TRANSACTIONAL PROCESS - CONSTRUCTION
Bizagi Process Modeler
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1. INTRODUCTION TO TRANSACTIONS

Bizagi is a powerful and easy tool to use. Bizagi can model processes that go from the smallest and simplest to the most robust and complex aspects. This document presents an example of a complex process that has been modeled and automated using Bizagi’s transactional sub-process.

Transactional processes are used to coordinate multiple activities that need to be completed successfully, if this does not happen it is necessary to return to the initial state (State before the activities where ever performed).

The long lasting transactional BPMN models have three possible outcomes.

1. The first outcome is when all activities execution in the process are successfully performed. if this happens the process continues with the normal flow.
2. The second outcome is when a failure occurs. It is necessary to reverse all activities that were already completed within the process, through the execution of the compensation activities. Each activity that needs compensation has one task associated to it. Compensation is executed when it is necessary to return to the initial state of something, they are only performed when the activity has successfully ended.
3. The last outcome occurs when an unexpected error appears. The transactional sub-process’ activities are interrupted without any compensation and the process continues with the intermediate error event.

The Travel Request Process is presented as an example of a transactional sub-process. When a travel request is made, it is necessary to make reservations. If they are not successfully completed it is not possible to do the trip. On the other hand if some reservations are completed, it is necessary to execute the compensation activities, in the example, cancel the successful reservation. In addition such activities can be executed by connecting Bizagi to external information systems, during this it is possible that an unexpected error occurs and needs an especial treatment.
2. PROCESS MODEL

The Process begins when an employee requests a trip. In the application the employee indicates the requirements, for example hotel, flight, and/or the rent of a car.

The employee’s boss can approve, reject, or request changes in the application. If the trip is approved, the Travel Assistant should make the reservation to the requested items in the transactional sub-process called Booking.

In order to continue with the normal flow of the process it is necessary that all the bookings have been made successfully. If the employee requests an advance, the process continues with that activity.

Finally when the employee returns, he has to do an expenses report of the trip.
The sub-process Booking is modeled as a transaction which has a special behavior. It is supported by a special protocol that assures that all parties involved have complete agreement about completing or canceling the activity.

A Transactional sub-process is performed successfully when all the activities inside the sub-process are ended correctly. The sub-process finalizes and the task’s results are stored on the database. Exceptions or cancellation events are launched without affecting the information or integrity of the database when the transaction is not successfully completed.

Taking this into account in the Travel Request Process the transactional sub-process can be used in this way:

An employee can travel only if all the bookings requested by him/her are made successfully. For example if the employee is requested for a travel abroad, he probably needs a place to stay, and book a flight. The employee could not travel if the tickets are booked, but the hotel is not, or if the hotel reservation is booked, but there is not an available flight.
If all the bookings are correct, the employee is notified about the booking information, and all the information is saved in the database and the process continues with the sequence of the normal flow.

If any of the sub-process activities fails, it is necessary to make compensation, or return the activities to the initial form. If the flight booking is successful but there is not a hotel available, the employee cannot travel. However the sub-process cannot finish until the flight is canceled.

With a transactional sub-process, the compensation (cancel the booking) of the finished activities are executed sending an exception, through a cancellation signal. The process performs the activities of compensation required for each one of the sub-process tasks.
When the compensation activities are finished the process leaves the sub-process by executing the cancellation flow. The data modified within the sub-process is not stored in the database.

The book flight is made through an interface that searches a flight with the information requested for the employee. It is possible that in the course of this operation an unexpected error occurs, that will require taking action. If this happens, the activities need to be canceled without compensation and the process continues by the intermediate error event.
REPORT EXPENSES SUB PROCESS

After the trip, it is necessary that the employee registers all expenses incurred during the trip; the expense report must be approved by the employee's boss.

The expenses report needs to be consistent with the company policies. If this process is not consistent enough, it is necessary to return to the Register Expense Report task; otherwise the process continues to the last activity Record Expenses.
3. DATA MODEL

The Business Process entity is Travel Request; it holds trip information such as the arrival and departure date, arrival and departure city, booking requirements, etc. The entity is related to the Hotel, Flight ticket and Car master entities, where all the booking information is stored.

The booking information is stored in Bizagi database after all the reservations are made successfully. During the booking sub-process execution, the information is stored in the scope but not in the database. The information is not stored if the transactional sub-process finishes through a cancelation or error signal.

In addition the process uses two parameter tables, Country and City.

For additional information about Long term transaction please visit:

4. DEFINE FORMS

The transactional process includes several forms. The forms support the management of information.

REGISTER TRAVEL REQUEST FORMS

The form uses dynamic combos to search the departure and arrival city.

BOOK CAR AND BOOK HOTEL FORMS

Both forms include a check render which needs to be selected if there are not available bookings either the car booking, or the hotel booking. If the render is selected, and an exception of cancellation is thrown, then the necessary compensation activities are performed.
CANCEL HOTEL, CANCEL CAR AND CANCEL FLIGHT FORMS

The forms include a check render that needs to be selected after the cancelation. The render is required because this corresponds to the compensation activities.
Cancel Car Form

**Car Information**
- Rental Company Name:
- Vehicle Class:
- Rental City:
- Pick up Date:
- Pick up Location:
- Return Date:

Car Canceled:

Flight Car Form

**Flight Information**
- Airline:
- Depart From:
- Departing Date Time:
- Arrive To:
- Arriving Date Time:
- Flight Number:

Flight Canceled:

Cancel Hotel Form

**Hotel Information**
- Hotel Name:
- Address:
- City:
- Telephone:
- Check Out Date:
- Check in Date:
- Price per Night:

Hotel Canceled:
BOOK FLIGHT FORM

The forms include a button to search through an interface the required flight. If an error occurs, an error message is shown and an exception error is thrown. The error is shown with a random number, to simulate the connection to an external system, via interface.
5. BUSINESS RULES

DEFINE EXPRESSIONS

The transactional sub-process includes an inclusive gateway. It enables one or more paths based on the request made by the employee in the Register Travel Request.
ACTIVITIES

The process includes several business rules, the most important are:

- Set the total amount requested and approved for the travel advance on the Register Travel Advance and Approve Travel Request.
- Set the information to the travel request.

Because the Booking sub-process was modeled as a transactional sub-process, it is necessary to include the throw of the cancel and error events, for each activity.

- At the end of the Book Hotel task: If Unavailable Hotel was selected, an exception of cancellation is thrown. With this, the compensation activities can be performed.

- At the end of the Book Car task: If Unavailable Car was selected, an exception of cancellation is thrown. With this the compensation activities can be performed.
If (TravelRequest.CarUnavailable)
{
    Helper.RaiseCancelIntermediateEvent("Cancel");
}
6. PARTICIPANTS

A Wizard is used to define the Performers in the process. In the fifth step of the Wizard, click on Define Performers.

The Approve Travel Request is performed by the applicant’s boss. For this allocation to work, it is necessary to have a boss for the user making the trip. This is parameterized in the Work portal.
The book hotel, car and flight activities are performed by the travel assistant. For this allocation to work it is necessary to have someone in the project with that role.

The Upon Return Report Expenses task is performed by the case creator.
7. E-MAIL CONFIGURATION

The process includes several e-mails:

- **Send Rejection Message**

  ![Send Rejection Message](image1)

  **To:** TransactionProcess.Applicant.contactEmail
  **Subject:** Rejection Message

  Dear <TransactionProcess.Applicant.fullName>,

  Your travel request has been rejected. Travel Request <RefNumber>.
  Best regards, Administrative Team.

- **Notify Unsuccessful Booking**

  ![Notify Unsuccessful Booking](image2)

  **To:** TransactionProcess.Applicant.contactEmail
  **Subject:** Unsuccessful Booking

  Dear <TransactionProcess.Applicant.fullName>,

  Your travel request was canceled because the hotel or the car booking were not available.
  <TransactionProcess.CancelComments>
  Best regards, Administrative Team.
Notify Unexpected Error

Dear «TransactionProcess.Applicant.firstName»
During the flight booking, an unexpected error occurred. During the flight booking, an unexpected error occurred and therefore we were unable to complete your request.

«TransactionProcess.HandleErrorComments»
Best regards, Administrative Team.

Notify Employee about the booking process.

Dear «TransactionProcess.Applicant.firstName»
Information about your trip.
Hotel:
Name: «TransactionProcess.Hotel.HotelName»
Address: «TransactionProcess.Hotel.Address»
Flight:
The Project is initialized with the sending of emails disabled, it does not have the company’s SMTP customization. It is therefore necessary to configure the SMTP e-mail server that your company uses and then enable the e-mails.

In Bizagi Studio, enter the Configuration tab. Click on Environment and select the popular option. Enable the box to send notifications and type the name of the SMTP server and the account from which the emails are to be sent, as shown in the diagram below.

For further information refer to the following articles:

Environment Configuration:


SMTP server: