

RIDESHARING

a modern mobility
concept

Outline

Introduction

- Problem
- Carpooling Statistics
- Competitors

Business model

- Rough model
 - Unique features
- Implementation of machine learning & AI
- Break-Even Analysis
- Challenges and Possibilities

Conclusion

Introduction



Initial Situation

- Traffic congestion
- Increased environmental awareness
- Higher costs (e.g., gas price)
- No comprehensive infrastructure



“98% of the taxi rides currently served by
over 13,000 taxis could be served with
just 3,000 taxis of capacity four.”
(New York City)

*Alonso-Mora J. Et al., 2017,
On-demand high-capacity ride-sharing via dynamic trip-vehicle assignment,
University of California, Santa Barbara, CA*

Solution: Ridesharing



Saves money



Reduces stress



Saves time



Helps the environment



Prolong the life of vehicles



Reduces traffic



Security and privacy

What is ridesharing?



Shared use of a
vehicle for
transportation



No rigid
schedule



Publicly
available

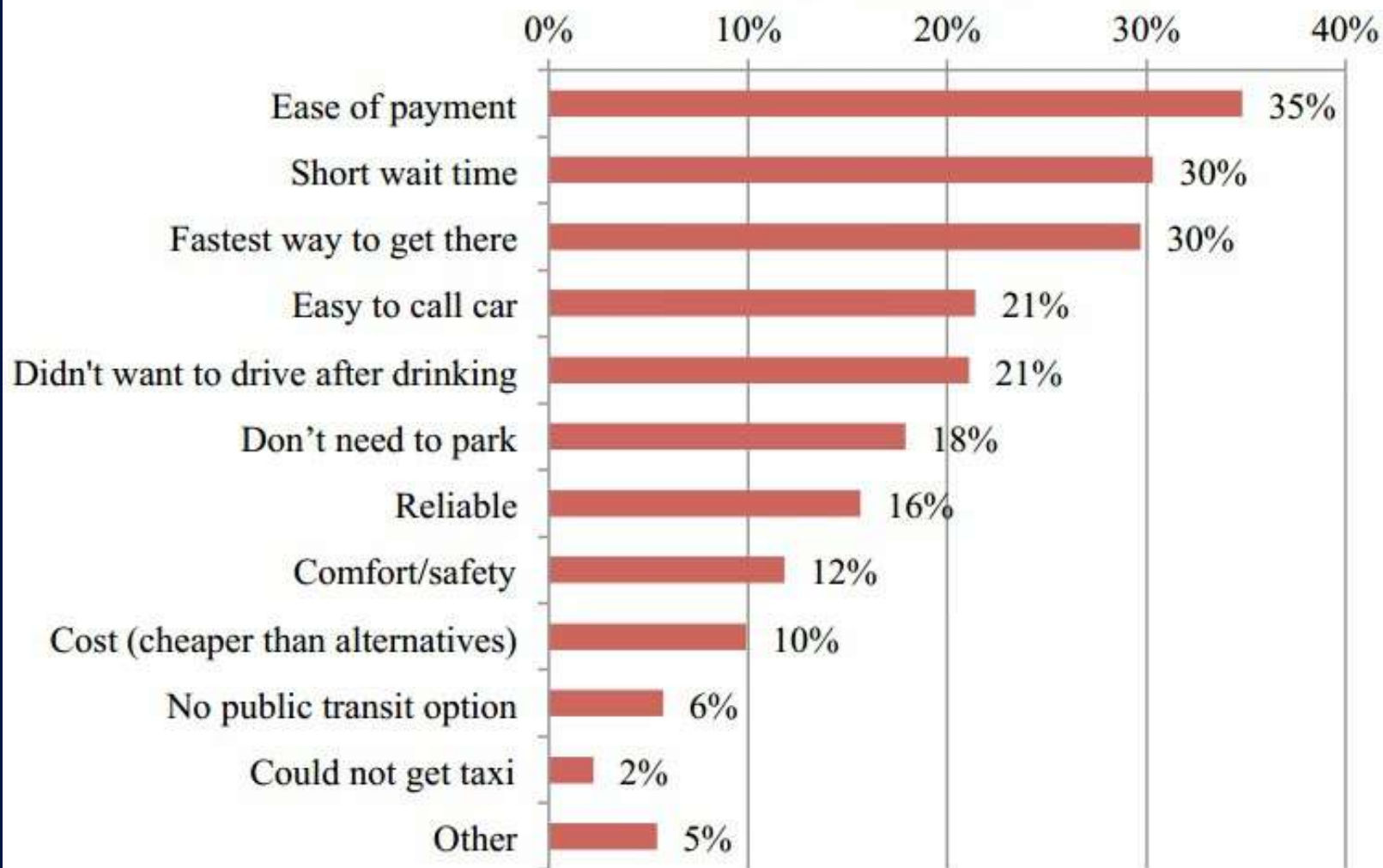


May be booked
spontaneously
-> via app

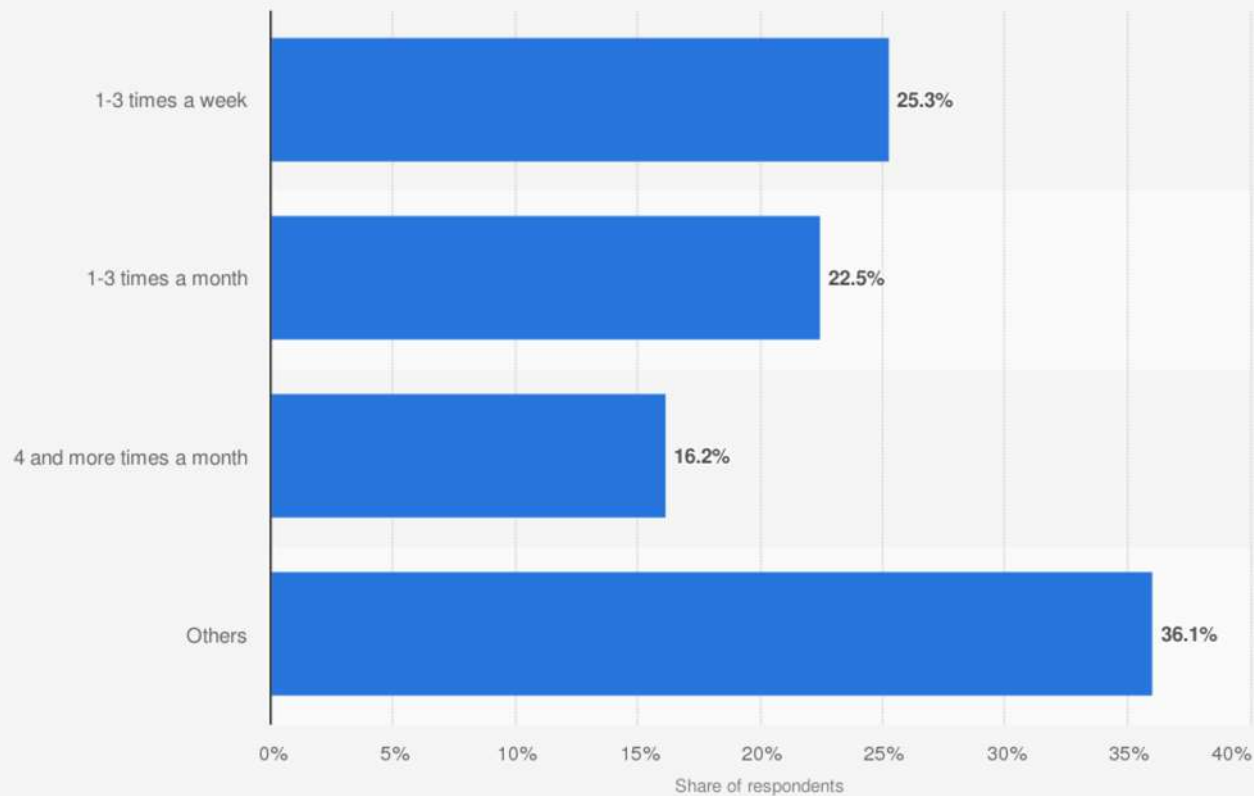


Extends classic
public
transportation

Percentage of Respondents



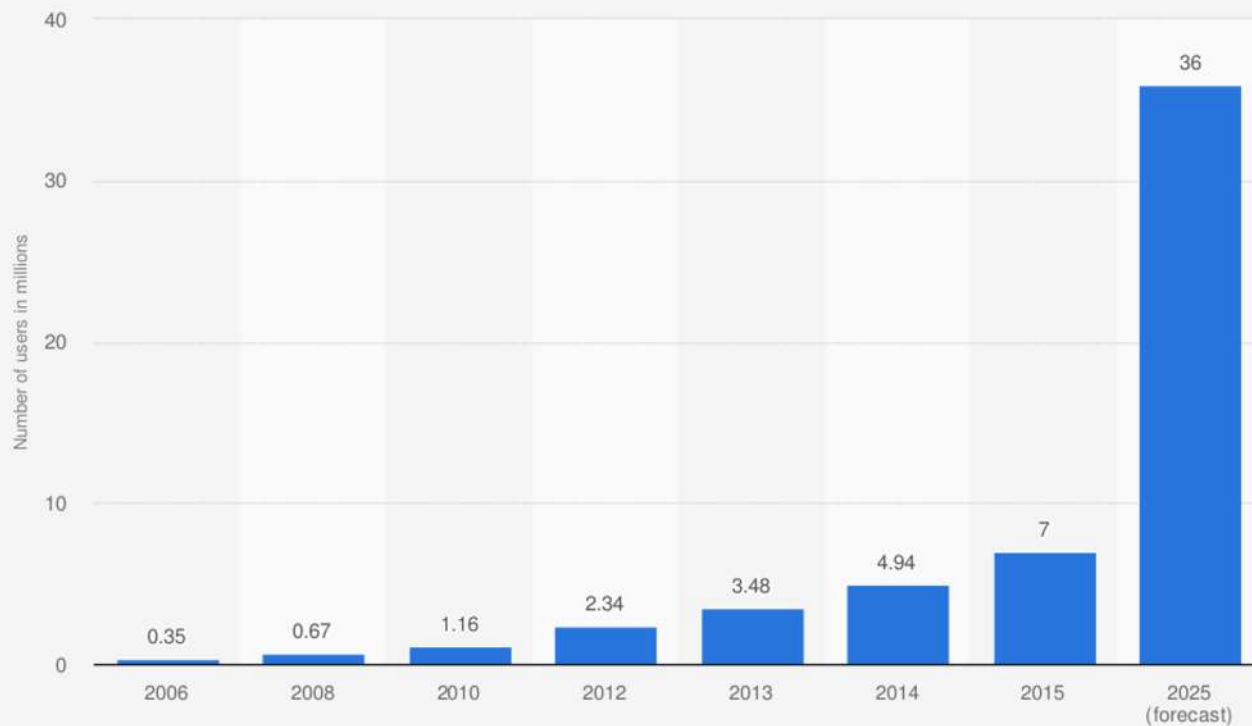
Frequency of using carpooling apps in China as of May 2015



Source
iResearch
© Statista 2019

Additional Information:
China; as of May 2015; 1,500 respondents; Online survey

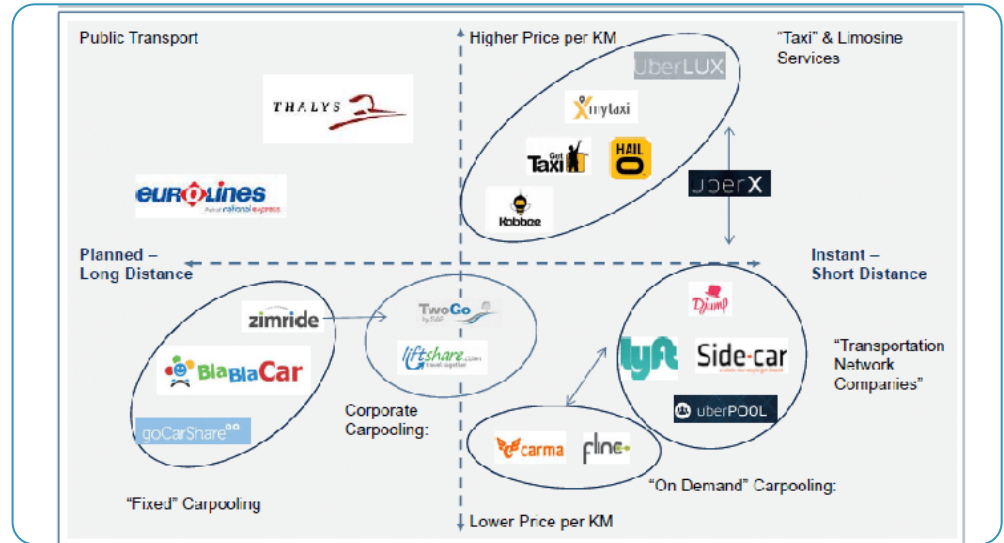
Number of car sharing users worldwide from 2006 to 2025 (in millions)



Source
Frost & Sullivan
© Statista 2019

Additional Information:
Worldwide; Frost & Sullivan; 2006 to 2015

Competitors

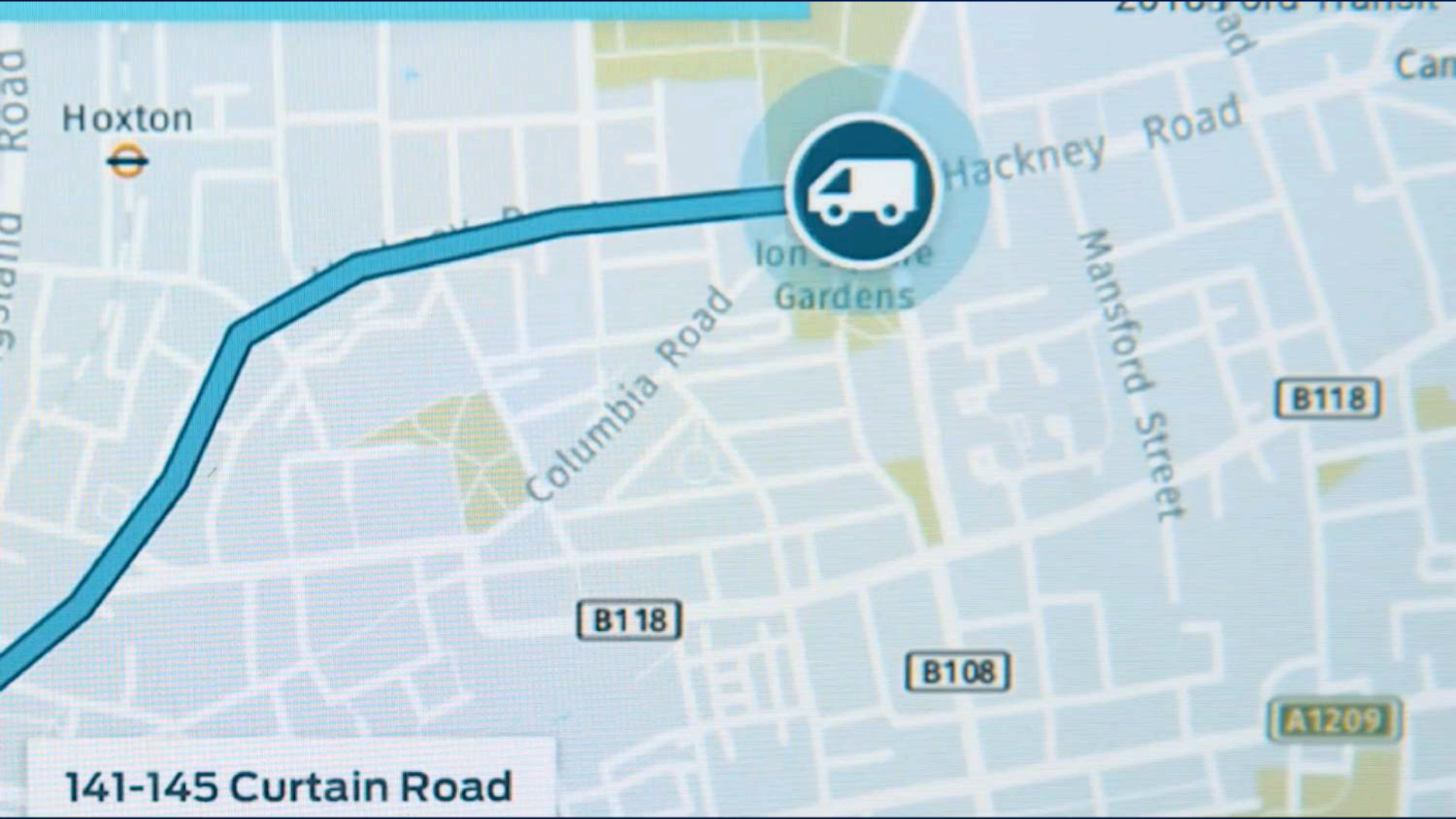


Alonso-Mora J. Et al., 2017, On-demand high-capacity ride-sharing via dynamic trip-vehicle assignment, University of California, Santa Barbara, CA

A dark blue-tinted photograph of a Mercedes-Benz MOIA/BerlKönig van driving on a city street. The van is in the foreground, moving towards the left. The background shows a multi-story building with many windows. The text "MOIA/BERLKÖNIG" is overlaid in large white letters across the middle of the image. The license plate "H-MO 365E" is visible on the front of the van.

MOIA/BERLKÖNIG

Business Model



Hoxton

Hackney Road

Columbia Road

Long Lane Gardens

Mansford Street

B118

B108

B118

A1209

141-145 Curtain Road



INTERMODAL ROUTE PLANNING

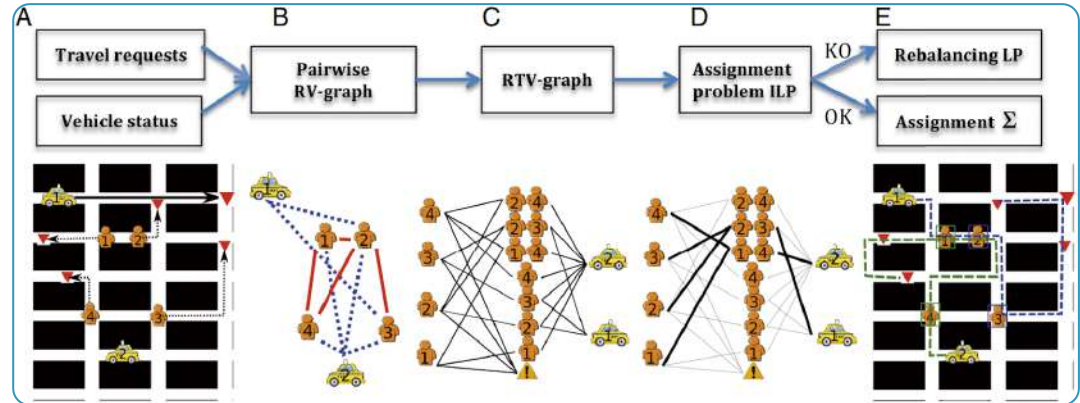
using Mode:Link

spin e-scooters/bikes/e-bikes etc.

- less pick up/drop off points required
- payment for entire journey in one app
- shorter waiting time

Implementation of machine learning & AI

- Demand forecast
 - lower costs for drivers and fleet
- Optimized route planning
 - Prediction of congestion
 - Prediction of customer request
 - Drive where the probability of boarding is higher



Machine Learning

Unsupervised Machine Learning

- Factor Analysis/Principal Component Analysis
 - Finding the factors that encourage people to use ridesharing

Supervised Machine Learning

- Cluster analysis
 - Clustering costumers by their routes
 - Clustering costumers by their preferences
- Analysis of distinctiveness
 - Grouping: customer uses carpool today (discriminant variables, e.g., day of the week, weather, etc.)

Costs

- acquisition/leasing of cars
 - optional modified interieur
- car drivers
- fuel &/or electricity
- maintenance, support, administration
- marketing
- app development
- car design

Revenue

- ticket price

Break-Even Analysis

Assumptions for the calculation:

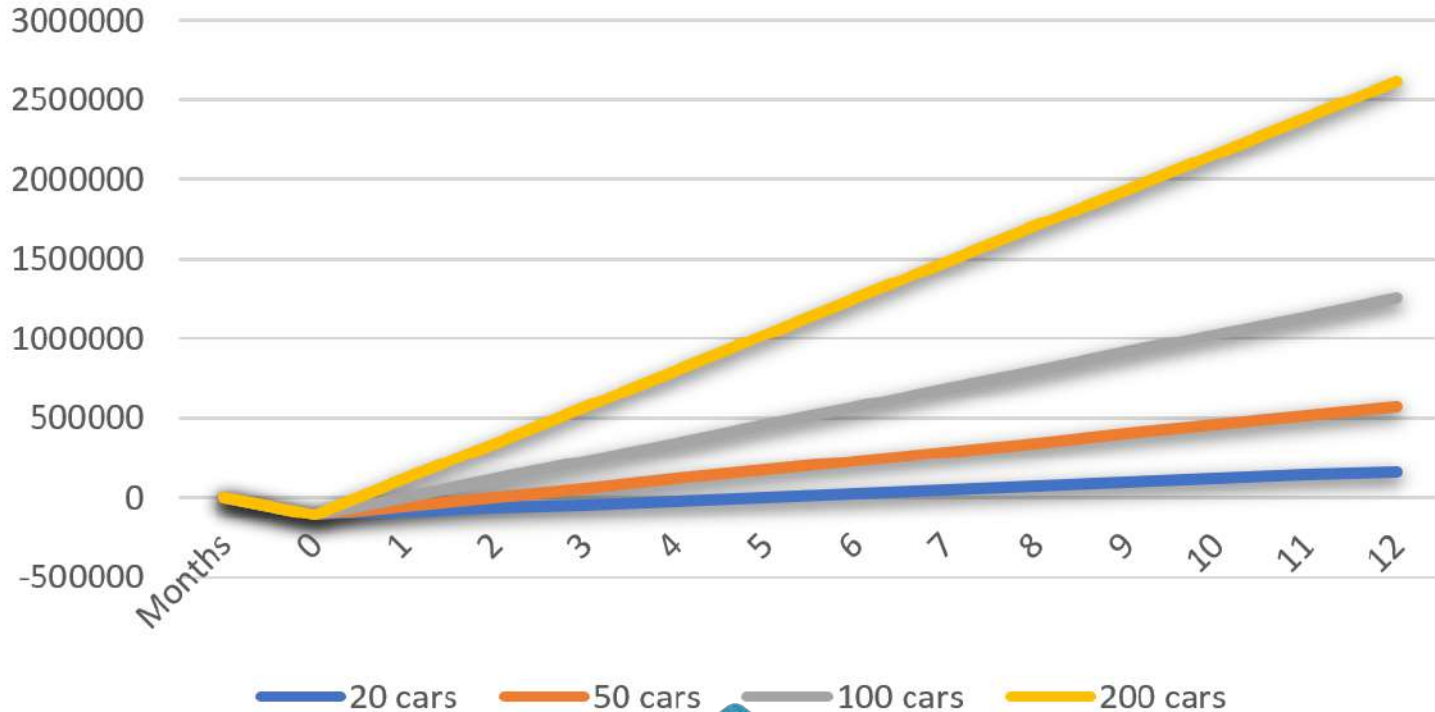
- leasing with 400 € / car / month
- 4 drivers per car with 450 € / driver / month (wage about 12€/hour)
- Electricity costs of 400 € / car / month (8,1€/100 kilometre, ~ 60.000 kilometre/year)
- maintenance, support and administration costs: 300€/car/month
- Marketing costs of 40.000 €
- App development costs of 20.000 €
- Car design costs: 50.000 €
- Ticket price: average of 7€
- Average of 2,7 passengers / ride / car
- 7 rides / car / day

Break-Even Analysis

- ▶ Fixed costs: 110.000€
- ▶ Variable costs: 2900€/Month/Car
- ▶ Revenue: 4035,15€/Month/Car
- ▶
 - => Break-Even point(10 Cars): 9,69 Months
- ▶ => Break-Even point(20 Cars): 4,85 Months
- ▶ => Break-Even point(50 Cars): 1,94 Months
- ▶ => Break-Even point(100 Cars): 0,97 Months
- ▶ => Break-Even point(200 Cars): 0,48 Months

Break-Even Analysis

Profit/Loss over time in €



Break-Even Analysis

Challenges



Getting permissions
from cities



Building user base



Finding enough
drivers

Possibilities



Business
(revenue/data/image)



Environment



Consumer

Conclusion

“TRANSIT”