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Analog Cafe

Business Process Engineering Project

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1- INTRODUCTION

In my Erasmus journey, I visited a lot of places and in each of them I wished that I had an analog camera with me to take warming and vintage photographs of the view and my friend's. I am sure that lots of the tourists thought the same thing but just didn't have any cameras or didn't want to buy something expensive for an one time trip.

Also in touristic places, cafe and shop owners needs to attract tourists for earning money. For achieving this, they need to be different. They need to put themself forward in the eyes of the tourists with something that attract them.

In that case, I thought, why don't a cafe owner lends a camera to the customers who eats in his/her place? The customers would take photos and videos all day. At the end of the day, they'll bring back the camera and the cafe owner would edit the photos and videos and hand it over to the customer. The cafe owner would not lends camera who is not a customer.

With this way, the owner's cafe would be a touristic attraction place for people who'd like to take vintage photos for their trips. And the tourists would fullfil the need of a vintage camera and have a different and cute memory of their trip. These kind of situations inspired me for the idea of adding camera hiring to the cafe's menu.

The business is comprised of three main actors: The interface for ordering food and hiring camera, customers who orders food and hires camera, the cafe owner who sells food and lends camera to the customers. In the interface, customers will select the food that they wanted from the menu and at the payment point the interface will ask if they want to hire a camera for a day. If the customer selects no, he/she will only pay for his/her food but if he/she selects yes, he/she has to register to the system. After registration, the hiring price will be added to the total order price.

The business is modeled in-detail using BPMN notation. The whole business is further modeled using BPEL. The value provided by each actor is analyzed using value model. Finally the goals required for the sustainability of the business is discussed in the form of critical success factors. The indicators required to measure the success are defined in the form of KPI's.

2- PROCESSES

2.1- CUSTOMERS

The customers are people who order food and and want to hire cameras for their trip for one day long. After registering the system and provided all the required information, customers pay for the food and the camera with providing their bank details for payment of services. After they are done with the camera, they bring it back to the cafe owner for recieving edited photos and videos that they took.

2.2- THE MENU INTERFACE

The interface provides a menu of the cafe's foods to the customer. The customer selects the food that they want from the menu and proceed to the payment point. At the payment point the interface will ask to the customer that if they want to hire a camera or not. If the customer selects no, he/she will proceed to the final payment. In the other case, if the customer selects yes, he/she has to register to the system and after that the price of the hiring the camera will be added to the total price. Then the customer will proceed to the payment.

2.2.1- Manage Data

The data flow in the system is managed by this process. New registrations and authentications are stored in the user database. The camera inventory list updated by the system is stored in the camera inventory database and the payments that'd been done are checked and stored in the payment database.

2.2.3- Manage Camera Selection

When a customer requests to hire a camera, this process will work. It'll check if there are any available camera or not and will notify the customers. And after all that, it'll update the available cameras.

2.3- THE CAFE

In the cafe, there are two segments. First one is the cafe owner, which lends camera to the customers and recieve the camera back at the end of the day. And after recieving it back, editing the photo and videos and hand it over to the customer. Second one is the cafe staff, which are like,waiter, cook, etc.

2.3.1- The Cafe Owner

The cafe owner will edit the photo and the videos that taken by the customers who choose to hire a camera. After editing them, the owner will give the edited versions of the photo and the videos to the customers and after that he/she will update the inventory of the camera.

2.3.2- The Cafe Staff

The cafe staff will prepare the orders that the customers made from the system and call the customers by their numbers which is given by the system for them to take their orders.

3- BUSINESS PROCESS FLOW

3.1- BPMN DIAGRAM

3.1.1-Complete Business

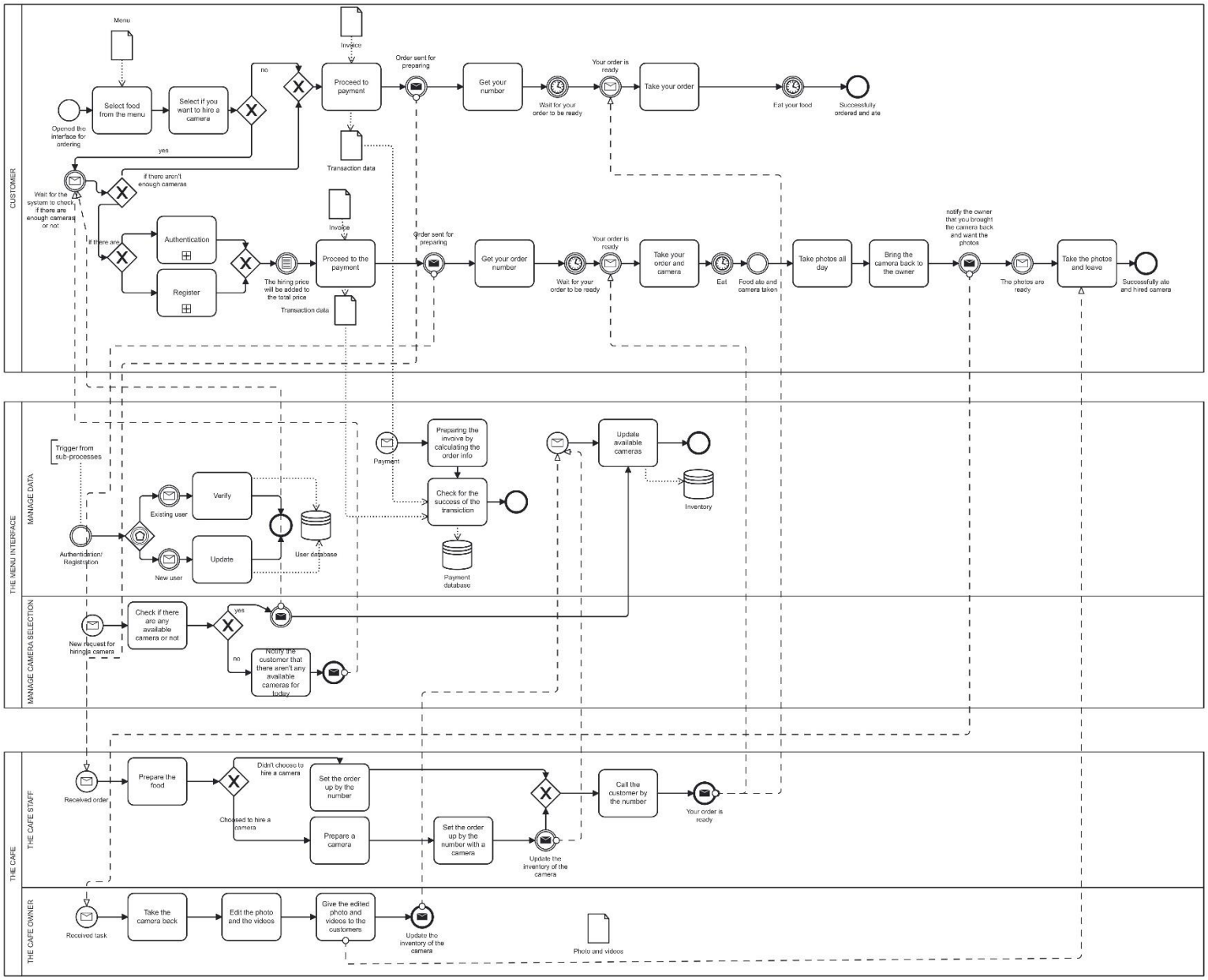

Figure 1: Analog Cafe Complete Business BPMN Diagram

3.1.2- Customers

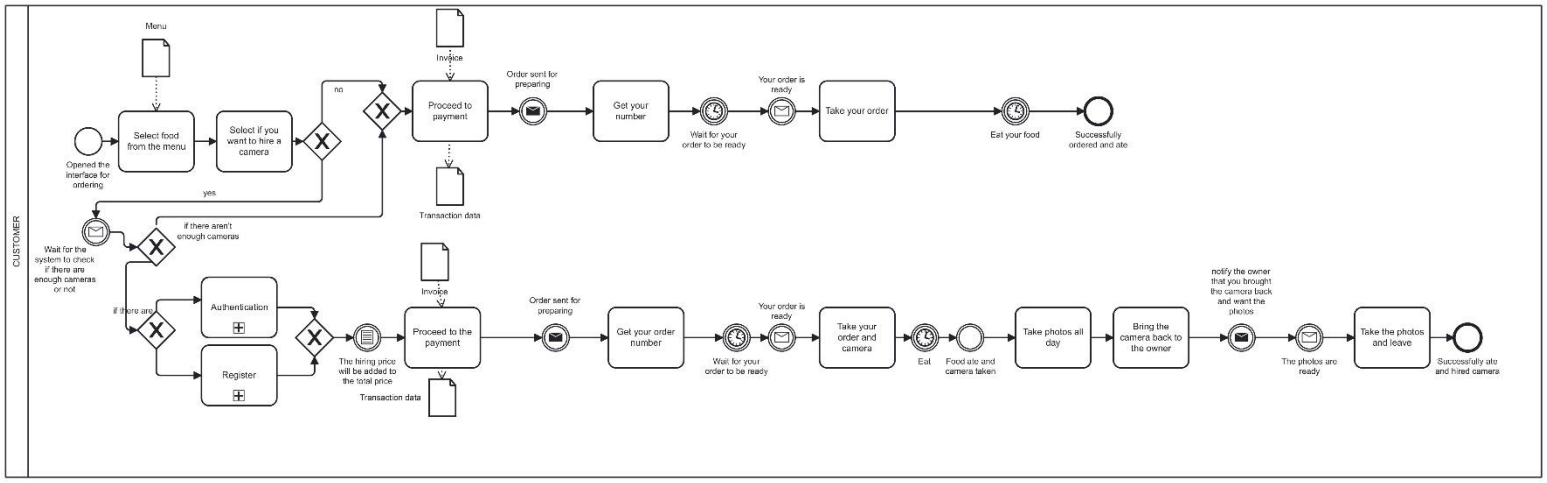

Figure 2: Customer BPMN Diagram

3.1.3- The Menu Interface,

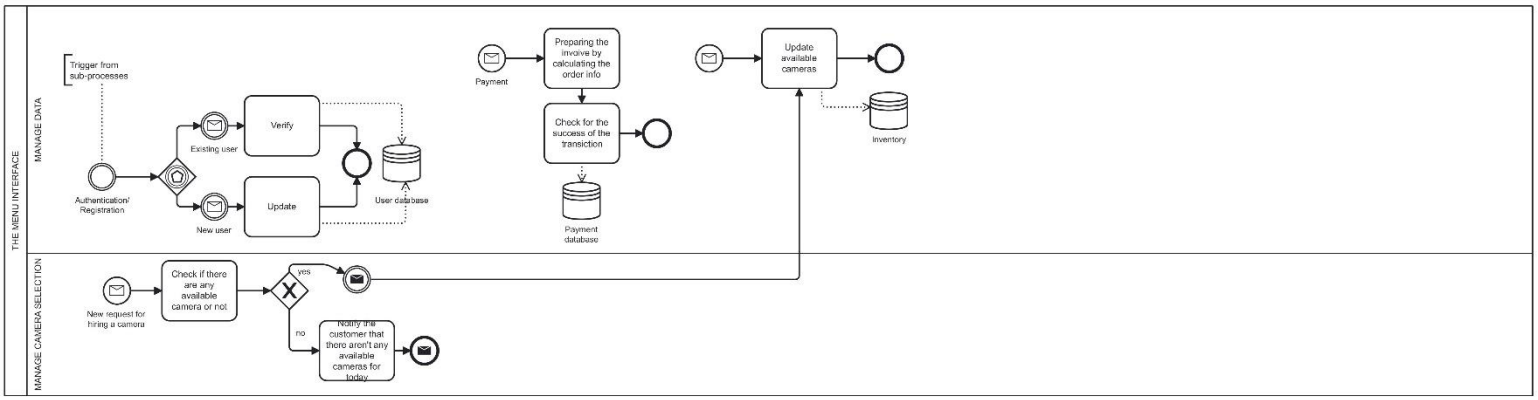

Figure 3: The Menu Interface BPMN Diagram

3.1.4- The Cafe

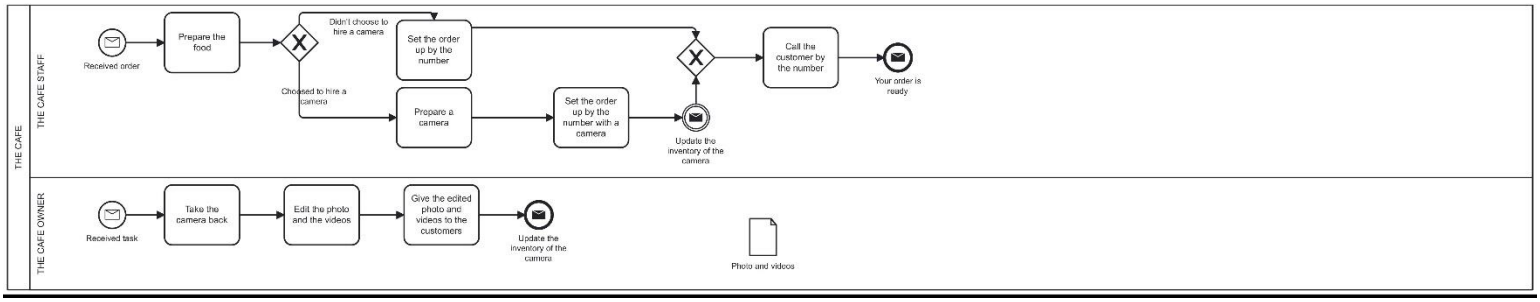

Figure 4: The Cafe BPMN Diagram

3.2- SUB PROCESSES

3.2.1- Authentication

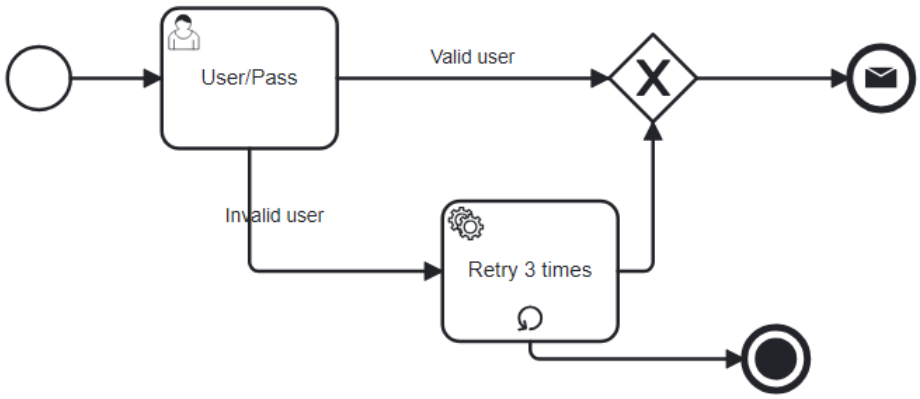

Figure 5: Authentication BPMN Diagram

3.2.1- Register

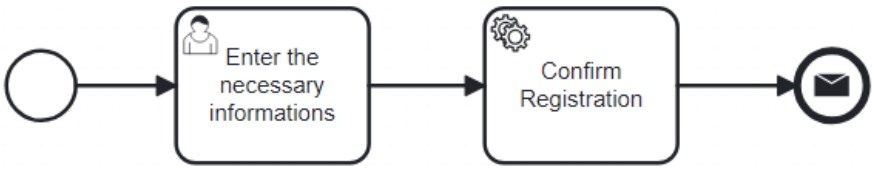

Figure 6: Register BPMN Diagram

4-VALUE MODEL

4.1- ACTORS

- *Customers*- Market Segment actor who rents a camera for taking photos of their trip for one day long. They have to register to the system and give information about themselves for hiring a camera. They have to bring the camera back to the cafe owner for getting edited photos. Also they have to order something from the cafe for getting the camera. There are also customers that will not hire a camera. This type of customers will only order some food for themselves.

- *The Menu Interface*- Actor, which is a software platform for ordering food and hiring cameras. By this software ordering food and hiring camera will be digitalized and the cafe owner doesn't have to hire waiters and it's also time saving.

- *The Cafe Staff*-Actor, who prepares the food that the customer ordered and calls the customer for taking their food by the number given from the menu interface. If the customer wants to hire a camera, the cafe staff will also give the customers the camera.

- *The Cafe Owner*- Actor who shares cameras with the customers (mostly tourists) through his/her cafe's menu interface. If the customers chooses to hire a camera, they'll hire one and after they use it for a day long they'll bring the camera back to the cafe owner. The cafe owner will edit the photos and hand them over to the customers.

4.2 VALUE DIAGRAM

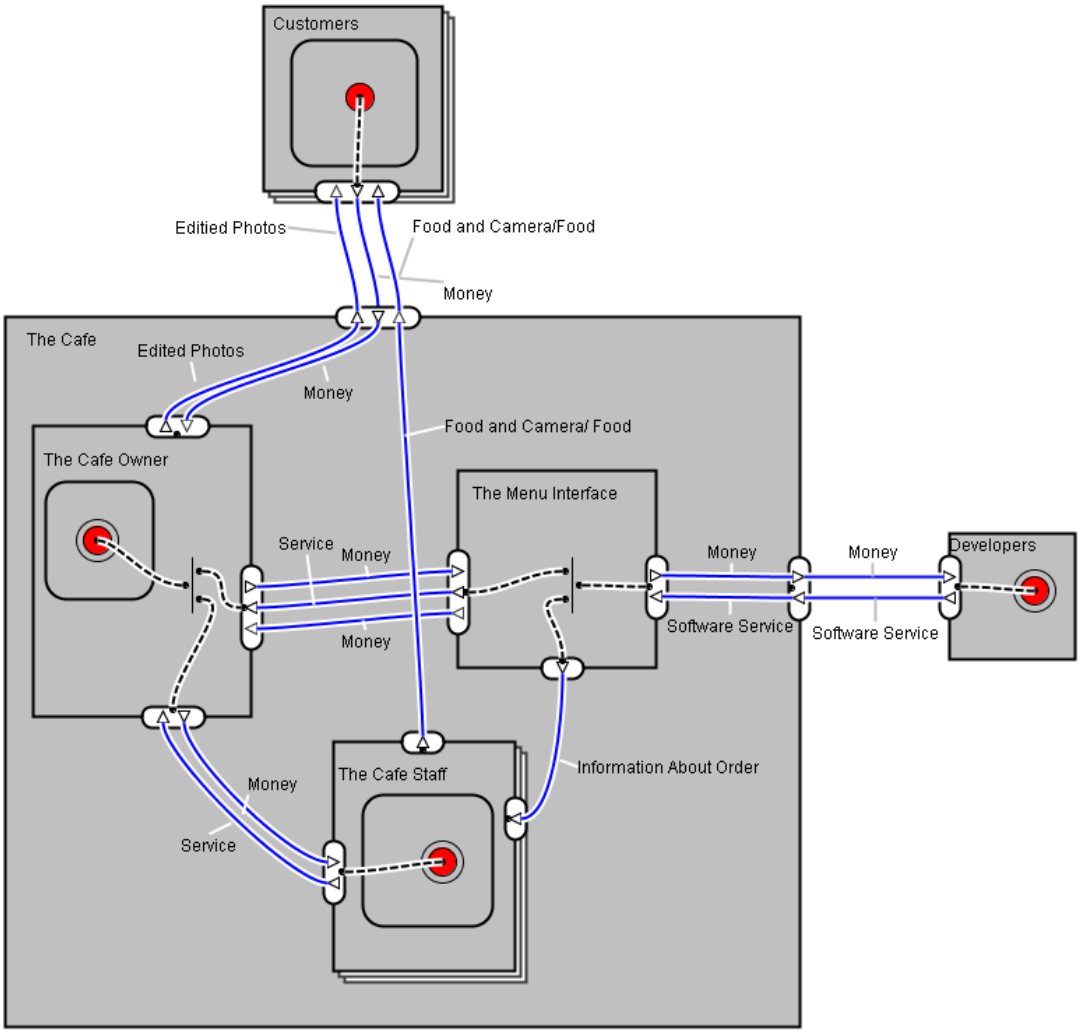

Figure 7: Value Diagram

4- BUSINESS PROCESS EXECUTION LANGUAGE

Business Process Execution Language (BPEL) is a language based on XML that allows to formally describe a business process through a set of activities.

5.1 Authentication

```
<process name=”Authentication”>
    <sequence>
        <invoke name=”Enter User/Password”>
            <while condition=”Incorrect”>
                <invoke name=”Retry”/>
                <invoke name=”Enter User/Password”/>
                <count name=”count3times”/>
                <while condition= “Correct”>
                    <send name=”Login”/>
                </while>
    </sequence>
</process>
```

5.2 Registration

```
<process name=”Register User”>
    <sequence>
        <invoke name= “Username”/>
        <invoke name=”Banking”/>
        <invoke name=”Confirm”/>
    </sequence>
</process>
```

5.3 Customer

```
<process name= “Customer”>
    <sequence>
        <invoke name=”Select Item”/>
            <pick>
                <onCondition name=”Selected Hiring Camera”>
                    <switch>
                        <case name=”Existing”>
                            <invoke name=”Login”/>
```

```
                                        </case>
                                        <case name=”New”>
                                                <invoke name=”Register”/>
                                        </case>
                                </switch>
                                <invoke name=”Add The Price To The Total Price”/>
                                <invoke name=”Payment”>
                                <invoke name=”Get Your Order Number”/>
                                <invoke name=”Take Your Order And Camera”/>
                                <invoke name=”Take Photos All Day”/>
                                <invoke name=”Bring The Camera Back”/>
                                <invoke name=”Take The Photos Back”/>

                        </onCondition>
                        <onCondition name=”Didn’t Hire Camera”>
                                <invoke name=”Proceed To Payment”/>
                                <invoke name=”Get Your Order Number”/>
                                <invoke name=”Take Your Order”/>
                        </onCondition>

                </pick>
        </sequence>
</process>
```

5.4 The Menu Interface

```
<process name=”The Menu Interface”>
    <sequence>
        <onMessage name=New User>
            <invoke name=Update User/>
        </onMessage>
        <onMessage name=Existing User>
            <invoke name= Verify User>
        </onMessage>
    </sequence>
    <sequence>
        <onMessage name=”Payment”>
```

<invoke name=”Prepare the invoice by calculating the order info”/>

<invoke name=”Check fort he success of the transaction”/>

</onMessage>

</sequence>

<sequence>

<onMessage name=”New Request For Hiring A Camera”>

<invoke name=”Check If There Are Any Cameras Or Not”/>

<onCondition name=”Yes”>

<onMessage name=”There are available cameras”>

<invoke name=”Update available cameras”/>

</onMessage>

</onCondition>

<onCondition name=”No”>

<invoke name=”Notify The Customer That There Aren’t Enough Cameras”/>

</onCondition>

</onMessage>

</sequence>

</process>

5.5 The Cafe

<process name=”The Cafe Staff”>

<sequence>

<onMessage=”Received Order”>

<invoke name=”Prepare the food”/>

<onCondition name=”Choosed to hire a camera”>

<invoke name=”Prepare a camera”/>

<invoke name=”Set the order up by the number with a camera”/>

<onMessage name=”update the inventory”>

<invoke name=”Update the inventory of the camera”/>

</onMessage>

</onCondition>

<onCondition name=”Didn’t Choose To Hire A Camera”>

<invoke name=”Set The Order Up By The Number”/>

</onCondition>

```
                </onMessage>
                <invoke name=”Call the customer by the number”/>
        </sequence>
</process>
<process name=”The Cafe Owner”>
        <sequence>
                <onMessage=”Received Task”>
                        <invoke name=”Take the camera back”/>
                        <invoke name=”Edit the photo and the videos”/>
                        <invoke name=”Give the edited photo and videos to the customers”/>
                        <onMessage name=”Update the inventory”>
                                <invoke name=”Update the inventory of the cameras”/>
                        </onMessage>
                </onMessage>
        </sequence>
</process>
```

6- BPEL4People

The BPEL4People is an extension of the BPEL that allows to adequately model the non-computerized activities carried out by humans and their interactions or contacts in order to perform specific tasks. In out business we model the task of the cafe owner’s “edit the photos and give them back to the customer” since this task is completely performed by humans. After the customers gives the rented camera back to the cafe owner, he/she will edit the taken photos and give the edited version back the customers.

```
<process name=”Edit The Photos”>
    <b4p:humanInteractions>
        <htd:logicalPeopleGroups>
            <htd:logicalPeopleGroup name=”The Customer”>
                <htd:documentation>
                    The customer that who brings the camera back.
                </htd:documentation>
        </htd:logicalPeopleGroup>
        <htd:logicalPeopleGroups>
```

```
        <htd:logicalPeopleGroup name=”The Cafe Owner”>
            <htd:documentation>
                The cafe owner that edits the photos.
            </htd:documentation>
    </htd:logicalPeopleGroup>

    <htd:tasks>
        <htd:task name=”Bring the camera back”>
            <htd:documentation>
                The customers has to bring the camera back after using it for one
day long.
            </htd:documentation>
        <htd:peopleAssignments>
            <htd:potentialOwners>
                <htd:from logicalPeopleGroup=”Customer”/>
            </htd:potentialOwners>
        </htd:peopleAssignments>
    </htd:tasks>
    <htd:task>
        <htd:task name=”Take the camera back”>
            <htd:documentation>
                Taking the camera back that the customer’s bringed is a must.
            </htd:documentation>
            <htd:peopleAssignments>
                <htd:potentialOwners>
                    <htd:from logicalPeopleGroup=”The Cafe Owner”/>
                </htd:potentialOwners>
            </htd:peopleAssignments>
        </htd:task>

    <htd:task>
        <htd:task name=”Edit the photos”>
            <htd:documentation>
                The camera needs to bringed back.
```

```
                    </htd:documentation>
                    <htd:peopleAssignments>
                        <htd:potentialOwners>
                            <htd:from logicalPeopleGroup=”The Cafe Owner”/>
                        </htd:potentialOwners>
                    </htd:peopleAssignments>
                </htd:task>
                <htd:task>
                <htd:task name=”Give the edited photos back to the customer”>
                    <htd:documentation>
                        After editing the taken photos and videos, the edited versions must be handing to the customers.
                    </htd:documentation>
                    <htd:peopleAssignments>
                        <htd:potentialOwners>
                            <htd:from logicalPeopleGroup=”The Cafe Owner”/>
                        </htd:potentialOwners>
                    </htd:peopleAssignments>
                </htd:task>
        </b4p:humanInteractions>
        <variables>
            <variable name=”Request” type=”ty:message”/>
            <variable name=”CustomerBringedBackCamera” type=”ty:boolean”/>
            <variable name=”TakeTheCameraBack” type=”ty:boolean”/>
            <variable name=”UpdateTheInventory” type=”ty:message”/>
        </variables>
        <sequence name=”main”>
            <externalTask name=”Edit the photos” to=”The Cafe Owner”/>
        </sequence>
</process>
```

7-BUSINESS EVALUATION (OTHER MEASURES)

7.1- Critical Successor Factors (CSF)

The Critical successor Factors (CSFs) are activities, actions or elements that are necessary for an organization or company, in order to achieve the objectives of the process both from the strategic point of view but also from the technical and organizational point of view. In our case study we can indicate as CSF:

- *Number of Customers*: More customers mean more earning.
- *Number of Tourist:* More tourists mean more customer and more customer mean more earning.
- *Number of Cameras*: Possibility of renting only happens when items are available.
- *The Menu Interface:* The menu interface must be understandable and easy to use for customers to not to get confused.
- *Quality of the edited photos*: The edited photos must be high quality for attracting people into hiring cameras and getting edited photos.

7.2- Key Goal Indicators (KGI)

The Key Goal Indicators (KGI) define the measures to check if the company's goal has been achieved. In our case we can define as KGI the following points:

- *Steady increase of new customers:* Continuous addition of new customers.
- *Increase the number of cameras for lending:* Increasing number of the cameras available for lending.
- *Availability of cameras:* Availability of the cameras in the cafe.
- *Improve of the menu:* Adding new recipes to the menu might attract more customers.
- *Increasing of the popularity:* The cafe needs to attract more tourists as customers for earning more money, so the popularity of the cafe is crucial.

7.3- Key Performance Indicators (KPI)

The Key Performance Indicators (KPIs) are indexes which underline the progress made by a business process. The KPIs allow us to measure the success factors represented by the different activities and to determine the bottlenecks of the system.

- *Number of new customers*: Number of new customers in the system which wants to hire a camera.
- *Ratio of cameras/customers*: Rate of cameras available for renting for taking photos.
- *Number of available cameras*: Availability of cameras in the cafe.

7.4- KPI In Practise

KPI	Criteria Of Evaluation	Outcome
Number of the new customers $S = (\frac{\text{Number of new customers in a day}}{\text{Total number of customers}})$	S<0.01% 0.01%<S<0.05% S>0.05%	Negative Positive Over The Limit
Number of cameras/customers	I<10 10<I<15 I>15	Negative Positive Negative
Availability of the cameras $G = (\frac{\text{Number of available cameras in the cafe}}{\text{Total number of the cameras}})$	G<50 G>50	Negative Positive

8- CONCLUSION

In conclusion; in this project, we wanted to represent a model of how the company would operate in order to identify the factors necessary for growth.

Through the use of CFSs and KPIs, we were able to identify the most suitable elements and evaluate better strategies to achieve greater profits and attract as many people as possible.

The BPMN diagram and the Value Model diagram have also provided a clear and easy-to-understand representation of the various processes even for non-experts in the field and they provided a detailed skeleton of the infrastructures involved in the business model.