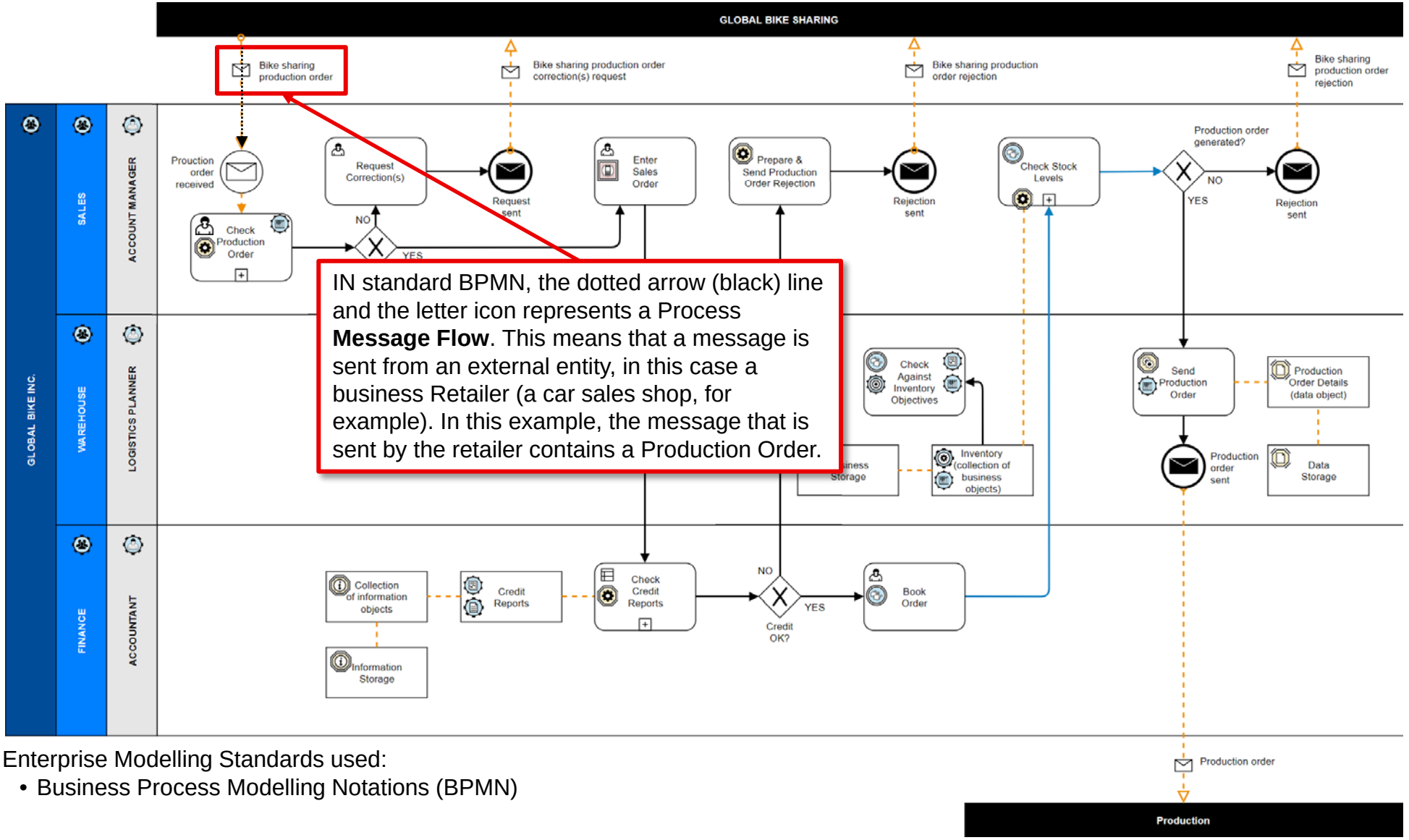


In BPMN, we make use of long rectangular and [always] horizontal shapes. These are called **Swimlanes**, and are used to indicate the activities involved with a specific person and/or department. In this case, the upper swimlane represent all the activities, gateways and events associated with the **Account Manager** employee (role) that works within the **Sales** department of the **GLOBAL BIKE INC**. In this particular business process model, we make use of 3 swimlanes because we want to show what goes on with which people and within which departments. In traditional process models mostly only BPMN notations i.e. manual task, automated service, role, etc. are applied. With E+ additional enterprise modelling disciplines are possible to be applied.

Enterprise Modelling Standards used:

- Value Modelling Notations
- Competency Modelling Notations
- Service Modelling Notations
- Application Modelling Notations
- Data Modelling Notations
- Technology Modelling Notations

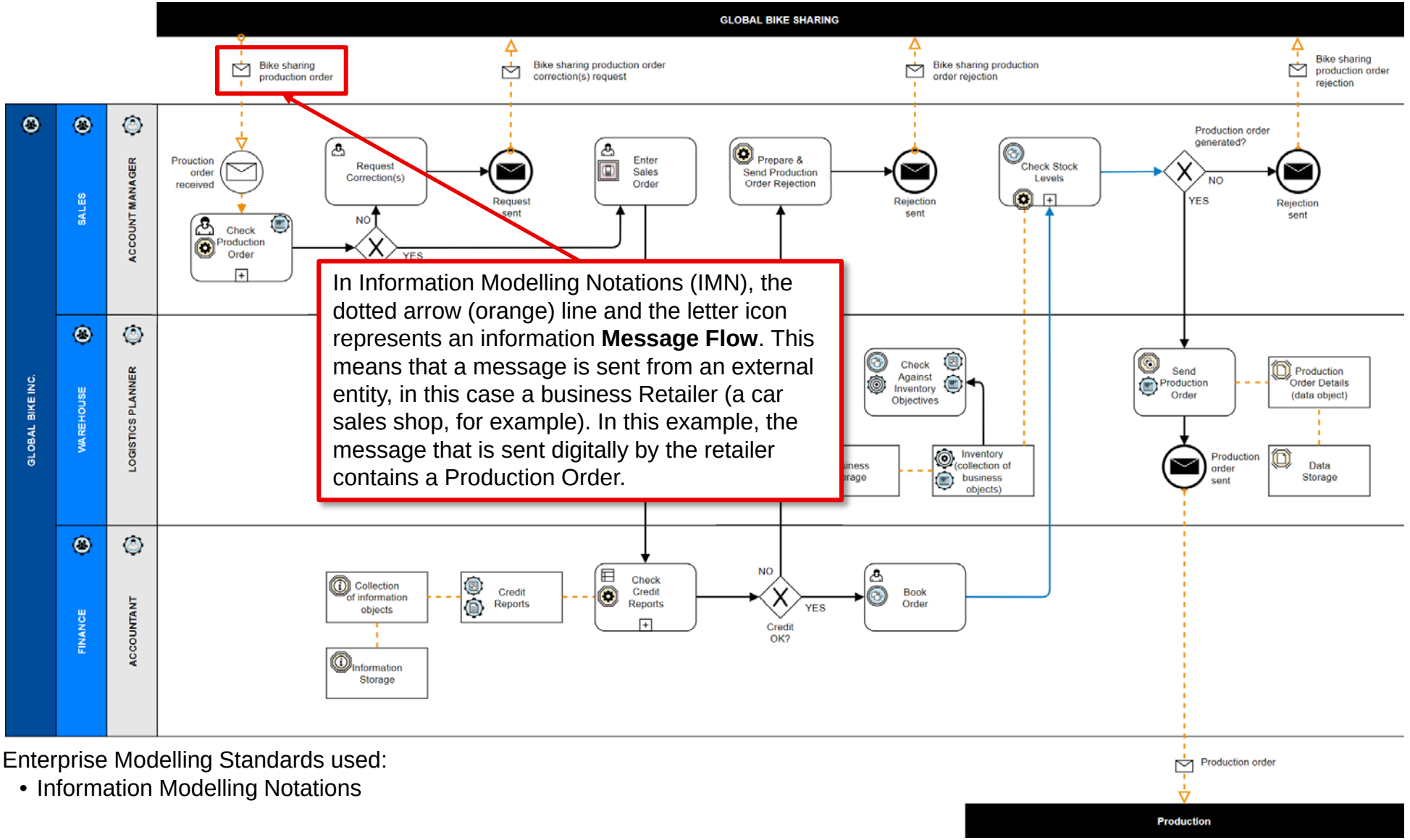
BPMN: Message Flows



Enterprise Modelling Standards used:

- Business Process Modelling Notations (BPMN)

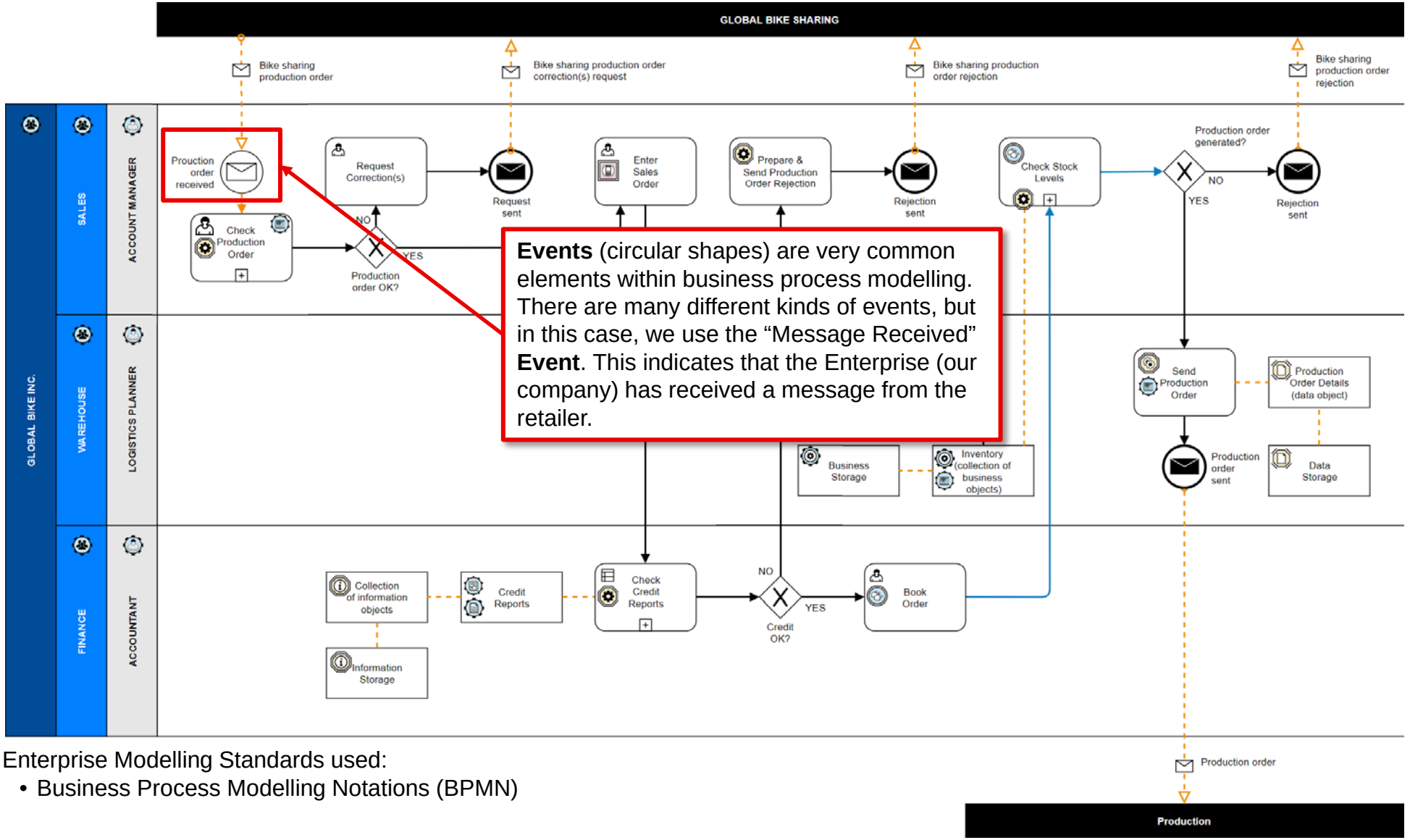
IMN: Message Flows



Enterprise Modelling Standards used:

- Information Modelling Notations

Events

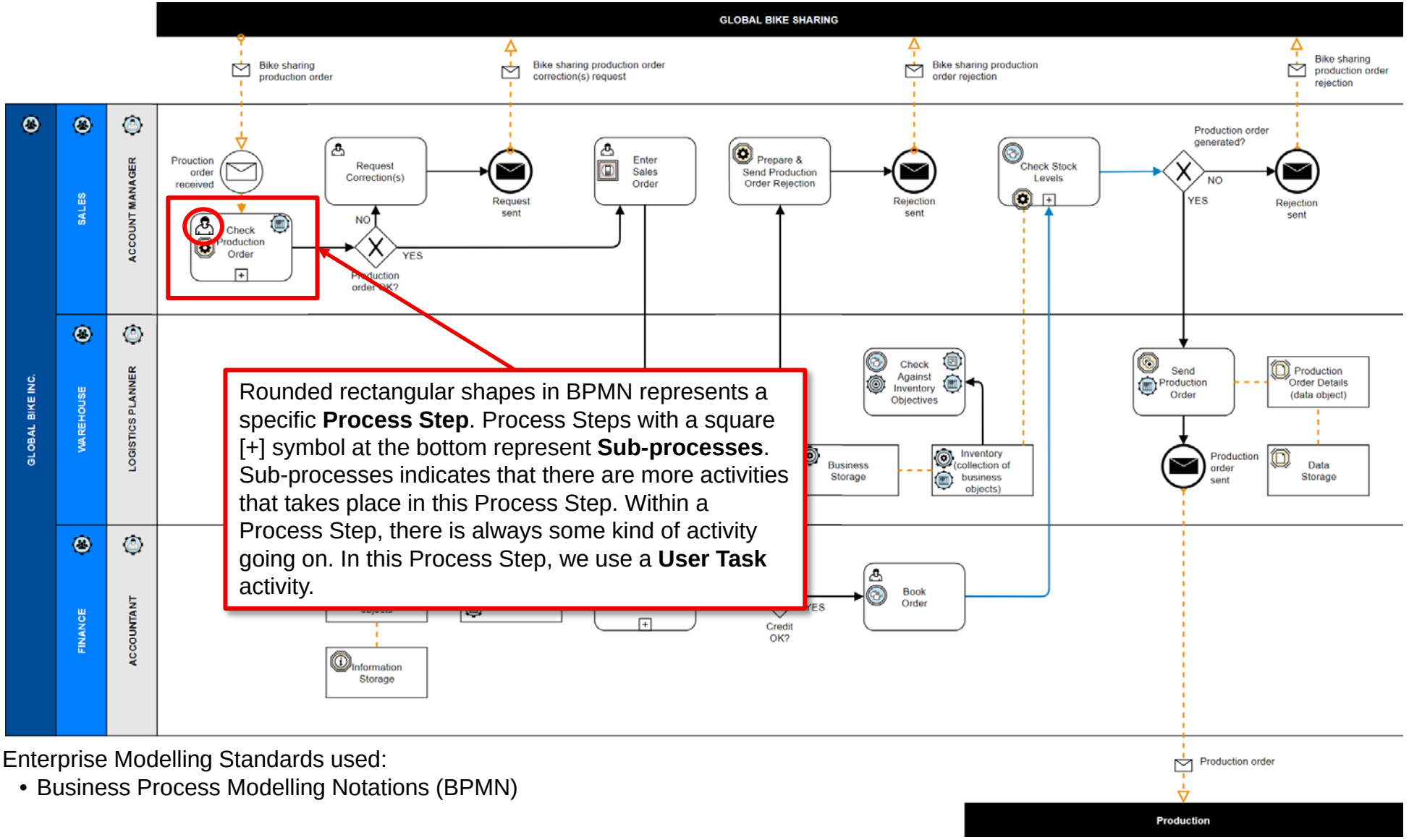


Events (circular shapes) are very common elements within business process modelling. There are many different kinds of events, but in this case, we use the “Message Received” **Event**. This indicates that the Enterprise (our company) has received a message from the retailer.

Enterprise Modelling Standards used:

- Business Process Modelling Notations (BPMN)

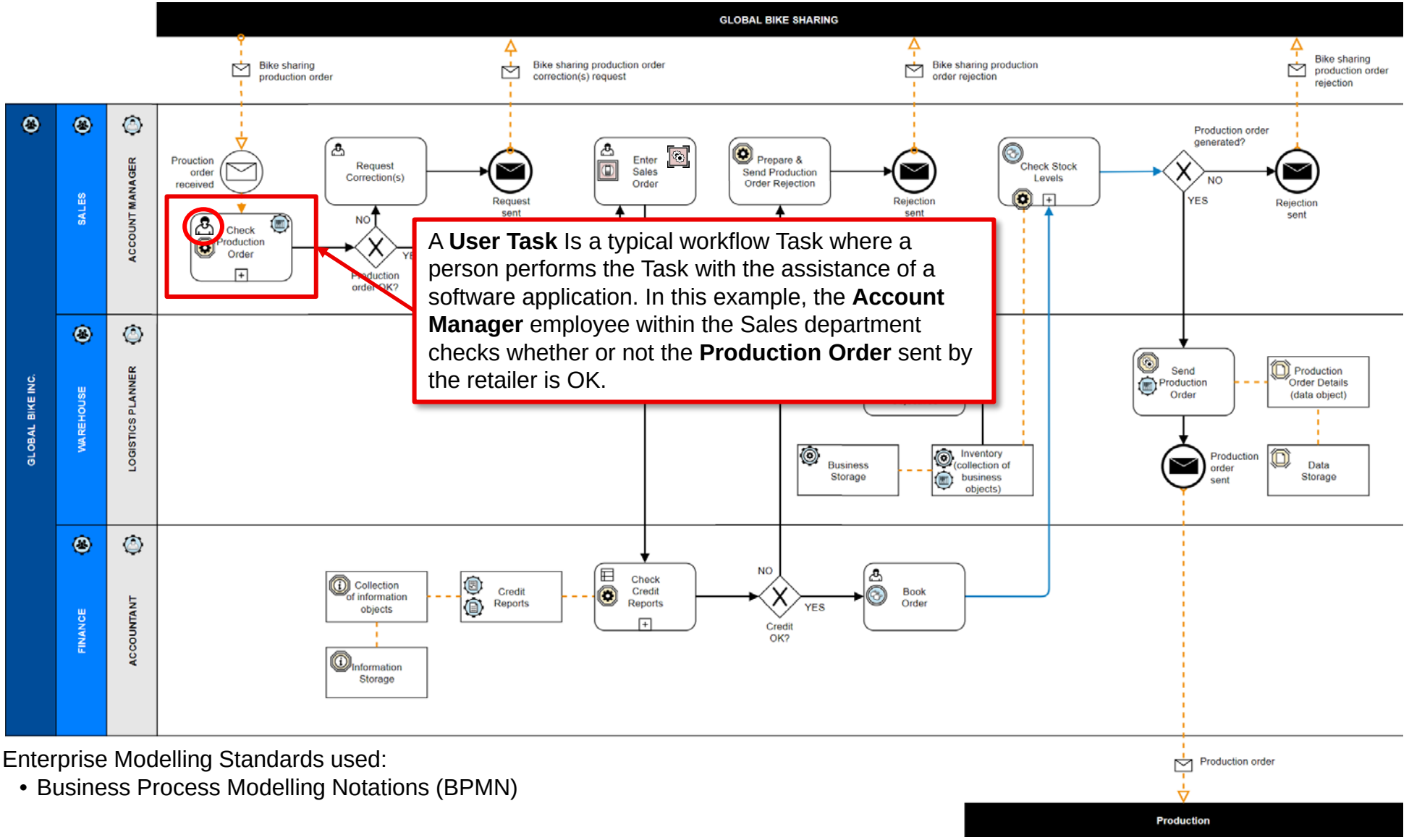
BPMN: Process Steps



Enterprise Modelling Standards used:

- Business Process Modelling Notations (BPMN)

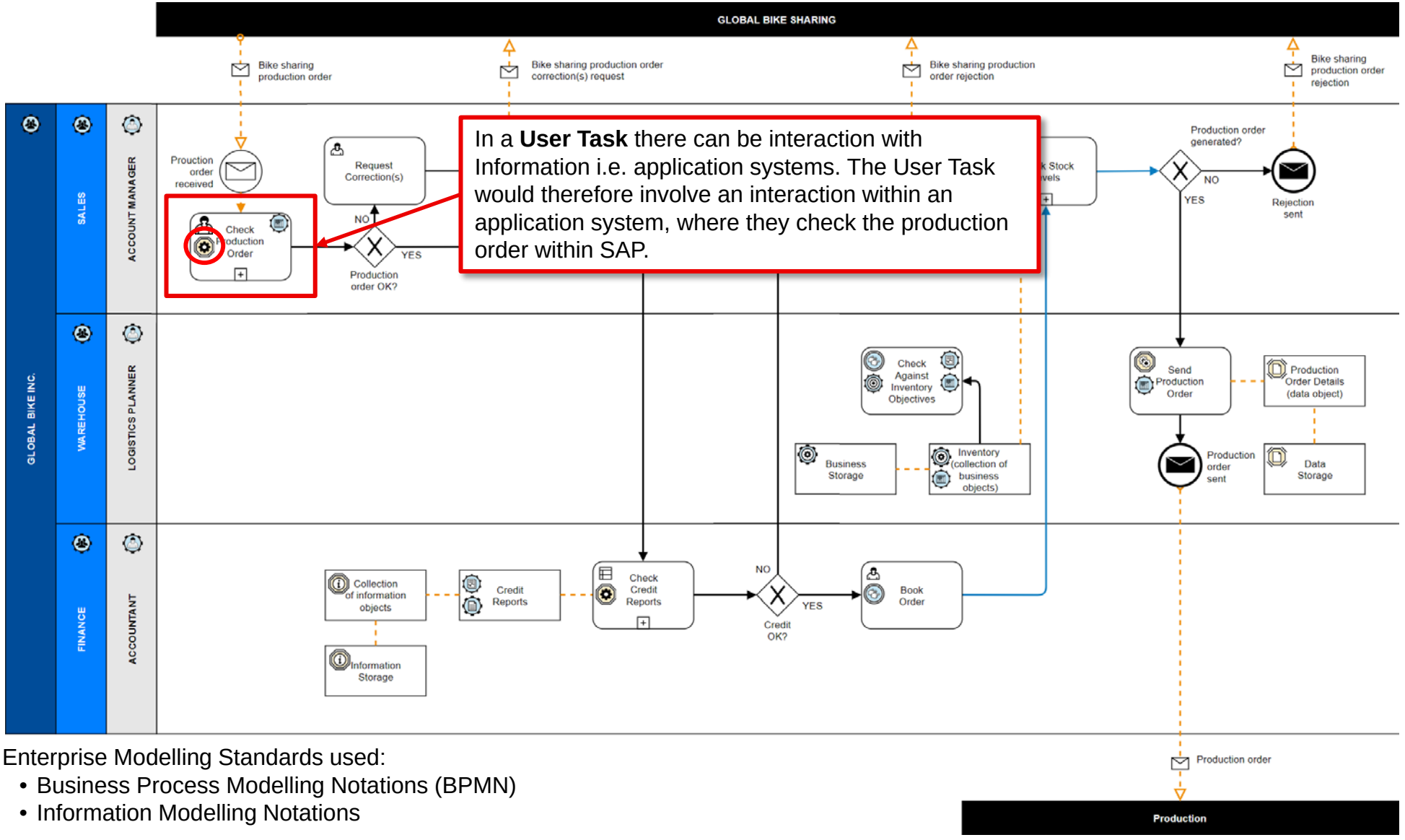
User Task (process activity), SAP Automated Task and Measure



Enterprise Modelling Standards used:

- Business Process Modelling Notations (BPMN)

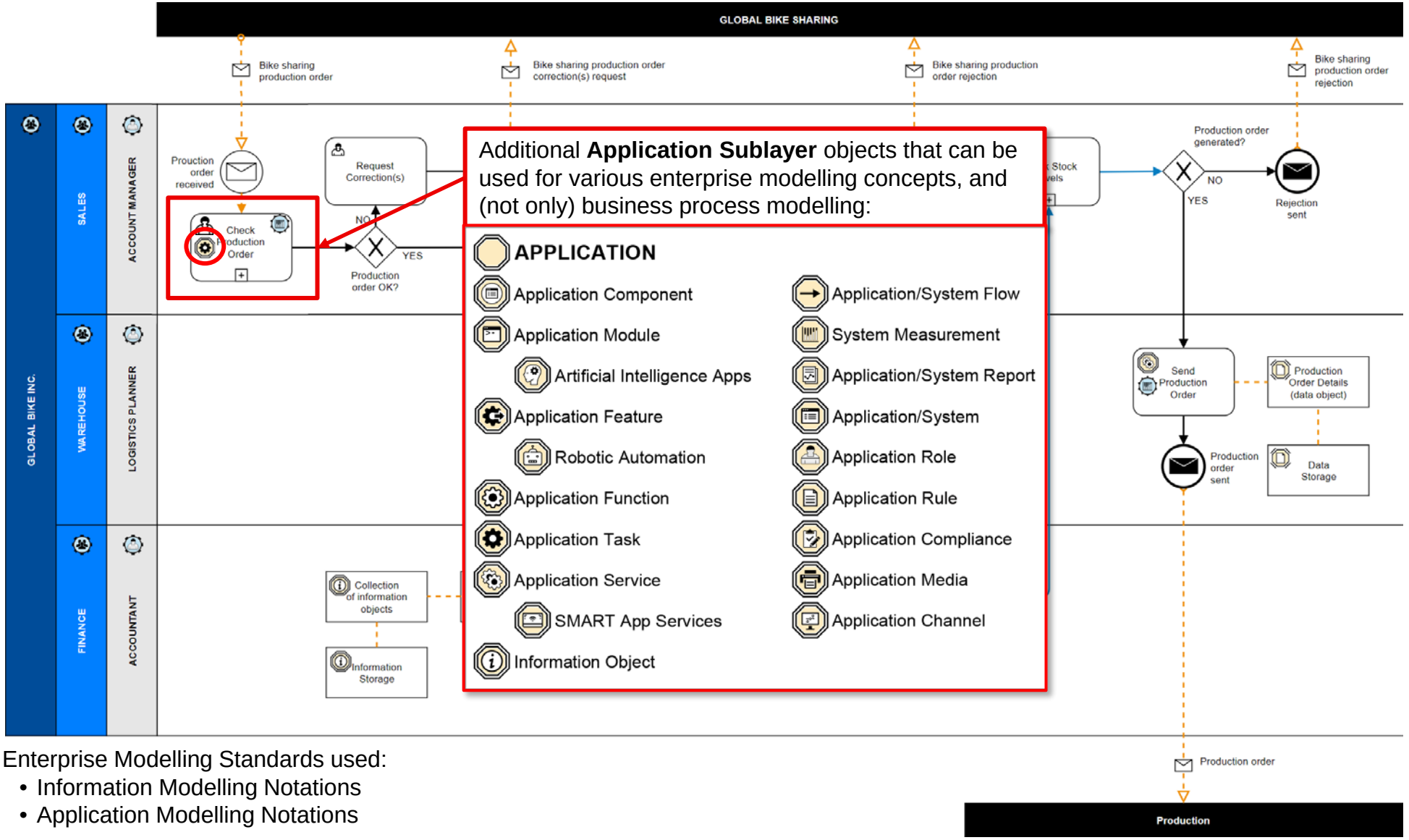
Tasks (process activities), SAP Automated Tasks and Measure



Enterprise Modelling Standards used:

- Business Process Modelling Notations (BPMN)
- Information Modelling Notations

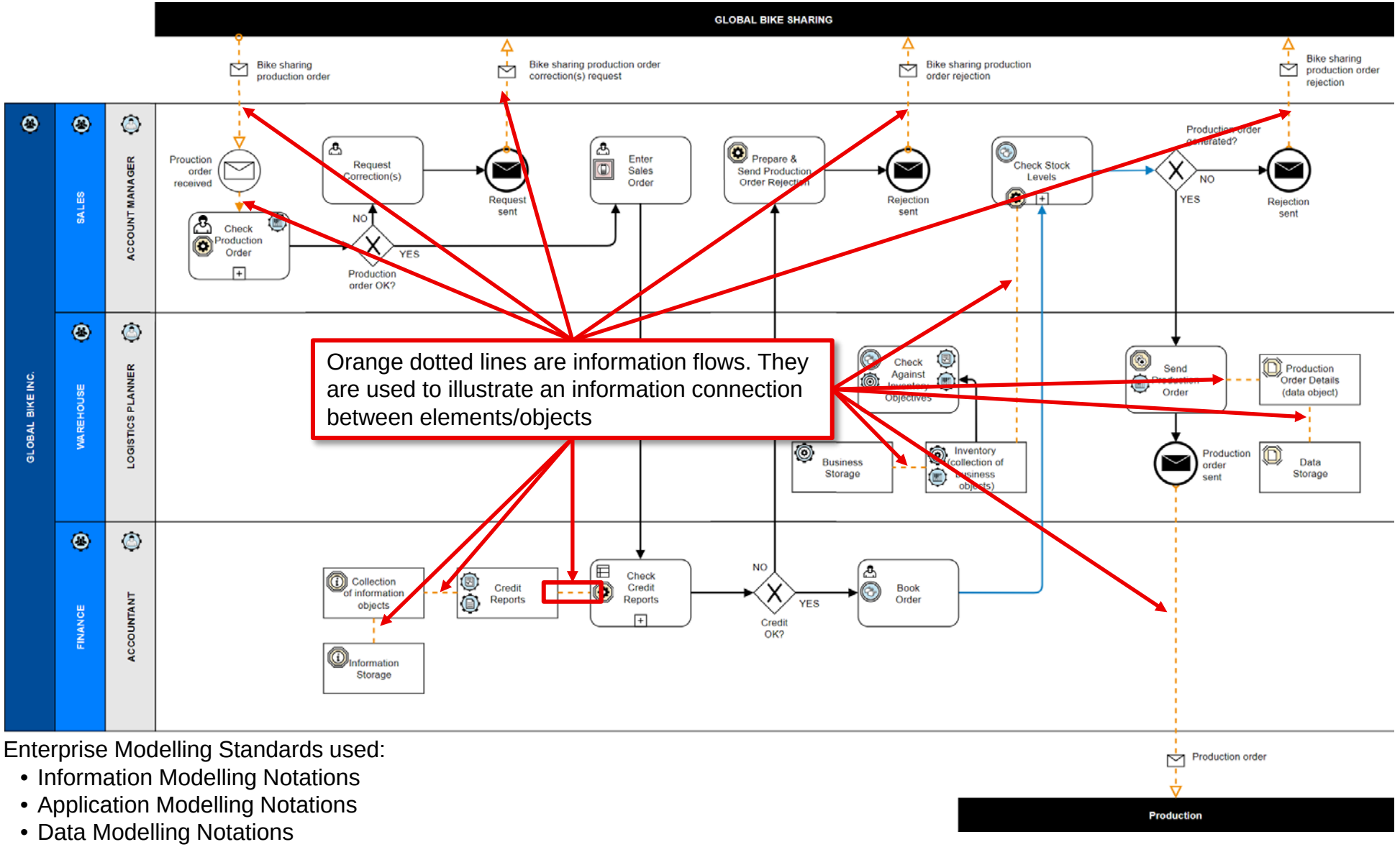
Additional Application Sublayer objects that can be used



Enterprise Modelling Standards used:

- Information Modelling Notations
- Application Modelling Notations

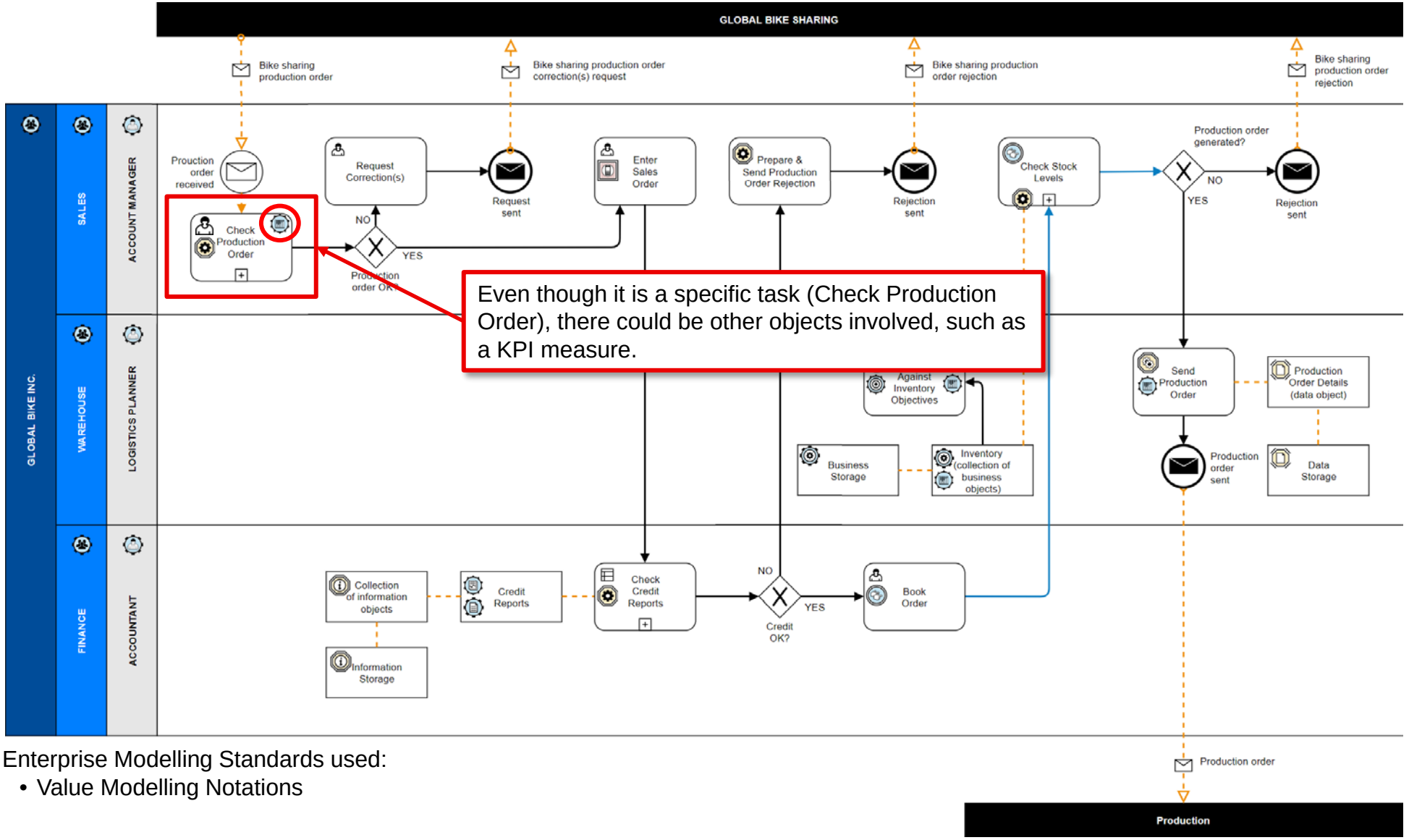
As a part of both Information Modelling as well as Application and Data Modelling: Information Flows are used



Enterprise Modelling Standards used:

- Information Modelling Notations
- Application Modelling Notations
- Data Modelling Notations

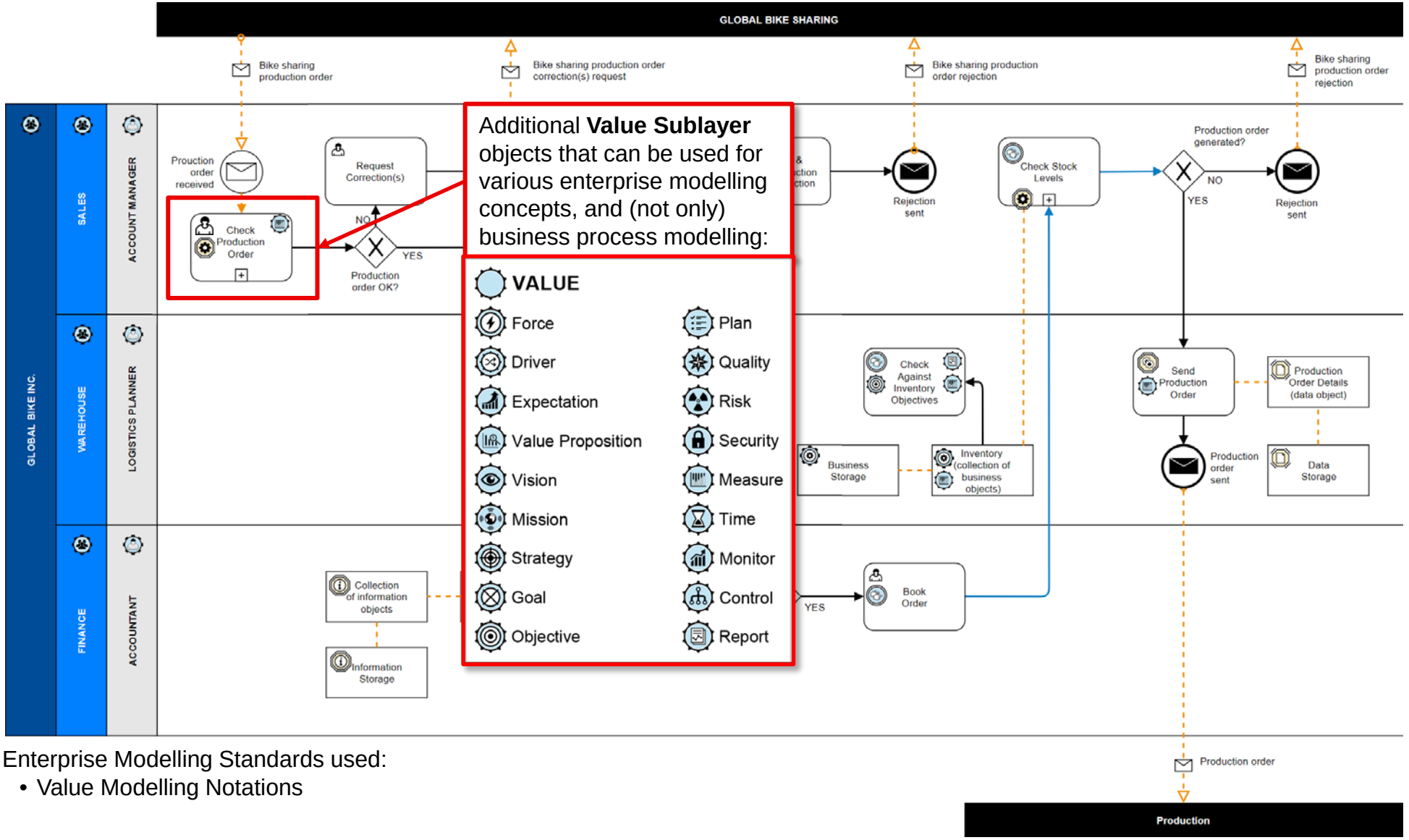
Tasks (process activities): Measure



Enterprise Modelling Standards used:

- Value Modelling Notations

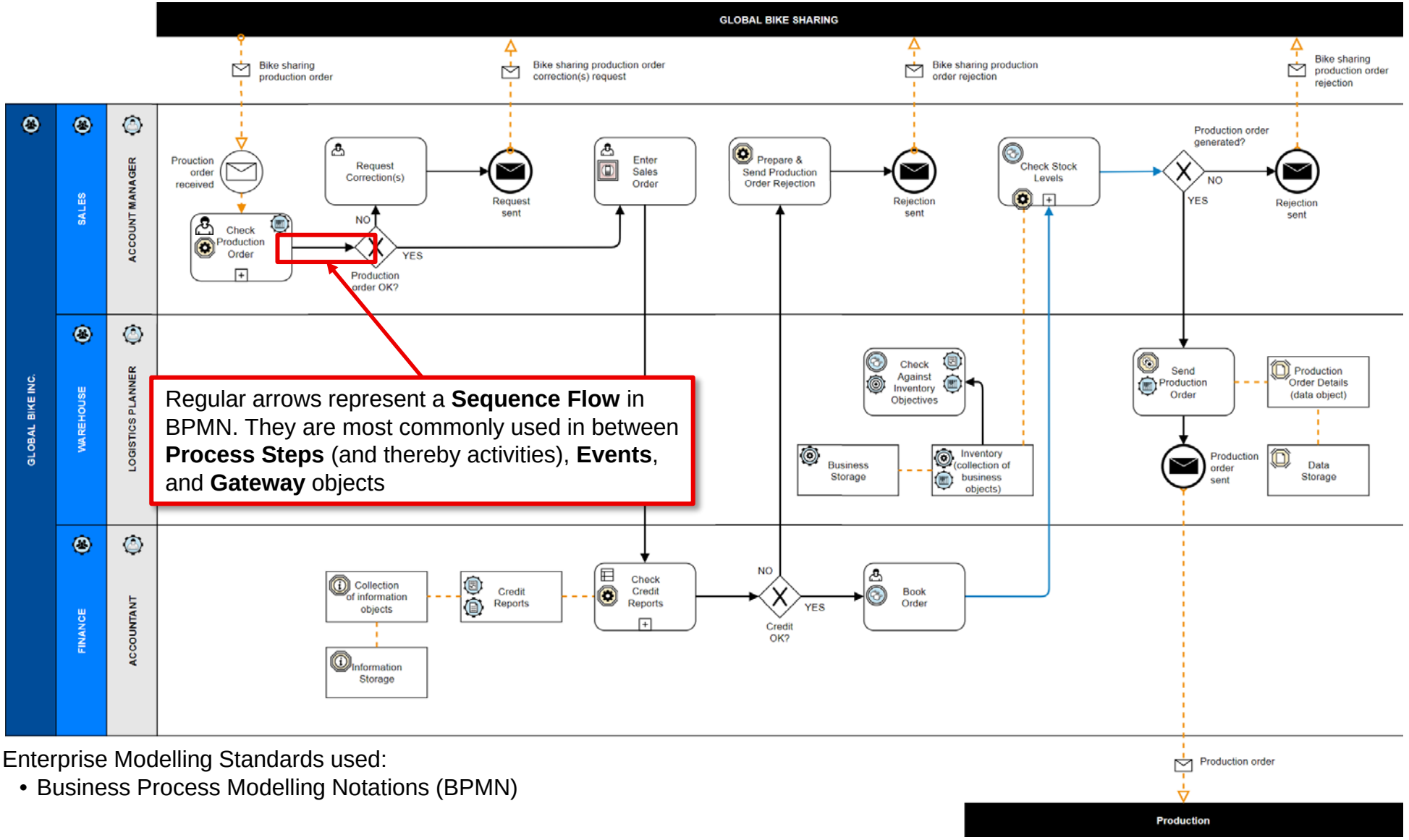
Additional Value Sublayer objects that can be used



Enterprise Modelling Standards used:

- Value Modelling Notations

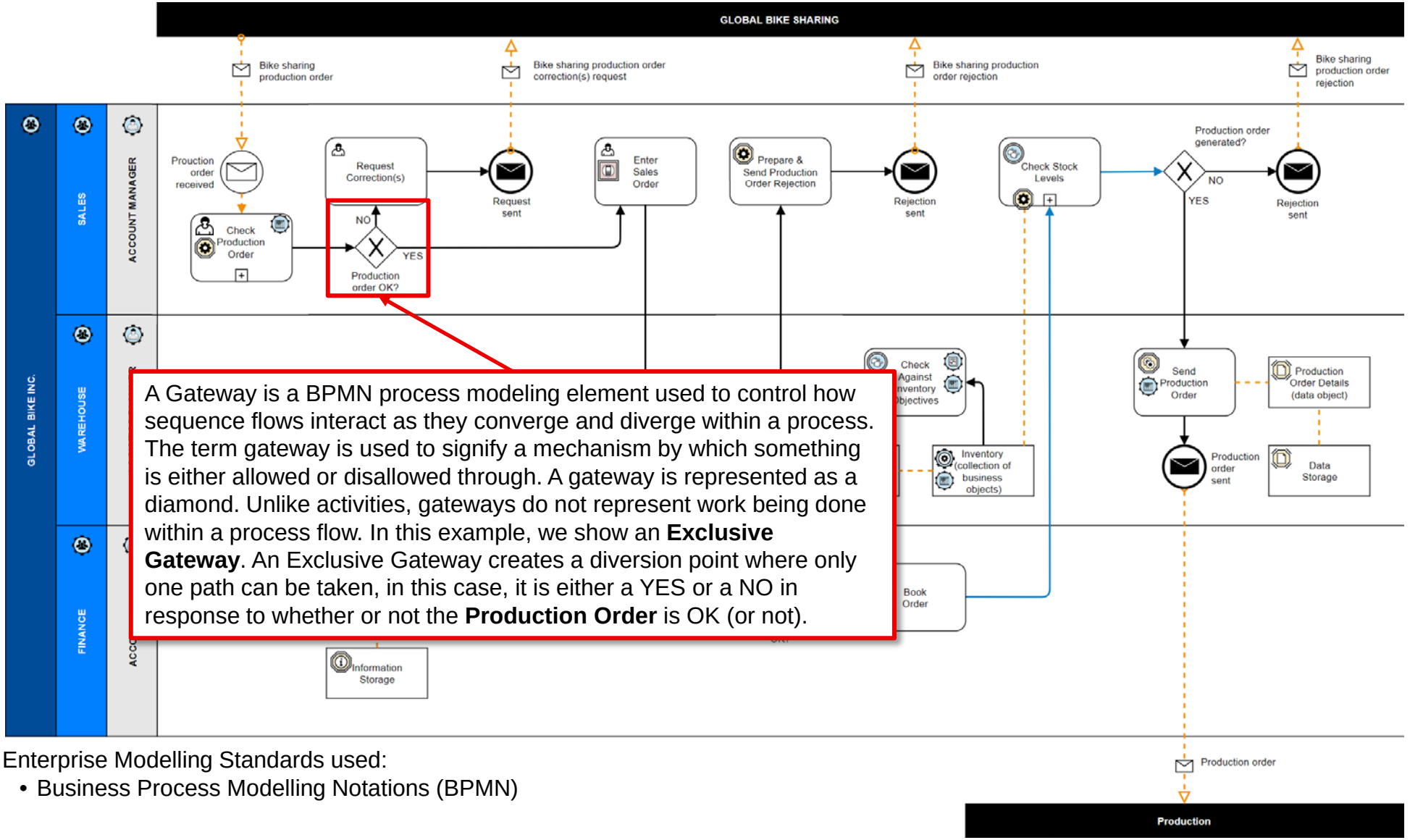
Sequence Flows



Enterprise Modelling Standards used:

- Business Process Modelling Notations (BPMN)

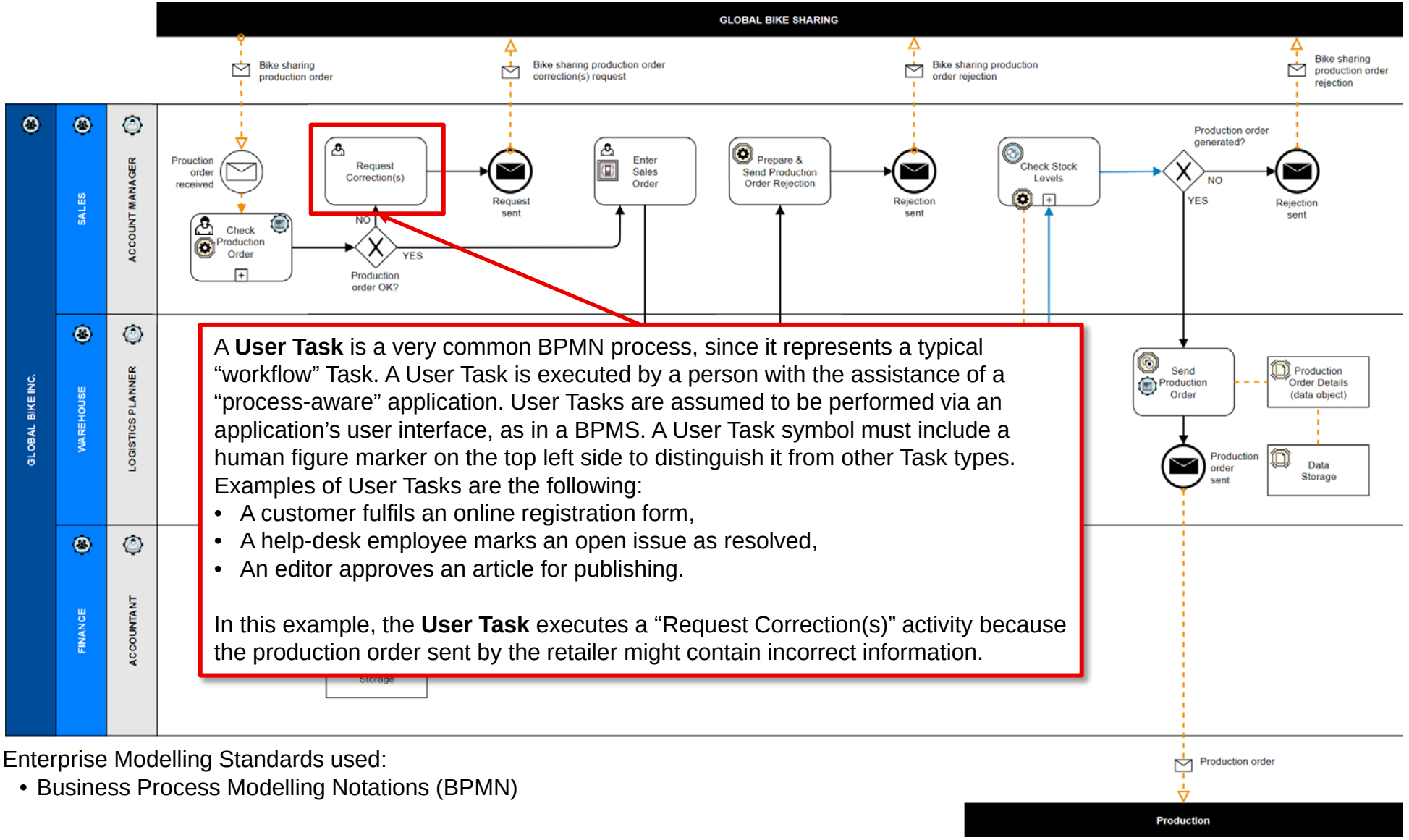
Gateways



Enterprise Modelling Standards used:

- Business Process Modelling Notations (BPMN)

Tasks (process activities)



A **User Task** is a very common BPMN process, since it represents a typical "workflow" Task. A User Task is executed by a person with the assistance of a "process-aware" application. User Tasks are assumed to be performed via an application's user interface, as in a BPMS. A User Task symbol must include a human figure marker on the top left side to distinguish it from other Task types. Examples of User Tasks are the following:

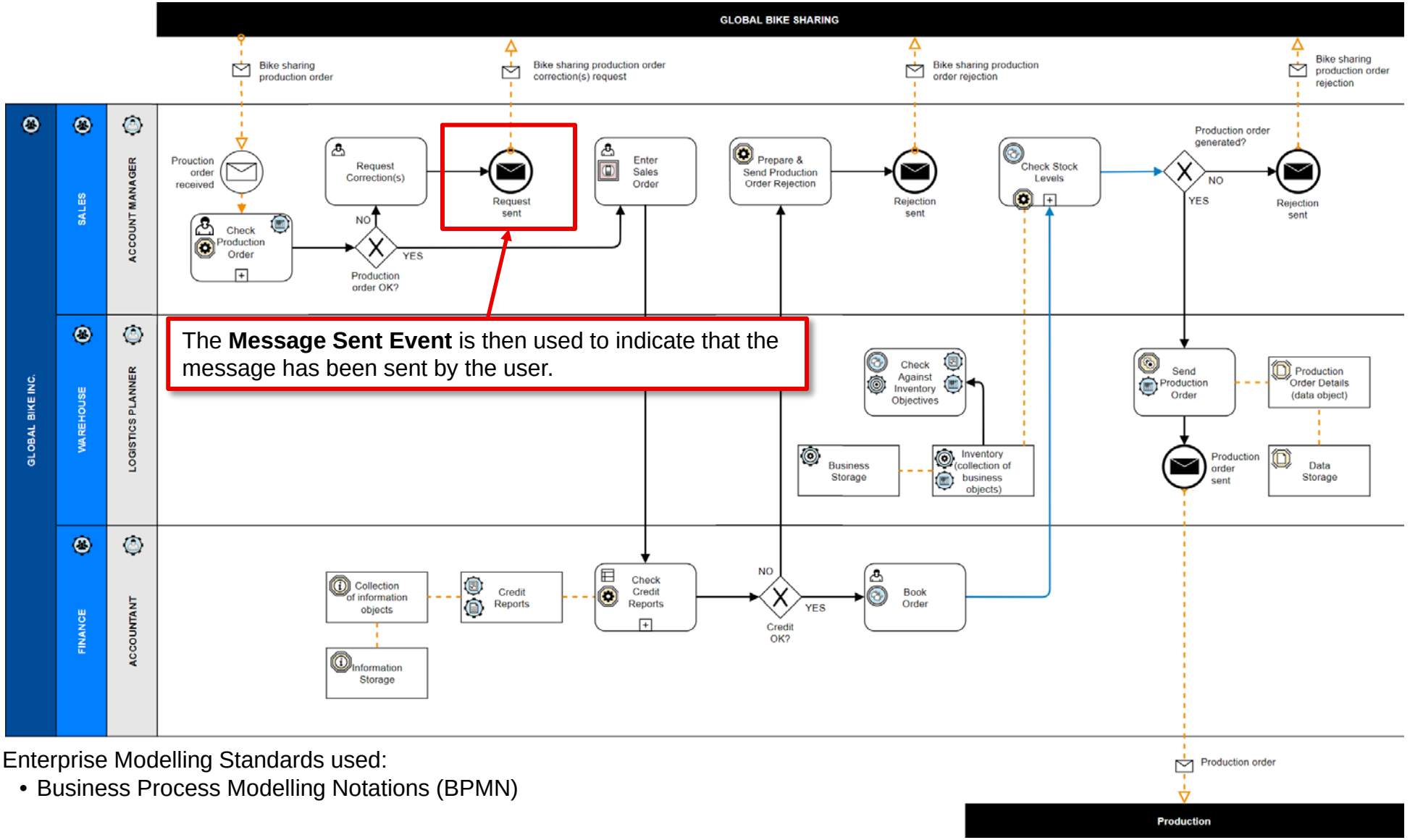
- A customer fulfils an online registration form,
- A help-desk employee marks an open issue as resolved,
- An editor approves an article for publishing.

In this example, the **User Task** executes a "Request Correction(s)" activity because the production order sent by the retailer might contain incorrect information.

Enterprise Modelling Standards used:

- Business Process Modelling Notations (BPMN)

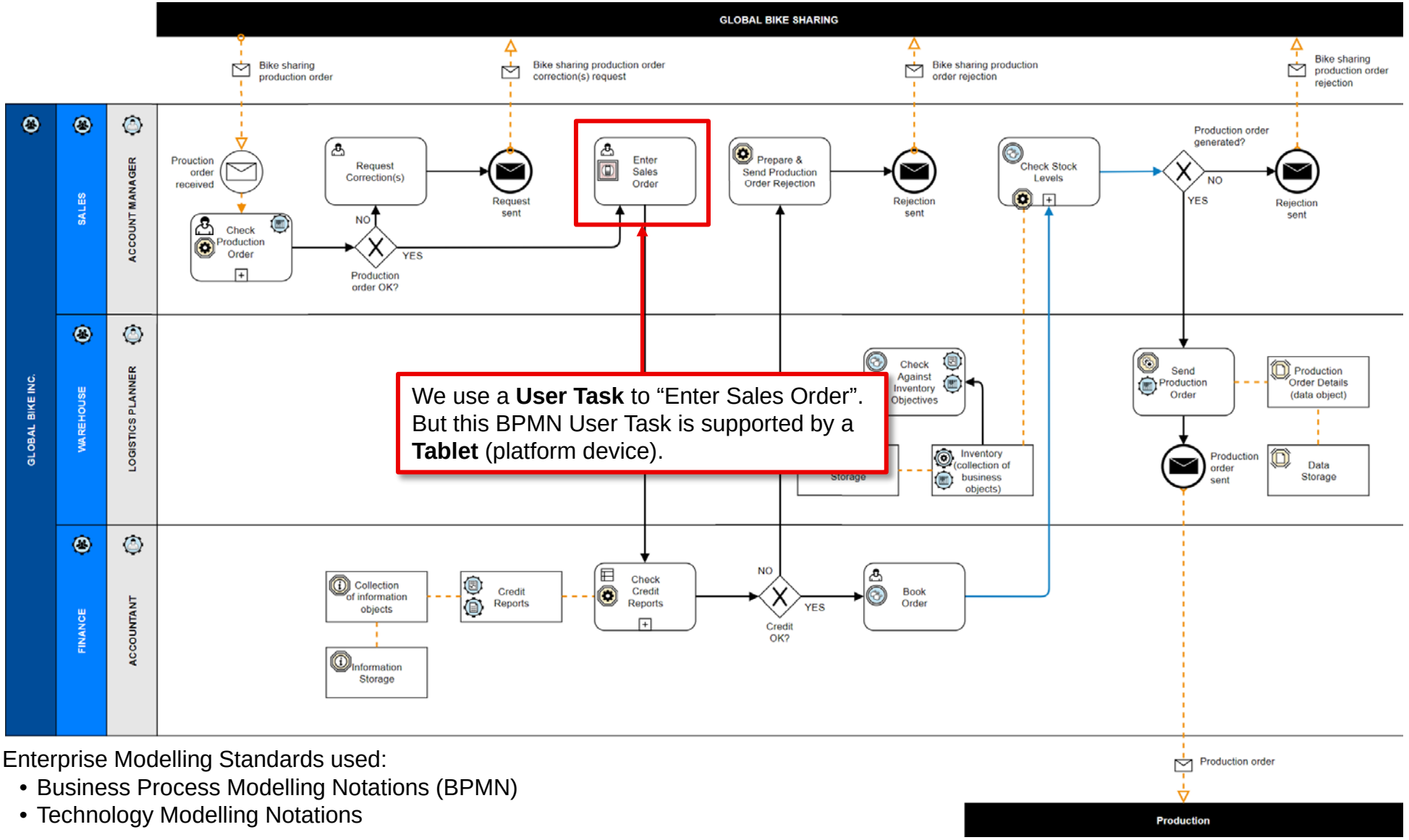
End Events (Message)



Enterprise Modelling Standards used:

- Business Process Modelling Notations (BPMN)

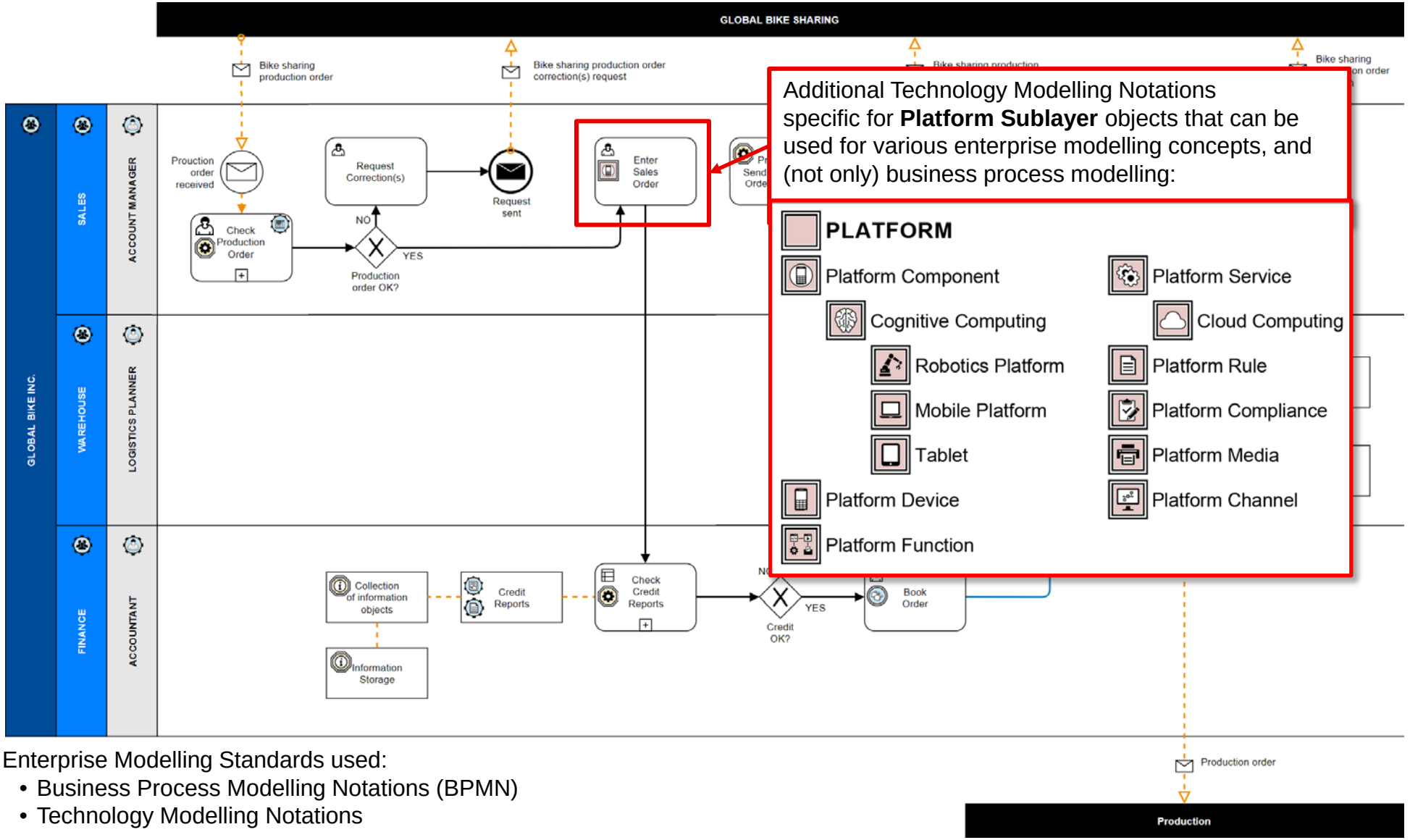
Tasks (process activities) and Platform Device



Enterprise Modelling Standards used:

- Business Process Modelling Notations (BPMN)
- Technology Modelling Notations

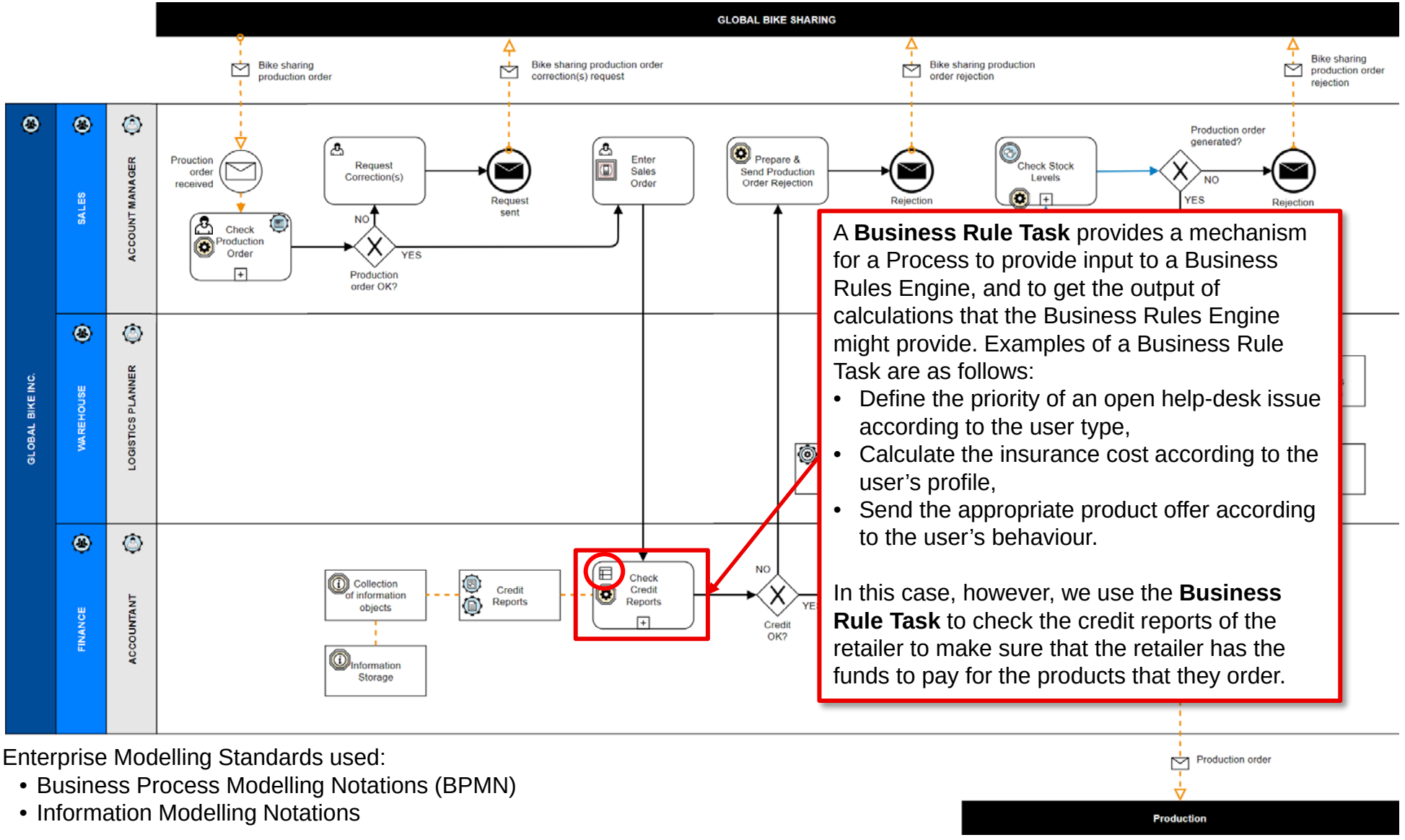
Additional Technology Modelling Notations – Platform objects that can be used



Enterprise Modelling Standards used:

- Business Process Modelling Notations (BPMN)
- Technology Modelling Notations

Tasks (process activities) and SAP Automated Tasks



A **Business Rule Task** provides a mechanism for a Process to provide input to a Business Rules Engine, and to get the output of calculations that the Business Rules Engine might provide. Examples of a Business Rule Task are as follows:

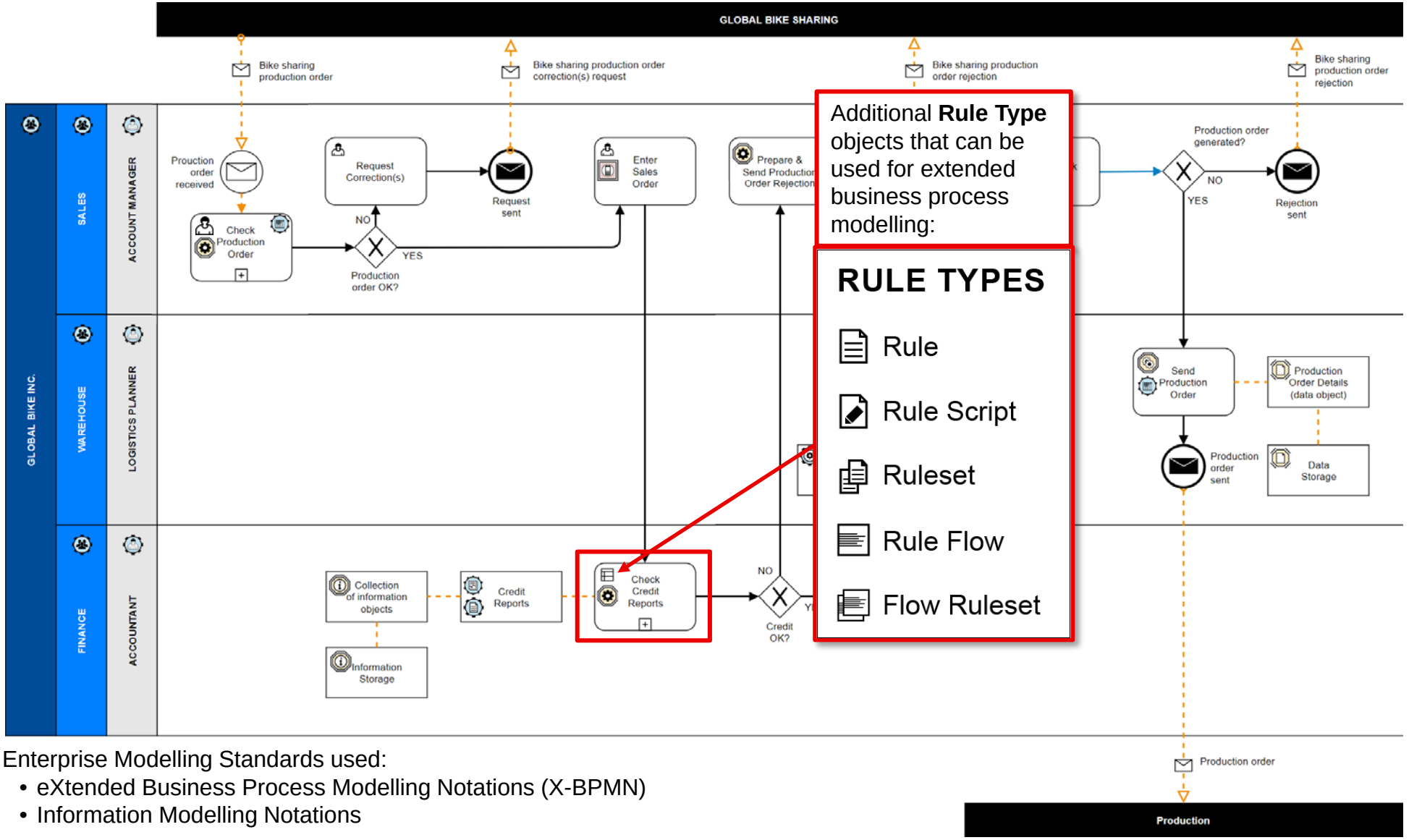
- Define the priority of an open help-desk issue according to the user type,
- Calculate the insurance cost according to the user's profile,
- Send the appropriate product offer according to the user's behaviour.

In this case, however, we use the **Business Rule Task** to check the credit reports of the retailer to make sure that the retailer has the funds to pay for the products that they order.

Enterprise Modelling Standards used:

- Business Process Modelling Notations (BPMN)
- Information Modelling Notations

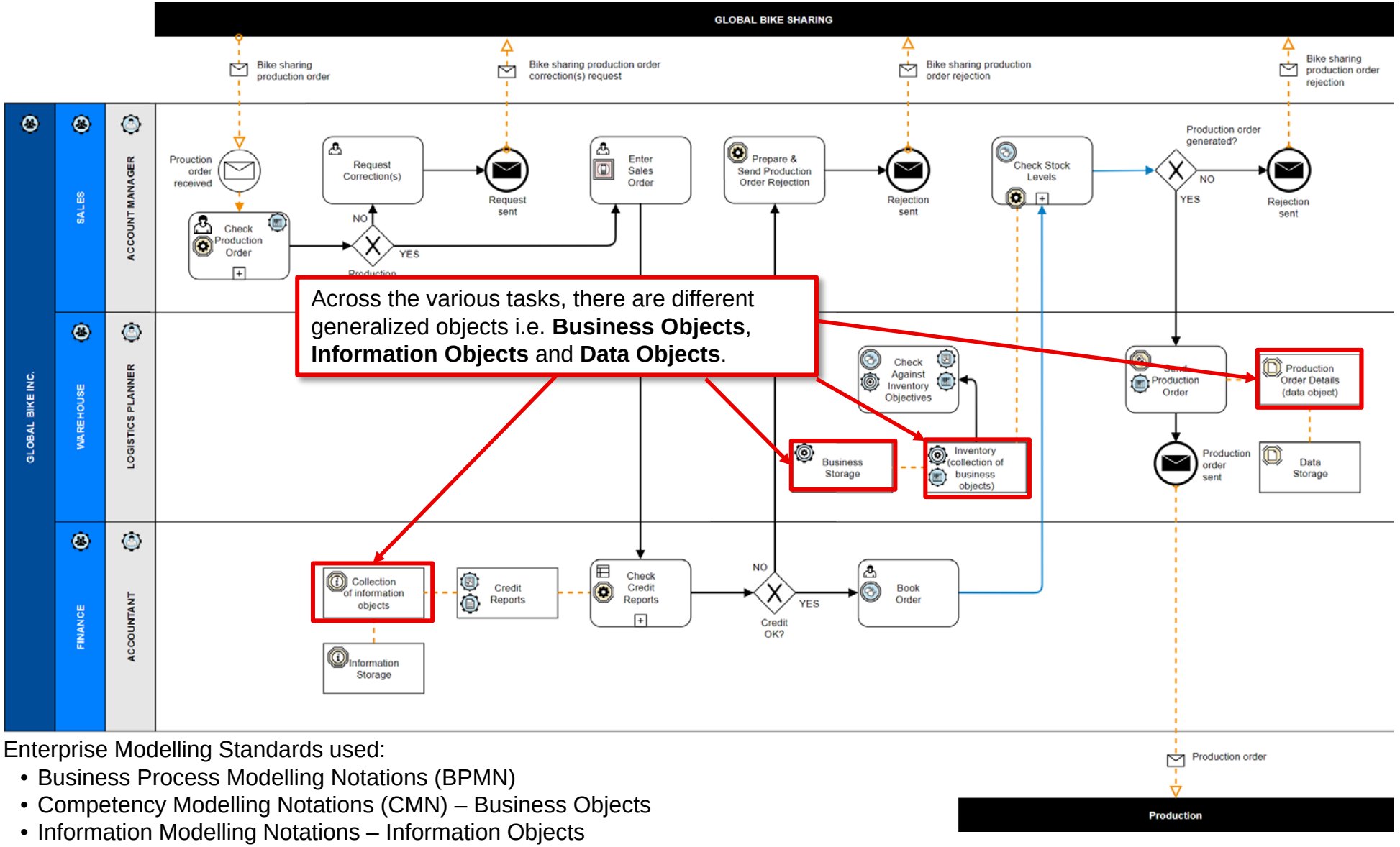
Additional Rule Type objects that could be applied



Enterprise Modelling Standards used:

- eXtended Business Process Modelling Notations (X-BPMN)
- Information Modelling Notations

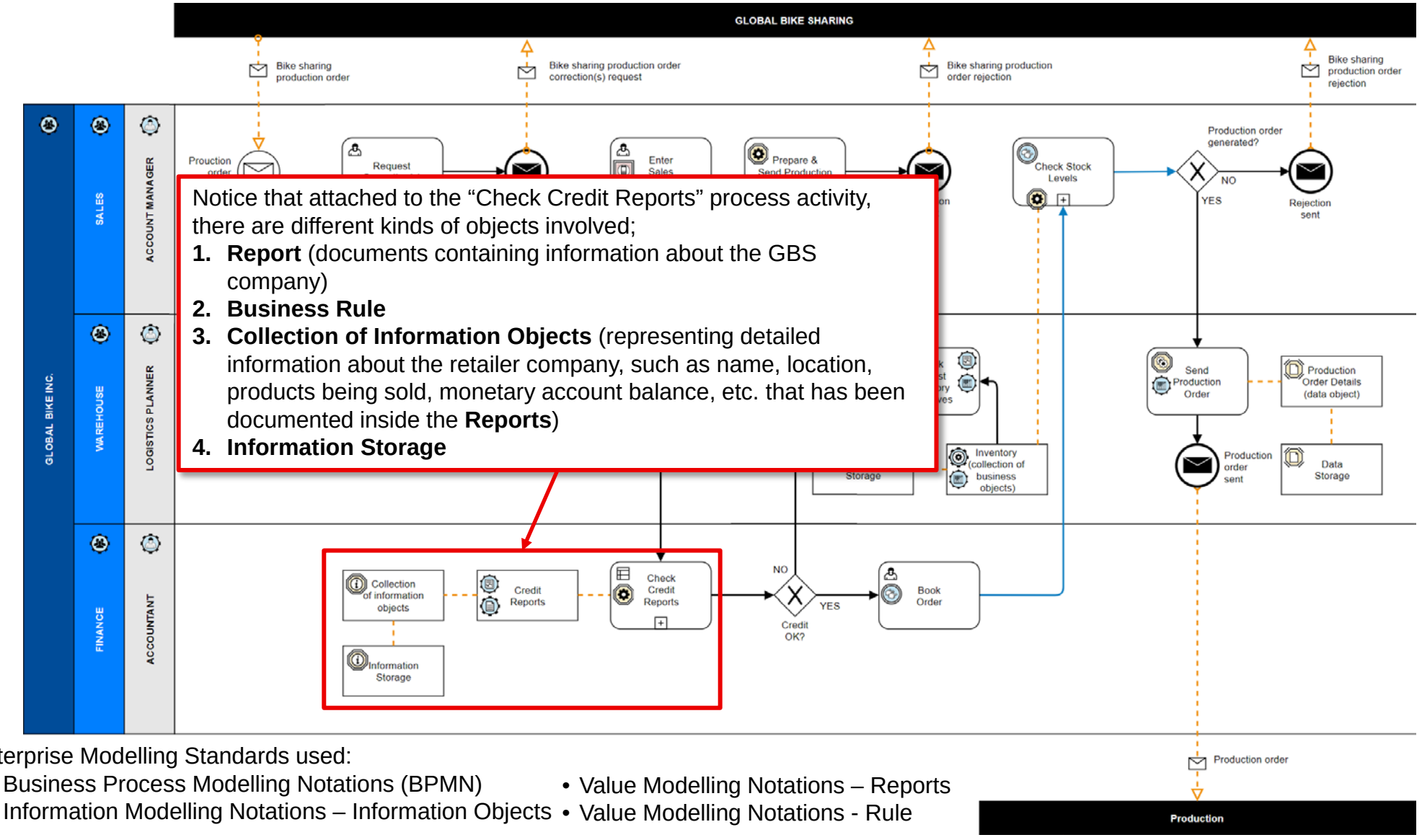
Information Flows



Enterprise Modelling Standards used:

- Business Process Modelling Notations (BPMN)
- Competency Modelling Notations (CMN) – Business Objects
- Information Modelling Notations – Information Objects
- Data Modelling Notations – Data Objects

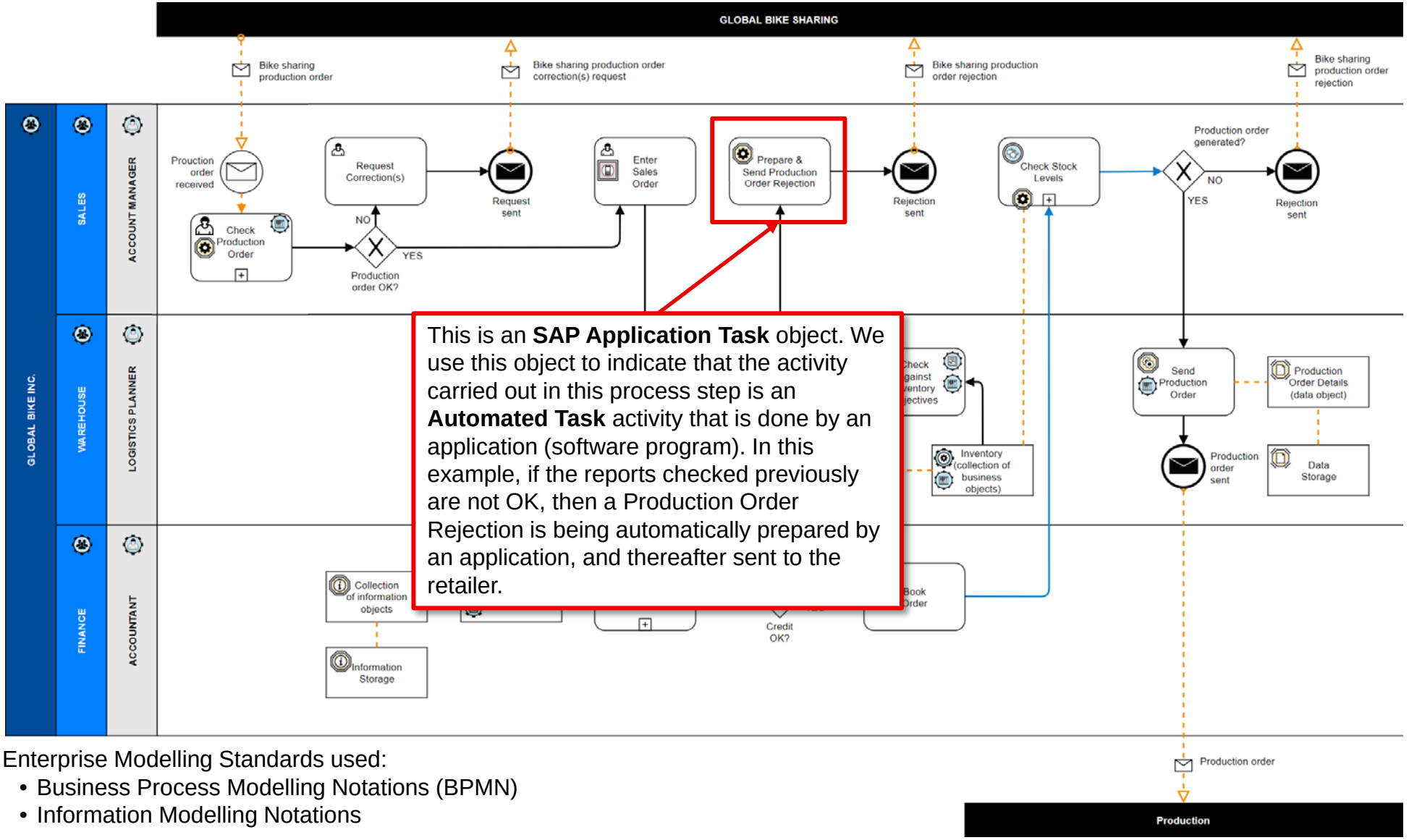
Associated sources of information (Information Object, Information Storage, Collection of Information Objects, Report and Measure)



Enterprise Modelling Standards used:

- Business Process Modelling Notations (BPMN)
- Information Modelling Notations – Information Objects
- Value Modelling Notations – Reports
- Value Modelling Notations - Rule

SAP Automated Tasks

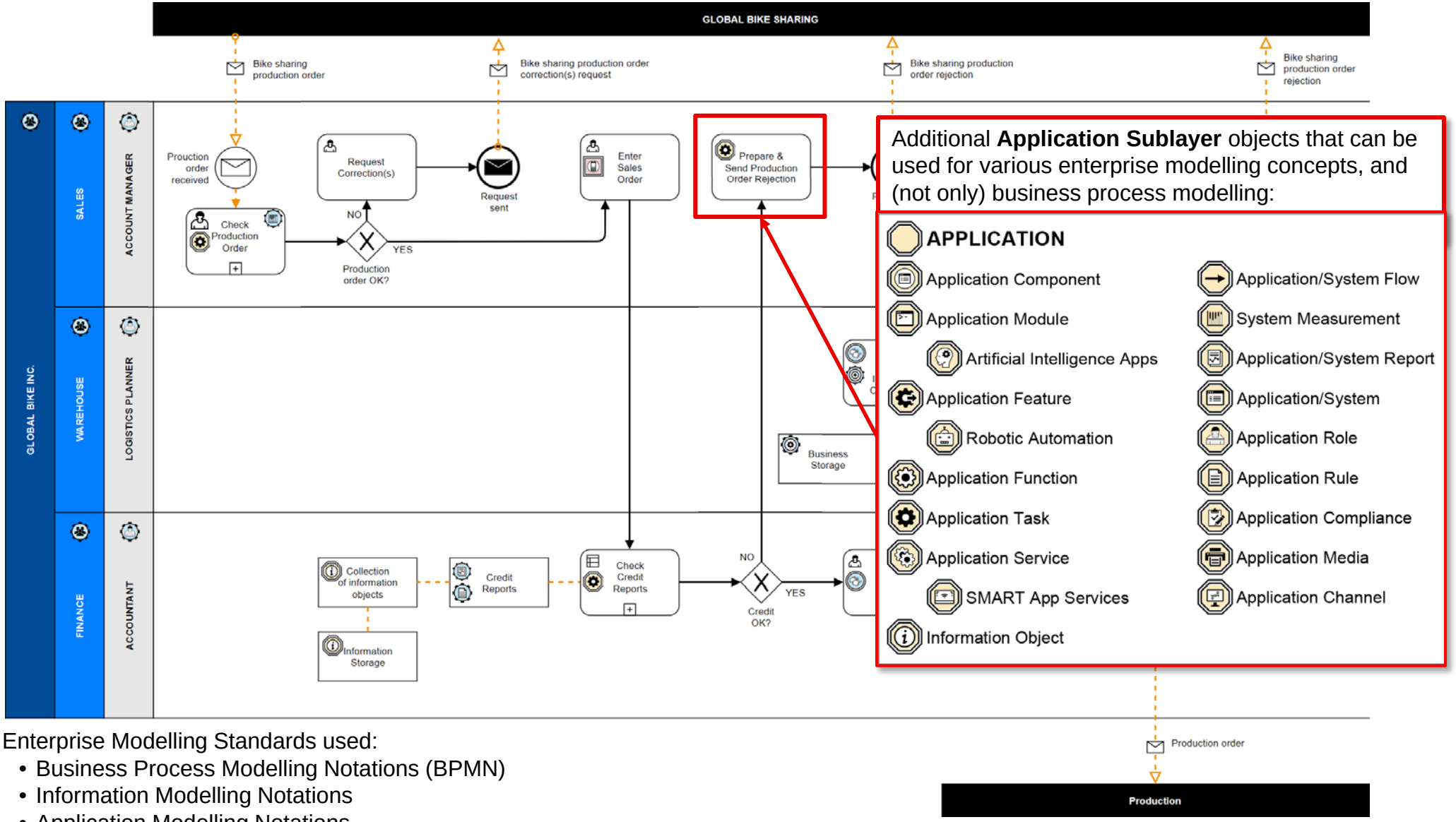


This is an **SAP Application Task** object. We use this object to indicate that the activity carried out in this process step is an **Automated Task** activity that is done by an application (software program). In this example, if the reports checked previously are not OK, then a Production Order Rejection is being automatically prepared by an application, and thereafter sent to the retailer.

Enterprise Modelling Standards used:

- Business Process Modelling Notations (BPMN)
- Information Modelling Notations

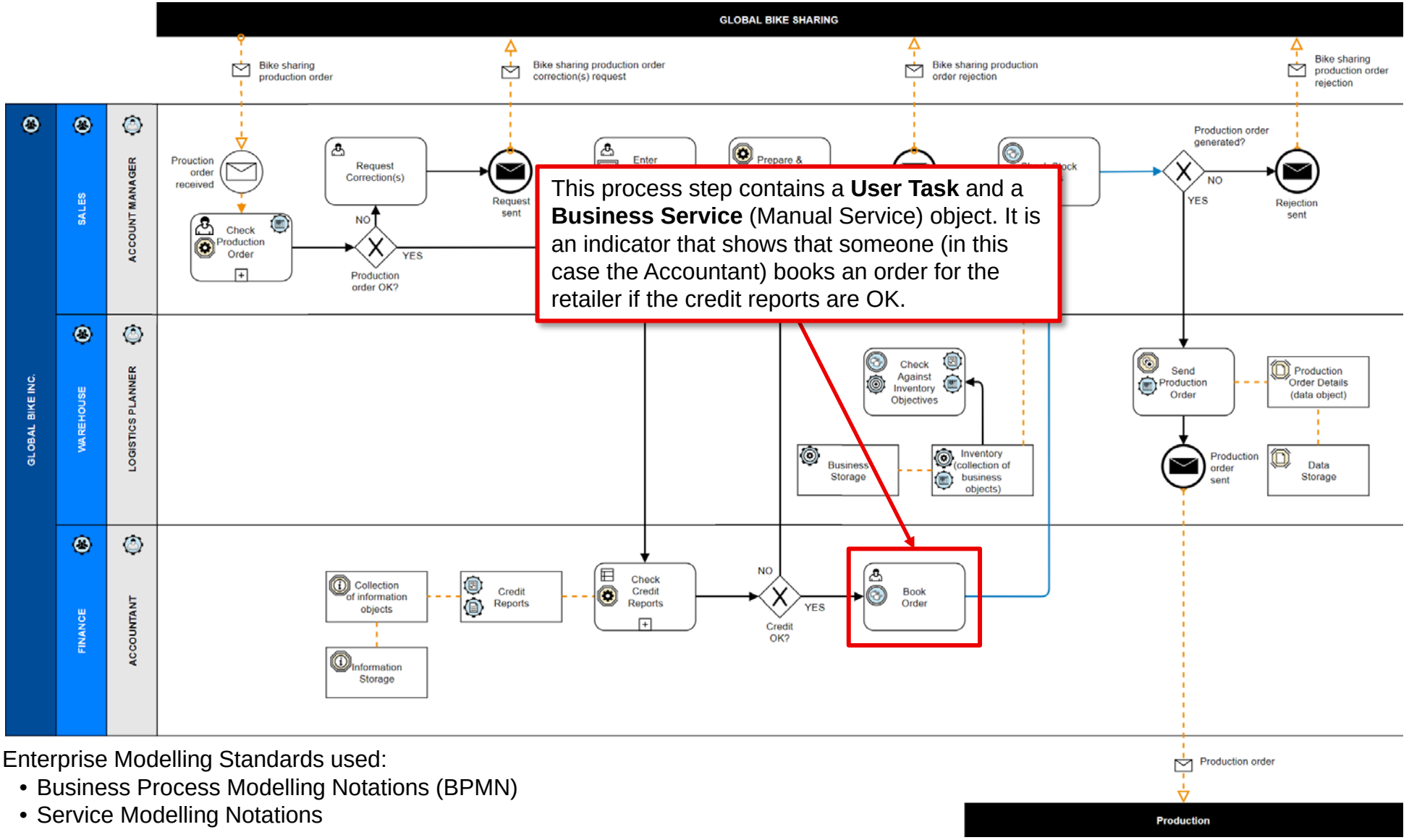
Additional Application Sublayer objects that can be used



Enterprise Modelling Standards used:

- Business Process Modelling Notations (BPMN)
- Information Modelling Notations
- Application Modelling Notations

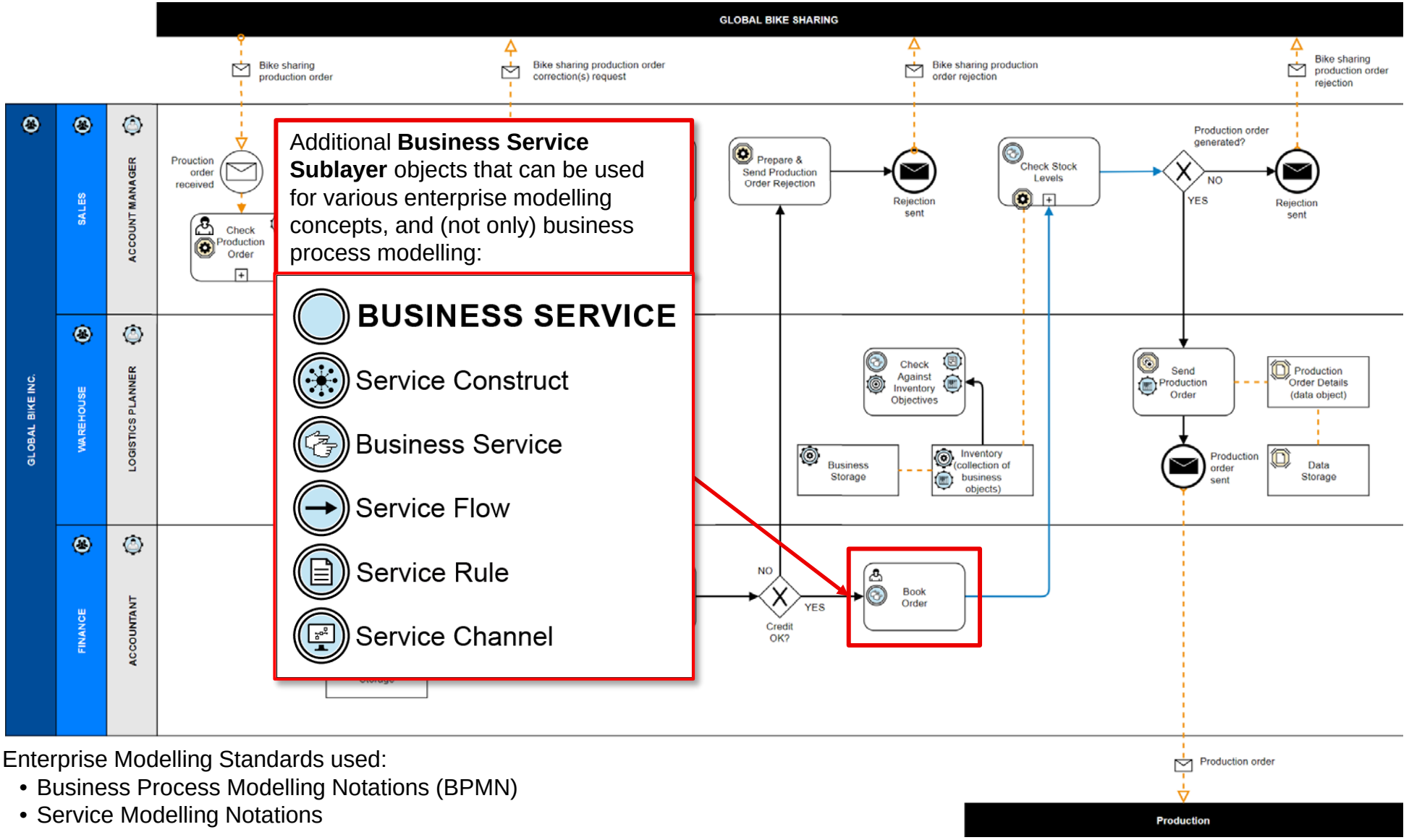
User Task and Business Service (Manual Service)



Enterprise Modelling Standards used:

- Business Process Modelling Notations (BPMN)
- Service Modelling Notations

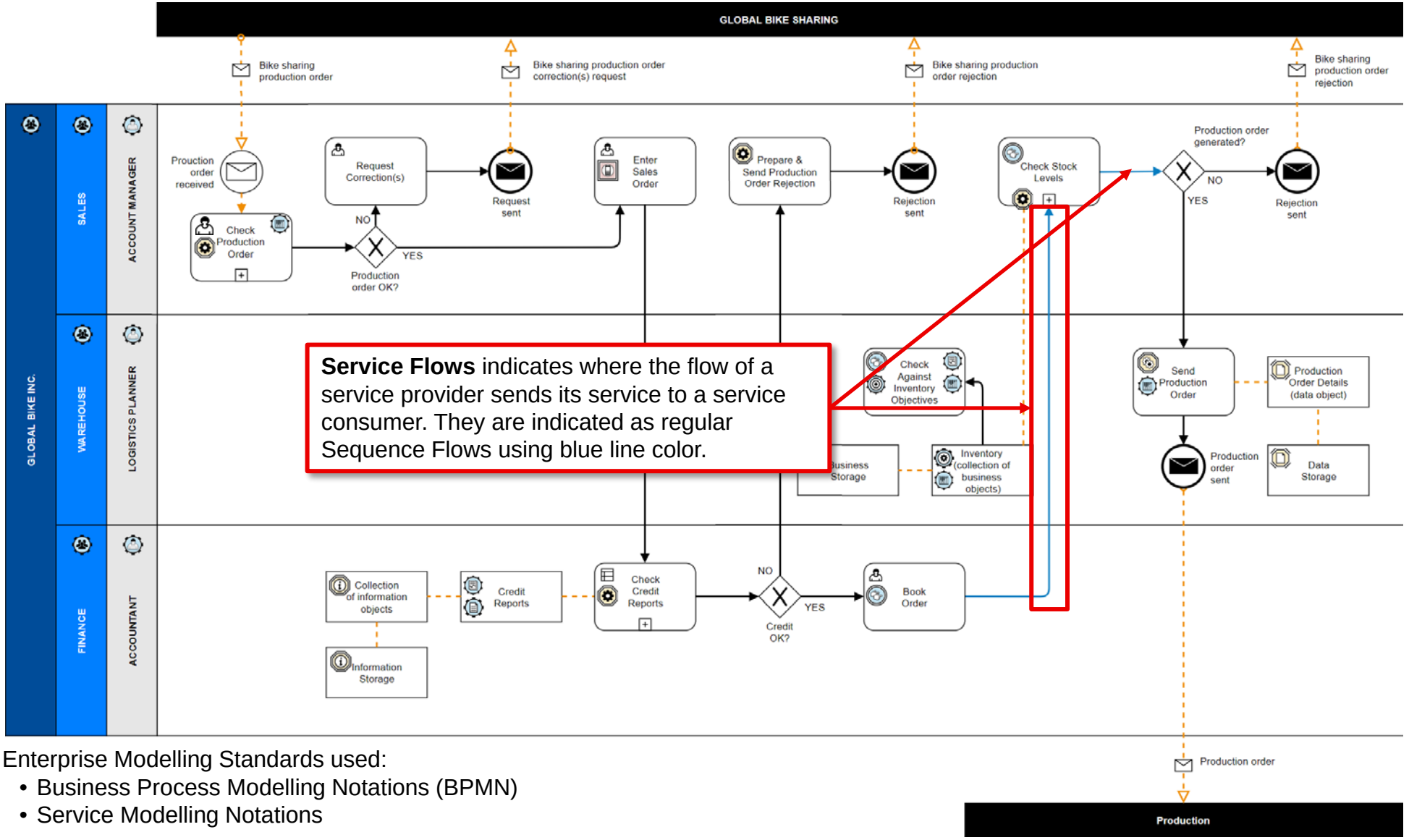
Additional Service Modelling Notation objects that can be used



Enterprise Modelling Standards used:

- Business Process Modelling Notations (BPMN)
- Service Modelling Notations

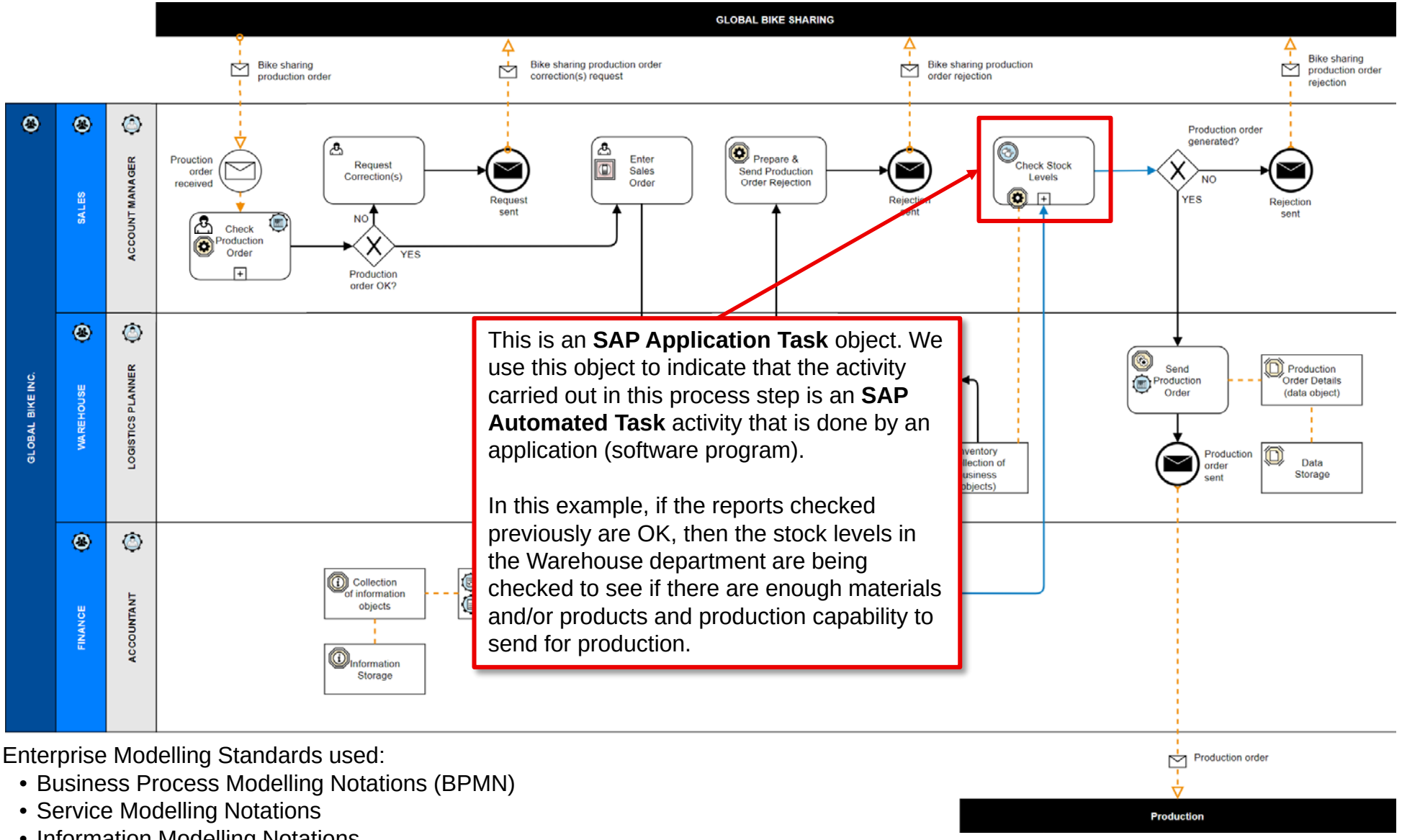
Service Modelling Notations: Service Flows



Enterprise Modelling Standards used:

- Business Process Modelling Notations (BPMN)
- Service Modelling Notations

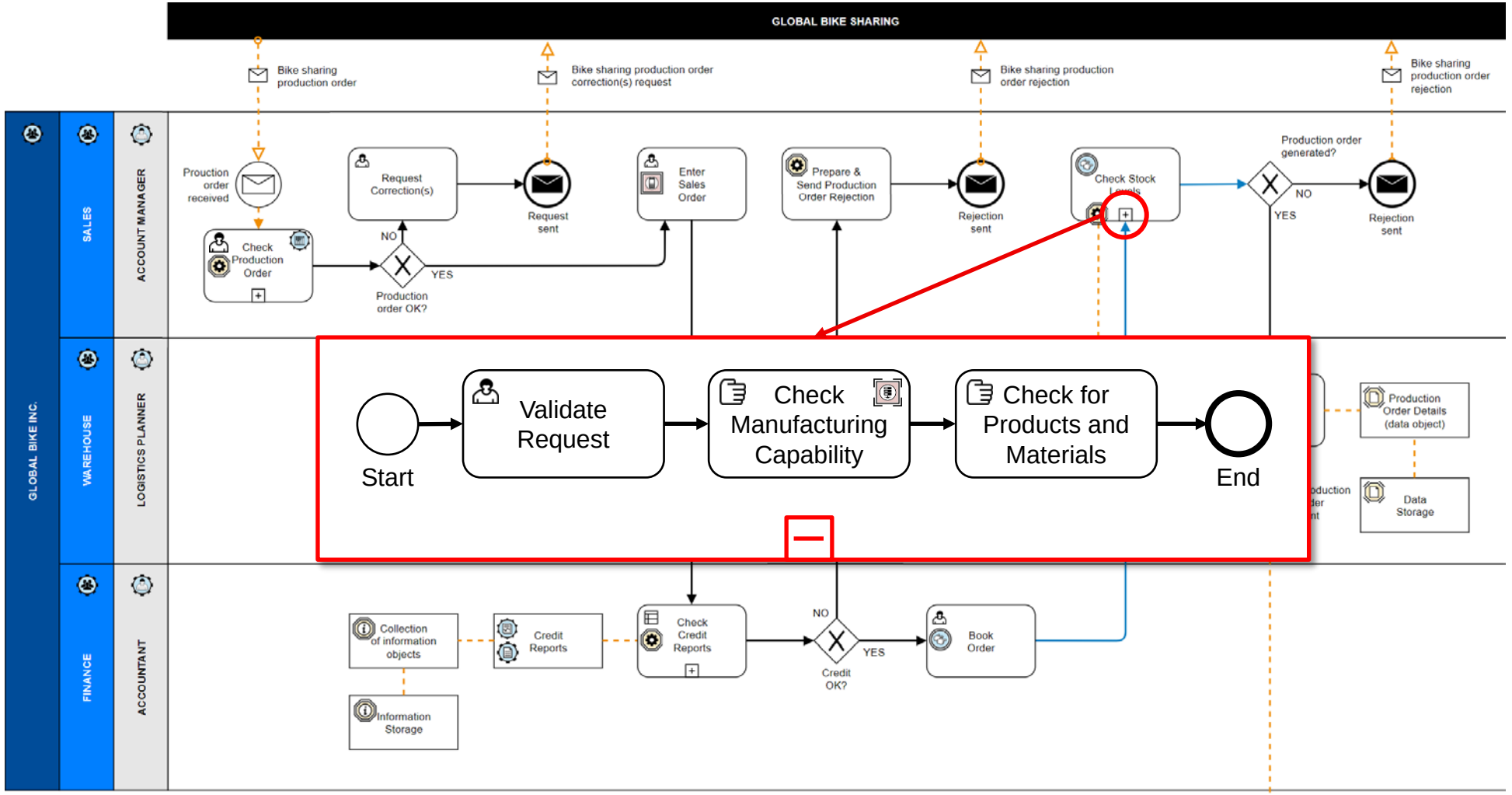
Business Services (Manual Service) and SAP Automated Task



Enterprise Modelling Standards used:

- Business Process Modelling Notations (BPMN)
- Service Modelling Notations
- Information Modelling Notations

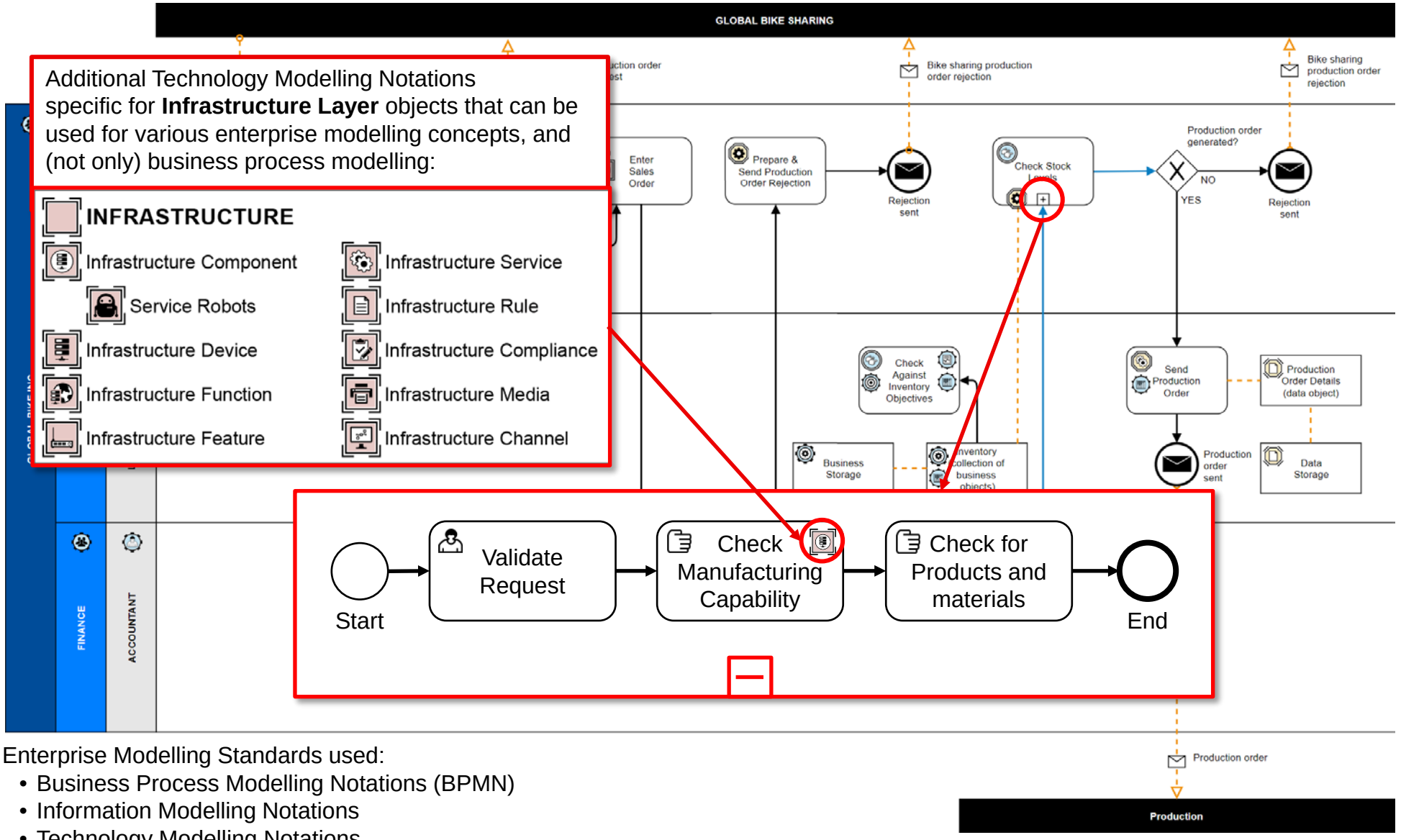
Example breakdown of the “Check Stock Levels” Subprocess: Additional Technology Modelling Notations – Infrastructure objects that can be used



Enterprise Modelling Standards used:

- Business Process Modelling Notations (BPMN)
- Information Modelling Notations
- Technology Modelling Notations

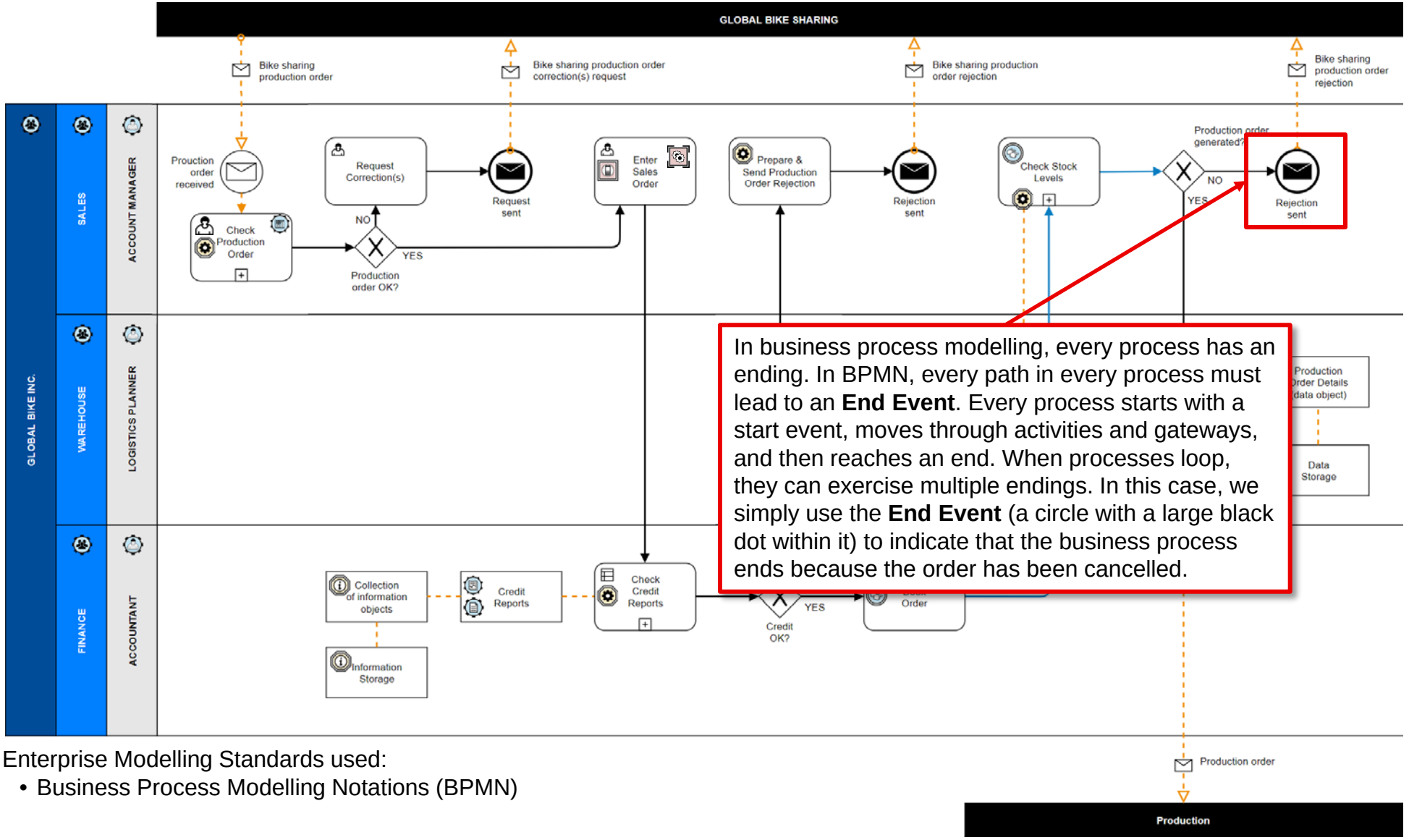
Check Manufacturing Capability (Infrastructure Component)



Enterprise Modelling Standards used:

- Business Process Modelling Notations (BPMN)
- Information Modelling Notations
- Technology Modelling Notations

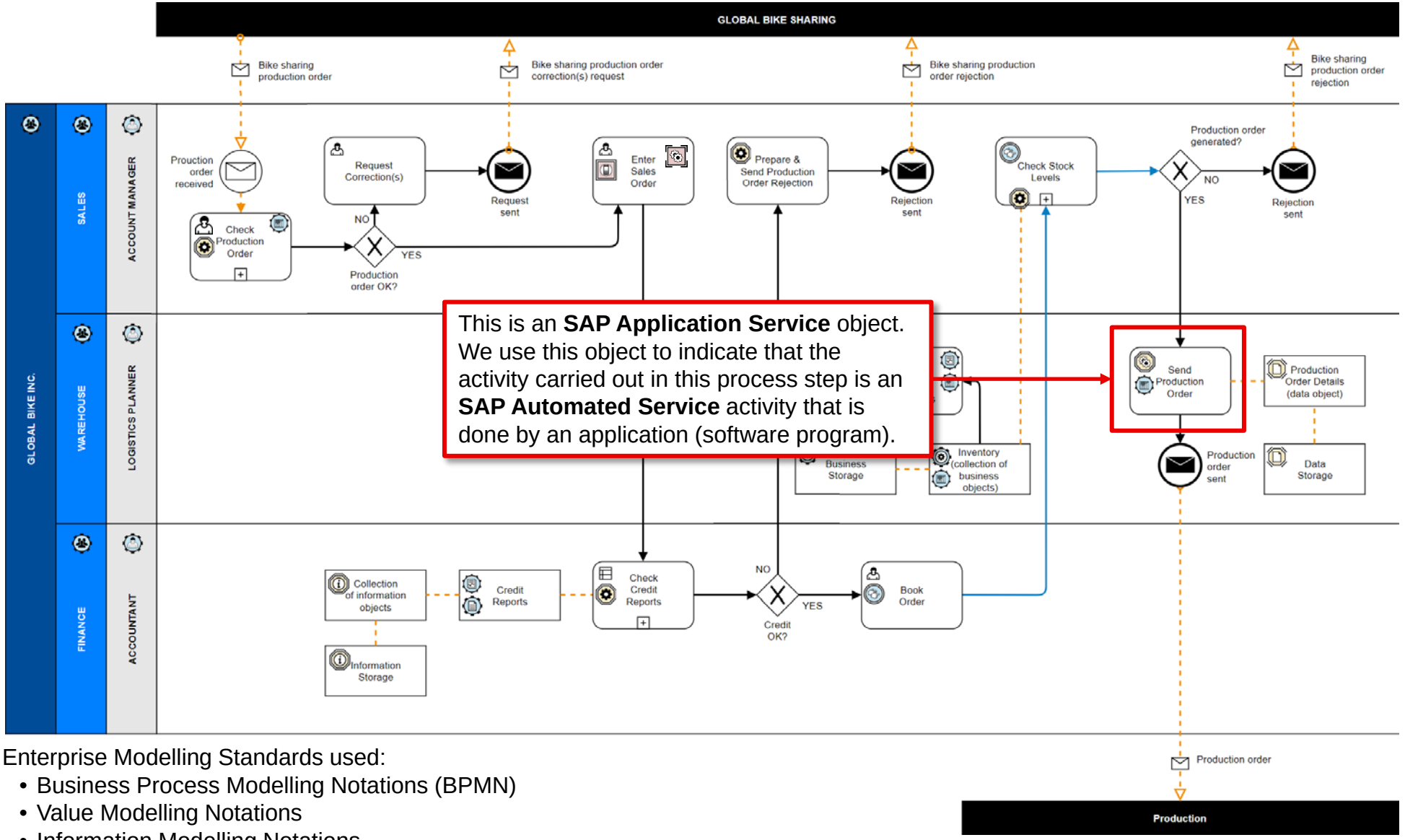
End Events (Message)



Enterprise Modelling Standards used:

- Business Process Modelling Notations (BPMN)

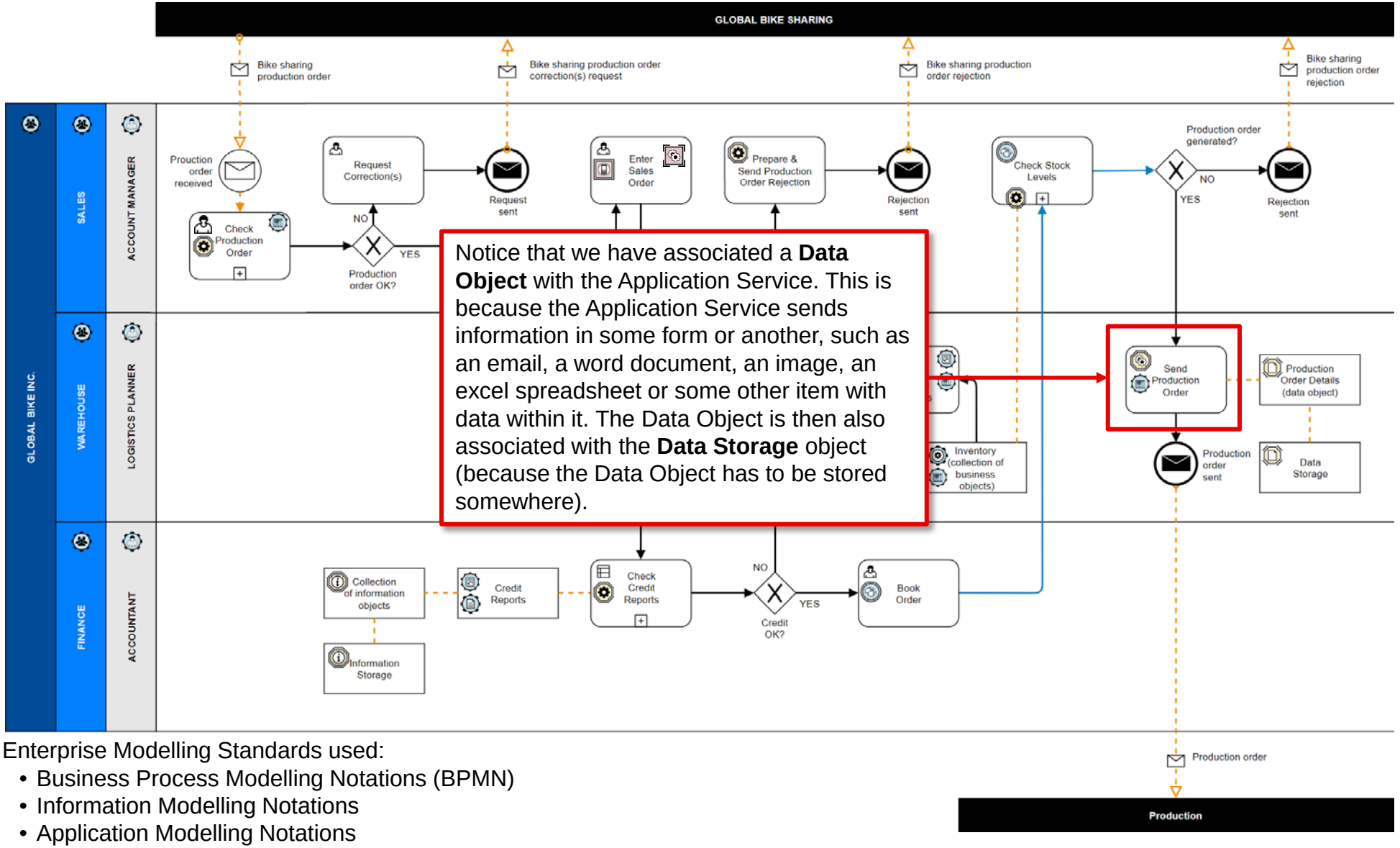
Example of SAP Application Service and Measure



Enterprise Modelling Standards used:

- Business Process Modelling Notations (BPMN)
- Value Modelling Notations
- Information Modelling Notations

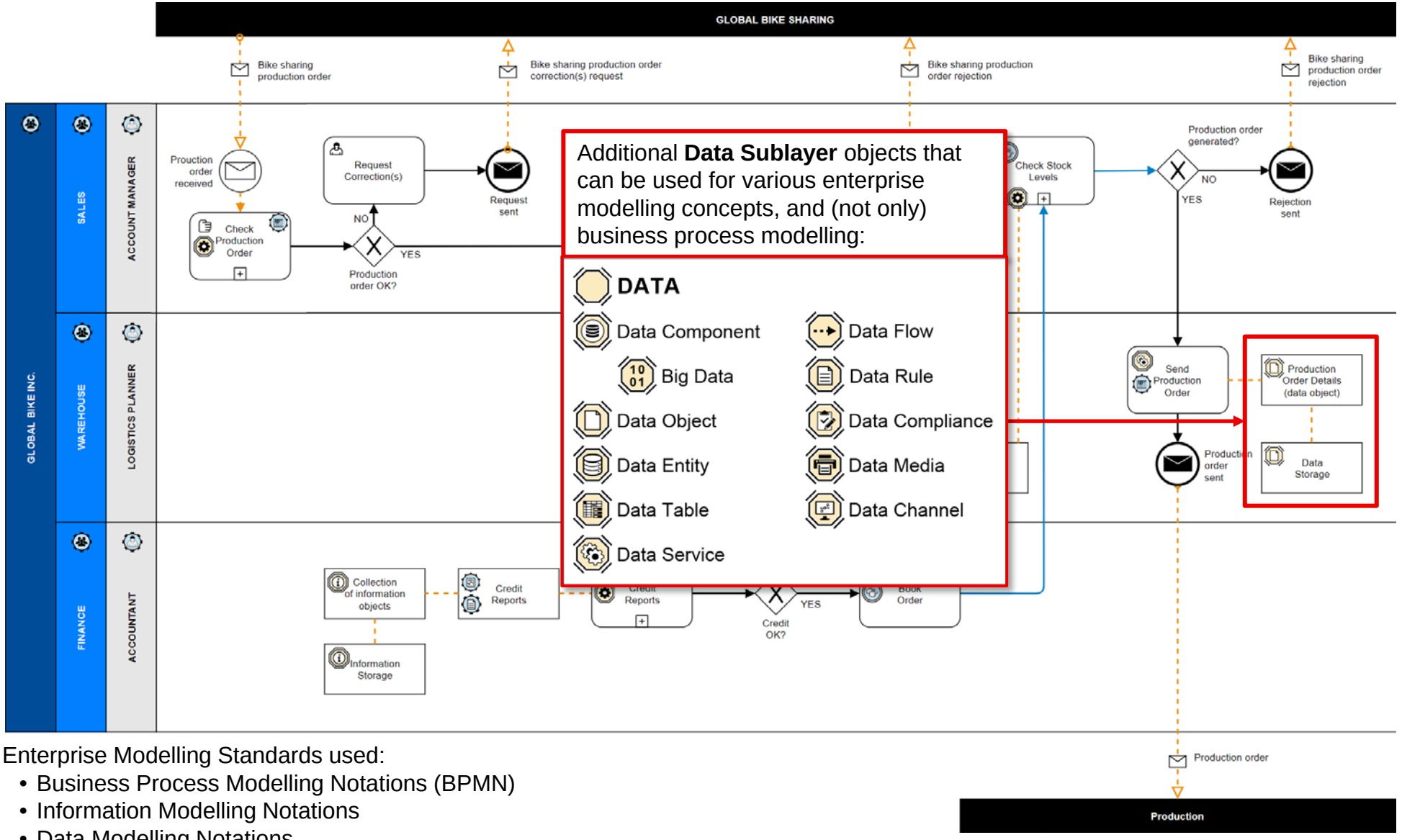
Application Service, Data Object and Data Storage



Enterprise Modelling Standards used:

- Business Process Modelling Notations (BPMN)
- Information Modelling Notations
- Application Modelling Notations
- Data Modelling Notations

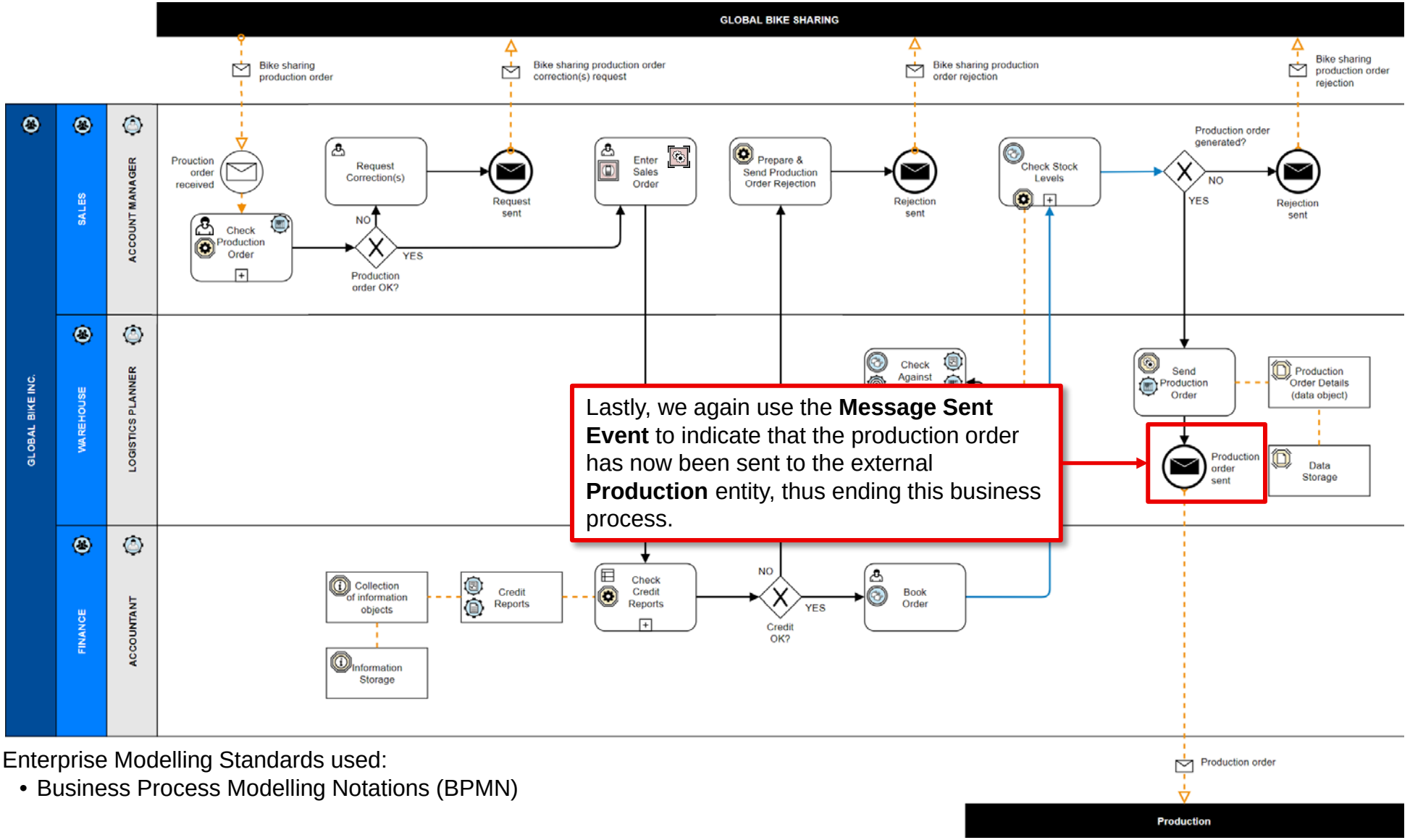
Additional Data Modelling Notation objects that can be used



Enterprise Modelling Standards used:

- Business Process Modelling Notations (BPMN)
- Information Modelling Notations
- Data Modelling Notations

End Events (Message)



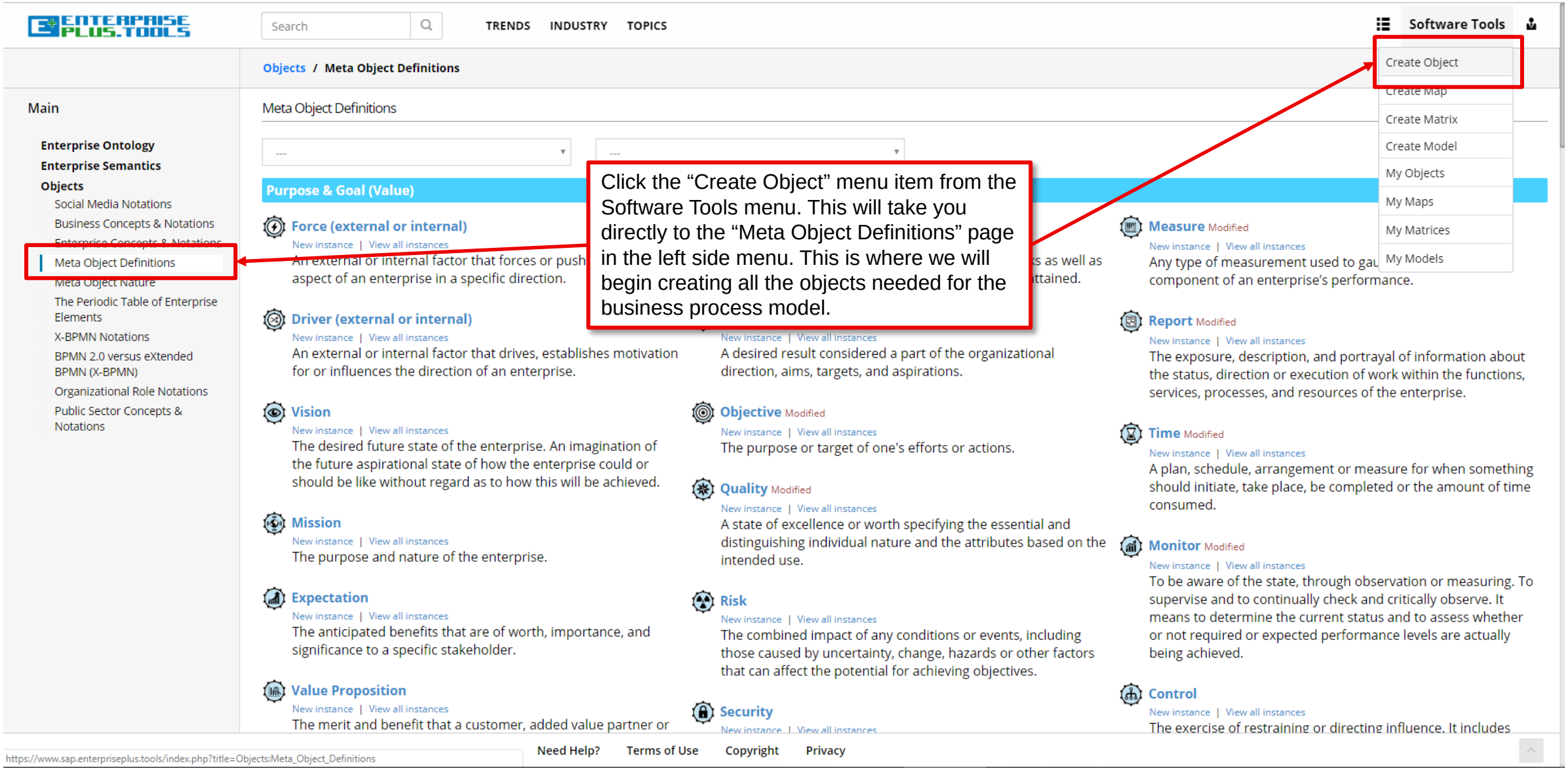
Enterprise Modelling Standards used:

- Business Process Modelling Notations (BPMN)

Before you begin modelling, you should take some time to create your objects first. Why? Because E+ is an object-oriented modelling tool.

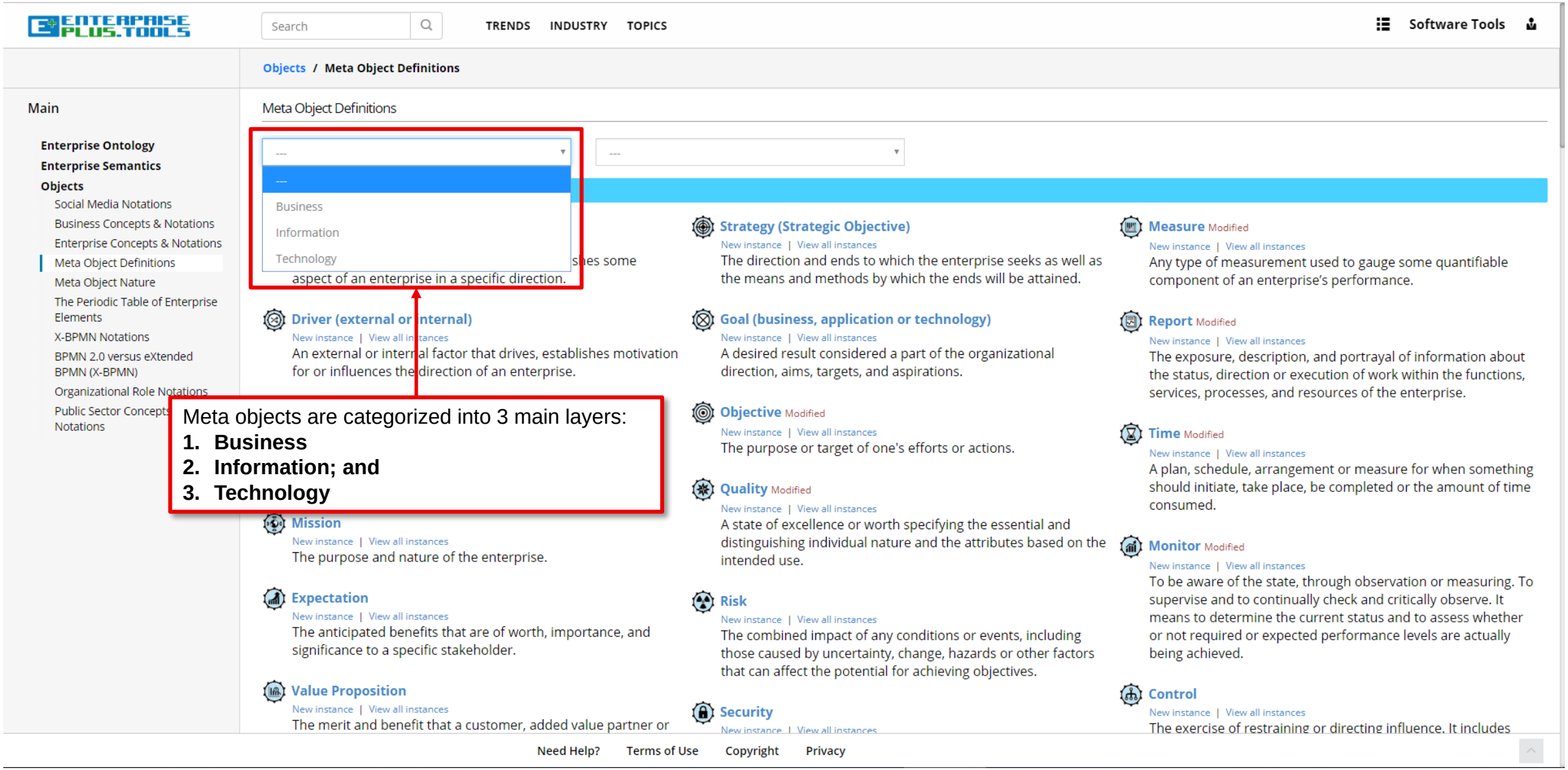
We need to create a small range of customized meta objects for the enterprise modelling exercise.

Create Object

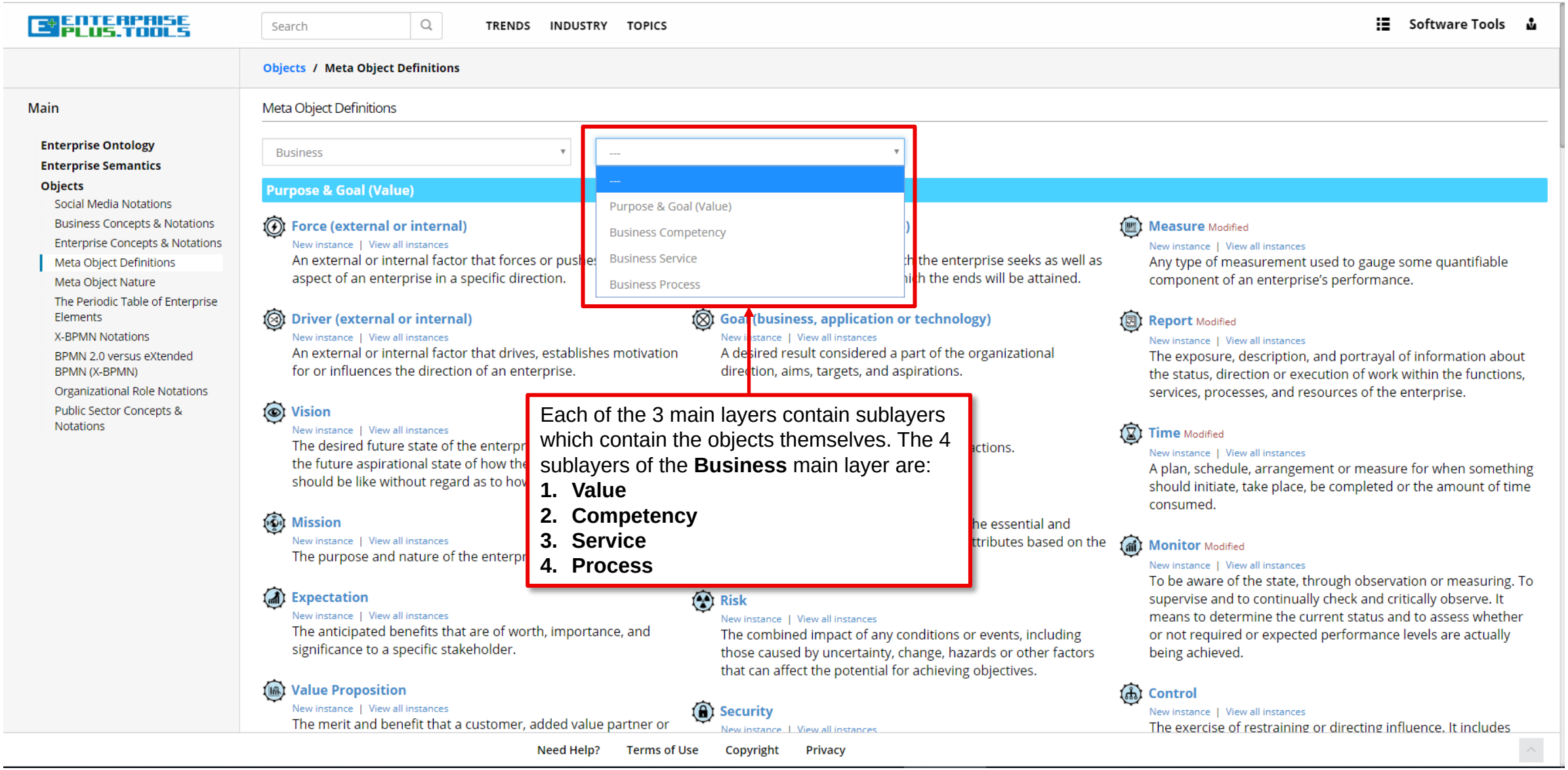


Click the “Create Object” menu item from the Software Tools menu. This will take you directly to the “Meta Object Definitions” page in the left side menu. This is where we will begin creating all the objects needed for the business process model.

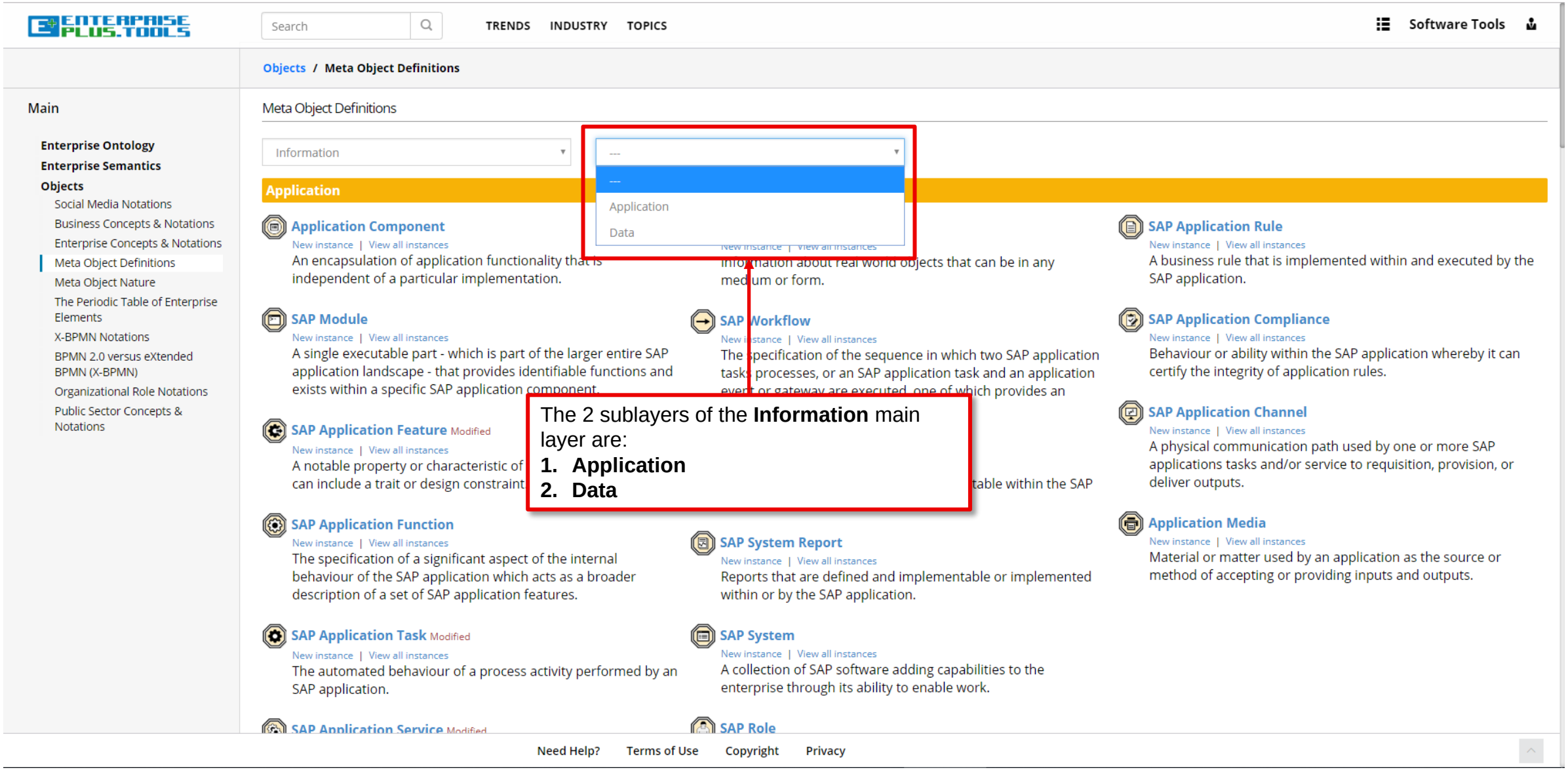
Enterprise layers: choose between the main layers: Business, Information and Technology



Enterprise layers: Choose between the Business sublayers



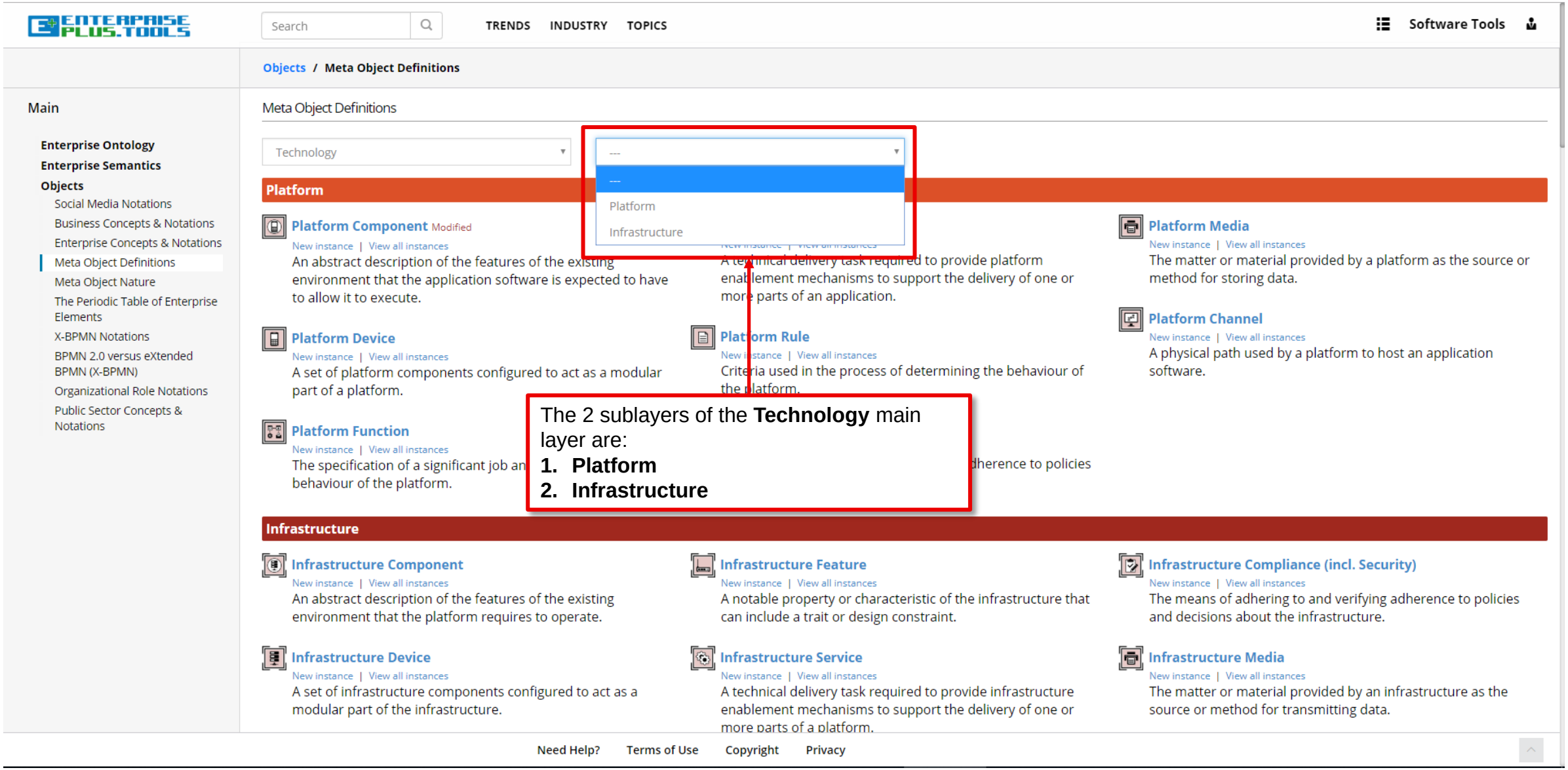
Enterprise layers: Choose between the Information sublayers



The 2 sublayers of the **Information** main layer are:

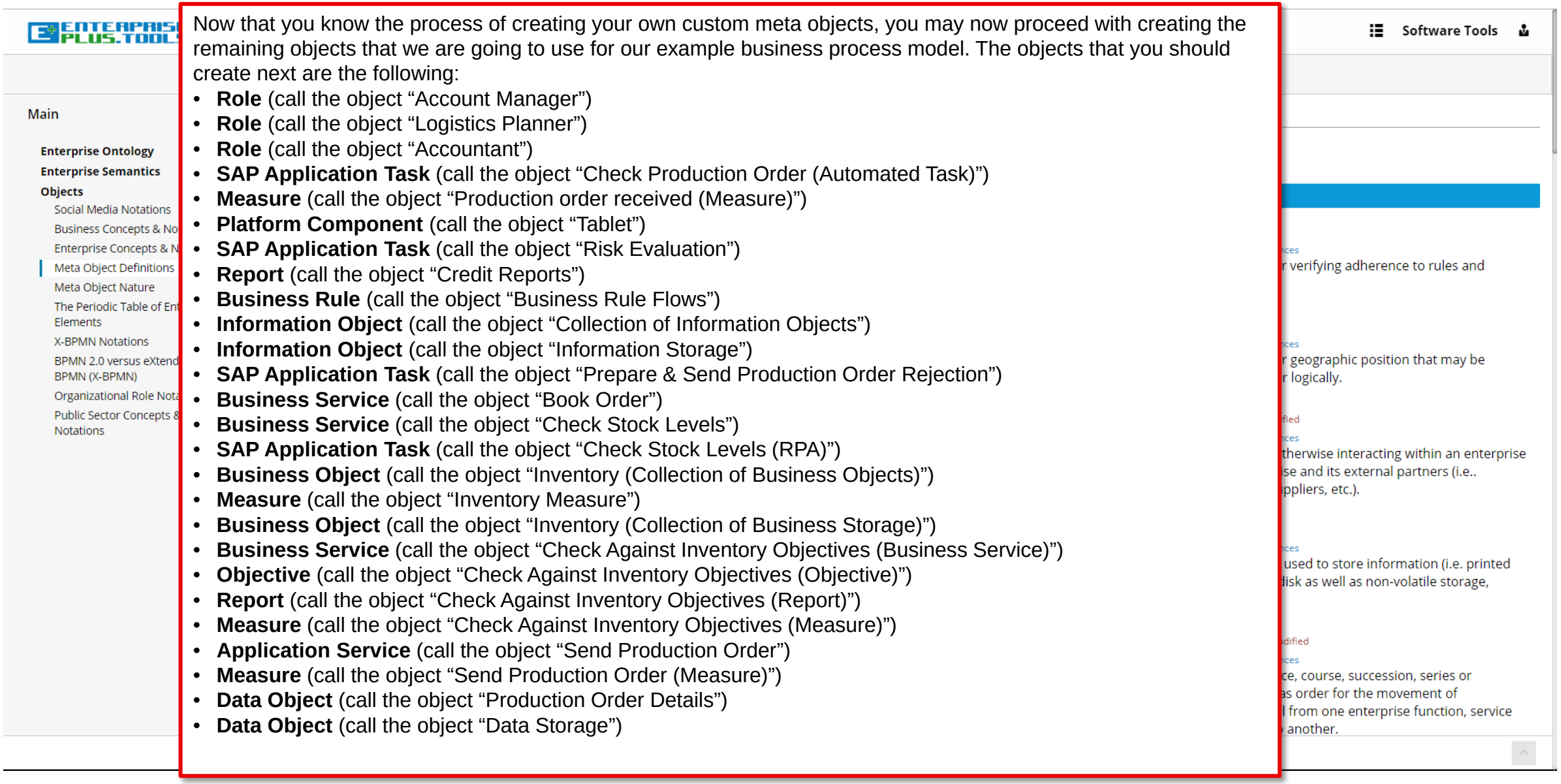
1. **Application**
2. **Data**

Enterprise layers: Choose between the Infrastructure sublayers



Create the objects on this list

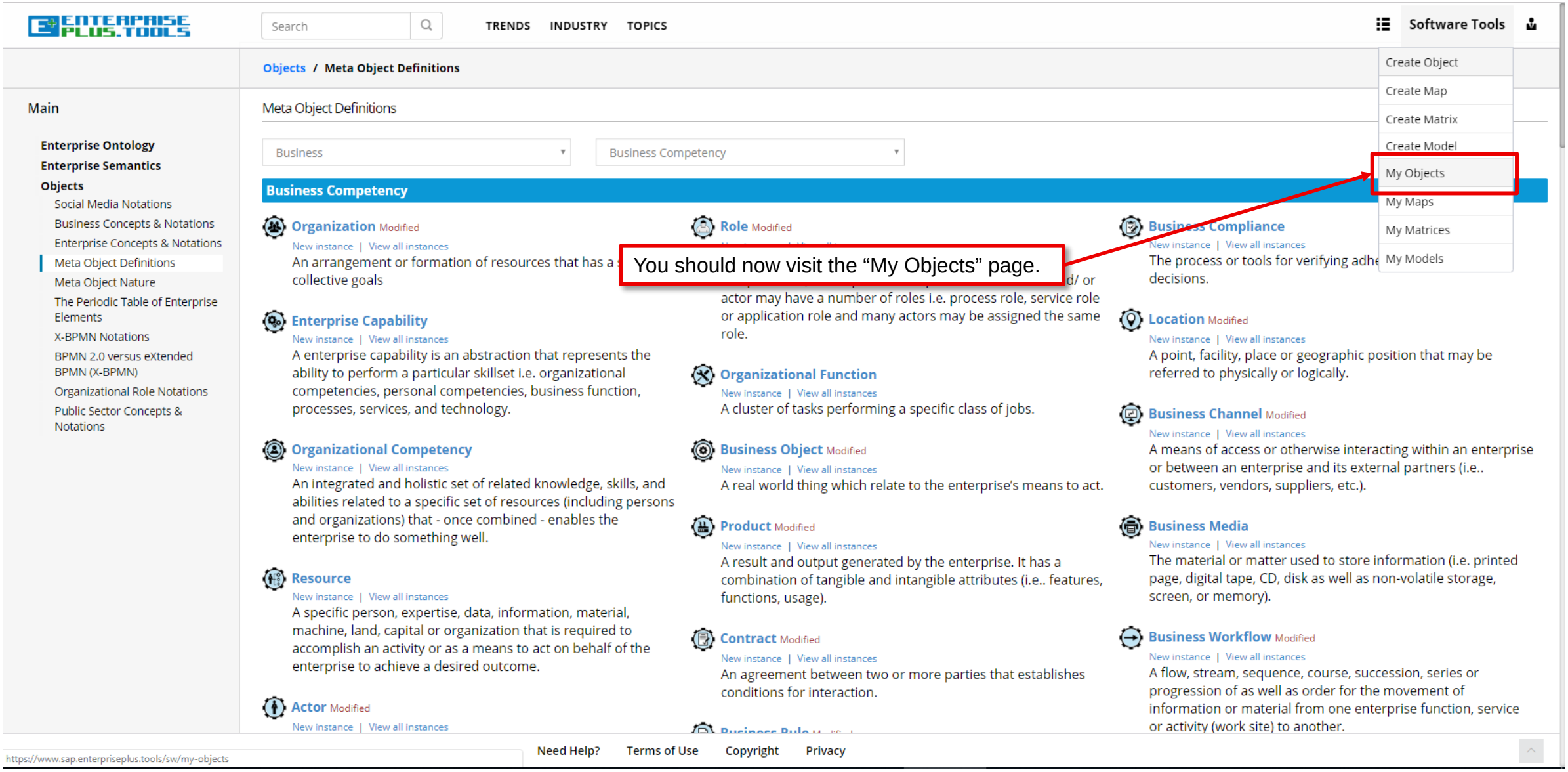
Since E+ has enterprise semantics build into their enterprise objects, you can also check the various object relations between each other



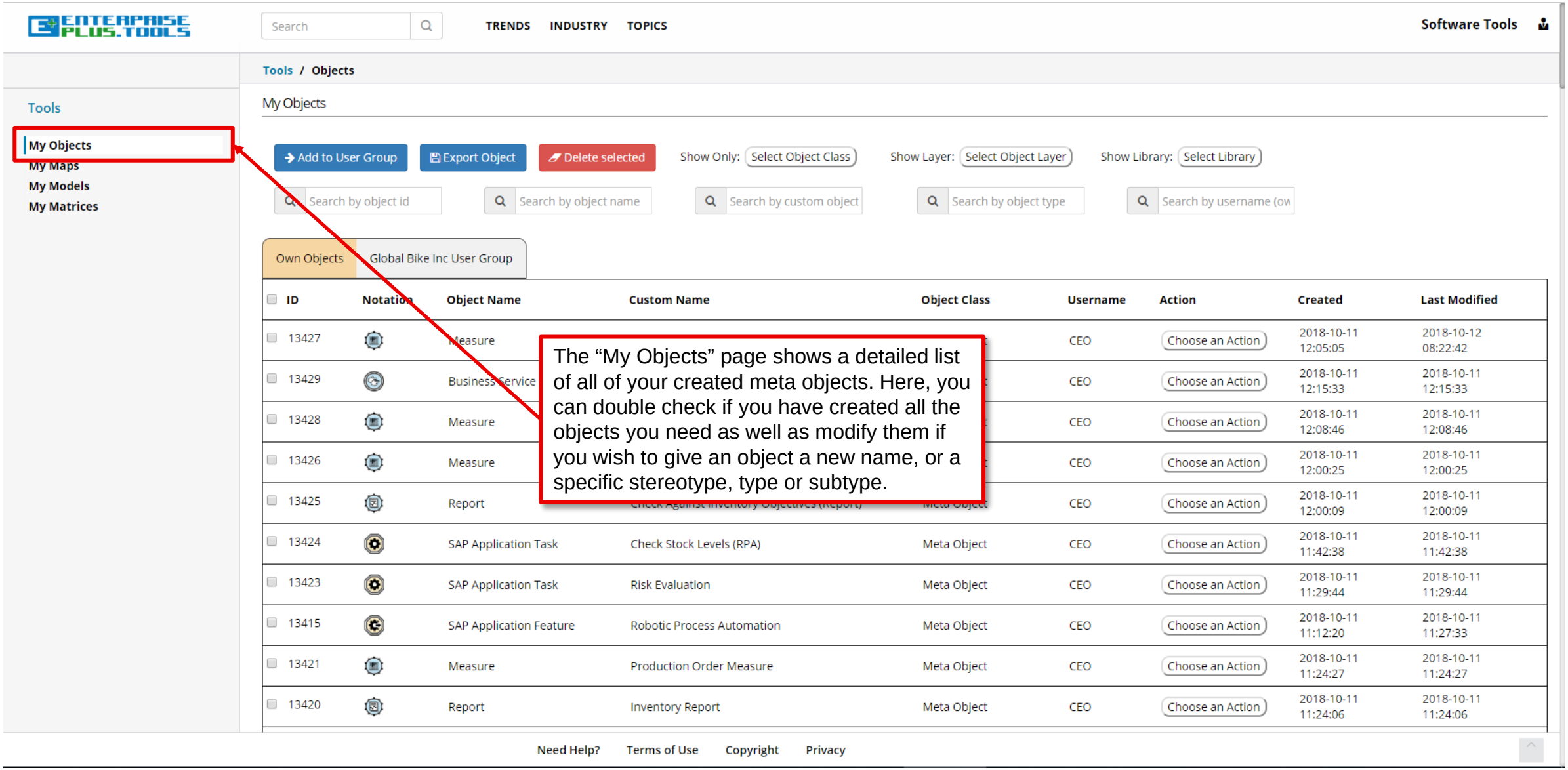
Now that you know the process of creating your own custom meta objects, you may now proceed with creating the remaining objects that we are going to use for our example business process model. The objects that you should create next are the following:

- **Role** (call the object “Account Manager”)
- **Role** (call the object “Logistics Planner”)
- **Role** (call the object “Accountant”)
- **SAP Application Task** (call the object “Check Production Order (Automated Task)”)
- **Measure** (call the object “Production order received (Measure)”)
- **Platform Component** (call the object “Tablet”)
- **SAP Application Task** (call the object “Risk Evaluation”)
- **Report** (call the object “Credit Reports”)
- **Business Rule** (call the object “Business Rule Flows”)
- **Information Object** (call the object “Collection of Information Objects”)
- **Information Object** (call the object “Information Storage”)
- **SAP Application Task** (call the object “Prepare & Send Production Order Rejection”)
- **Business Service** (call the object “Book Order”)
- **Business Service** (call the object “Check Stock Levels”)
- **SAP Application Task** (call the object “Check Stock Levels (RPA)”)
- **Business Object** (call the object “Inventory (Collection of Business Objects)”)
- **Measure** (call the object “Inventory Measure”)
- **Business Object** (call the object “Inventory (Collection of Business Storage)”)
- **Business Service** (call the object “Check Against Inventory Objectives (Business Service)”)
- **Objective** (call the object “Check Against Inventory Objectives (Objective)”)
- **Report** (call the object “Check Against Inventory Objectives (Report)”)
- **Measure** (call the object “Check Against Inventory Objectives (Measure)”)
- **Application Service** (call the object “Send Production Order”)
- **Measure** (call the object “Send Production Order (Measure)”)
- **Data Object** (call the object “Production Order Details”)
- **Data Object** (call the object “Data Storage”)

Manage your objects:
Go to the “My Objects” page

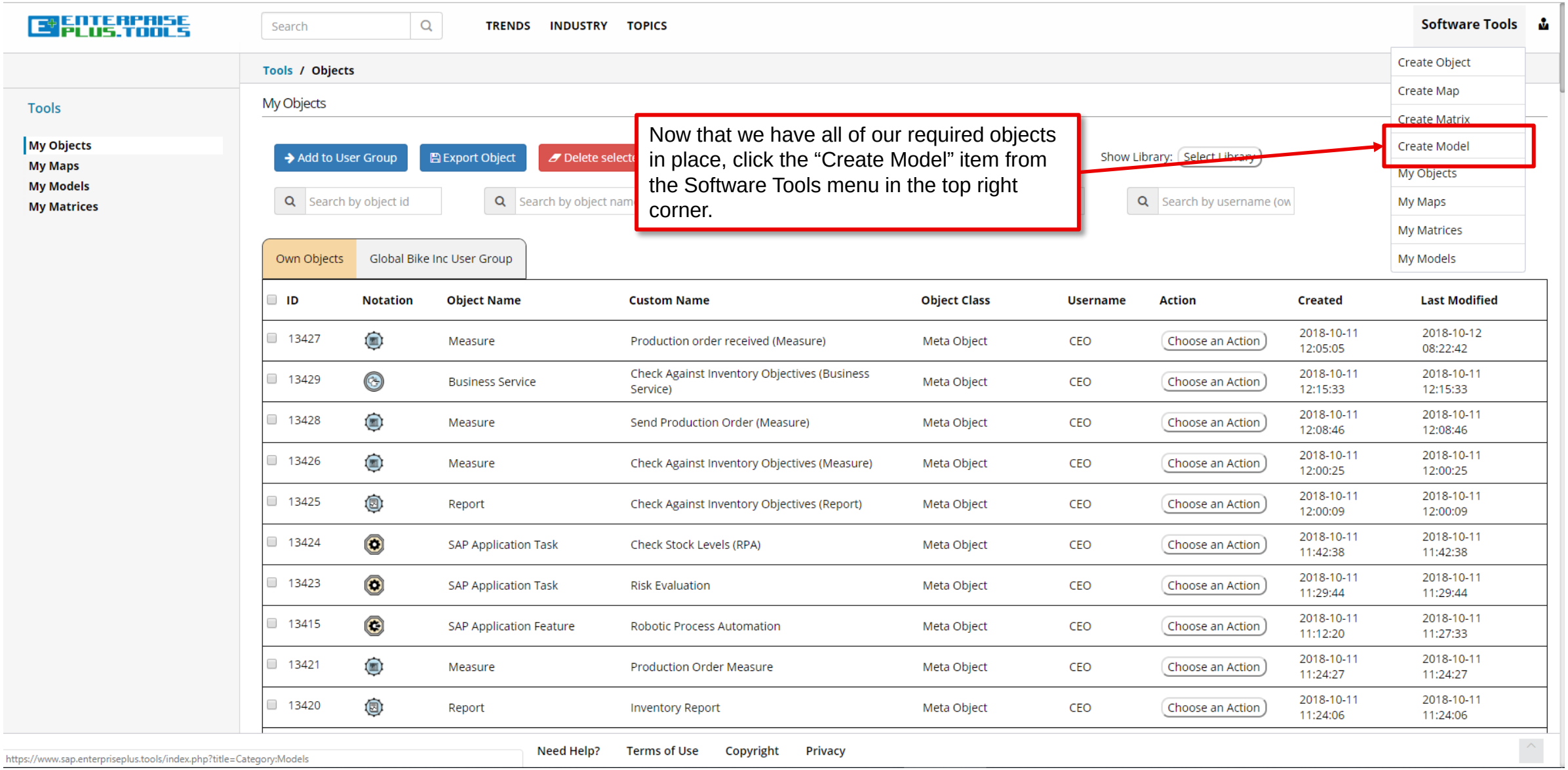


My Objects



The “My Objects” page shows a detailed list of all of your created meta objects. Here, you can double check if you have created all the objects you need as well as modify them if you wish to give an object a new name, or a specific stereotype, type or subtype.

Create Model

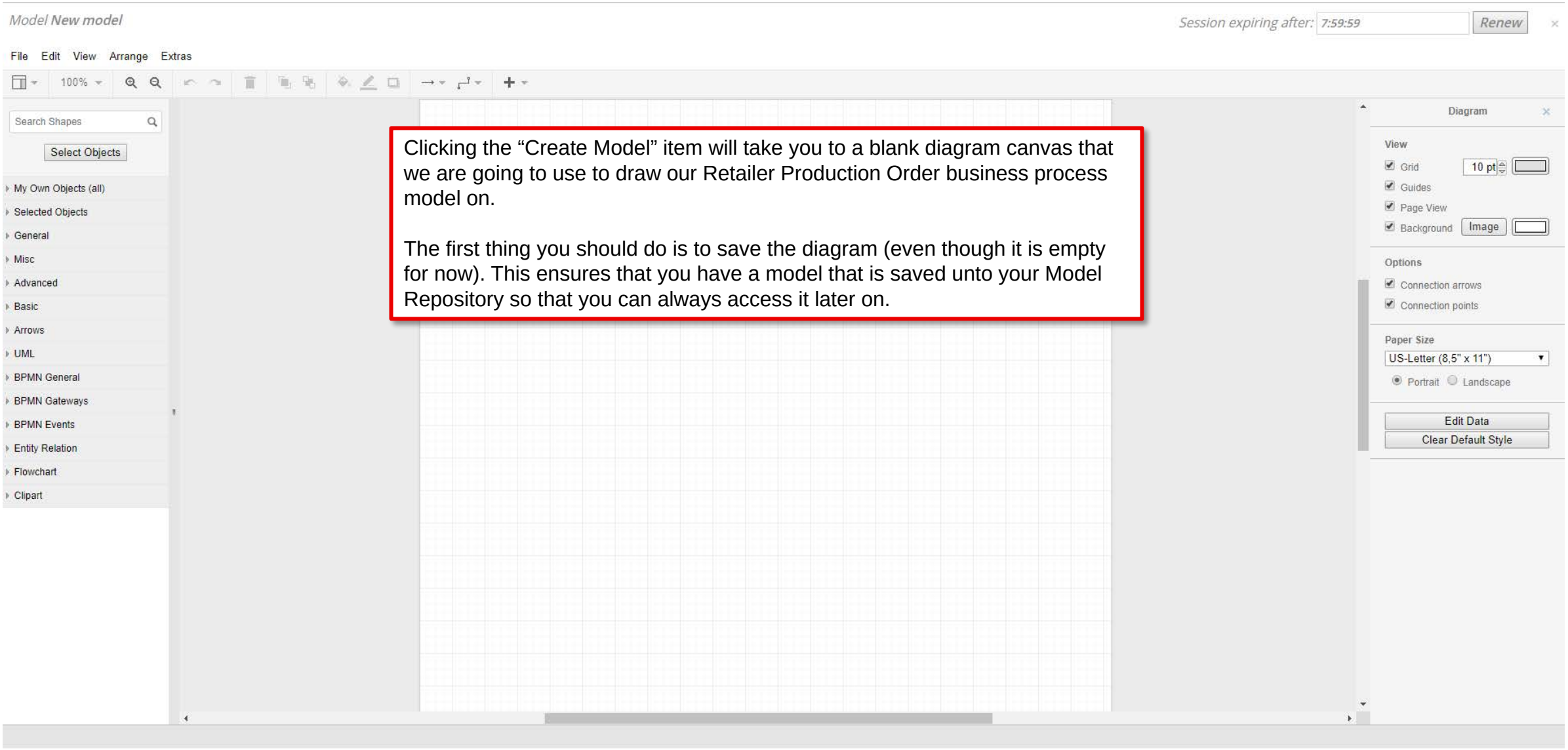


Now we can begin creating the

“**GBI Production & GBS Retailer**”

model and views.

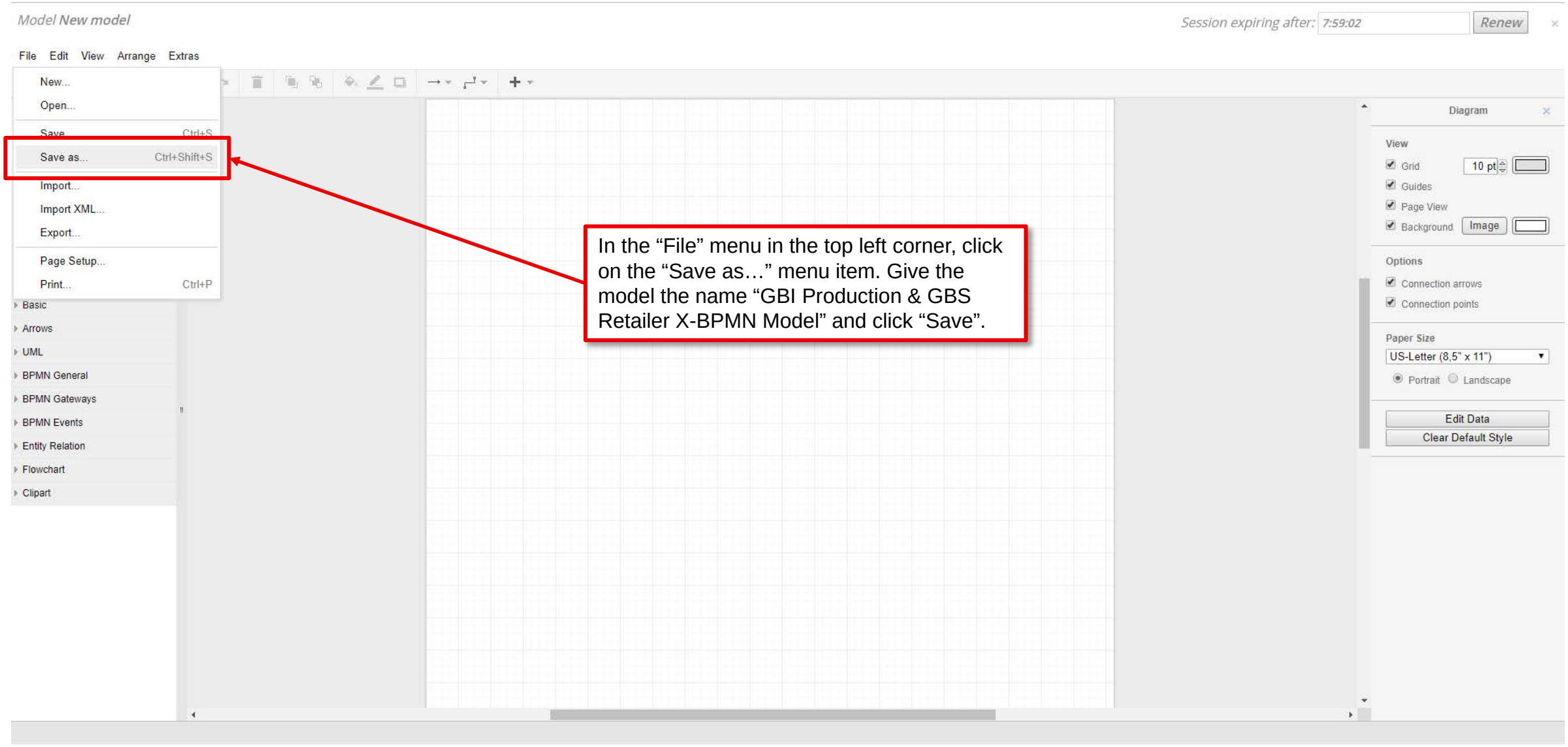
Blank diagram



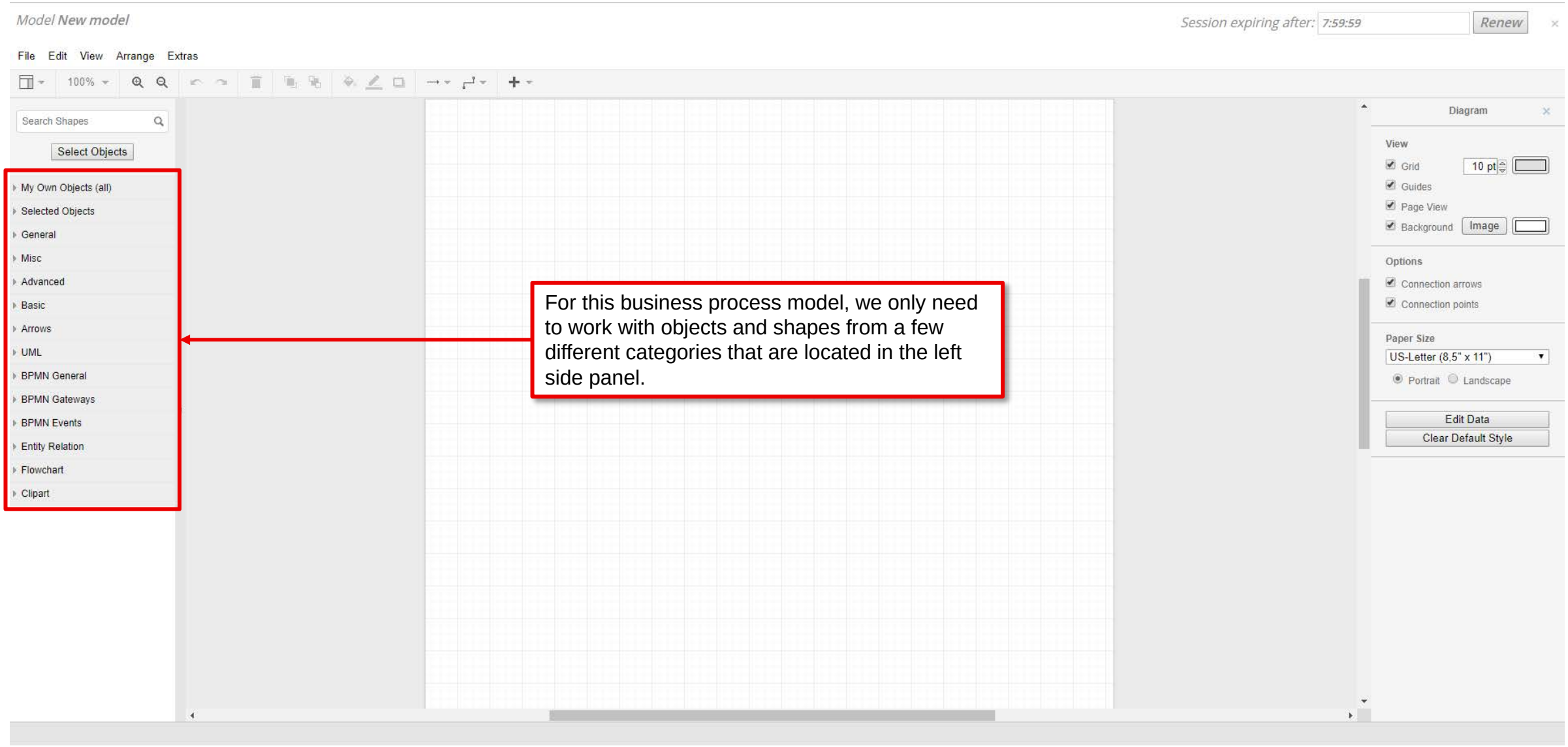
Clicking the “Create Model” item will take you to a blank diagram canvas that we are going to use to draw our Retailer Production Order business process model on.

The first thing you should do is to save the diagram (even though it is empty for now). This ensures that you have a model that is saved unto your Model Repository so that you can always access it later on.

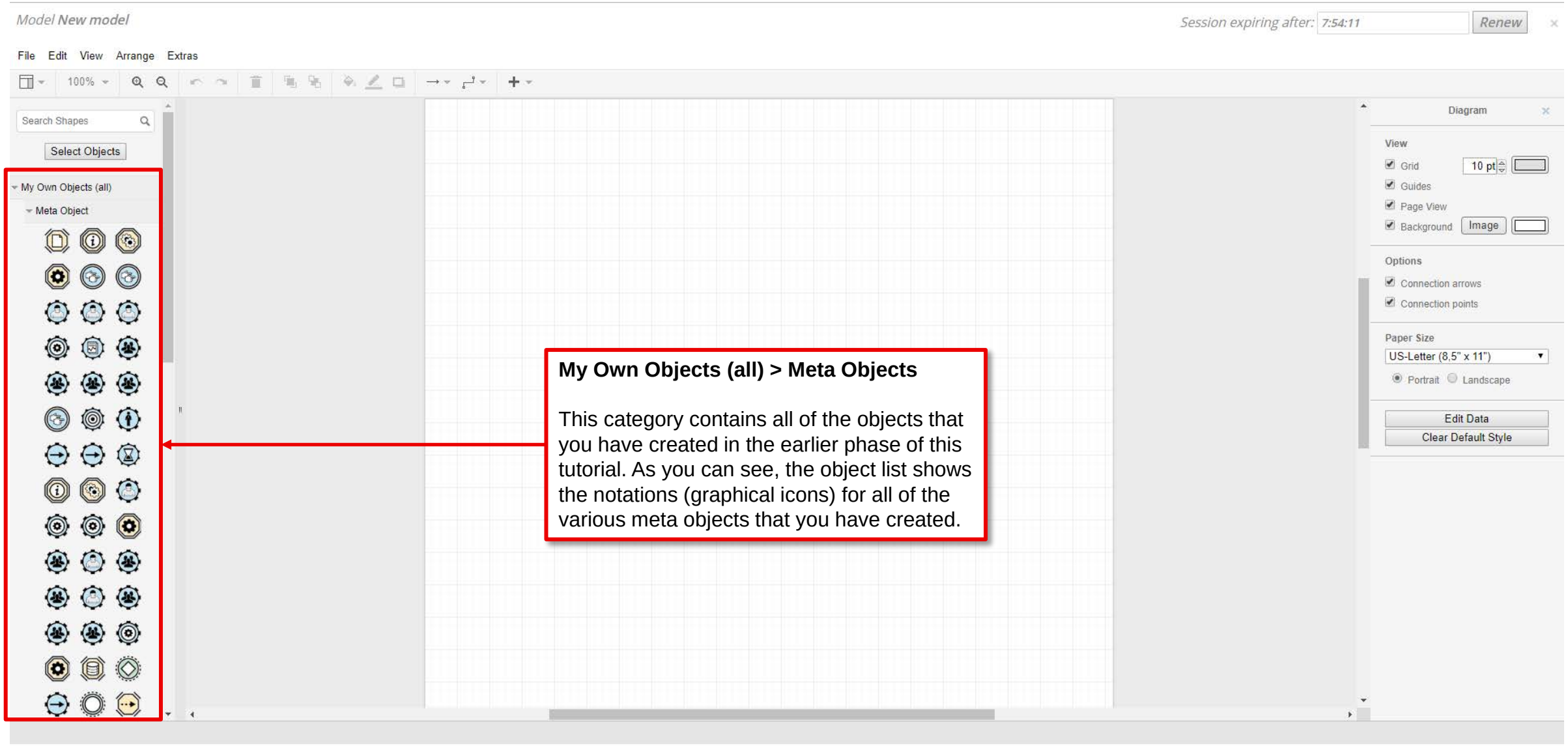
Save your model first



The Objects and Shapes categories



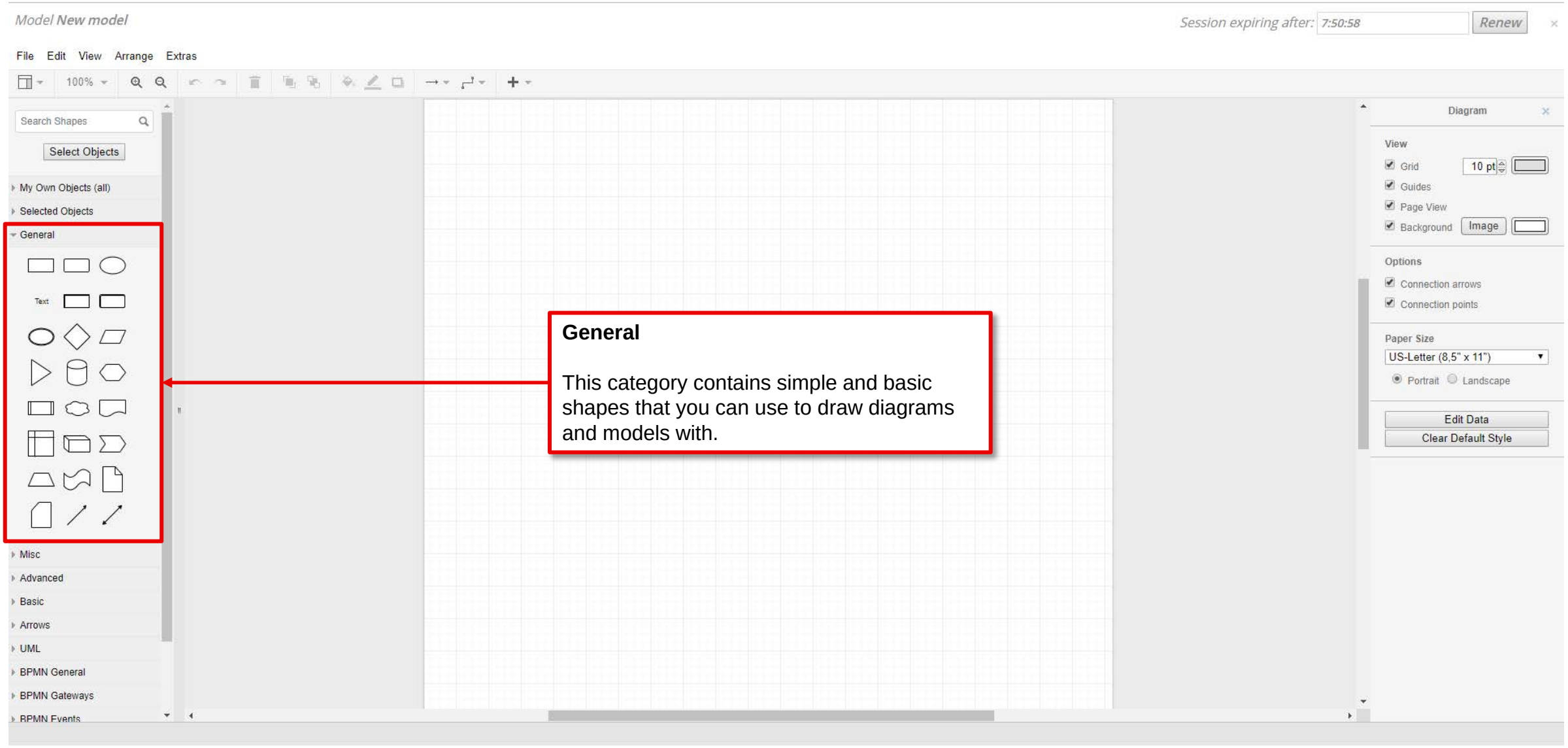
My Own Objects (all)



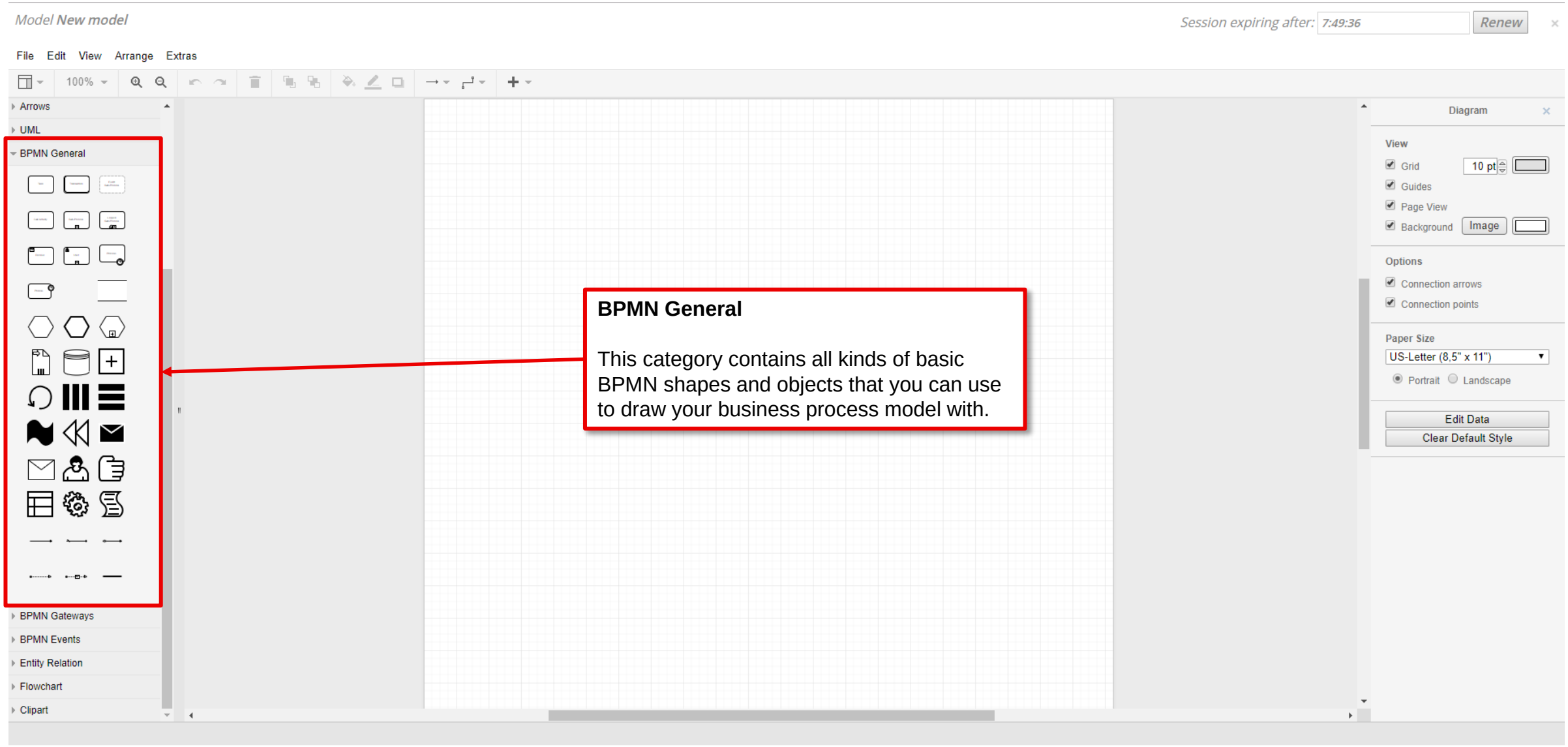
My Own Objects (all) > Meta Objects

This category contains all of the objects that you have created in the earlier phase of this tutorial. As you can see, the object list shows the notations (graphical icons) for all of the various meta objects that you have created.

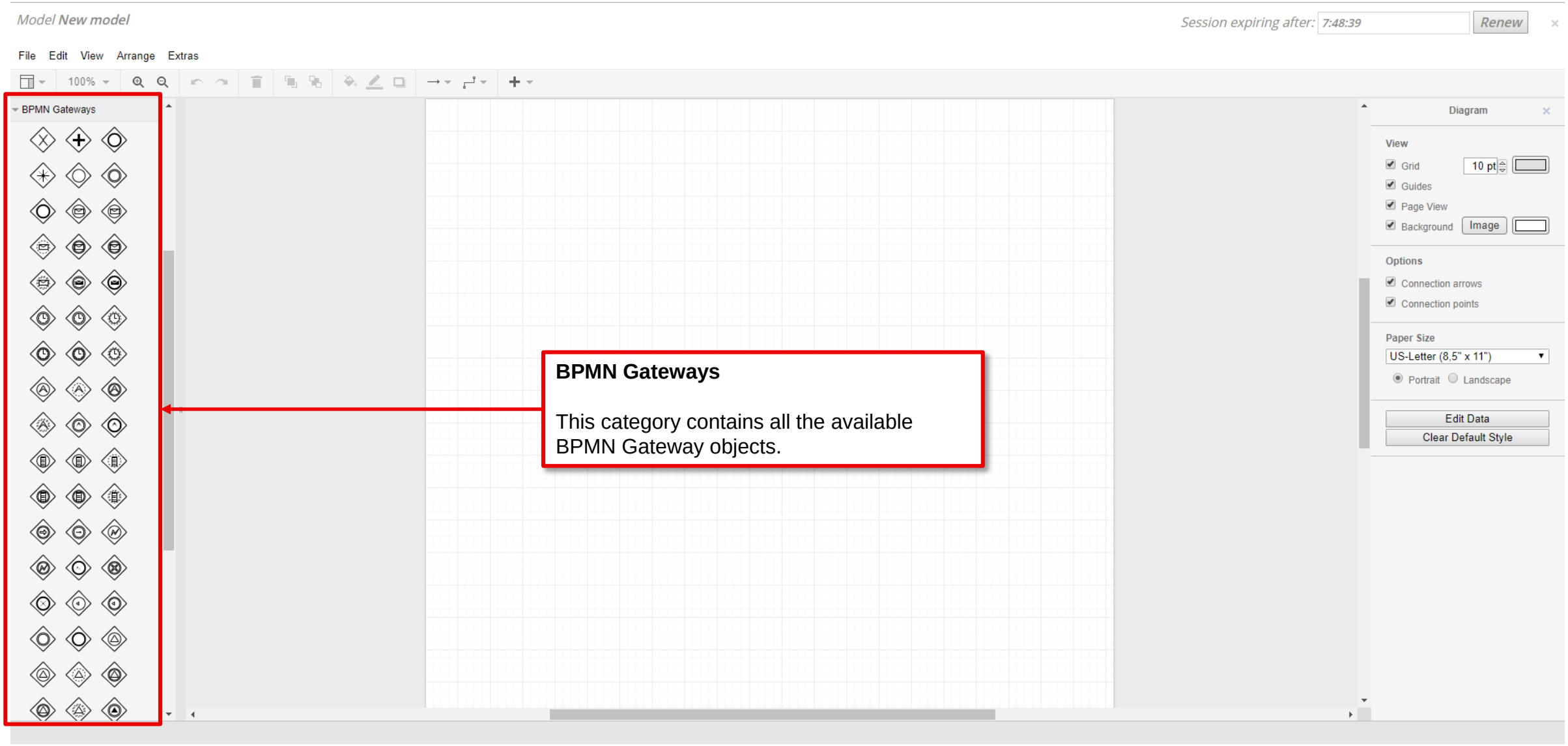
General shapes



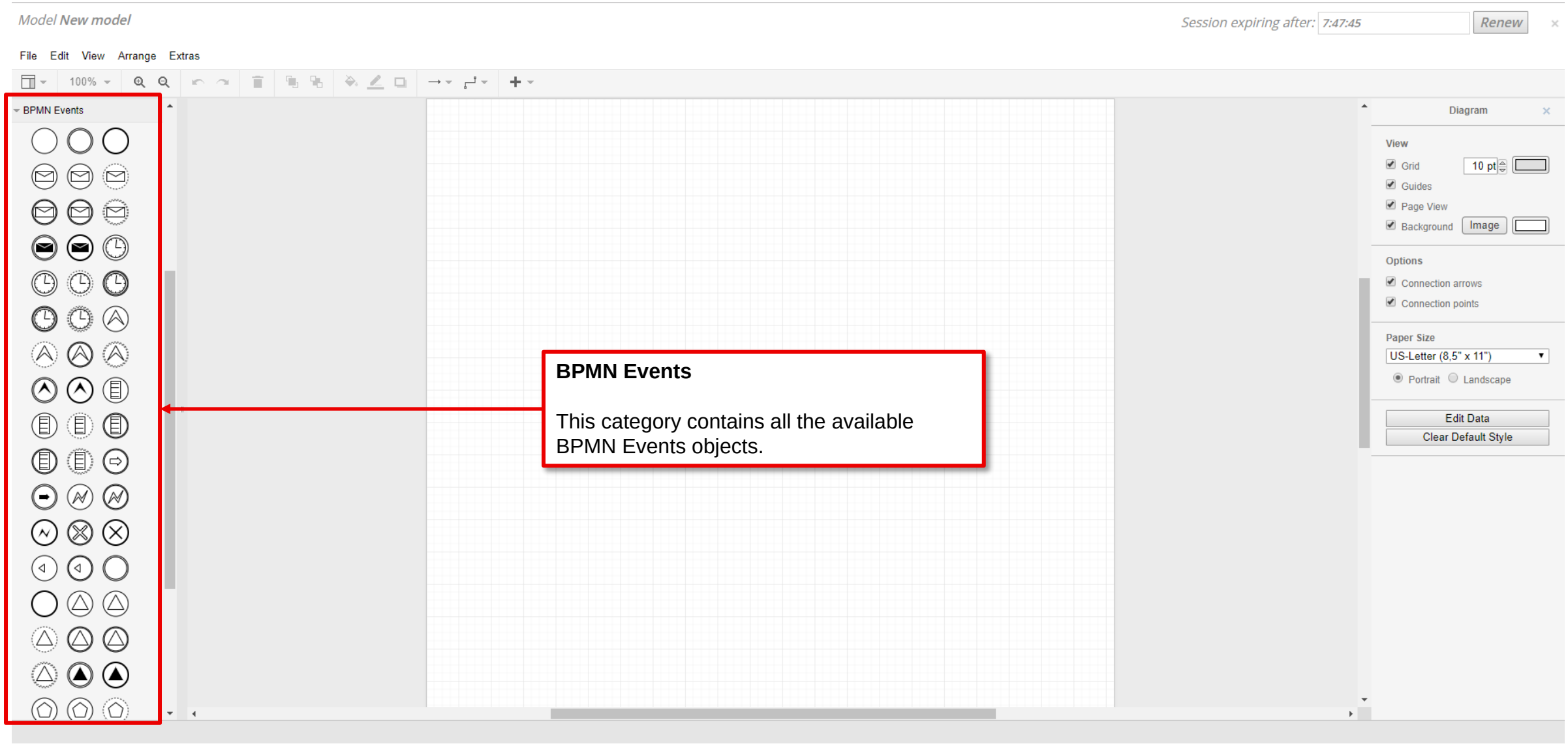
BPMN General



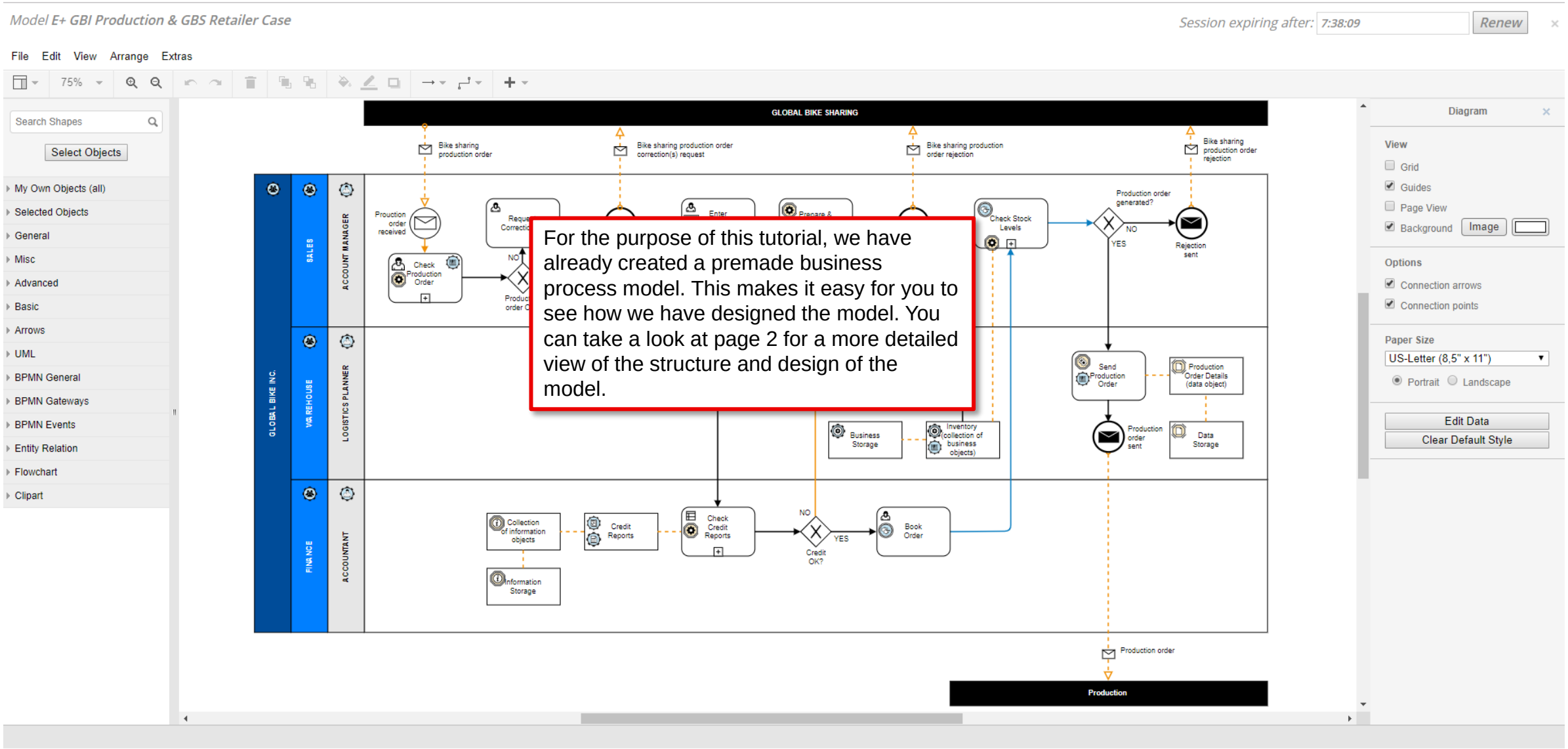
BPMN Gateways



BPMN Events

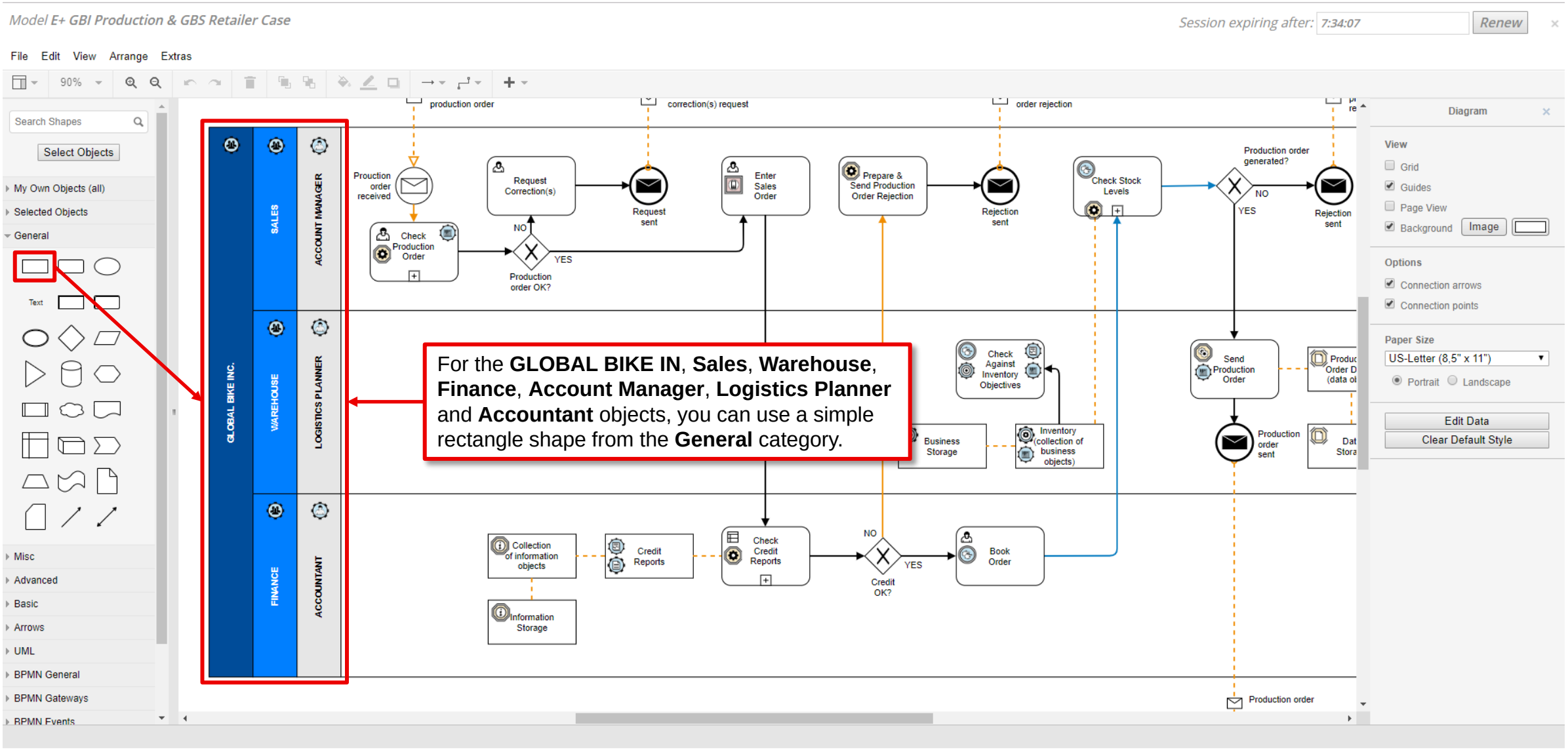

Model New model
Session expiring after: 7:47:45
Renew
File Edit View Arrange Extras
100%
BPMN Events
Diagram
View
Grid
10 pt
Guides
Page View
Background
Image
Options
Connection arrows
Connection points
Paper Size
US-Letter (8,5" x 11")
Portrait
Landscape
Edit Data
Clear Default Style
BPMN Events
This category contains all the available BPMN Events objects.

Overview of the GBI Production & GBS Retailer business process model on the diagramming canvas

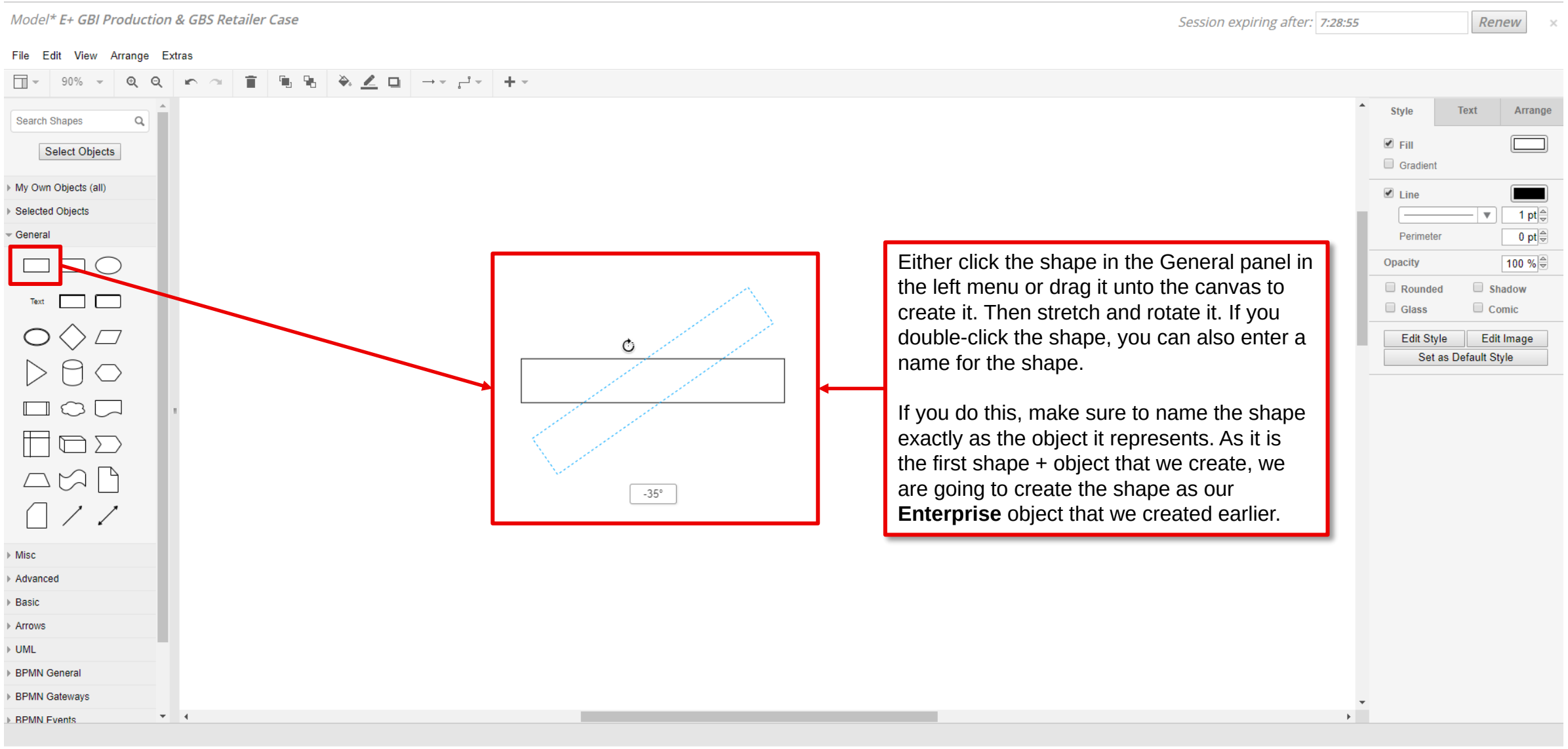


For the purpose of this tutorial, we have already created a premade business process model. This makes it easy for you to see how we have designed the model. You can take a look at page 2 for a more detailed view of the structure and design of the model.

Adding Shapes and Objects



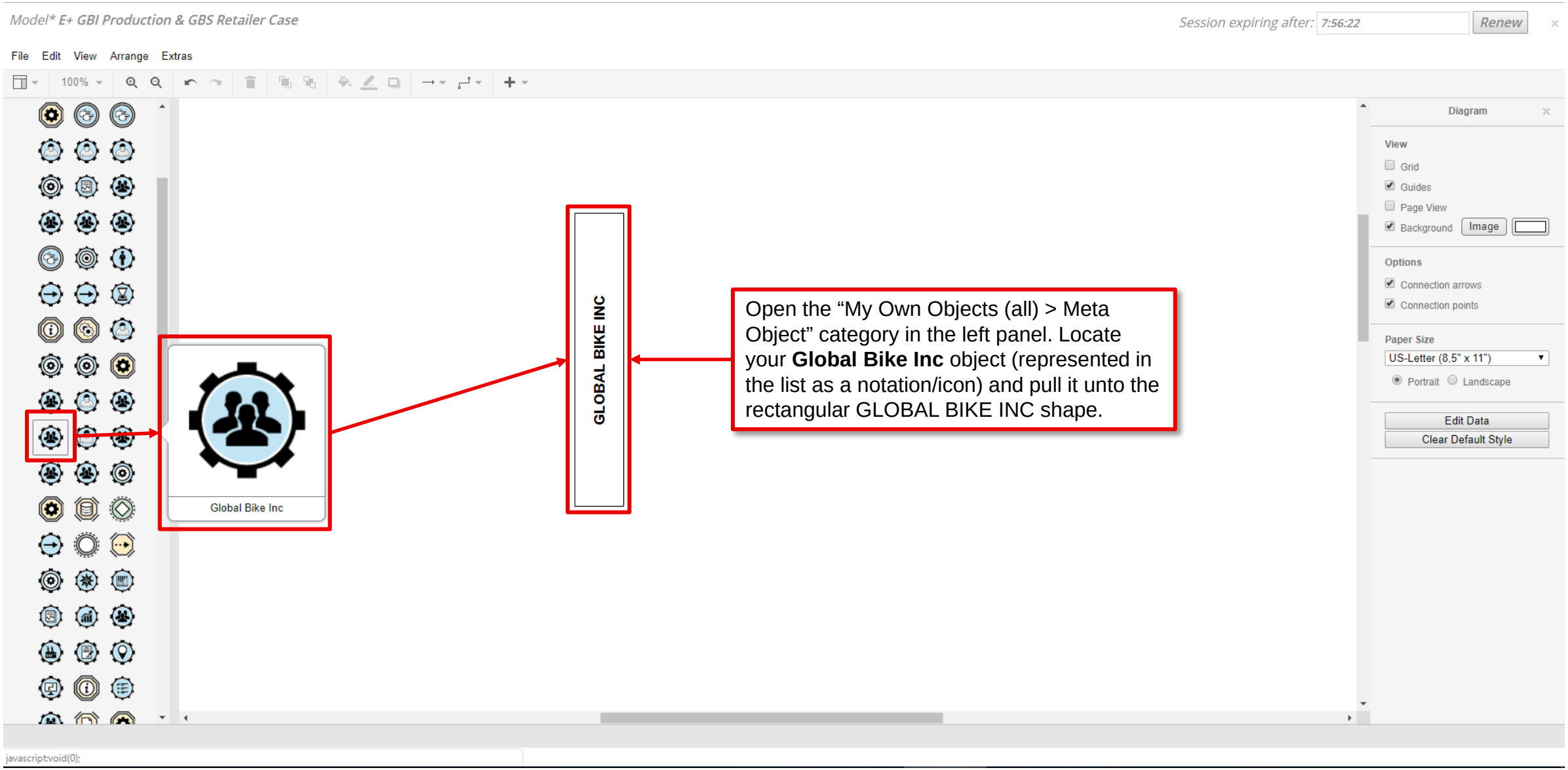
Adding Shapes and Objects



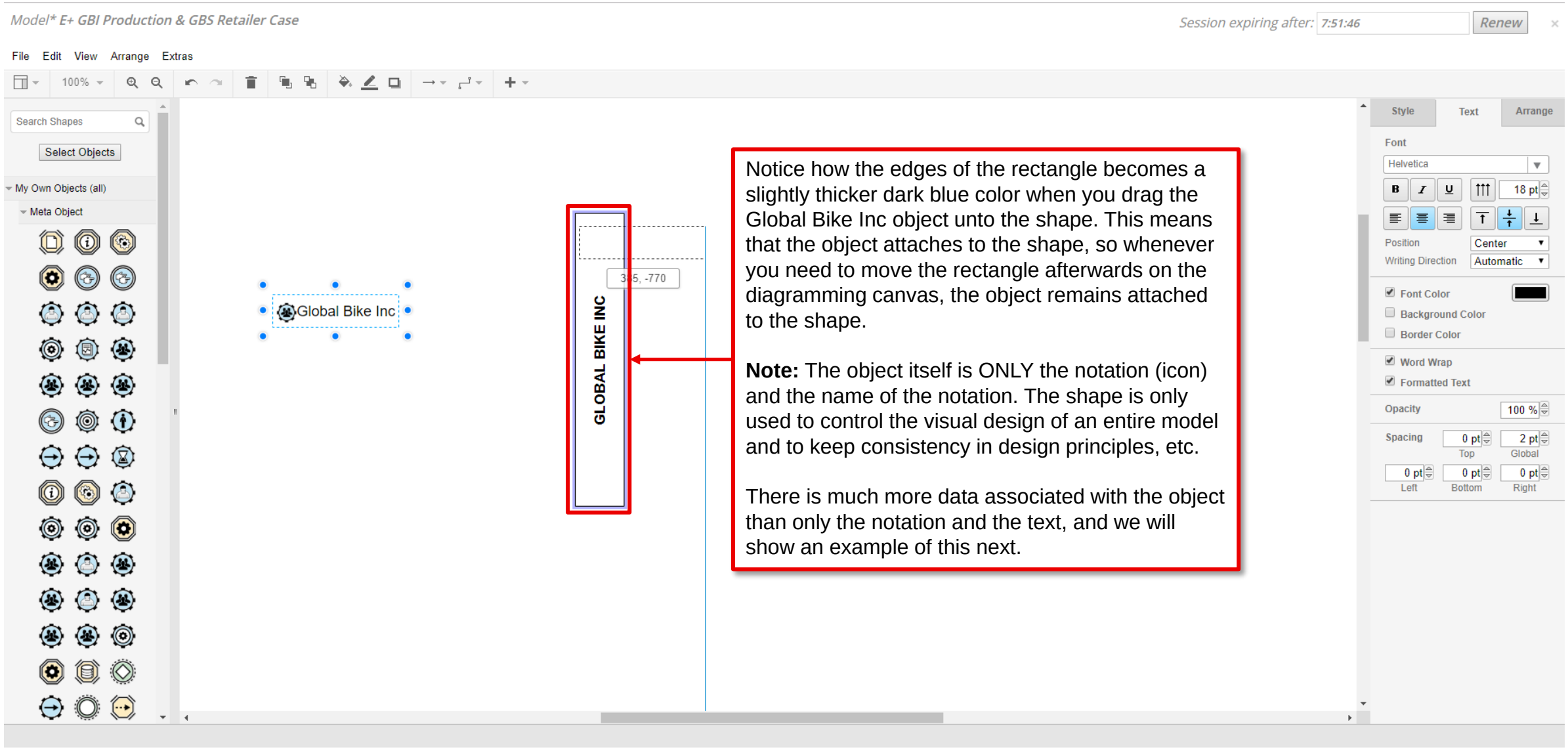
Either click the shape in the General panel in the left menu or drag it unto the canvas to create it. Then stretch and rotate it. If you double-click the shape, you can also enter a name for the shape.

If you do this, make sure to name the shape exactly as the object it represents. As it is the first shape + object that we create, we are going to create the shape as our **Enterprise** object that we created earlier.

Adding Shapes and Objects



Adding Shapes and Objects

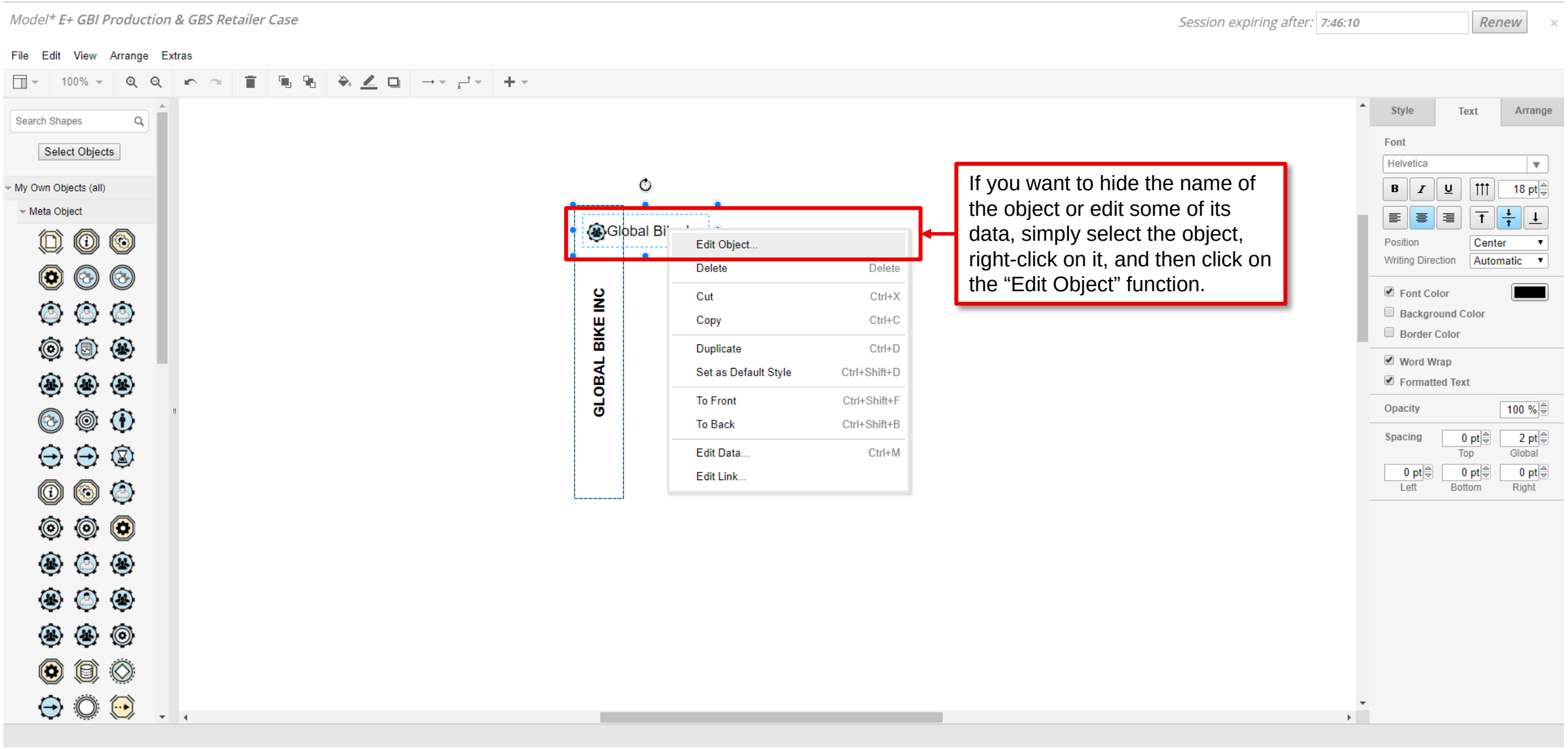


Notice how the edges of the rectangle becomes a slightly thicker dark blue color when you drag the Global Bike Inc object unto the shape. This means that the object attaches to the shape, so whenever you need to move the rectangle afterwards on the diagramming canvas, the object remains attached to the shape.

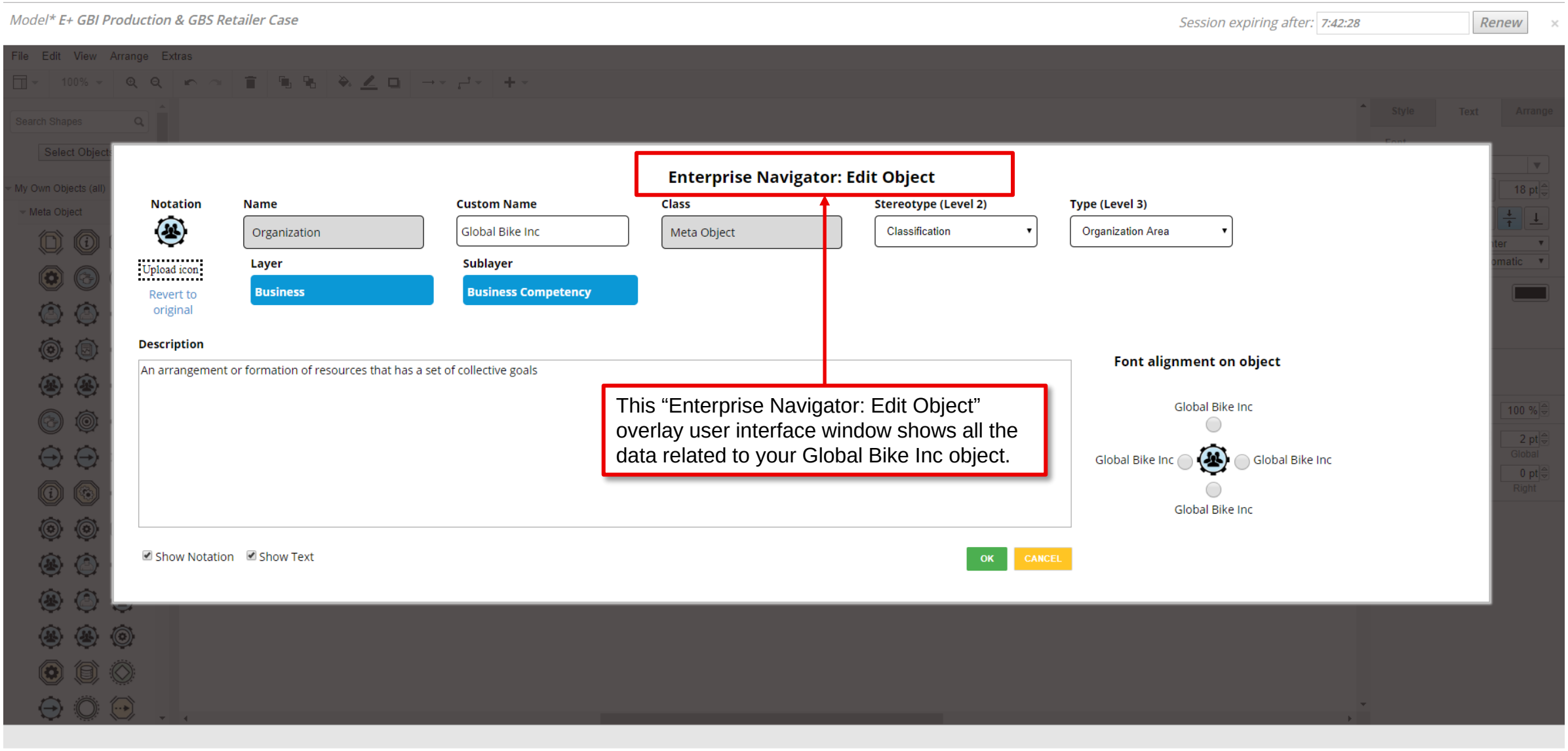
Note: The object itself is ONLY the notation (icon) and the name of the notation. The shape is only used to control the visual design of an entire model and to keep consistency in design principles, etc.

There is much more data associated with the object than only the notation and the text, and we will show an example of this next.

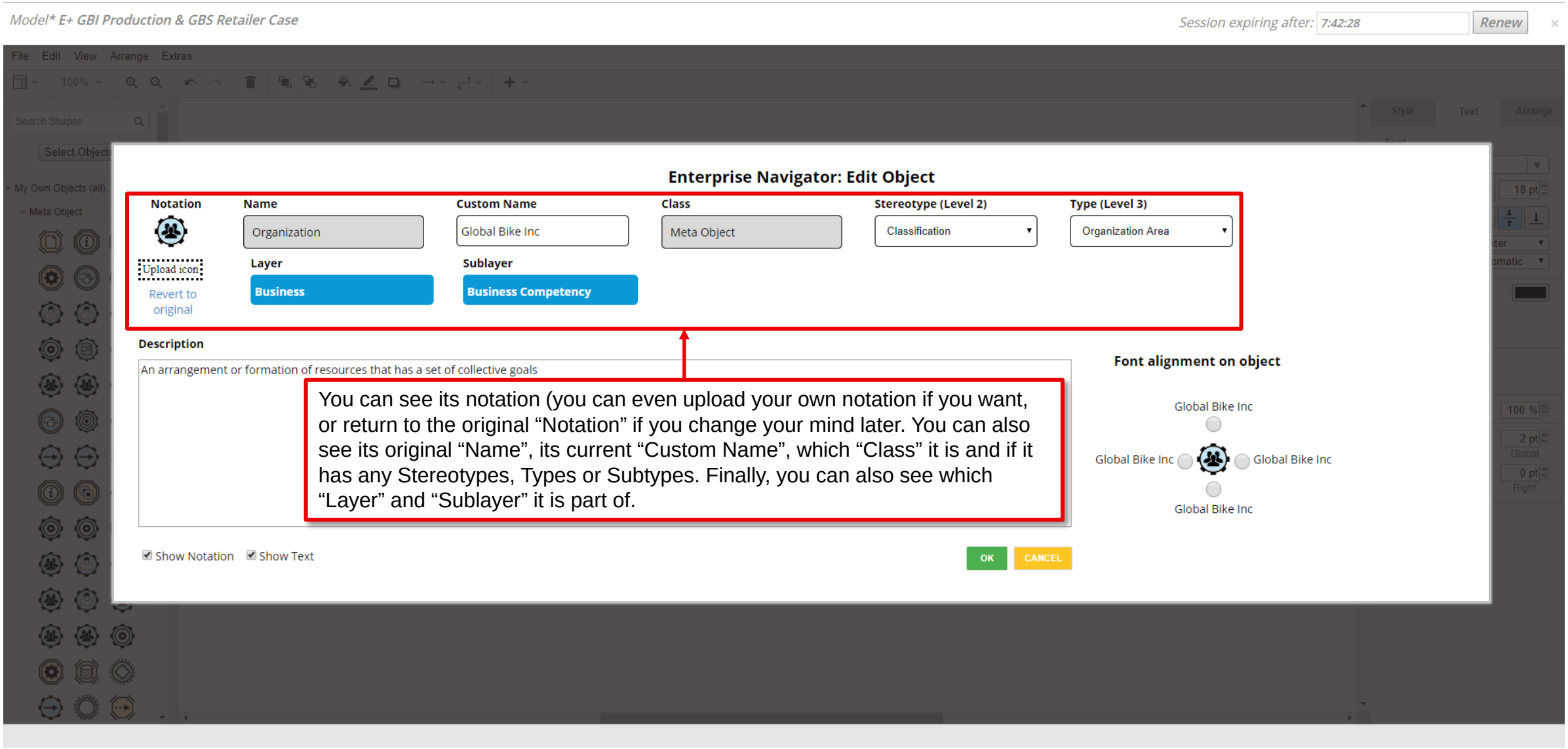
Editing Objects



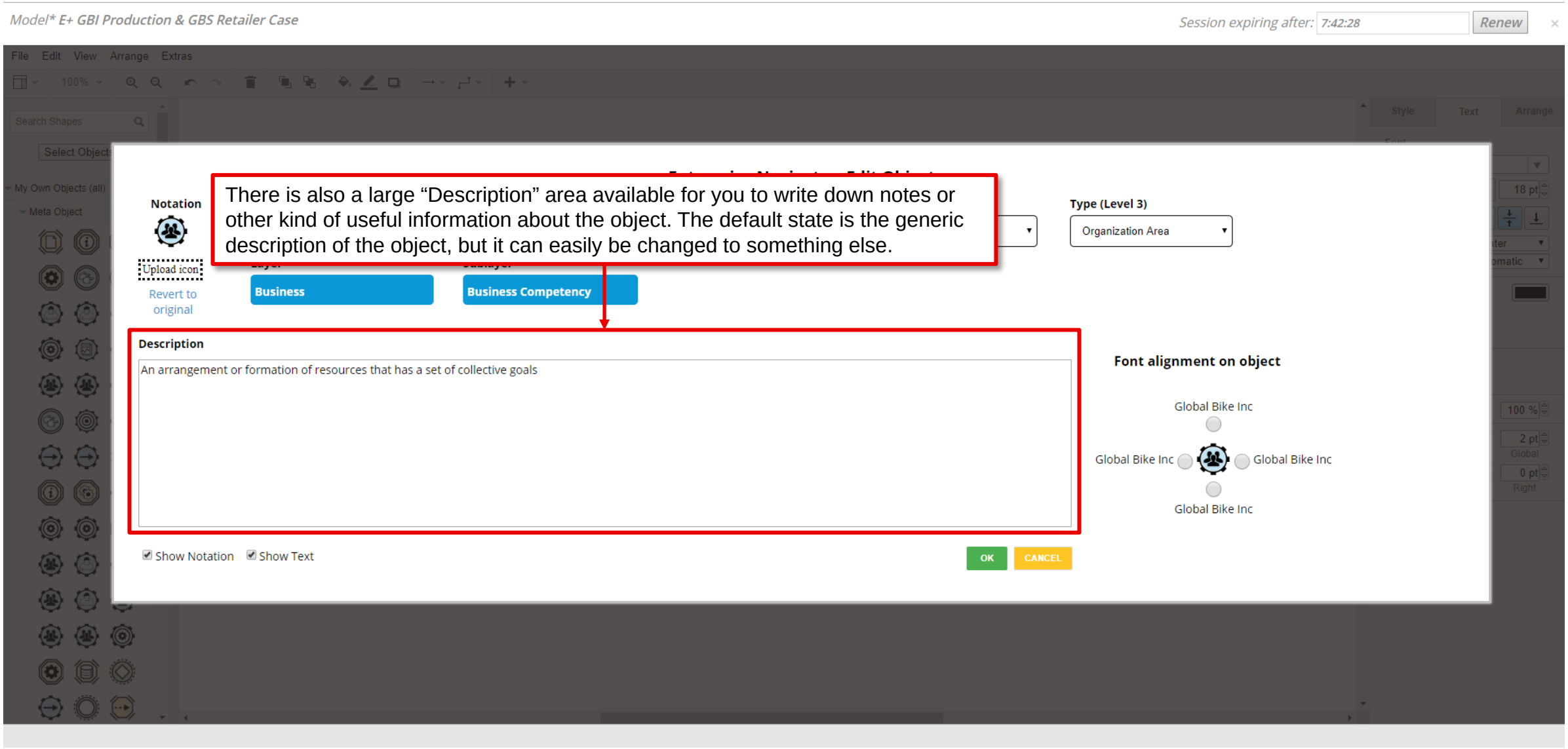
The “Enterprise Navigator: Edit Object” interface



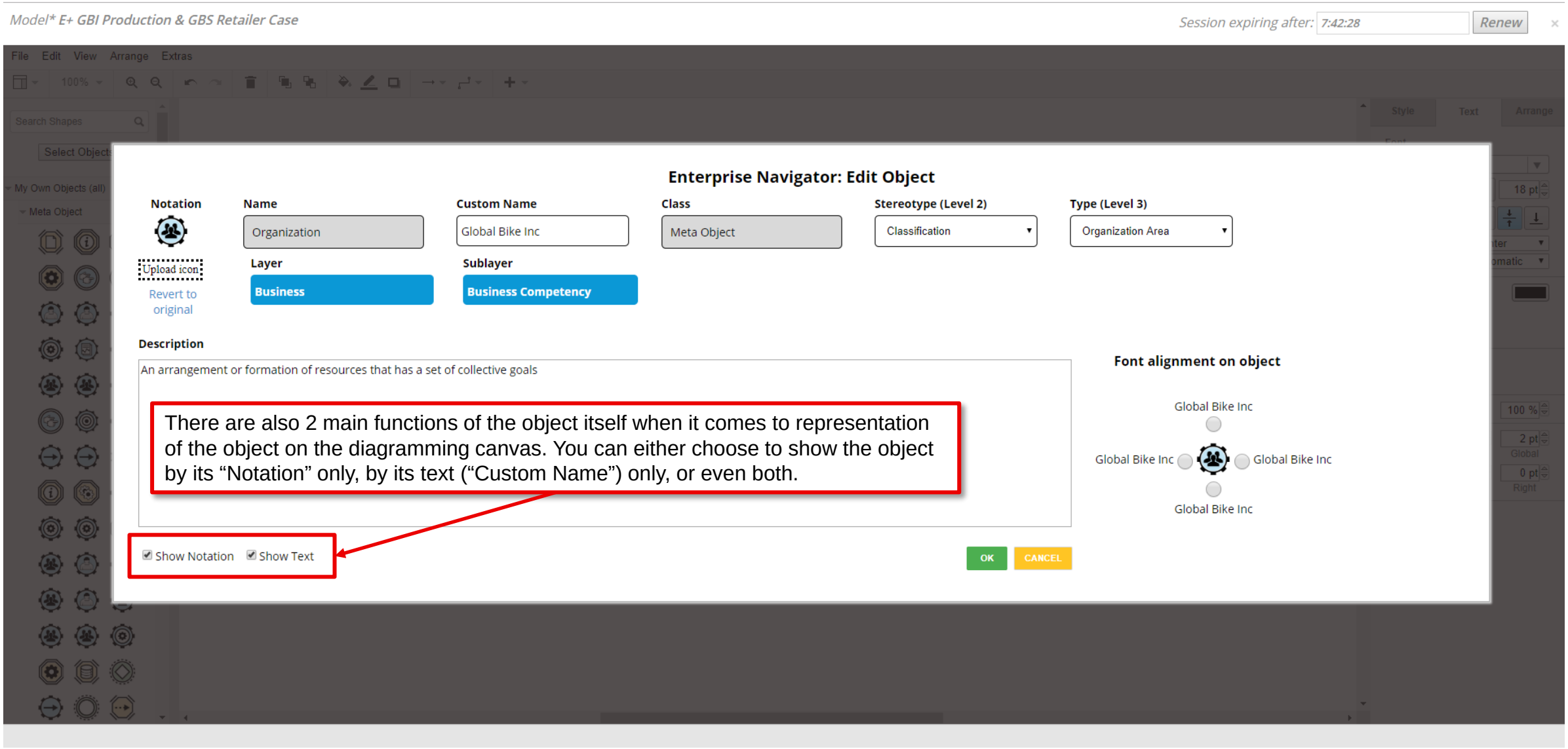
Information about your Object



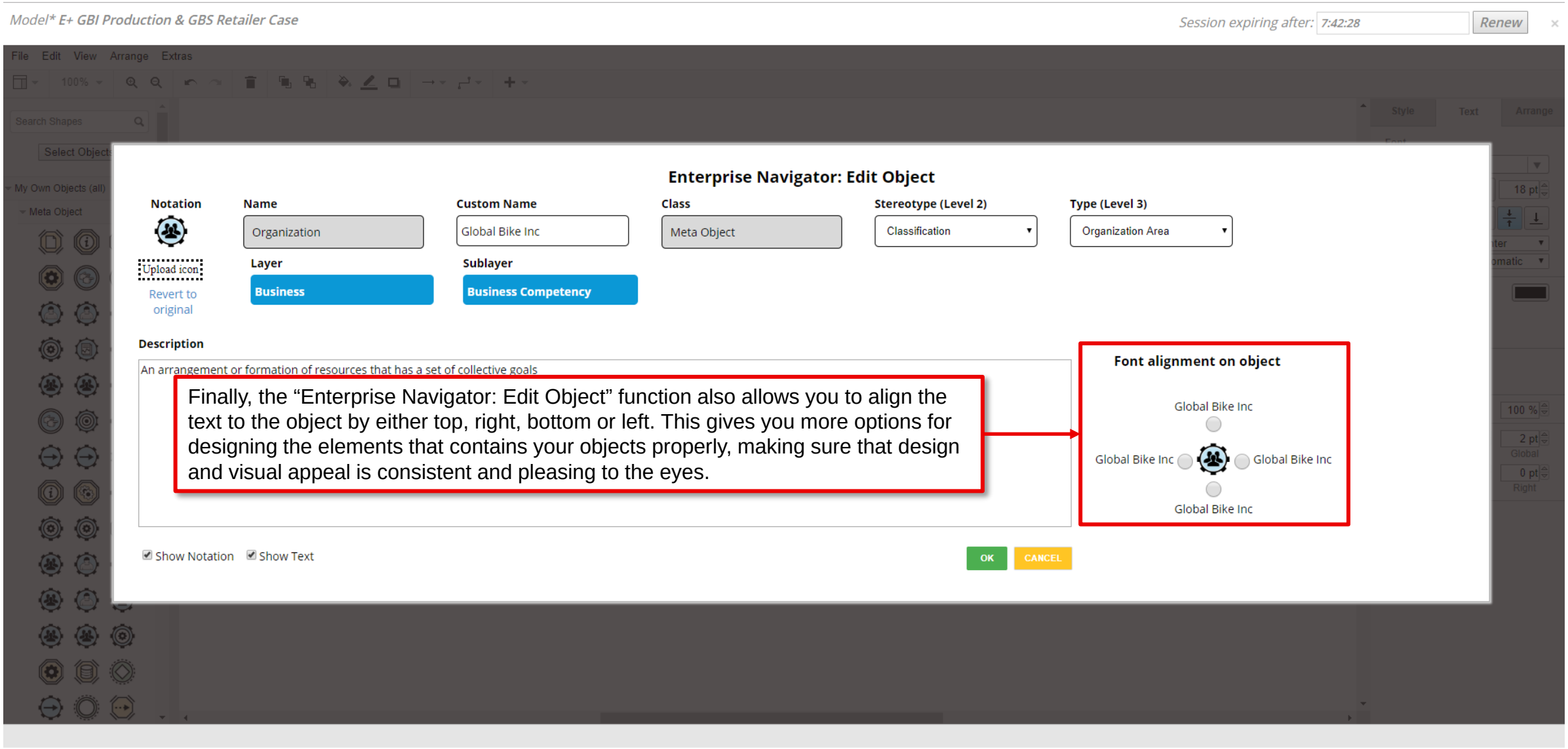
Information about your Object



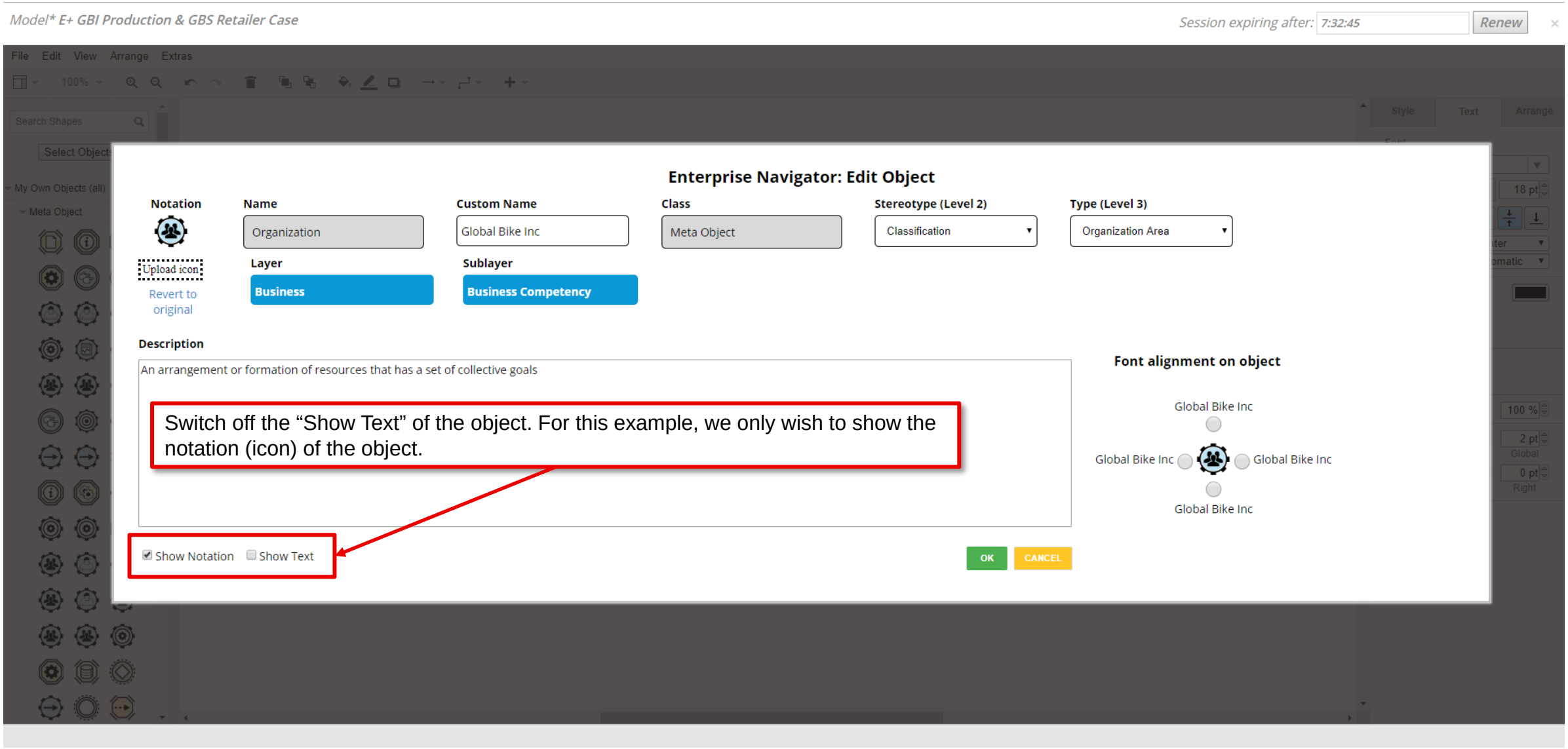
Information about your Object



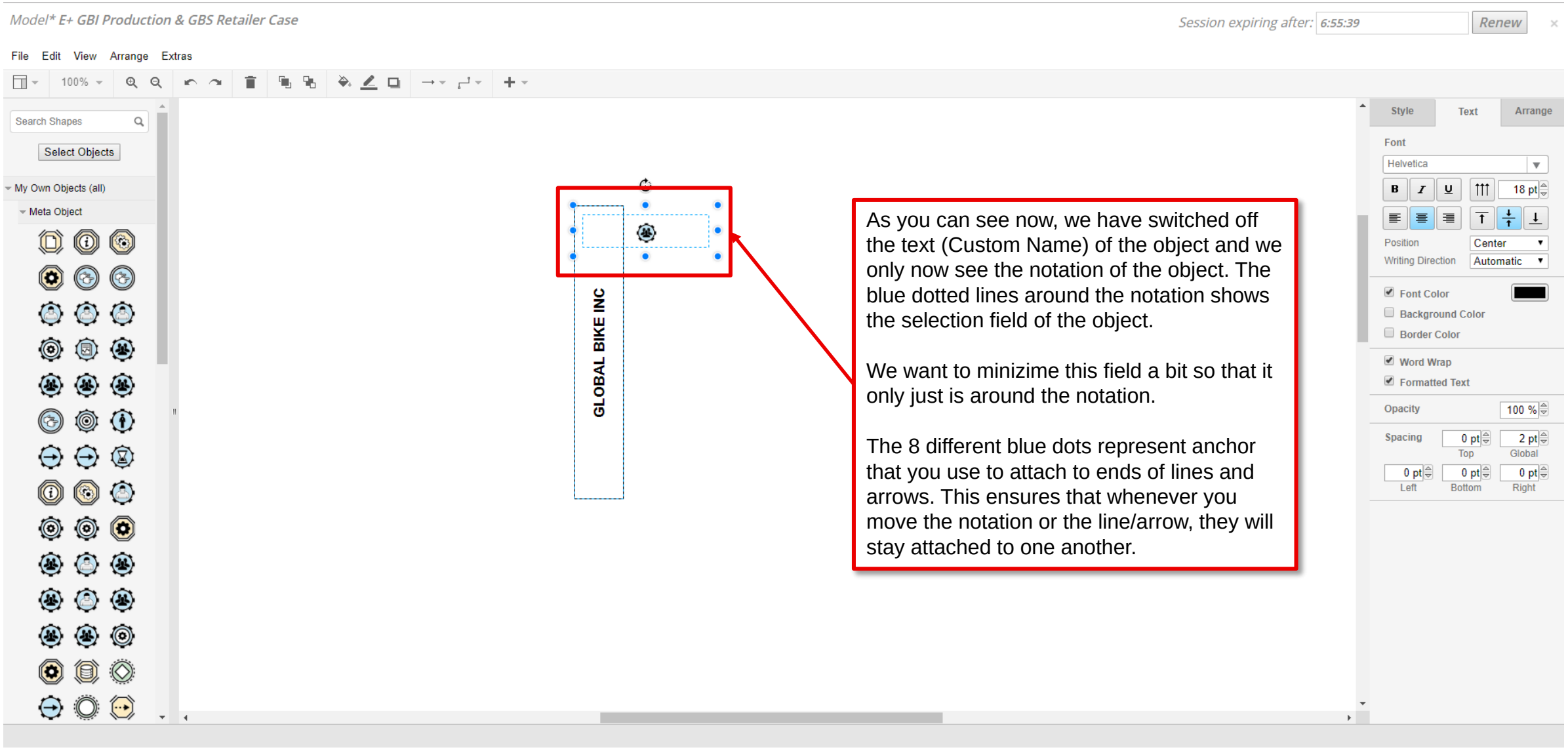
Information about your Object



Information about your Object



Adding Shapes and Objects

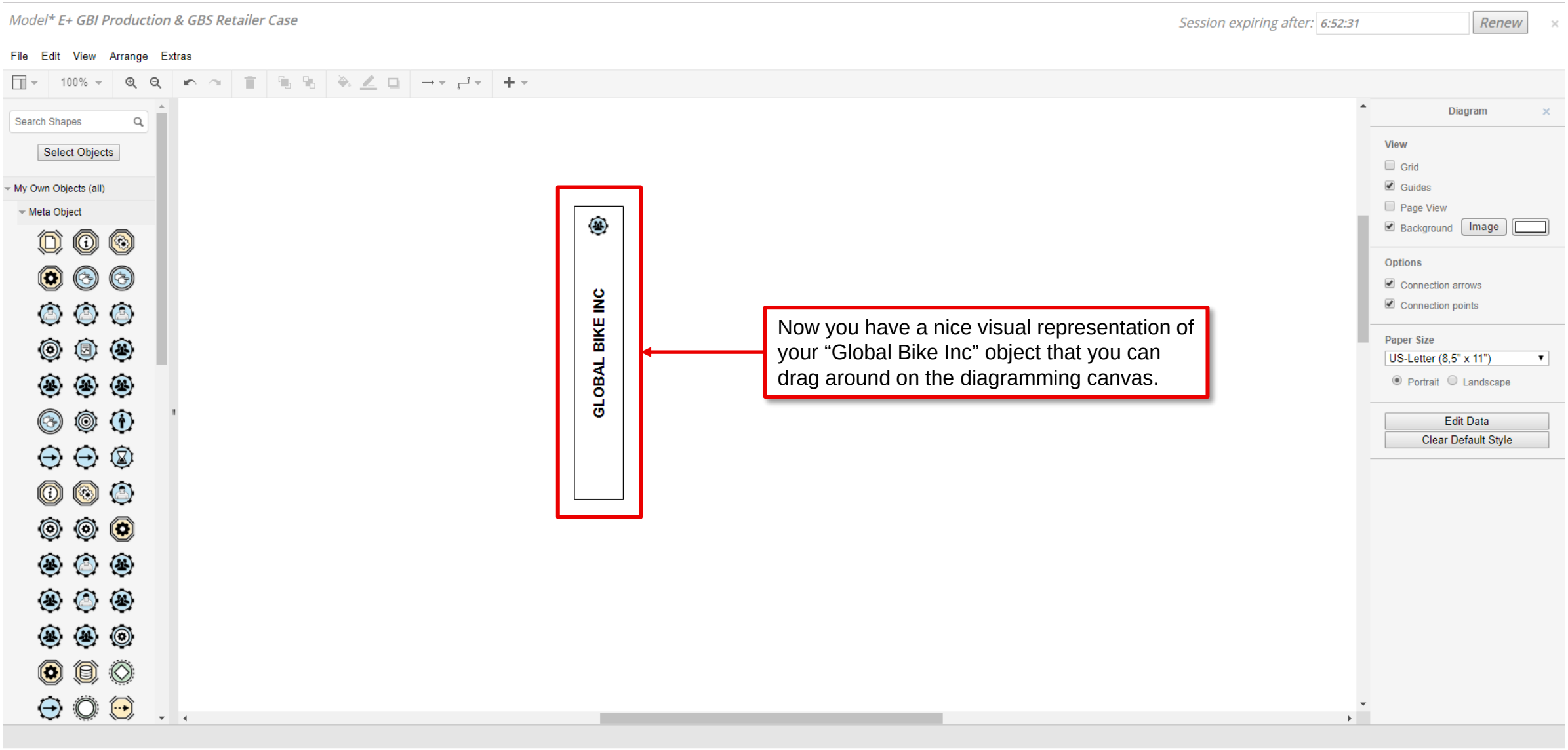


As you can see now, we have switched off the text (Custom Name) of the object and we only now see the notation of the object. The blue dotted lines around the notation shows the selection field of the object.

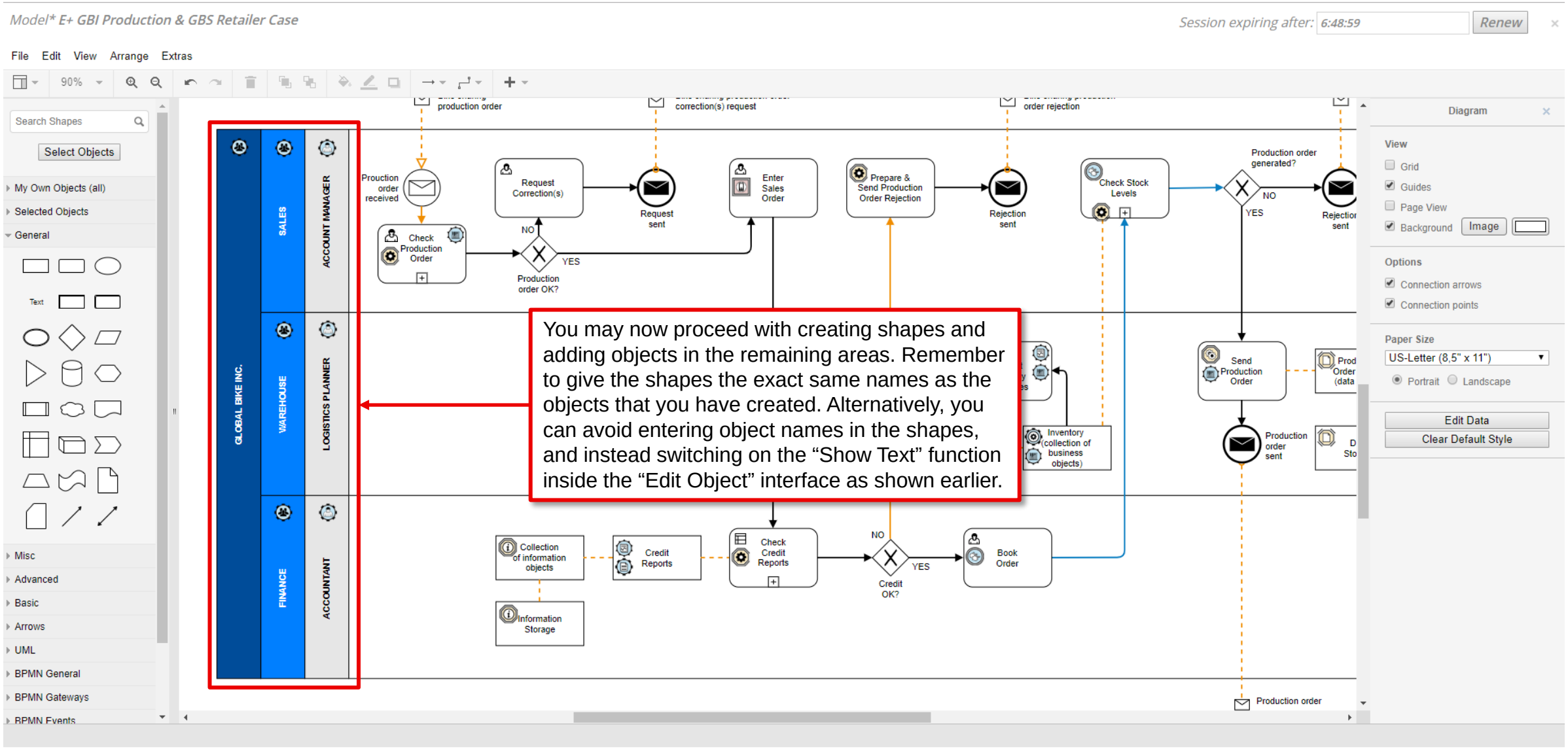
We want to minizime this field a bit so that it only just is around the notation.

The 8 different blue dots represent anchor that you use to attach to ends of lines and arrows. This ensures that whenever you move the notation or the line/arrow, they will stay attached to one another.

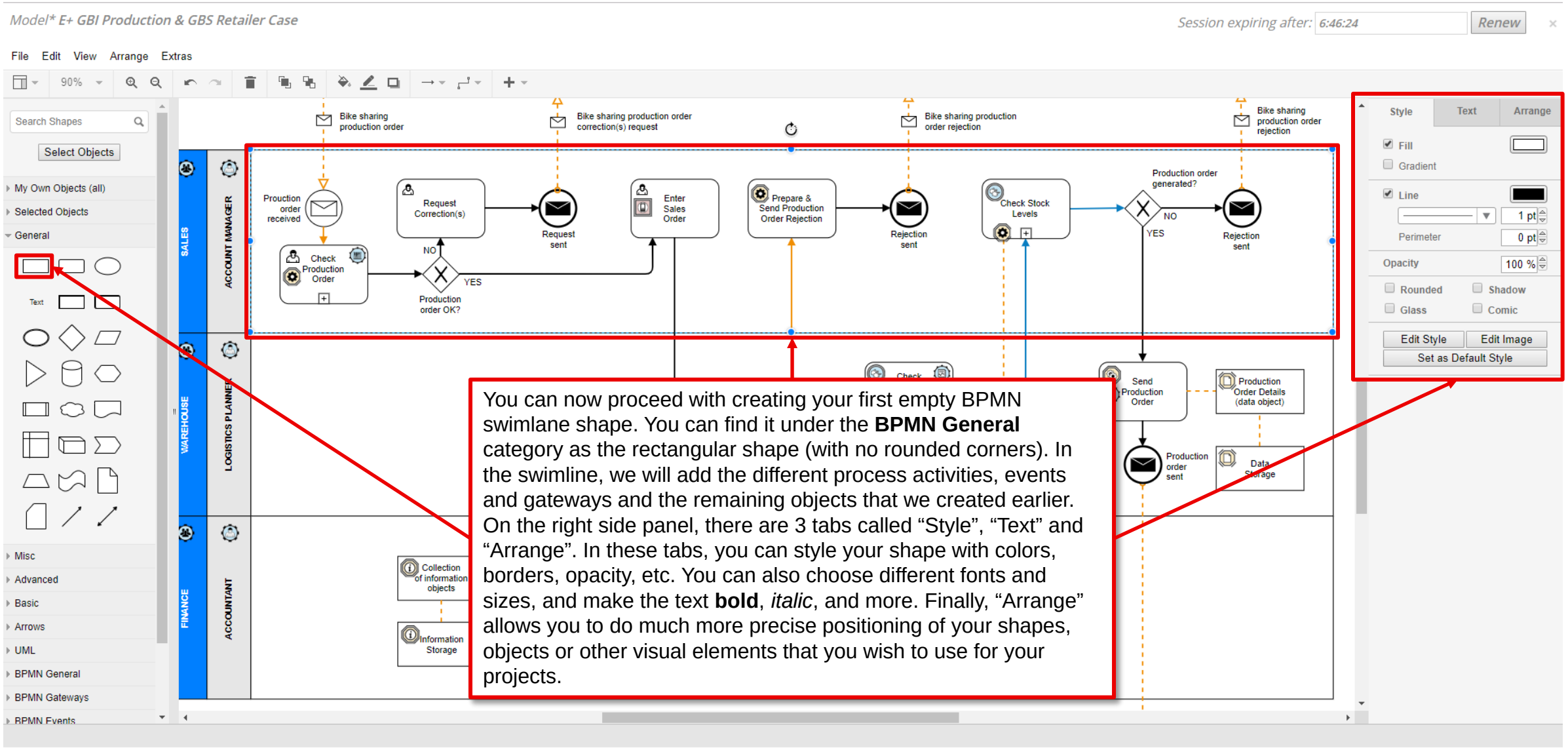
Adding Shapes and Objects



Adding Shapes and Objects

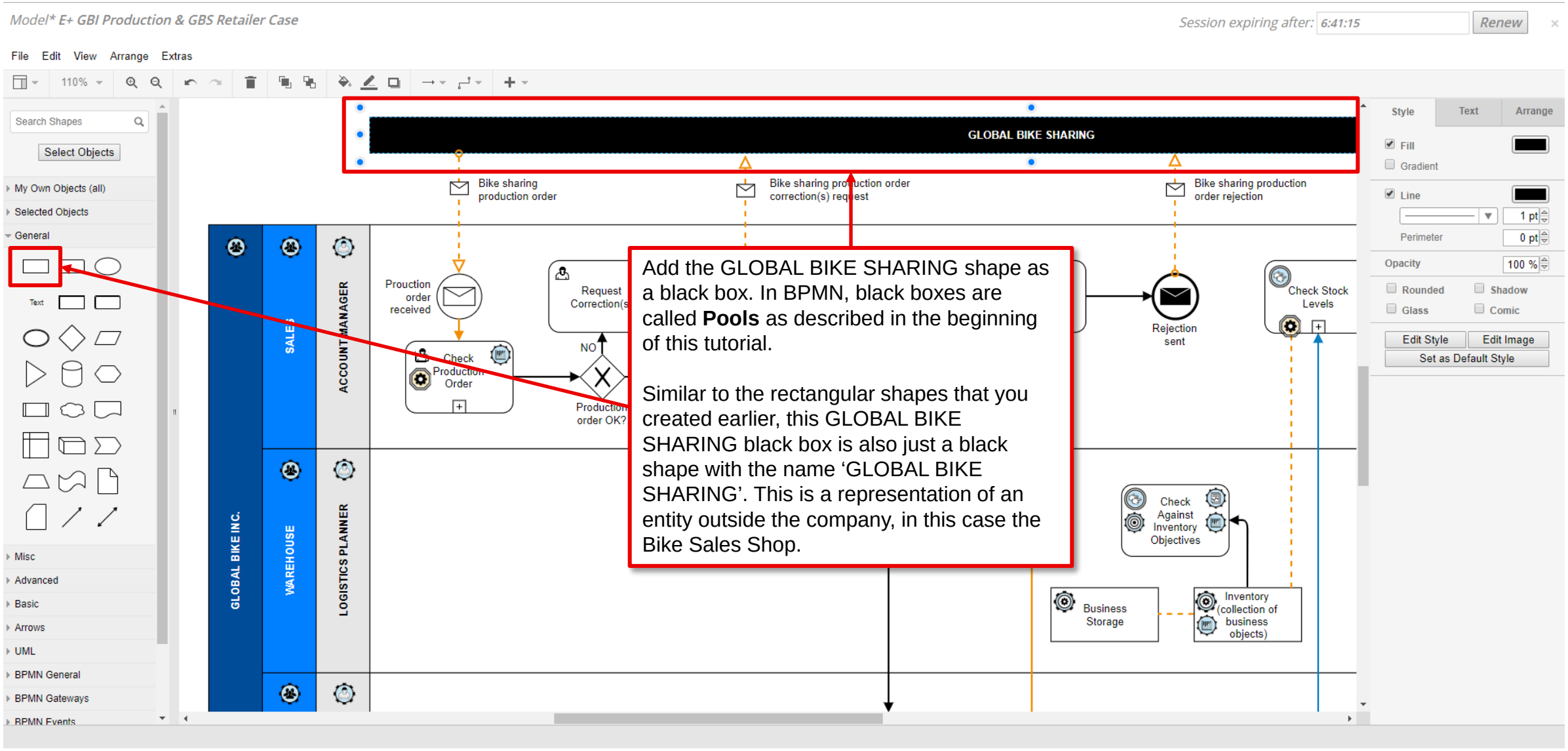


Adding Shapes and Objects



You can now proceed with creating your first empty BPMN swimlane shape. You can find it under the **BPMN General** category as the rectangular shape (with no rounded corners). In the swimline, we will add the different process activities, events and gateways and the remaining objects that we created earlier. On the right side panel, there are 3 tabs called “Style”, “Text” and “Arrange”. In these tabs, you can style your shape with colors, borders, opacity, etc. You can also choose different fonts and sizes, and make the text **bold**, *italic*, and more. Finally, “Arrange” allows you to do much more precise positioning of your shapes, objects or other visual elements that you wish to use for your projects.

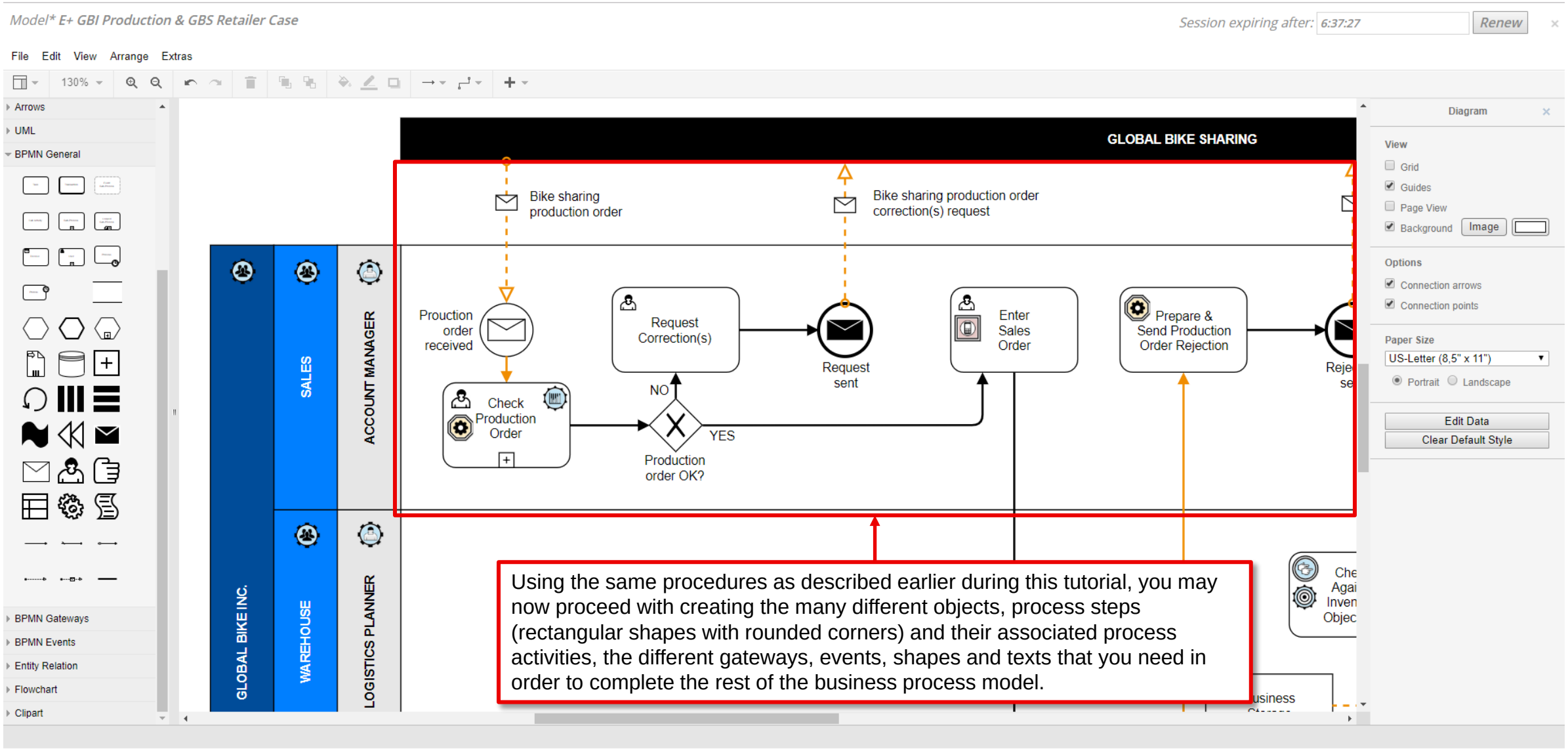
Adding Shapes and Objects



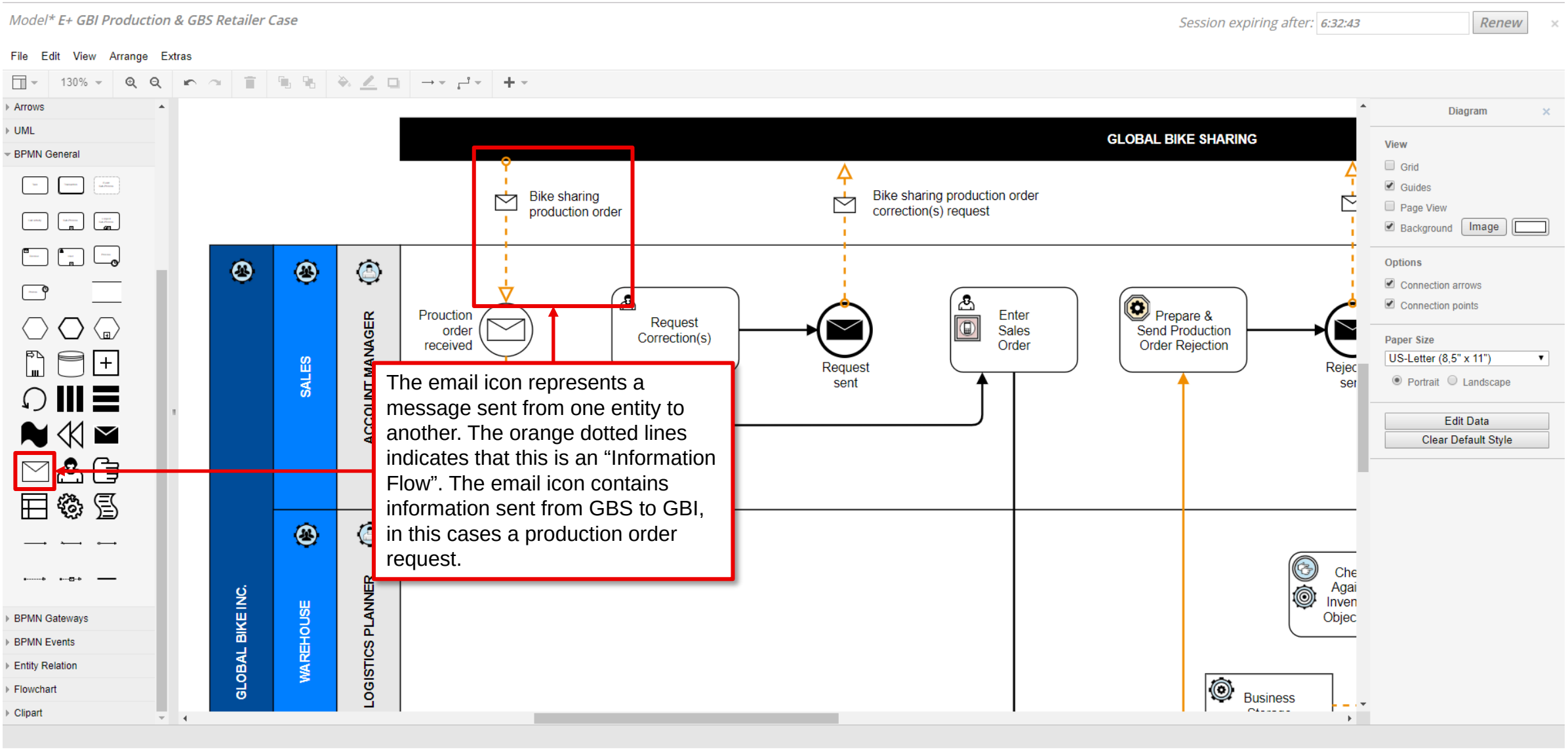
Add the GLOBAL BIKE SHARING shape as a black box. In BPMN, black boxes are called **Pools** as described in the beginning of this tutorial.

Similar to the rectangular shapes that you created earlier, this GLOBAL BIKE SHARING black box is also just a black shape with the name ‘GLOBAL BIKE SHARING’. This is a representation of an entity outside the company, in this case the Bike Sales Shop.

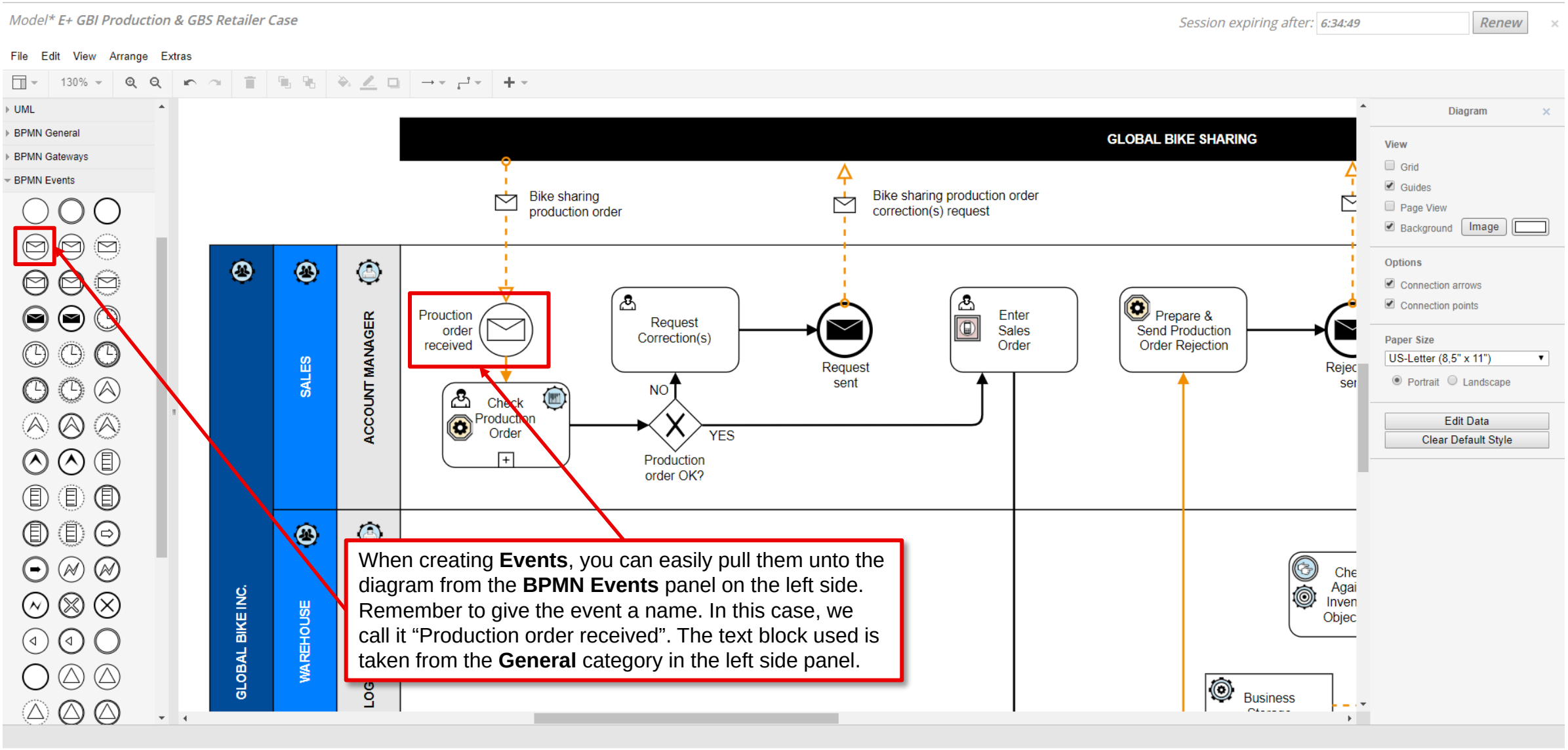
Adding Shapes and Objects



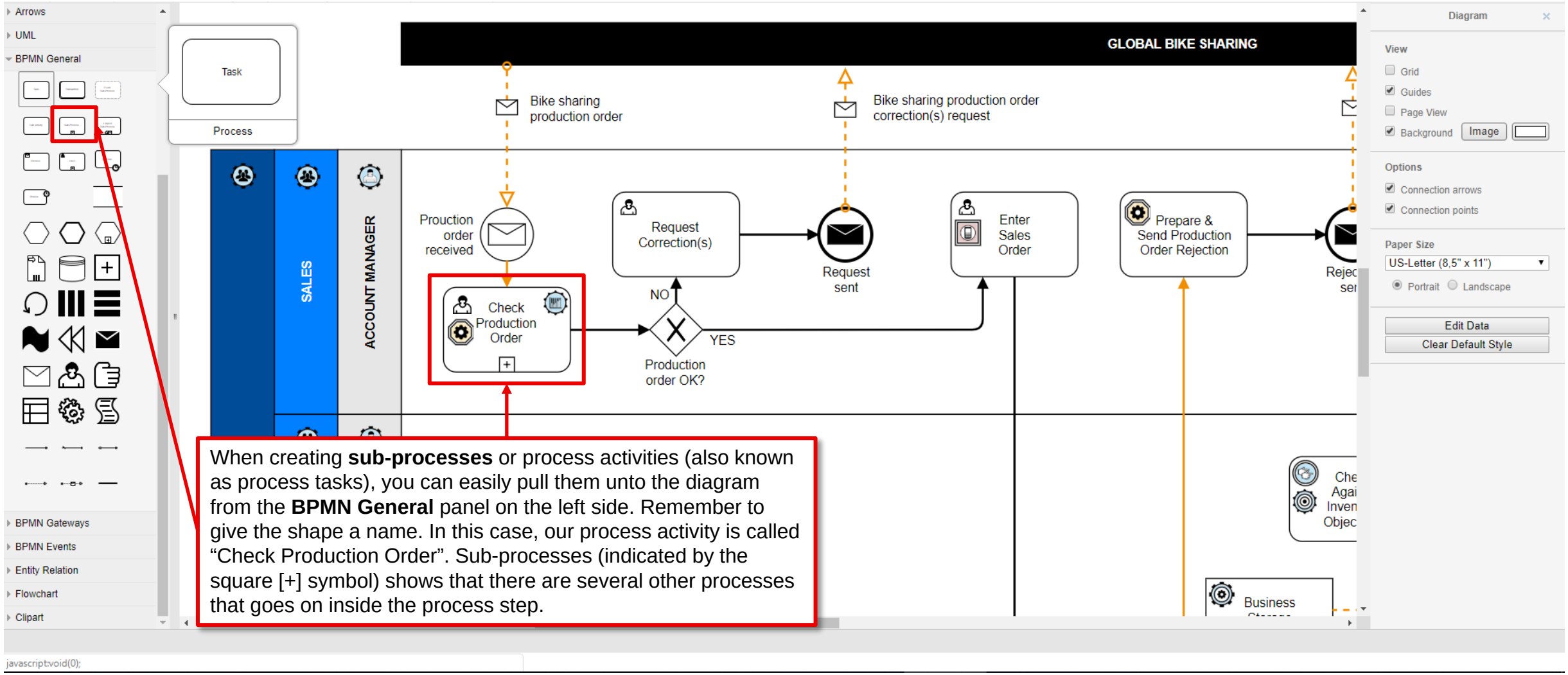
Adding Information Flows and Messages



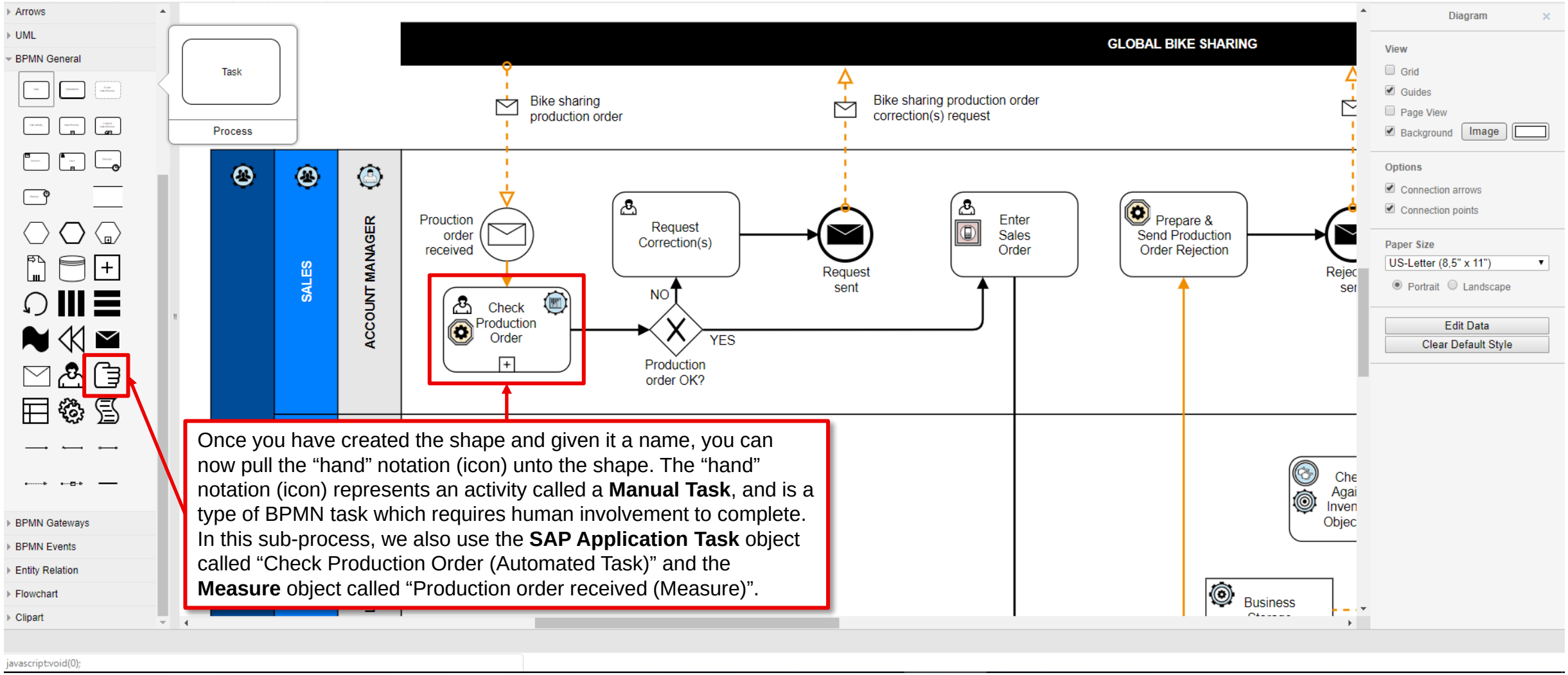
Adding Events



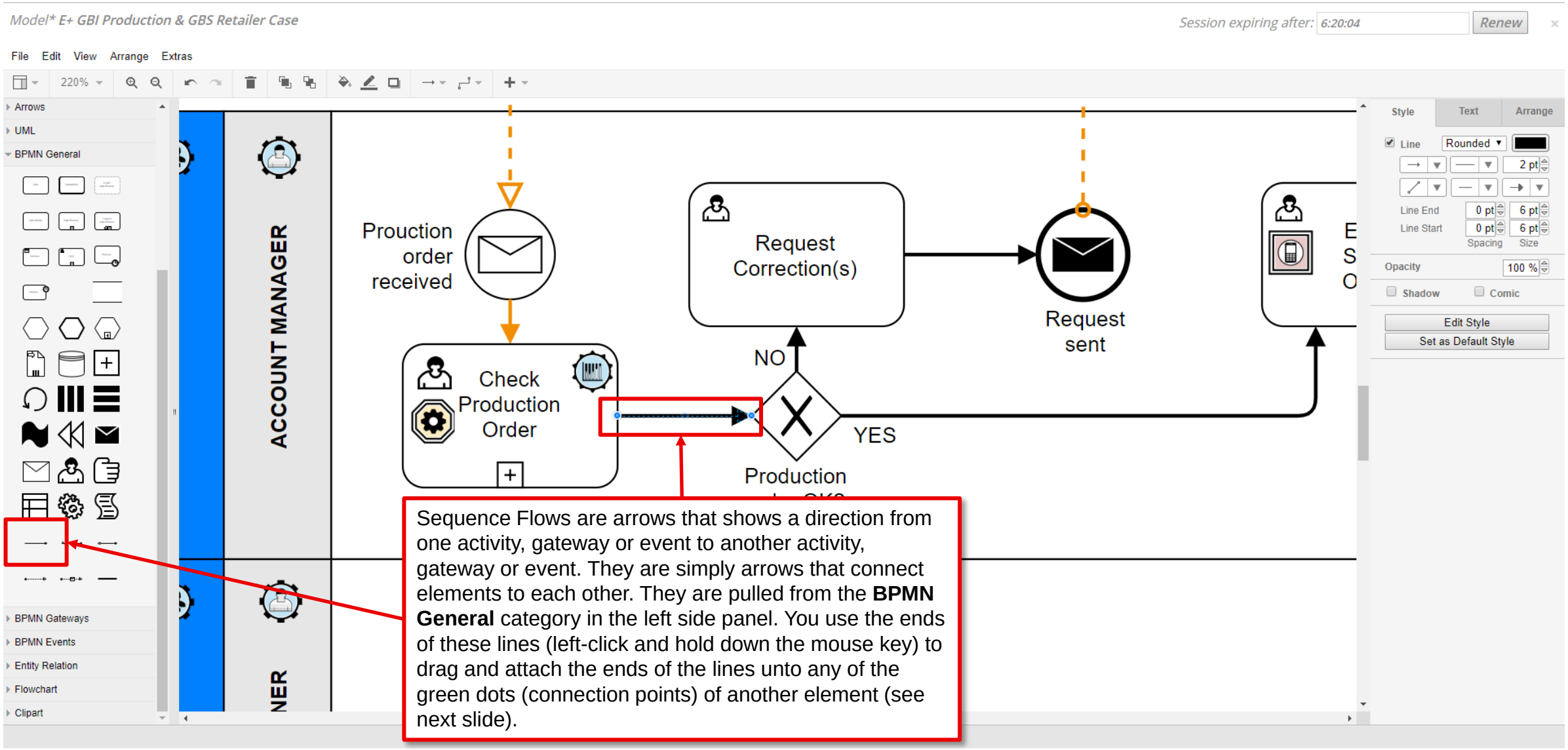
Adding Sub-processes



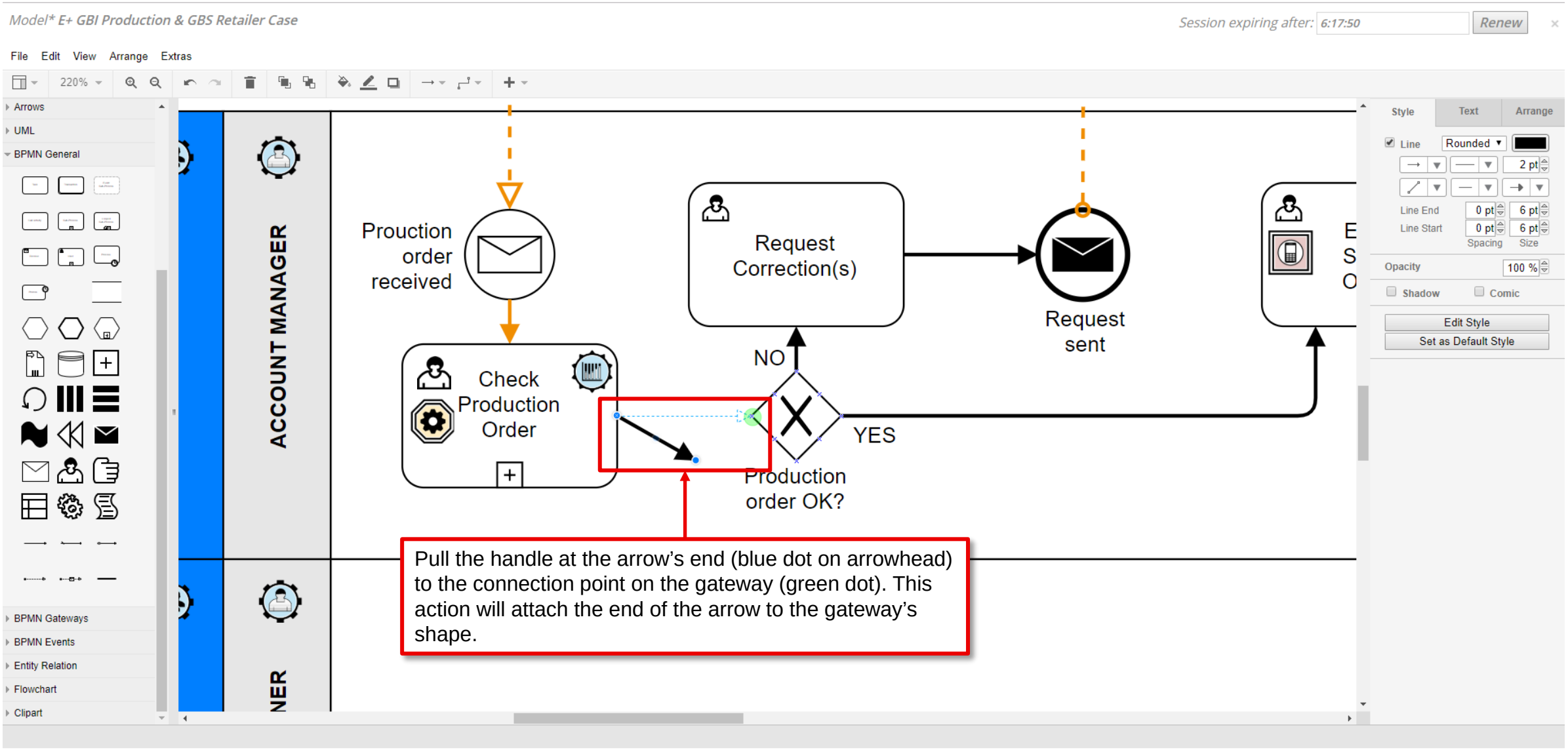
Adding Tasks and Objects to your Process Steps



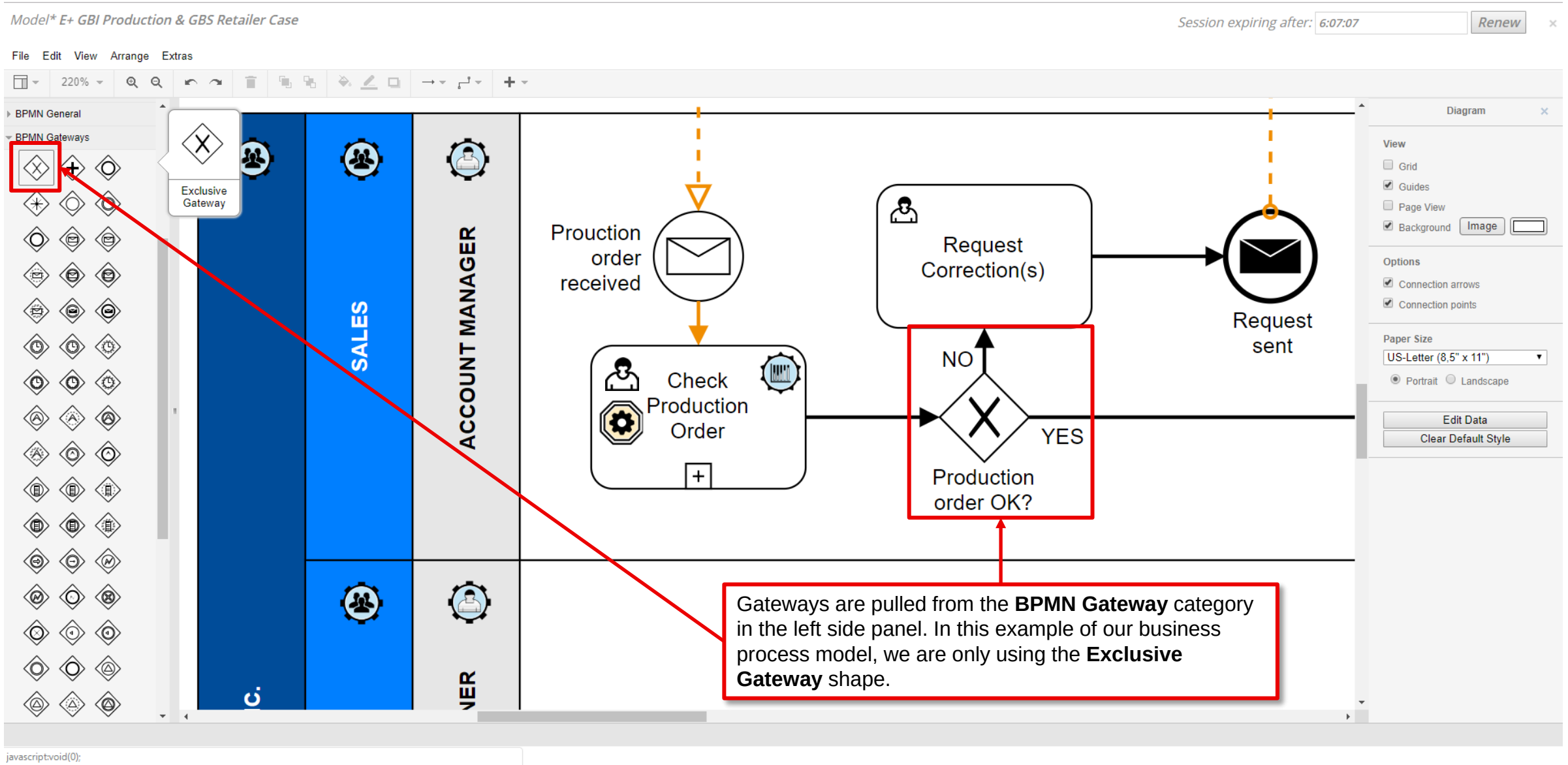
Adding Sequence Flows



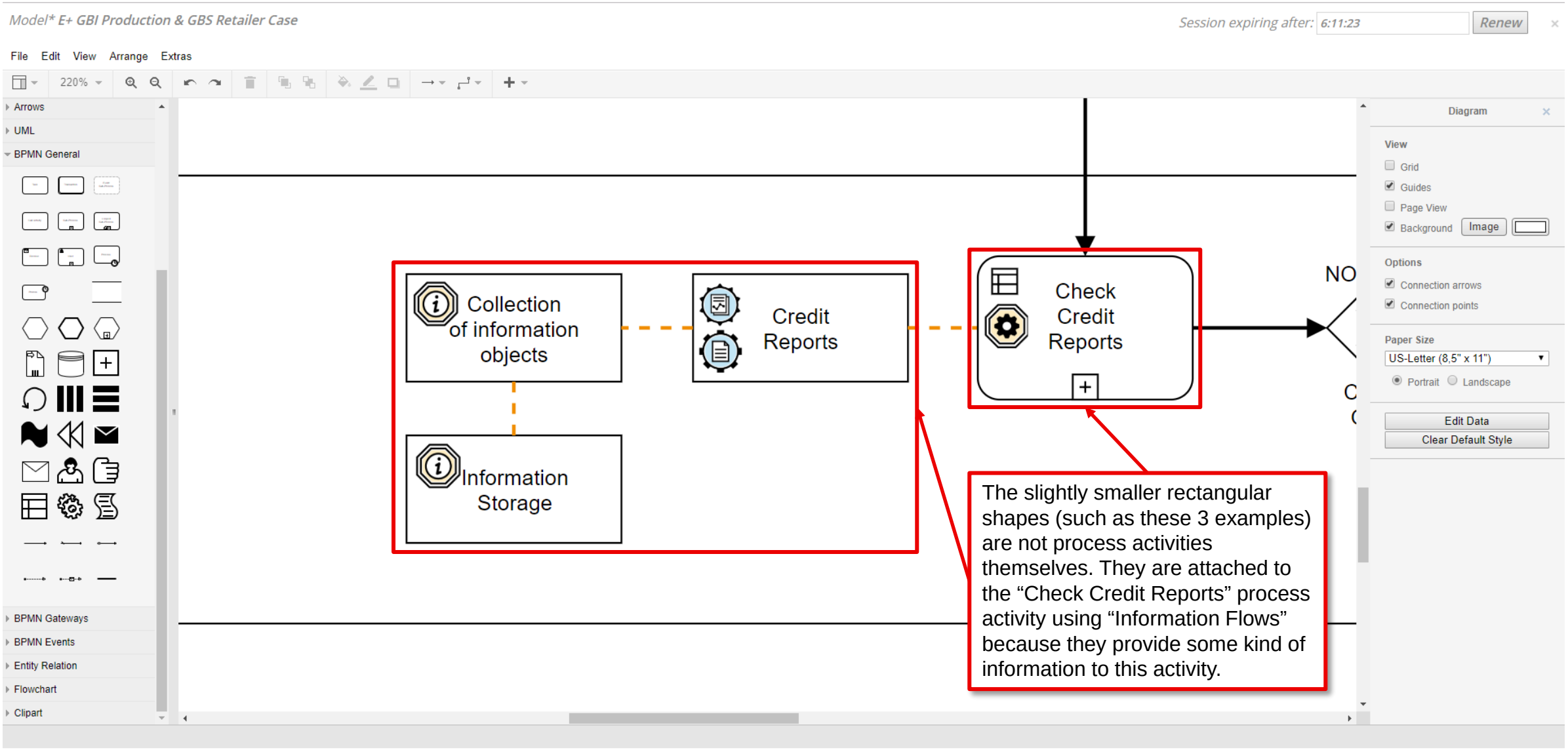
Sequence Flows are arrows that shows a direction from one activity, gateway or event to another activity, gateway or event. They are simply arrows that connect elements to each other. They are pulled from the **BPMN General** category in the left side panel. You use the ends of these lines (left-click and hold down the mouse key) to drag and attach the ends of the lines unto any of the green dots (connection points) of another element (see next slide).


Model* E+ GBI Production & GBS Retailer Case
Session expiring after: 6:17:50
Renew
File Edit View Arrange Extras
220%
Arrows
UML
BPMN General
BPMN Gateways
BPMN Events
Entity Relation
Flowchart
Clipart
ACCOUNT MANAGER
Prouction order received
Check Production Order
Request Correction(s)
Request sent
NO
YES
Production order OK?
Pull the handle at the arrow's end (blue dot on arrowhead) to the connection point on the gateway (green dot). This action will attach the end of the arrow to the gateway's shape.
Style
Text
Arrange
Line
Rounded
2 pt
Line End
Line Start
Spacing
Size
Opacity
100 %
Shadow
Comic
Edit Style
Set as Default Style

Adding Gateways



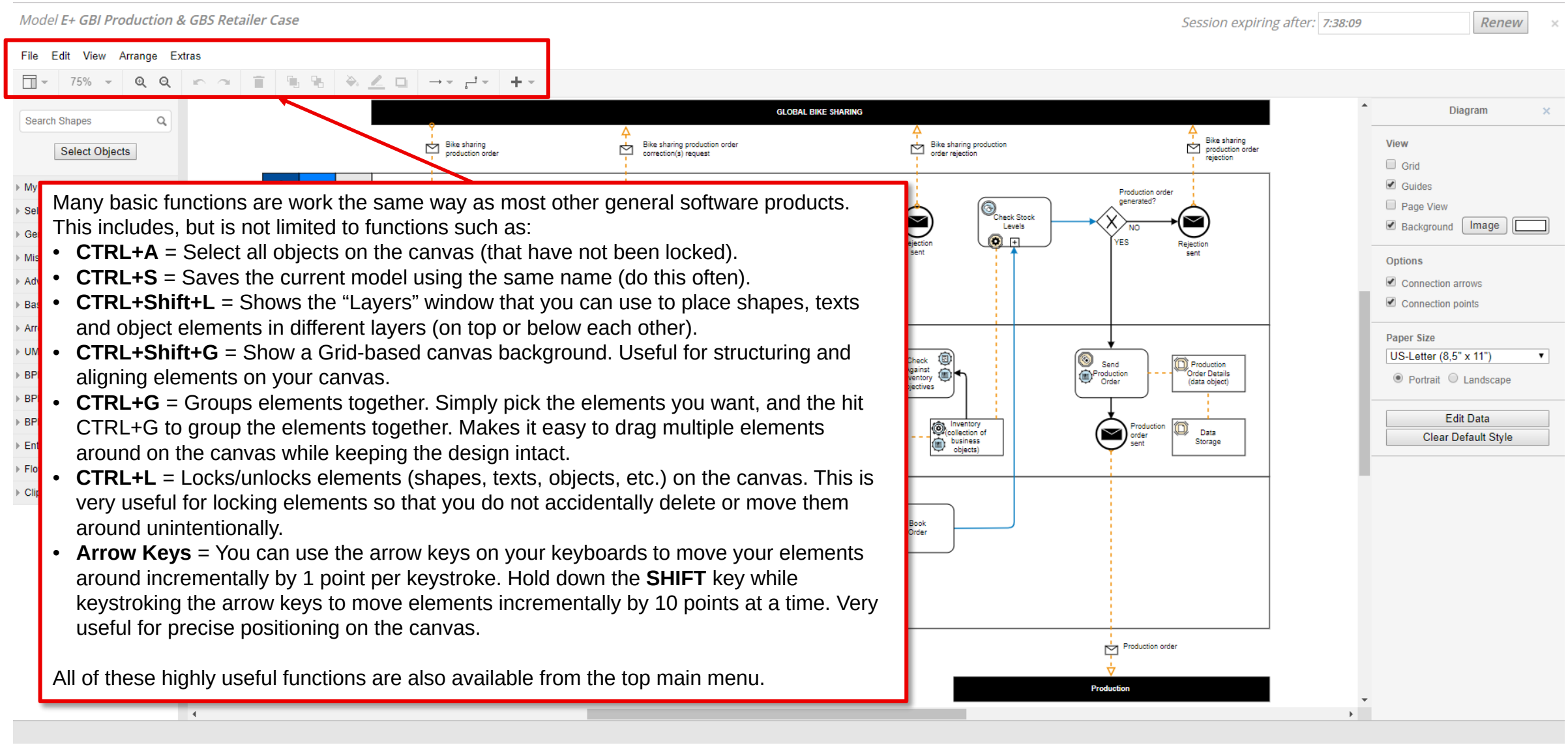
Adding Tasks and Objects to your Sub-processes and associating them with other Object types



Tips & Tricks of the Trade!

Get to know and learn some nice-to-know tips and tricks of how to work effectively with the modelling software component.

Tips & Tricks of the Trade!



Many basic functions are work the same way as most other general software products. This includes, but is not limited to functions such as:

- **CTRL+A** = Select all objects on the canvas (that have not been locked).
- **CTRL+S** = Saves the current model using the same name (do this often).
- **CTRL+Shift+L** = Shows the “Layers” window that you can use to place shapes, texts and object elements in different layers (on top or below each other).
- **CTRL+Shift+G** = Show a Grid-based canvas background. Useful for structuring and aligning elements on your canvas.
- **CTRL+G** = Groups elements together. Simply pick the elements you want, and the hit CTRL+G to group the elements together. Makes it easy to drag multiple elements around on the canvas while keeping the design intact.
- **CTRL+L** = Locks/unlocks elements (shapes, texts, objects, etc.) on the canvas. This is very useful for locking elements so that you do not accidentally delete or move them around unintentionally.
- **Arrow Keys** = You can use the arrow keys on your keyboards to move your elements around incrementally by 1 point per keystroke. Hold down the **SHIFT** key while keystroking the arrow keys to move elements incrementally by 10 points at a time. Very useful for precise positioning on the canvas.

All of these highly useful functions are also available from the top main menu.

Enjoy your modelling journey!

We hope that you learned something and gained valuable knowledge from this tutorial. Don’t be afraid to make mistakes or play around with the many options.

You can always undo and redo! ☺

Thank You

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