“THE NEW PARADIGM OF SHARED TRANSPORTATION”

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Large Urban Centres - Current Situation

Triple degree of transport demand concentration:

- Everyone wants to go to the same place
- At the same time
- By the same routes (roads)
Congestion

Urban Pollution

Pollution from road transport vehicles can cause both direct and indirect harmful effects to human health

Traffic Accidents
BALANCE

Transportation System Demand and Supply

Urban Land Use

Urban Sustainability Sustainable Transport
First Question

What to do to achieve sustainable transportation system?
Changing the behavior of transportation system users!

More efficient transportation modes
- Social
- Environmental
- Economic

Vehicles
- Clean Technologies
- Electric propulsion (eCars)
"Concepts of material throughput reduction and long-lasting product economies quite often emphasize the importance of a change in the attitude towards ownership.

In many instances it is not the ‘material’ that is desired by an individual, but the service it renders.

The economic structure then is to organize the availability of just this service, which can be satisfied on the basis of one ‘material’ product for many users."

Source: Franz E. Pretthenthaler and Karl W. Steininger 1998 – “From ownership to service use lifestyle: the potential of car sharing”
In this context arises the concept of “Collaborative Consumption”, based on sharing economy. Point of view of transportation systems:

**Shared Mobility Systems**

Carsharing / Carpooling / Mobility on Demand
Own a vehicle

- Mobility
- Comfort
- Convenience
- Safety
Own a vehicle

- Traffic violation fines
- Fuel expenses
- Maintenance
- Parking
- Taxes
- Congestion
Shared Mobility Systems

- Carsharing
- Carpooling
- Mobility on Demand
Carsharing

Carsharing allows consumers the benefits of a private vehicle while relieving them of the costs of purchase and maintenance.

Users can access vehicles owned by carsharing companies as part of a shared fleet on as-needed basis.

Members typically pay an initial or yearly membership fee and usage fees by the kilometer, hour, or a combination of both.

Carsharing Service Models

Round-trip carsharing

Vehicles are rented by the day, hour or mile — or some combination of the three — and returned to starting point.

One-way carsharing: station model

Similar to most bike-share programs, these systems rely on customers to pick up and drop cars off at existing stations.

One-way carsharing: floating model

Cars rented on demand and returned to defined areas. Usually require a “jockey” to manually reposition vehicles.

Source: https://www.greenbiz.com/article/zipcar-google-and-why-carsharing-wars-are-just-beginning
Examples: Carsharing Companies

Today, the world's largest Carsharing companies are:

- Zipcar (founded in 2000 in the United States), with more than 900,000 members and a fleet of 11,000 vehicles.
  - It operates in the United States, Canada, United Kingdom, Austria, France, Germany, Spain and Turkey.
  - www.zipcar.com

- Car2Go (founded in 2008 in Germany) with more than 1,000,000 members and a fleet of 12,000 vehicles.
  - It operates in Germany, Holland, Spain, Italy, Sweden, Austria, Canada and United States.
  - www.car2go.com
Carpooling

- Generally a private vehicle

- Involves groups of users traveling together in one car

- Informal market

- Generally the users share the travel costs
Example: Waze Rider – Carpool

https://www.waze.com/carpool/
Mobility on Demand

• Ridesourcing Service.

• Provide both pre-arranged and on-demand transportation services for compensation by connecting drivers of personal vehicles with passengers.

• Rides are typically booked via smartphone, and mobile applications are used for booking, payment, and driver/passenger ratings.
Examples: Mobility on Demand
In the last two decades, the shared modes have become a consolidated means of transportation and adopted by more than one million users in the world.
European study indicated that between 15% and 34% of participants in a car-sharing system sold their vehicles after joining the program.
Second Question

What can be offered to the user to migrate to shared transportation?
Shared Mobility

- Reduction of costs
- Availability and reliability of the system
- Social and environmental benefits
  - Decrease in the number of vehicles in circulation
  - Reduction of the levels of congestion and pollution
  - Vehicles with Clean Technologies
  - Electric Vehicles - eCAR

Source: http://oecdeducationtoday.blogspot.com.br/2013/05/the-urban-advantage-in-education.html
Users of the Liftshare shared transport system - Norfolk, England -

The Environmental Concern

Source: http://www.norfolkttechjournal.com/meet-liftshare/
Third Question

Who are the shared mobility users?
Shared Mobility Users

- Age group: 18 to 35 years old
- High degree of education (higher education)
- Familiarity with technological devices
- Environmental and social concerns (sustainable mobility)
- Wish to be always "connected" to the virtual world (social networks, Internet, Apps for tablets, smartphones, etc.)
- Agree to migrate to shared modes as long as your utility is maximized:
  - Reduction of transportation costs and / or
  - Improvement of service quality:
    - Less travel time
    - Greater comfort and ease of movement
Objectives:

- Identify the demand (segmented by income, age, education level, gender, etc.), for transport in major urban centers, with regard to the shared mobility.

- Spatial approach for the evaluation of the location of carsharing service centers, with an integrated methodology "Transport and Land Use".

- Identify the potential of each of the locations and estimate the fleet of carsharing vehicles needed to meet the demands.
Can the shared mobility solve all the problems of the urban transportation systems?

Of course not!!

Why is important study shared mobility?

Shared mobility is one among several strategies that can be adopted in order to improve urban mobility.

How to implement a shared mobility system?

That is the goal of the research project in developing by EPUSP.
Acknowledgments