Specification of business processes

1. Business goals of the organization

"StarBus Transport Co." is bus transport organization operating on the area of Poland. It provides communication between cities and airports. All its passengers can obtain only one-way tickets through dedicated mobile application, website or ticket-machines. Buying ticket require passenger information as well as choosing the specified route (from point A to point B). Main goal of the organisation is to expand by providing more buses on overloaded connections and eliminate those rarely used by passengers as to increase company efficiency and catch market potential. That means **at the end of the 2024-year average bus occupancy of all travelled routes shouldn't be less than 15% of total bus capacity. The bus occupancy is tracked at the time when bought ticket is validated at start station.** CEO recognizes the bus to be completely inefficient as its occupation on a route – ratio of number of people inside and total bus capacity – is lower than 15%. That creates the possibility of cancellation of some routes (city connections). It also aims to increase **satisfaction level of rides** – gathered per each bus travel using questionnaire - as it will contribute to overall organisation development, expansion (e.g. to EU), popularity and of course profit. CEO of "StarBus" assumes **increase by at least 0,5% in satisfaction levels of all 'travelled' routes compared to previous month.**

Issued business problems include bus journey optimisation and the gathering passenger' information. To obtain ticket the data like e.g. name, surname and email is gathered. Ticket system also include information about validated tickets what enables to track bus occupation during travels. Moreover, it provides option to gather passengers feedback (on 10-point scale) assigned to their travel.

The CEO would like to analyse what impact satisfaction levels. He wants to know what the least rated and the best rated routes are and if that relates to delays, bus occupation or some other factors. In addition, he wants to compare bus overload on different days (weekdays and weekends) and identify most/least occupied routes.

2. Business processes

Bus journeys optimisation

a. A general description of the business process and a description of the performance metrics generated by this process, possible current analytical problems.

   The process begins with passengers awaiting the arrival of buses at bus stops. Bus might arrive according to the exact schedule or with some delay. As the bus approaches, each passenger must scan their ticket, which is done electronically using ticket-scanning equipment and QR code (the bought ticket). System collects information about validated tickets at start station and after bus departure update it to the system. System assumes that passengers are leaving the bus at their destination stop assigned to their ticket. On the app, in some of the buses or via link sent by email they can complete anonymous satisfaction survey about their travel. Delays, bus occupancy, and overall service quality might have an impact. System stores those satisfactions levels per each travelled route.

b. Typical questions

What are the most overloaded routes?
How do overload of buses affect passenger satisfaction?
On which days are buses most crowded weekdays, weekends or holidays?
Which routes receive the highest/the lowest satisfaction ratings from passengers?
Identify routes with the lowest bus occupancy (<15% of total bus capacity).
From which region did the bus office operate the most bus travel?
Compare the average number of passengers depending on the type of bus in previous and current month.
Do certain routes are associated with more frequent passenger feedback?
Do additional amenities such as air conditioning or wheelchair access affect satisfaction?
Are old buses (Production Year < 2010) receiving lower ratings?

c. Data

Data sources include “RoutesTraveller” system with information about validated tickets, buses and its issued travels on specified routes. It also contains feedback (satisfaction levels) assigned to the travel as well as time-scheduled arrivals, departures at bus stops. Data about buses and their service offices is stored in separate EXCEL file. Moreover, specified information about all bus stops on the routes is also stored in separate EXCEL file.

Gathering passengers' information

a. A general description of the business process and a description of the performance metrics generated by this process, possible current analytical problems.

Passengers purchase a ticket via mobile application, website or ticket-machines and board the bus. System registers buyer information: name, gender, date of birth, regions of passenger residence, email and assign it to bought ticket/QR code. Once the ticket is validated by bus scanner, system connects passenger information contained in QR code ticket to a journey at specific time, date. There is possibility of purchase of several tickets but with a need of providing information about all passengers. Passengers find seats or standing places depending on availability and personal preference. Distribution of passenger's characteristics of a single travel can be further analysed.

b. Typical questions

What is the average age of passengers on each route?
From which region passengers are willing to use bus communication the most?
Do young or older people are more likely to use the bus?
What is the distribution of gender per each route?
Are men or women more likely to use buses?

c. Data

Data sources include ticketing system and its records. That includes data about exact route with all its passengers, his/her ticket and stores his personal information due to scanning QR code.