

BPMN Modeling Example Buyer / Seller Scenario

This document illustrates the definition of a business process with BPMN for a generic buyer-seller example scenario.

The following first shows the BPMN top-level description that corresponds to business process modeling on the CIM level in the SHAPE context, and then explains the BPMN bottom view description that relates PIM level business process modeling. We here consider an extended setting of the running example that also considers a bank and a shipper next the buyer and seller. Here, the customer purchases products through an online shop. The business process includes online payment and offline products shipment. This extended scenario appears to be suitable for demonstrating the different modeling constructs of BPMN. We used the Eclipse BPMN plug-in for creating both the top view and the detail description of the business process.

1 Top View Description (CIM)

In the extended buyer-seller example, the process describes that a customer purchases products from an online shop. Figure 1 shows the BPMN top view. This is more general, just describing communication between different participants; this corresponds to the CIM level modeling of process. In this diagram, it contains totally four pools, which mapping four participants in Service model:

- **Customer:** User who will come to online shop to buy products
- **Shop:** An online shop, which faces customer and being the mediator to collaborate with bank and logistic company.
- **Bank:** Processing the payment function during the process
- **Logistic company:** Processing the transportation function during the process

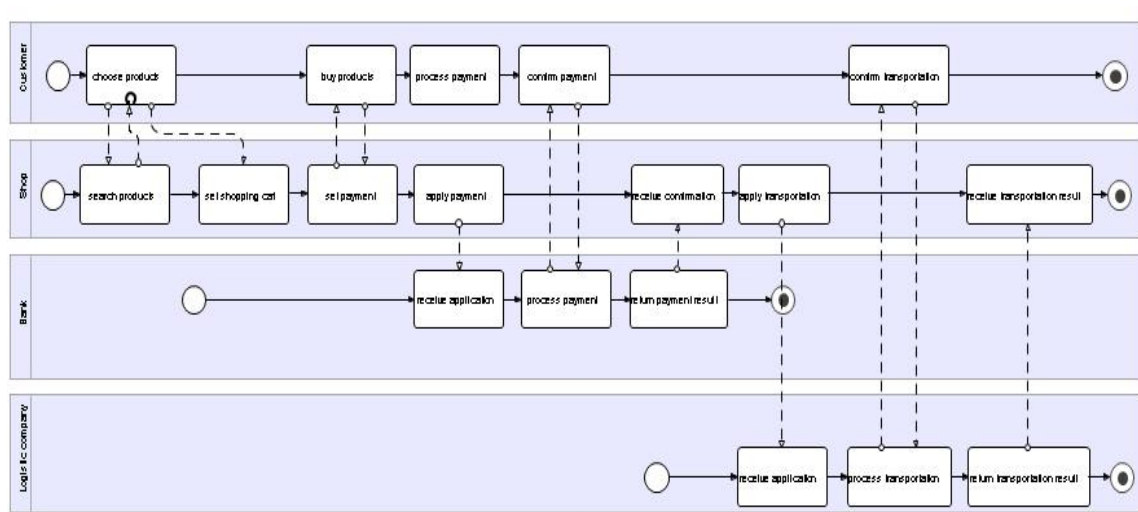


Figure 1: Top view of BPMN Process (CIM Level)

In this top view, the main entity is the task. The executing sequence follows the message flow and the work flow. The Customer is the default starter. The main flow is:

1. Communication between Customer and Shop: processing products' selection and shopping cart
2. Communication between Shop and Bank: processing set of payment functions
3. Communication between Shop and Customer: processing set of products transportation

2 Bottom View Description (PIM)

The following describes the parts of the business process in detail. This corresponds to the modeling of business process as foreseen on the PIM level in the SHAPE Reference Matrix.

When Customer logs in to the online shop platform, he will first choose products. This process will communicate with shop three times in order to choose all products desired by the customer. The loop set demonstrates that the user can choose products several times. Figure 2 shows this part in detail.

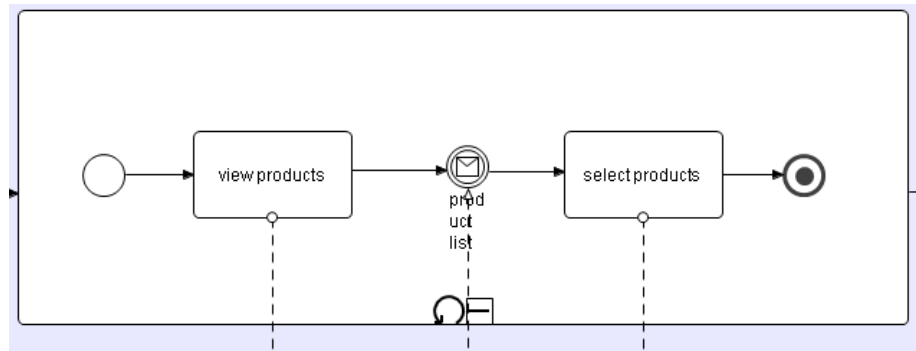


Figure 2: BPMN – Choose Products

Figure 3 simulates how to search and return a product list. The different levels of the tasks in the visualization denote the different lanes in the shop pool. Highest level is the GUI level in PSM view. The middle level stands for the controller and the calculation level. The Bottom level relates to the database level.

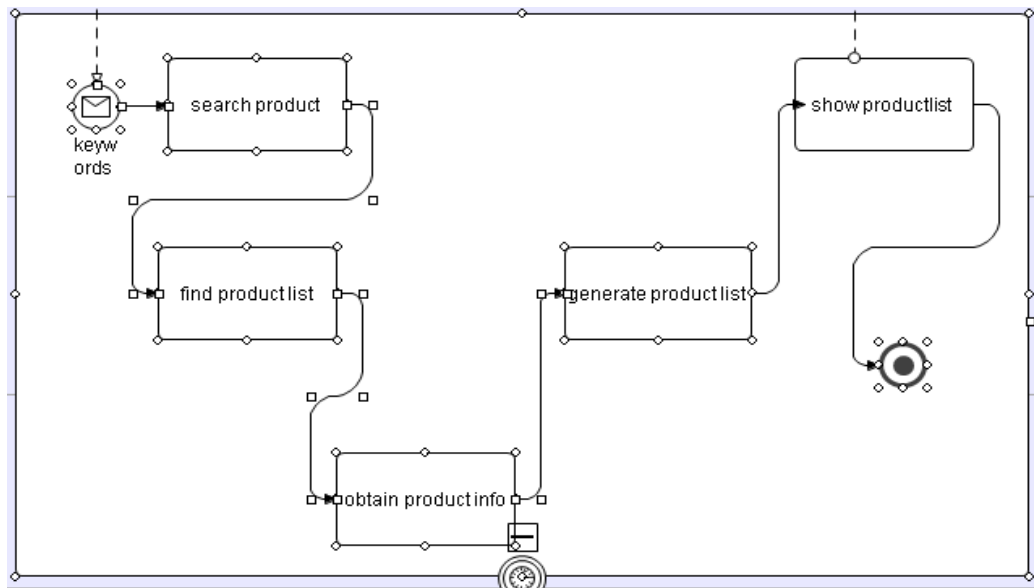


Figure 3: BPMN – Search Products

Figure 4 shows how the online shop regulates the content of the shopping cart after every iteration of the product selection sub-process. It also distinguishes different levels. The higher level is also the GUI, which the user could see from web pages. The initiate selection would be inter-control in the shop.

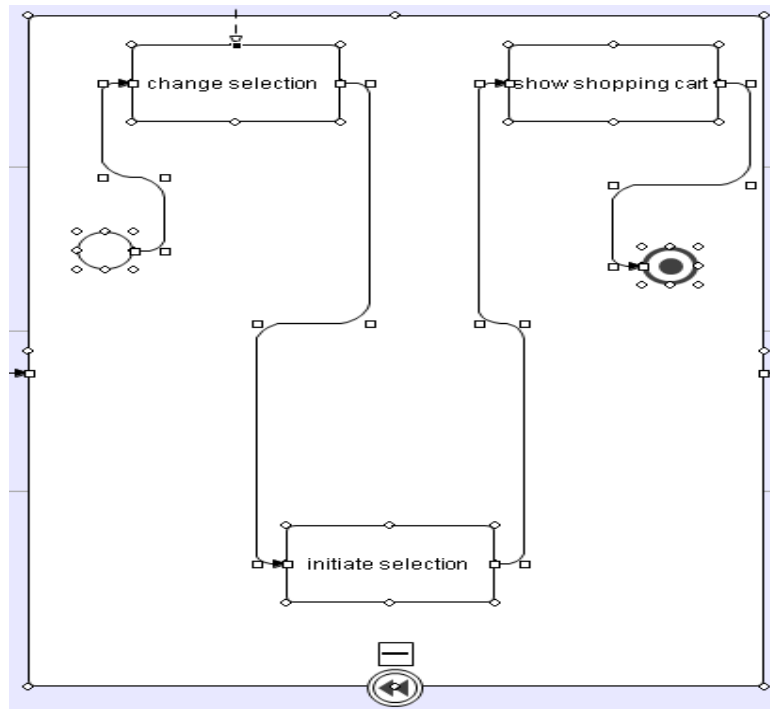


Figure 4: BPMN – Set Shopping Cart

Figure 5 shows the process part where the customer decides to buy products in shopping cart. At first, the user sends a message event to indicate to the shop that he wants to buy the products. After a couple of operations, the system tells user the return information (confirmation). Then, the user could decide he will really buy it or not.

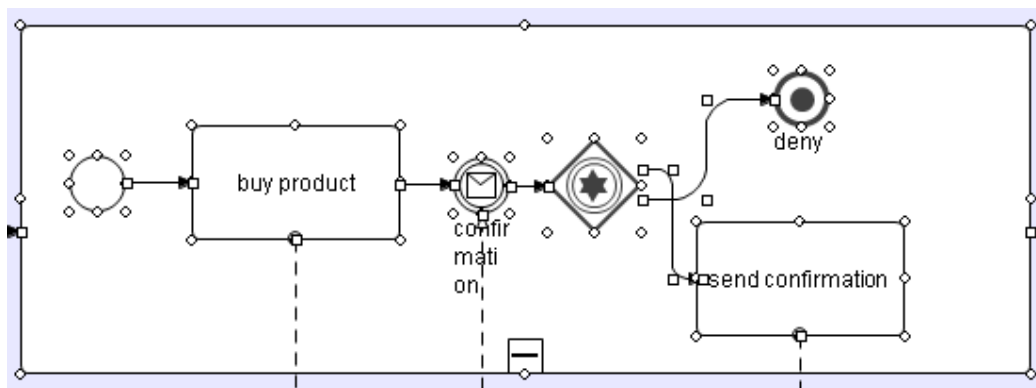


Figure 5: BPMN – Buy Products

Next, Figure 6 shows the internal processing on side of the online shop after a purchase order is received. At first, they will initiate total payment, if user's account is not enough for payment, there should be a compensate task that the product in shopping cart should release. Then, other customers could choose these products. After the normal progress, the shop got the information, and starts to communicate with bank. Here, the process conducts "set payment" and "apply payment" together.

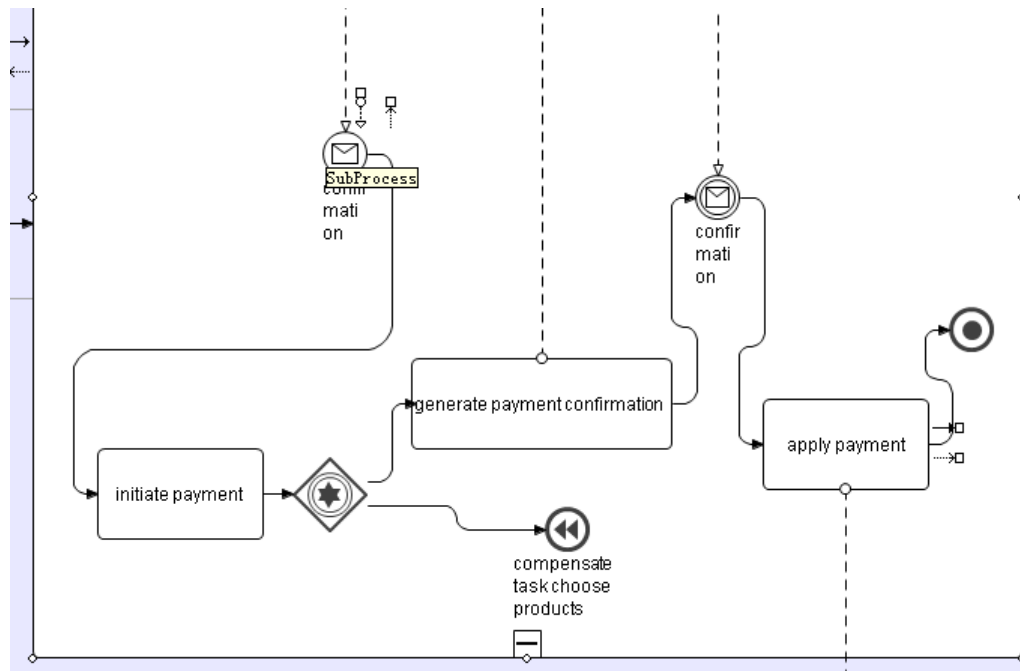


Figure 6: BPMN – Set and Apply Payment

Afterwards, the bank receives the information transfer from shop, bank will contact with customer, let user decide if they would pay for these products. Then, bank will execute the money transfer flow. Figure 7 shows the respective part of the business process.

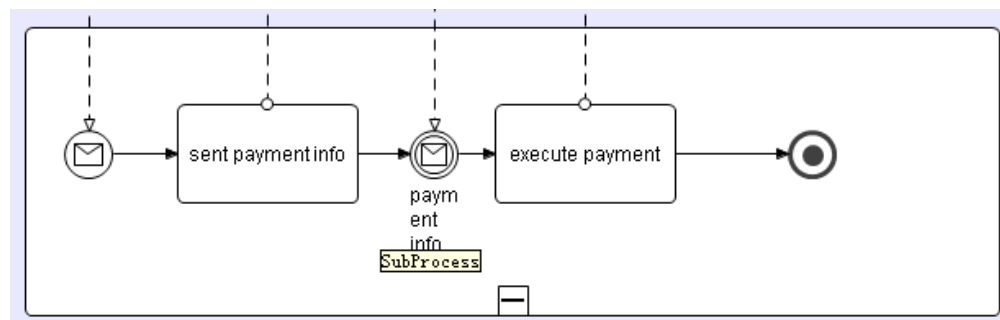


Figure 7: BPMN – Execute Payment

Finally, after the payment is executed, the shop will initiate the shipment of the products, which is executed by the logistic company. The logistic company executes the transportation, and returns the confirmation back to the shop. Figure 8 shows the BPMN model for this.

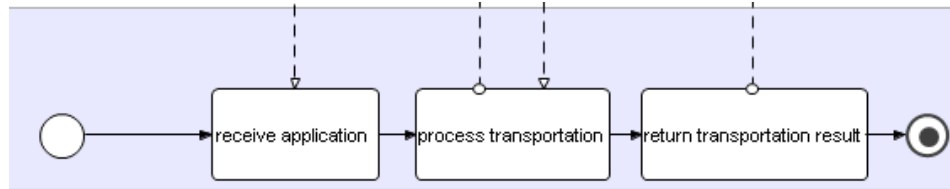


Figure 8: BPMN – Execute Shipment