# UBER

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Course Assessment Project for
*Business Process Engineering*

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**Abstract**

*Uber is an on demand transportation service which has brought a revolution in the taxi industry all across the world. The business model of the platform has made it possible for people to simply tap their smartphone and have a cab arrive at their location in the minimum possible time. This report gives insights to the business model functioning behind Uber, presented by BPMN in detail for all the processes and subprocesses and also shed some light on the value model to provide proper analysis on the values and indicate the actors. At the end all the BPMN processes are also being mapped to Business Process Execution Language (BPEL) representation in XML format of appearance.*

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# 1. Introduction

Uber Technologies Inc. has ruled the world since its inception by becoming the largest global taxi technology company that operates Uber App. It provides a 24/7 non-stop on-demand taxi hailing service, which can be easily accessible at smartphones. It has its headquarters in San Francisco, USA. Despite owning not even a single vehicle, it is the world's largest company which has a valuation of more than $50 billion and funds of $10 billion.

The idea originally came from Travis Kalanick and Garrett Camp in 2008 where they were looking for a cab on a snowy night and they were thinking what if we can get a taxi just by tapping a button on a smartphone. The platform was introduced first in 2009 in San Francisco and back then it was only a fancy black car which was 1.5 times more expensive than a normal traditional taxi.

Since then Uber is growing very fast and now it is operating through more than 600 major cities all around the world. Along the way they also introduced different services and they have gone from a luxury black car to any type of regular and fancy or electric cars as up today.

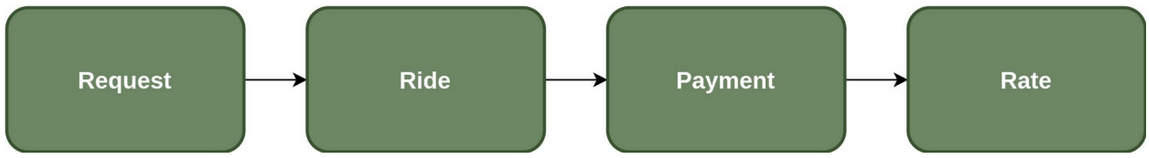
There are three main elements playing a role on Uber platform. Taxi drivers with a valid certified driving licence that are provided with an Uber phone for connecting to passengers so that they can accept or decline a request from a passenger through the phone. The second primary element is the passenger that needs to register on the application and then Uber will provide different information for the respective on-demand drive such as driver information, estimate on total cost of the requested drive and also the possibility to track the ride. The third element is fare and payment system so that the fare directly depends on the type of the car, distance and peak hours. There are various payment methods to keep it at ease for the users such as debit cards, credit cards and different wallets.

In this report Uber business process is modeled in BPMN notation as it is a standard visual language that is used in many companies to plot their business processes and it can be understood by all parties without any misinterpretation. Moreover the value model is defined to analyze the value coming from each party in the business process.

# 2. Workflow

So the basic requirements to book a ride on Uber is a smartphone and an internet connection. The first step is that person has to request a cab on the application through pick and drop the location. As soon as the request is sent the information from the passenger is shown to the driver and from now on it is up to the driver whether to reject or accept the request according to his availability and convenience. In case of acceptance and rejection a notification will be shown to the user. In case of acceptance users can now track the drivers route towards him/her-self and also ETA (Estimated Time of Arrival) also will be shown on the screen.

The meter starts in the app as soon as the driver arrives at the user's destination and the ride starts. Once the ride gets over, the cost of the ride will be deducted from the passengers bank account and the passenger gets an option to rate the trip and this is the most important part of the trip for the company to be able to better understand the shortcomings and needs of the customer.
So a simple flowchart of the process of should be as follows:




# 3. Processes

## 3.1 Customer

Rider who is looking for a cab and he wants to use the Uber app to get to his/her destination. User needs to register on the application if it's his first time and provide a payment method in the application so that the payments would be made through that account. Then it's time to search the destination in "where to?" section then reviews each ride option, for example vehicle size, price, and estimated dropoff time; then chooses the desired option; then confirms the pickup and sends the request. After the ride, there's a possibility to give a rate from 1 to 5 stars (politeness, safety, cleanliness) and this is a very critical point for the business so that it shows the shortages and needs of their customer.
**Note:** If you rate the driver:

- 5 stars, you'll see the option to give them a compliment (Tip). Most riders provide a 5-star rating unless there was a specific issue with the trip.

- Less than 5 stars, you'll be prompted to provide specific feedback about the trip or driver.

## 3.2 Uber

### 3.2.1 Platform/ Service

The service that Uber gives such that in very short connects the rider and the driver. So each user signs in to their account on the application and they will get different services from Uber.
The rider benefits from the easy and fast process of getting a taxi and being able to pay without cash automatically right after the drive. Rider can get details of the driver before getting to the car for example the car model, driver's name, driver's name and plate number that he needs to verify before getting in (for safety reasons). There's all the possibility of tipping the driver from the application and of course no cash. After the drive the rider is asked to rate the drive in the app. Moreover, riders can track the drive on the application to be sure that's the right route.
The driver benefits not negotiating on the price of the drive with the rider (as it is

already set in the beginning of the drive and will be automatically deducted from the riders bank account). Driver has the possibility to choose whether he wants to accept the drive or not depending on the destination and other factors. The option of rating the rider is also shown up for the driver after the compilation of the drive. Also the route to the destination is suggested by Uber and helps the driver to find his way more easily.

### 3.2.2 Driver with Car

The Taxi Driver - Anyone with a driving license and a car can apply for an Uber driver in any Uber covered cities. After screening, the driver is enlisted in the Uber system and given an Uber iPhone. This provides a steady income to anyone with a car without additional hazard or investment.

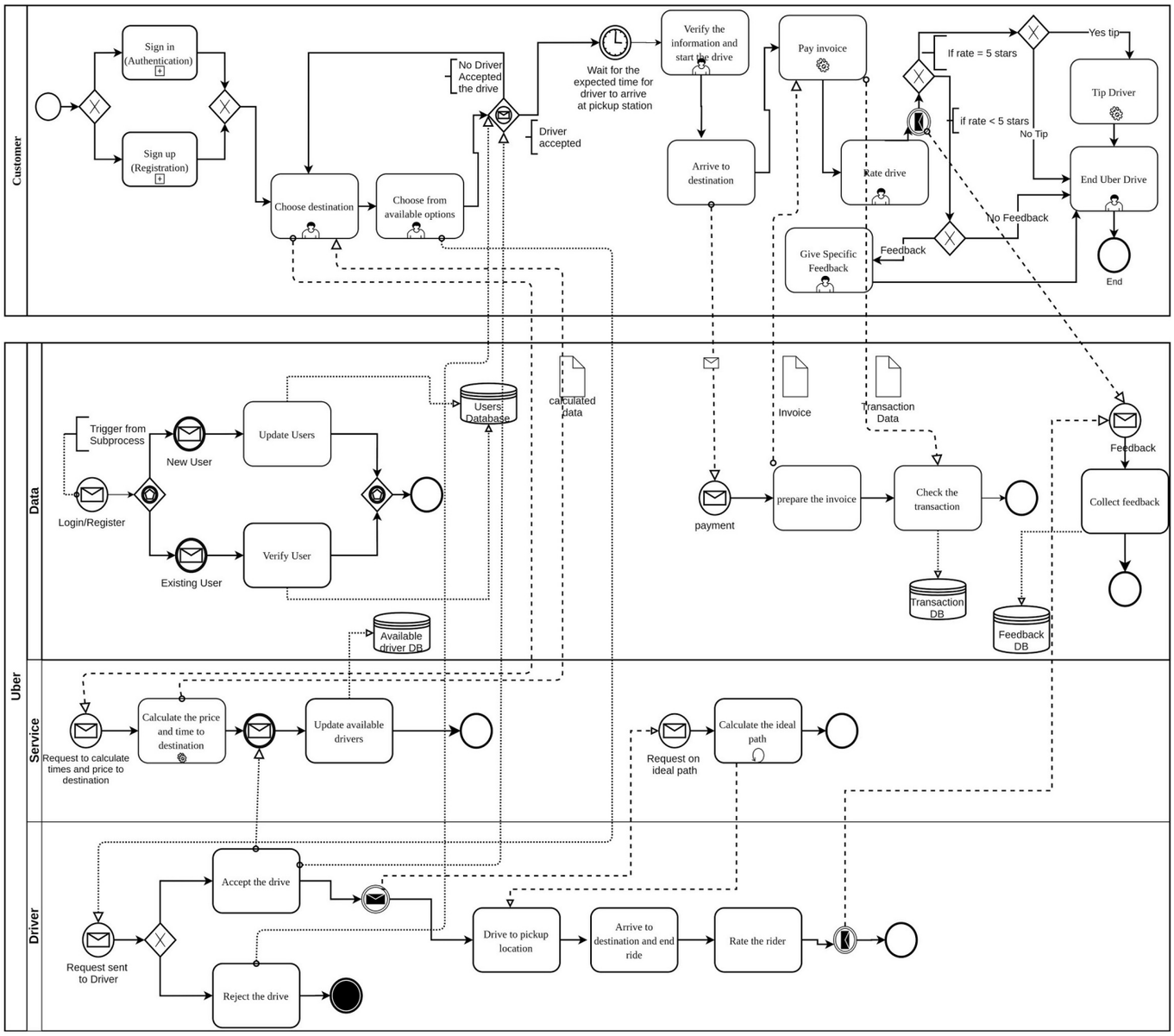
### 3.2.3 Data

Data flow in the system keeps this service running and this is done by this section and by the help of databases here and queries to them the service is provided.
Users signing in, singing up, giving feedback and … are being done here.

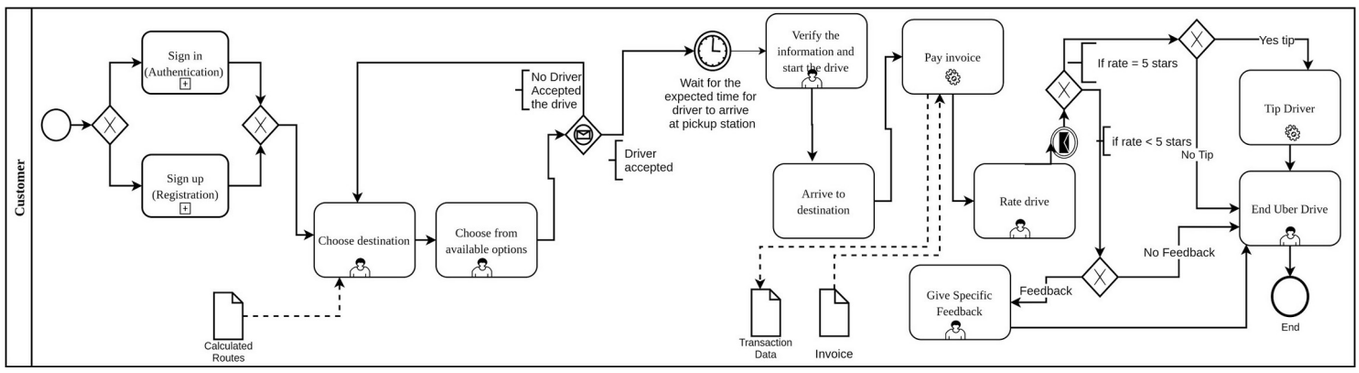
# 4. Business Process Flow

## 4.1 BPMN Diagram

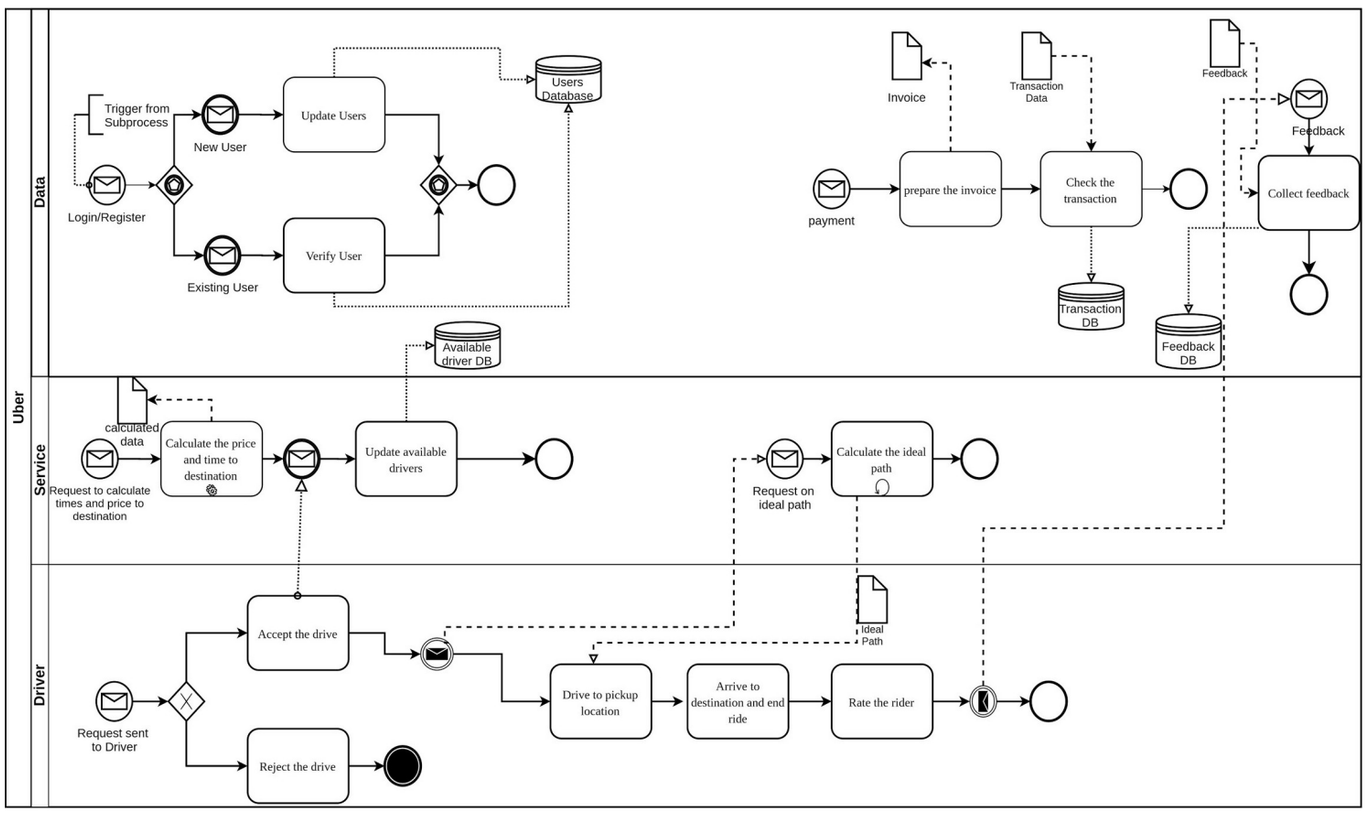
### 4.1.1 Complete Business process



## 4.1.2 Customer

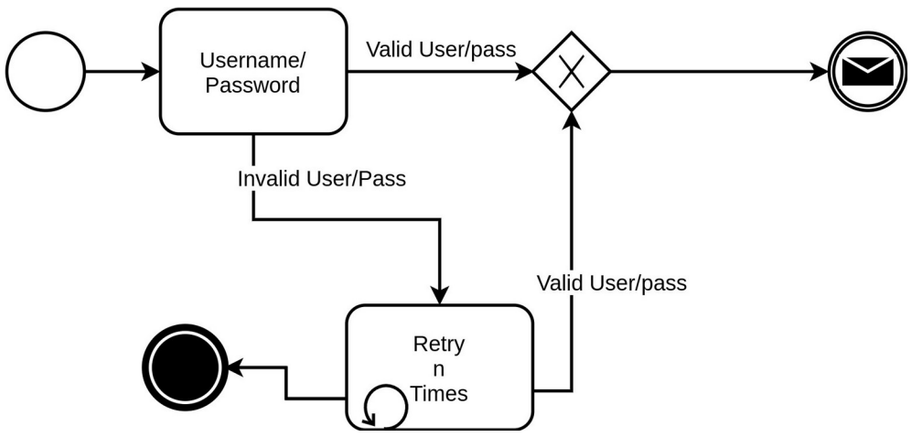



## 4.1.2 Uber Platform

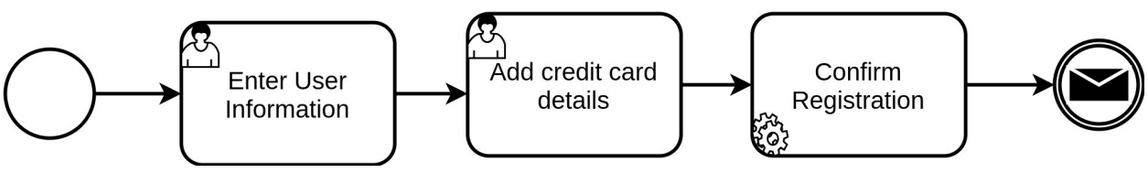


## 4.2 Sub-processes

### 4.2.1 Login




### 4.2.1 Register




# 5. Value Model

## 5.1 Actors

Here we defined Customer, Uber platform, Driver and the credit card company as the actors of the business as they are each, independent economic entities. In other words they all make profits or increase utilities.

- **Customer -** Actor who gets the cab in order to reach his/her destination. Rider gets support from Uber platform and pays the total cost to the Uber services after the drive. This way it shares the value with Uber services.

- **Uber Platform -** Actor that connects the driver and the rider through its online platform and takes care of the efficient path to the destination and calculates the price. That said Uber automates the all the process from the start of requesting a ride by customer till the end of the ride and maintains a reliable service upon arrival. In return Uber gets paid by the customer and shares some of the payment with the driver.

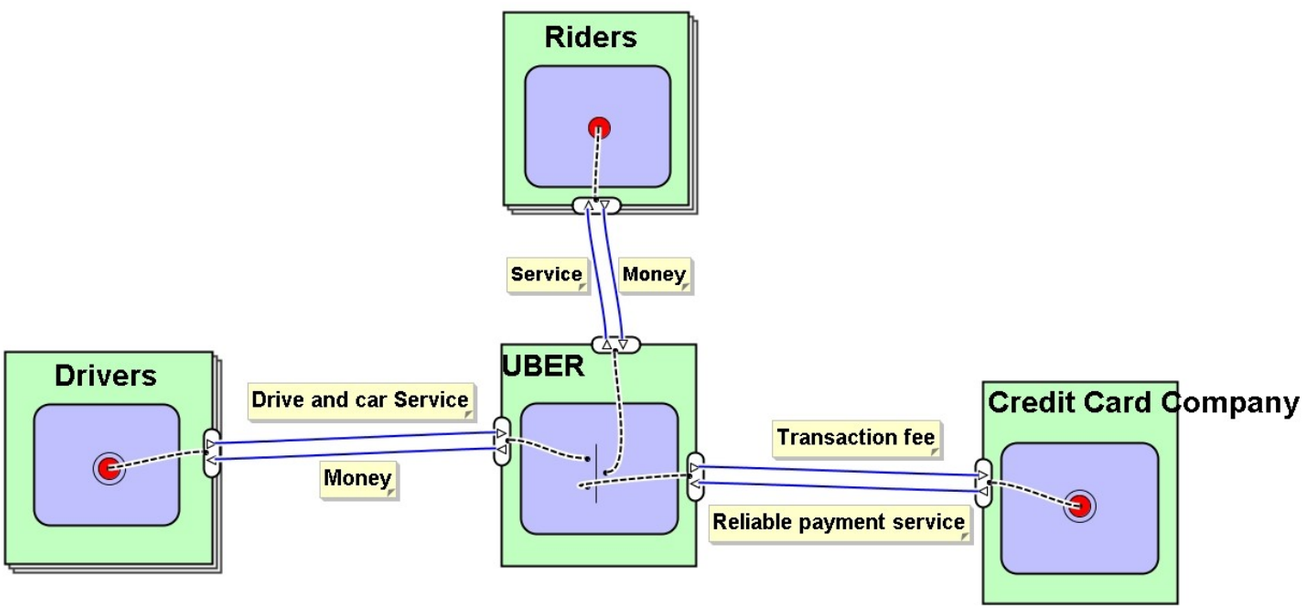
- **Driver -** Actor who owns the car and drives. Gets paid by Uber the shared

amount of the total price throughout the ride. The value that driver shares is one of the important factors in Uber services and it is then being rated by the customer.

- **Credit Card Company -** Actor that is responsible for managing all the payments within the banking system. One of the main values of Uber is that there's less cash playing a role and neither the driver nor the rider exchanges cash. So Credit card company gets paid with each transaction made through it and in exchange gives a reliable service day and night to Uber platform.

## 5.2 Value Diagram

Value model has been drawn in the E3value editor, Windows version.



# 6. Business Process Execution Language (BPEL)

## 6.1 Customer

```
<process name = " Customers ">
    <sequence>
        <switch>
            <case name = "User Exists">
                <invoke name = "Signin"/>
            </case>
            <case name = "User Register">
                <invoke name = "Register"/>
            </case>
        </switch>
        <invoke name = "Choose destination"/>
        <send name = "Request to calculate time and price to destination"/>
        <invoke name = "Choose from available options"/>
        <send name = "Send request to driver"/>
        <switch>
            <case name = "Accept">
                <wait (for="duration-expr" | until="deadline-expr") name = "Until Driver arrives"
                />
                <invoke name = "Verify the information and start the drive"/>
                <invoke name = "Arrive to destination"/>
                <send name = "payment request"/>
                <invoke name = "Rate Driver"/>
                <send name = "Save rating"/>
                <invoke name = "Rate Driver"/>
                <send name = "Save rating"/>
                <switch>
                    <case name = "rate less than 5 stars">
                        <switch>
                            <case name = "No Feedback">
                                <invoke name = "End Uber Drive"/>
                            </case>
                            <case name = "Specific Feedback">
                                <invoke name = "Give Specific Feedback"/>
                                <invoke name = "End Uber Drive"/>
                            </case>
                        </switch>
                    <case name = "rate 5 stars">
                        <switch>
                            <case name = "Tip">
                                <invoke name = "Tip Driver"/>
                            </case>
                            <case name = "No Tip">
                                <invoke name = "End Uber Drive"/>
                            </case>
                        </switch>
                    </case>
                </switch>
            </case>
            <case name = "Decline">
                <invoke name = "Choose destination"/>
            </case>
        </switch>
    </sequence>
</process>
```

## 6.2 Uber

```
<process name = "Uber">
    <sequence>
        <onMessage = "User Enters">
            <pick>
                <onMessage = "New User">
                    <invoke name = "Update Users"/>
                </onMessage>
                <onMessage = "User Exists">
                    <invoke name = "Verify User"/>
                </onMessage>
            </pick>
        </onMessage>
    </sequence>
    <sequence>
        <onMessage = "payment">
            <invoke name = "Prepare the invoice"/>
            <send name = "invoice"/>
            <invoke name = "Check the transaction"/>
        </onMessage>
    </sequence>
    <sequence>
        <onMessage = "Feedback">
            <invoke name = "Collect Feedback"/>
                    <invoke name = "Arrive to destination and end the ride"/>
                    <invoke name = "rate the rider"/>
                    <send name = "Feedback"/>
                </case>
                <case name = "Decline">
                    <invoke name = "Reject the Drive"/>
                    <send name = "Drive Rejected"/>
                </case>
            </switch>
        </onMessage>
    </sequence>
</process>
```

## 6.3 Sub Processes

### 6.3.1 Authentication

```
<process name = "Authentication">
    <sequence>
        <invoke name = "Enter User / Password">
            <while condition = "Incorrect">
                <invoke name = "Retry"/>
                <invoke name = "Enter User / Password"/>
                <count name = " count n times "/>
            <while condition = "Correct">
                <send name = "Login"/>
            </while>
    </sequence>
</process>
```

### 6.3.1 Registration

```
<process name = "Registration">
    <sequence>
        <invoke name = "User Info"/>
        <invoke name = "Bank Info"/>
        <invoke name = "Confirm Registration"/>
    </sequence>
</process>
```

# 7. Measurement factors

## 7.1 Critical Success Factors (CSF)

Critical Success Factors, or CSFs, are indicators for opportunities, activities or conditions required to achieve an objective within a service. Critical Success Factors (CSF) differ per organisation and reflect current and future objectives. These factors are directly linked to the company or organization's strategies.

- **Number of active users/ riders -** The more users the more demand and more demand results in more supply and finally higher revenue.
- **Number of active drivers -** The more driver the more user comfortability which ends in more demand and more revenue.
- **Covered area -** the more area is covered by the application and more cities and countries involved the higher rate of responsiveness.
- **Supported payment providers -** different payment services are available these days and would be more convenient for users to have a wide variety of choices which at the end of the day results in higher demand.

## 7.2 Key Goal Indicators (KGI)

Organizations and projects represent quantitative indicators of the goals to be achieved. It is not an abstract goal, but it is a concrete (numerically defined) definition of which period, which index, what level and what level it regards as goal attainment. It may also refer to the indicator itself. It is often used in conjunction with KPI (Important Management Indicator). For simplicity, KGI is the final goal. We can target specific numbers and clarify the purpose of the site. Also, KGI will narrow down to one of the most important ones.

- **Increase in new users/ riders -** getting more users/ riders is a key to the business.
- **Increase in drivers -** another key element is the increase in the number of drivers.
- **Uniform availability of drivers -** It is necessary to cover day and night and all around the region of cover to give the best support.

## 7.3 Key Performance Indicators (KPI)

that said how many potential users are online at any given moment, and how many drivers are on the road to supply that demand. Then you can see trends daily, weekly or monthly. It will depend on how long has Uber been operating in the region of cover.

- **New users/ riders joining rate**
- **Drivers per riders (Supply / Demand)**
- **Average of drivers covering the region**

- **Coverability of the drivers timewise -** day, night coverability

## 7.4 KPI’s in practice

| KPI | Criteria of Evaluation | Outcome |
|---|---|---|
| **New users/ riders joining rate**<br><br>Q = (*Number of new users in a specific time) % frame / Total number of users* | Q < 0.01%<br><br>0.01% < Q < 0.05%<br><br>Q > 0.05% | Negative<br><br>Positive<br><br>overflow |
| **I = Number of drivers per rider** | I < 5<br><br>5 < I <10<br><br>I > 10 | Negative<br><br>Positive<br><br>Negative |
| **Coverability of the drivers**<br><br>*R =(Number of drivers / Total area of the region) %* | R > 20 km^2<br><br>R < 20 km^2 | Positive<br><br>Negative |
| **Coverability of the drivers timewise**<br><br>*T =(Number of drivers / time frame (day/night))%* | T > 5<br><br>T < 5 | Positive<br><br>Negative |

# 8. Conclusion

The business and the service is modeled and by that we could see how everything is working together and then to identify the important factors needed to improve the system and bring higher revenue to the business. Knowing the critical success factors required to achieve an objective within a service. Also KPI, quantitative indicators of the goals helped us to know how the actual growth action plan works in numbers. Value model just gives a quick glance to what have been exchanged between different actors of the process.