Green Move: a (sustainable) project of electric vehicle sharing for the city of Milan

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Introduction
1. What is the project
2. Some cases of success
3. Key points
4. Configurations
5. Stakeholders
6. Maps
7. Demand analysis
8. Trial (the condominium car)
9. Conclusions
Incentives and taxes
(use alternative modes, reduce driving)
✓ congestion & park pricing (Button and Verhoef, 1998)
✓ mobility credits (Banister, 2000)
✓ …

Improved transport choice
✓ demand-responsive services (Brake et al., 2007)
✓ car pooling (Correia and Viegas, 2006)
✓ vehicle sharing (Katzev, 2003)
✓ services for nonmotorized (Pucher and Buehler, 2008)
✓ …

Policies, programs, land use management
Car sharing

- A service about the **shared use of a car fleet**

- Cars available for a group of users:
  - reservation system
  - cost proportional to use

- Allow to have at disposal a car for family or company needs, not owning one:
  - without fixed costs (tax, insurance, maintenance, box, ...)
  - paying only the use

- Ideal solution for those driving **less than 10.000 km per year**
Vehicle sharing is attractive for an “occasional” use

Barriers: capillarity and availability (Katzev, 2003)

The concept had different evolutions, such as neighborhood model, station cars, multi-nodal (Barth & Shaheen, 2002; Brook, 2004)

Until the 90’s, most of the services were a failure: public support (Shaheen et al., 1998; Burlando et al, 2007)

Environmental benefits (Katzev, 2003; Martin & Shaheen, 2011)

car ownership: reduction of 12-15 private cars for each car shared

cars circulating: 20% less emissions for each member of car shar.
soil occupation

Recently: use of electric cars
Summary

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Green Move

- Objective: design & test a **electric car-sharing system** in Milan

- Coordinating a 2½ years project financed by the Lombardia Region (5 millions €), involving **eight research centers** of Politecnico di Milano

- Outcome:
  - the design of a **full scale** service
  - a **trial** with a limited number of docking stations in Milan

Switch from “buy a vehicle” paradigm to **“buy mobility services”**
The scheme

Best practices and literature review → Context analysis → Service idea identification → Strategic design → Full scale service design → Trial → Hw & sw development → Final recommendations

Timeline:
- Mar 2011
- Oct 2012
- Sept 2013
The main steps of a journey

- book your trip
- receive your code
- unlock the vehicle
- make your trip
- return the car
The GeB (Green e-Box)

Device to manage the vehicle functionalities, which can be installed in any (recent) vehicle

- **Keyless**: doors and/or engine enabled by smartphone, RFID, or SMS (no need for physical key exchange)
- **Multi-owner**: single users, private companies, associations, …, can share their cars or fleet
- **Floating parking**: wireless communication with the central station and GPS (no need for docking stations)
The information flow

1. Info-mobility

2. Vehicle positioning

3. General info

4. DS activation

5. Free DS available

6. Vehicle parameters

7. Lock & unlock

8. Lock-unlock, start, stop, …

9. Code reading

Control center

Docking station

Vehicle

Green e-Box

User
The services

- Advertising companies
- Public info
- Pollution info
- Mobility info

Green Move Center

Users
App (tablet & smartphone)

Display of car data (tablet)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
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</thead>
<tbody>
<tr>
<td>Voltage</td>
<td>80.3 V</td>
</tr>
<tr>
<td>Current</td>
<td>0.3 A</td>
</tr>
<tr>
<td>In charge</td>
<td>No</td>
</tr>
<tr>
<td>S.O.C.</td>
<td>82 %</td>
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<tr>
<td>Speed</td>
<td>0.0 km/h</td>
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<tr>
<td>Direction</td>
<td>Undef</td>
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<tr>
<td>Fault A</td>
<td>0</td>
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<tr>
<td>Doors</td>
<td>Closed</td>
</tr>
<tr>
<td>Command</td>
<td>None</td>
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<tr>
<td>Fault B</td>
<td>0</td>
</tr>
<tr>
<td>Heating</td>
<td>Off</td>
</tr>
<tr>
<td>Mode</td>
<td>Standard</td>
</tr>
</tbody>
</table>

Booking and car taking (smartphone)

- Take the Ticket
- Take the Car
- Leave The Car
- Give the car back
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Autolib – Paris

**More than 1700 cars** (to 3,000)

**One-way system**

**More than 5,000 parking places & recharge spots**

**More than 1000 stations** (in Paris and suburbs)

**Electric fleet**
Autolib – data (on average)

First year with Autolib:
- 40’000 users → 15 rents/user
- 600’000 rents → 1650 rents/day

Now:
- > 1milion rents
- 60.000 pass-holders
- 1.200 users/month
- growth: 15% per month

A URBN REVOLUTION

3000 vehicles correspond to a reduction of 22.500 private vehicles, that is 164.500.000 km. not driven with polluting cars.
This contribute to the national commitment of 20% reduction of the carbon emissions by 2020.

A car is driven (on av.) 3 times per day. The av. trip is 42 min and 9 km. One user out of 3 think of Bluecar as first choice for transport.
Car2go – 18 cities in EU and USA

- Online reservations (website or app).
- Every reservation gives 20 km free.
- Reservation and access in 15 min.

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<thead>
<tr>
<th>Cities</th>
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<tr>
<td>Amsterdam</td>
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<td>Washington DC</td>
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<td>Austin</td>
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<td>Dusseldorf</td>
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<td>Toronto</td>
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<td>Cologne</td>
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<td>Berlin</td>
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<td>Calgary</td>
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</table>
Car2go – you can park everywhere

Any parking lot within the “home area”.

Agreement between Car2go and municipality.

Reserved parking lots in high traffic areas or stations.

In real time on the site is indicated:

- the position of each vehicle
- the parking areas
- vehicles booked
- the boundaries of Home Area
- filling stations
Zipcar – USA, UK, Canada

- In more than 50 cities in North America, UK, Canada and Spain
- In more than 200 colleges in North America
- More than 750,000 users «zipsters» in the world
- More than 9000 vehicles fleet

CAR SHARING WORLD LEADER COMPANY

Reserve with app, drive System → two ways trip
Zipcar – the trend

Number of members trend
Cases analysed (35 international CS projects)

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<table>
<thead>
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<tbody>
<tr>
<td>1</td>
<td>eE-Tour Allgäu</td>
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<td>2</td>
<td>Botelleros</td>
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<td>3</td>
<td>Flinc/MobileRidesharing</td>
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<td>4</td>
<td>Frankfurt Model</td>
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<td>5</td>
<td>ICVS _ Honda</td>
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<td>6</td>
<td>I-go</td>
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<td>7</td>
<td>Phone Booths Charging</td>
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<tr>
<td>8</td>
<td>Autolib</td>
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<tr>
<td>9</td>
<td>Cambio</td>
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<td>10</td>
<td>eVai</td>
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<td>11</td>
<td>Greenwheels</td>
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<td>12</td>
<td>GuidaMi</td>
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<td>13</td>
<td>ICS</td>
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<td>14</td>
<td>Mobility Car Sharing</td>
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<td>15</td>
<td>MoveAbout</td>
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<td>16</td>
<td>Yèlomobile</td>
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<tr>
<td>17</td>
<td>ZipCar</td>
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<tr>
<td>18</td>
<td>Alt Car</td>
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<td>19</td>
<td>CiteVu</td>
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<tr>
<td>20</td>
<td>Cityzencar</td>
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<tr>
<td>21</td>
<td>Drive mycar</td>
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<tr>
<td>22</td>
<td>Getaround</td>
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<td>23</td>
<td>Go Op</td>
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<td>24</td>
<td>Sarecar</td>
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<td>25</td>
<td>Spride</td>
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<td>26</td>
<td>Tamyca</td>
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<tr>
<td>27</td>
<td>Whipcar</td>
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<tr>
<td>28</td>
<td>Zen Car</td>
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<tr>
<td>29</td>
<td>Car2go</td>
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<tr>
<td>30</td>
<td>Citycarshare</td>
</tr>
<tr>
<td>31</td>
<td>E-moving</td>
</tr>
<tr>
<td>32</td>
<td>Google’s Relay Rides</td>
</tr>
<tr>
<td>33</td>
<td>London Liftshare</td>
</tr>
<tr>
<td>34</td>
<td>Pordenone Birò</td>
</tr>
<tr>
<td>35</td>
<td>ZEC</td>
</tr>
</tbody>
</table>

**Nationality**
- Italians: 6
- European: 16
- Extra-Europe: 13

**Engine**
- Electric: 16
- Trad.-hybrid: 19
GM – case studies

Criteria to study the cases

- Economy
  - GuidaMi
    - interoperabilità
  - Autolib
    - do it yourself
  - Comune di Pordenone
    - free
    - generazione diffusa / energia rinnovabile
  - ICVS Honda
    - riduzione dimensionale
    - interazione semplificata
  - Move About
    - infrastruttura aperta
    - geolocalizzabilità
  - ZipCar
    - accessibilità semplificata
  - Car2go
    - geopolocalizzabilità
  - I-go
    - acessibilità semplificata
  - Citycarshare.org
    - real time
    - ridesharing
  - RelayRides
    - pubblicizzazione risorse / community
    - orientato allo scopo
  - eE-Tour Allgäu
    - trust / collaborazione
  - Flinc
    - ridesharing
    - trust / collaborazione
  - Yelomobile
    - human interaction
    - real time
    - ridesharing
  - Mobility Car Sharing
    - real time
    - ridesharing
  - eVai
    - human interaction
    - real time
    - ridesharing

- Environment
  - Technology
  - User experience

Names & keywords
Car sharing services in Milan

- **GuidaMi** (city of Milan)
  - 134 cars
  - 5,147 users
  - 80 pick stations
  - Internal comb. engines

- **e-Vai** (Lombardia region)
  - 37 pick stations (4 in Milan)
  - Near airports and stations
  - Electric vehicles
Summary

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Key points

1. Capillarity (i.e. stations/km$^2$) is relevant: if too low $\rightarrow$ barrier

2. Fares policies: to incentive short trips

3. Build up a community: the role of the users

4. Integration with other services: i.e. car pooling (Zipcar-Zimride)

5. New technologies
## 1. Capillarity: a comparison

<table>
<thead>
<tr>
<th></th>
<th>vehicles</th>
<th>% ICE</th>
<th>stations</th>
<th>park</th>
<th>place</th>
<th>km²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Autolib</td>
<td>1w</td>
<td>1.740</td>
<td>0%</td>
<td>1.100</td>
<td>5.000</td>
<td>Paris 375</td>
</tr>
<tr>
<td>Car2go</td>
<td>1w</td>
<td>1.200</td>
<td>100%</td>
<td>1.200</td>
<td>M</td>
<td>Berlin 444</td>
</tr>
<tr>
<td>ZipCar</td>
<td>2w</td>
<td>1.279</td>
<td>100%</td>
<td>1.084</td>
<td>1/veh.</td>
<td>London 1.040</td>
</tr>
<tr>
<td>GuidaMi</td>
<td>2w</td>
<td>134</td>
<td>98.5%</td>
<td>80</td>
<td>1/veh.</td>
<td>Milan 225</td>
</tr>
</tbody>
</table>

The main difference → fleet dimension !!!

i.e. Car2go → sizes the service taking in account the area served, with a fixed capillarity
2. Fares policies

Incentive the short trips
3. Build up a community: peer-to-peer car sharing

**Peer-to-peer** (P2P) car sharing

- sharing of the private car
- rates decided by the owner
- time window of availability decided by the owner

[http://www.whipcar.com](http://www.whipcar.com)
3. Build up a community: p2p main obstacles

**Cultural obstacles**
- Insurance: perceive the automotive industry as a loss sector
- People identify the car sharing as a car rent: expensive and risky
- Cultural relevance of car ownership of the car

**Practical obstacles**
- Legal aspects still not solved
- Insurance: p2p standard missing
- For p2p the IT aspects are as much relevant as the transport ones

**In Italy**
- Car sharing is associated to public transport
- The existing initiatives are promoted by LPT companies

P2P is an important opportunity for mobility and environment: still not taken in Italy

Cultural change and removal of obstacles concerning insurance and legal aspects
4. Integration with other services
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Three (+ one) configurations

The project has identified some interesting configurations of the car sharing service in terms of:

- users *(target customers)*
- characteristics of the service

(a) The condominium car
(b) The network of opportunities
(c) The car for the company

(d) The peer-to-peer system
  - users can share their car with other members
  - users can create their own group sharing
  - also open to non-electric vehicles
  - possibility to increase the capillarity of the service
(a) The condominium car
(a) The condominium car

The **condominium car** is a sharing of (electric) vehicles that emphasize the car sharing model, based on the “neighborhood approach” – with cars shared within the district – eliminating one of the barriers to its use:

**the distance from the pickup / delivery station**

The **basic idea** is to:

- equip the building with vehicles shared in a group of people who already share at least spaces and building expenses,
- place the parking inside the building to ensure the requirements of proximity and vehicle safety.
(b) The network of opportunities

Mr Brambilla, lives in a town close to Milan:
1. He goes by train to Milan
2. And picks up a car from the train station
3. He makes shopping
4. And after goes to the hospital to picks up some medical tests, leaving the car there
5. He goes back home by bus
(b) The network of opportunities

The “network of opportunities” integrate admission to various services offered by the city, with a mode of travel innovative, flexible, fun and economical.

The main aim is to improve accessibility to the major poles aggregators of people such as city center, shopping centers, stations, etc., integrating mobility services offered by the car sharing systems with those offered by other operators.

In fact the basic idea is to link the car sharing to the main attractive point of interests:
- placing spaces to accommodate GM (electric) vehicles, in order to satisfy the mobility needs of employees / customers / visitors;
- integrating the GM mobility service and the services provided by the point of interests.
(c) The car for the company
(c) The car for the company

The **car for the company** is a electric vehicle sharing for companies, based on:

- replacing the company's fleet with a vehicle sharing fleet (i.e. the company buys from GM an all inclusive mobility service);
- use of the vehicle by the company as a car of the company fleet during the day;
- vehicle used during evenings and weekends by employees for personal use;
- availability of cars in company parking places.
Configurations and profiles: an integrated model

(c) The car for the company
- The new company fleet
- Traveling to and from work

(b) The network of opportunities
- Shopping in the city centre
- Tourists in the city
- Travelling to the infrastructures

(a) The condominium car
- Activities in the neighborhood
- Night life

(c) The car for the company
- The new company fleet
- Traveling to and from work

(b) The network of opportunities
- Shopping in the city centre
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(a) The condominium car
- Activities in the neighborhood
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Configurations and main stakeholders

(a) The condominium car

(b) The network of opportunities

(c) The car for the company

Companies

Building companies

Condominium

Attractor nodes

Local authorities

El. vehicle producers

El. energy suppliers
### Stakeholders support (outcome of 30 interviews)

<table>
<thead>
<tr>
<th>Stakeholders</th>
<th>Marketing</th>
<th>Management</th>
<th>Service design</th>
<th>Parking</th>
<th>Financing</th>
<th>Intermodality</th>
<th>Community</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local authorities</td>
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<td>Condominiums &amp; building comp.</td>
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<td>Attractor nodes</td>
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<td>Car &amp; energy producers</td>
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<td>Objectives</td>
<td>Environment</td>
<td>Mobility</td>
<td>Social</td>
<td>Economy</td>
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<tr>
<td></td>
<td>Pollution reduction</td>
<td>Urban congestion reduction</td>
<td>Improving living urban space</td>
<td>Financial sustainability</td>
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<tr>
<td></td>
<td>Greenhouses gas reduction</td>
<td>Accessibility increase</td>
<td>Increased environmental awareness</td>
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<tr>
<td></td>
<td>Energy waste reduction</td>
<td></td>
<td><strong>Social Innovation</strong></td>
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</tbody>
</table>
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Problem characteristics:

- **different actors** and stratification of governance levels, e.g. public administration (municipality, region), associations, ...
- **uncertainty** in the definition of the variables, e.g. future policies for urban mobility, travel demand estimation for a non-existing service
- **conflicting criteria**, e.g. costs vs territorial coverage (such as in BikeMI)
- structuring the problem itself is an issue, e.g. definition of the configuration options to be evaluated is a key issue (Hull and Tricker, 2005; Kelly et al., 2008; Jones et al., 2009)

How to design/formalize the service?
Causal maps:

- a powerful way of capturing decision-makers’ views
- widely used in problem-structuring
  \((\text{Rosenhead and Mingers, 2004})\)
- used to help in identifying possible new better actions
  \((\text{Montibeller and Belton, 2006})\)
- a rich representation through modelling of complex chains (causes and effects) of arguments \((\text{Eden, 2004})\)
Integration of causal maps with multi-criteria analysis:

- model the effects of a link
  (qualitative or quantitative methods)

- definition of aggregation rules
  - qualitative $\rightarrow$ experts
  - quantitative

models (e.g. demand analysis)

(Montibeller and Belton, 2006)
A (partial) map for GM

Parameters defining the service

Evaluation criteria

- fuel consumption
  - pollutant emissions
  - GHG emissions

Partial map for the design of a vehicle sharing service
<table>
<thead>
<tr>
<th>Parameters</th>
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<tbody>
<tr>
<td>1. Type of vehicle (EV, hybrid, ICE)</td>
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<td>2. Service area</td>
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<tr>
<td>3. Capillarity and intermodality</td>
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<tr>
<td>4. Spatial flexibility $\rightarrow$ 1w-2w</td>
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<tr>
<td>5. Flexibility of service $\rightarrow$ temporal flexibility of booking</td>
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<tr>
<td>6. Fare:</td>
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<tr>
<td>6.1. modes (hourly, km)</td>
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<td>6.2. function type (concave, convex, linear)</td>
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<td>6.3. level (high, medium, low)</td>
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<tr>
<td>7. Economic incentives (parking, congestion tax, LPT)</td>
</tr>
<tr>
<td>8. Incentives for service (areas with traffic restrictions, lanes ...)</td>
</tr>
<tr>
<td>9. Re-allocation model</td>
</tr>
<tr>
<td>10. Mechanisms for promotion and marketing</td>
</tr>
</tbody>
</table>
After the setting up of different options (alternatives), they can be evaluated and compared thanks to adequate indicators.

**Evaluation and performance indicators** (to measure the achievement of the objectives of stakeholders):

- Net Present Value
- $\Delta$ km traveled on the network
- $\Delta$ greenhouses gases
- $\Delta$ polluting emission
- Modal shift to sustainable mobility
- Number of users
- Connection in the social network
- Space occupied by parking
- Accessibility indicators
- ….
Financial sustainability

Output Cash flow
- Costi di esercizio della flotta (energia, assicurazione, ...)
- Costi manutenzione/ lavaggio/pulizia
- Costi gestione e manutenzione stallo
- Costi del lavoro
- Costi di recupero e spostamento veicoli
- Costi call center e fatturazione
- Costi gestione e manutenzione infrastruttura tecnologica
- Costi promozione
- Costi gestione della sede (elettricità, telefono, attrezzaggio)
- Costi legali e di consulenza

Input Cash flow
- Ricavi da abbonamenti e iscrizioni
- Ricavi da prenotazioni e tariffe
- Ricavi da penali
- Costi call center e fatturazione
- Costi manutenzione/ lavaggio/pulizia
- Costi del lavoro
- Costi di recupero e spostamento veicoli
- Costi gestione e manutenzione infrastruttura tecnologica
- Costi promozione
- Costi gestione della sede (elettricità, telefono, attrezzaggio)
- Costi legali e di consulenza

Cash flow

Investements (vehicles, IT, ...)

Net Cash flow
Summary

1. What is the project
2. Some cases of success
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7. Demand analysis
8. Trial (the condominium car)
9. Conclusions
Demands analysis

1 - Analyze the willingness to share the private car and the relative price

2 - Quantify the percentage of users who would be willing to use the service and at what cost

The online survey
Car sharing use

General attitude

Sample: 1,211 people

Are you interested to join a car sharing service?

- Men (68.9%) > Women (60.5%)
- Graduated (69.8%) > Not graduated (62%)
- Employed ~ Not Employed (64.7% vs. 63.8%)
Willingness to share the private car

**Willingness to share**

- **Yes** → → → → →
  - No, car is a personal property
  - No, I prefer to have my car at disposal in every moment
  - No, i don't need money
  - No, other

**Zoom to potential sharers**

- Yes, with the whole users community
- Yes, but just with a selected group
- Yes, but only with my neighbors
- Yes, but only with my colleagues

To much expensive
Short autonomy
Others

54%
6%
4%
5%
What do you think about buy and share an electric car?

Why not: among

- no-sharers
  - To much expensive 45%
  - Short autonomy 33%
  - Others 22%

Why not: among potential sharers
  - To much expensive 53%
  - Short autonomy 34%
  - Others 13%
Model for (general) car sharing

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Service characteristics</td>
<td></td>
</tr>
<tr>
<td>$\beta_{\text{fixed_fare}}$</td>
<td>1</td>
</tr>
<tr>
<td>$\beta_{\text{var_fare}}$</td>
<td>2</td>
</tr>
<tr>
<td>$\beta_{\text{capill}}$</td>
<td>3</td>
</tr>
<tr>
<td>$\beta_{\text{return}}$</td>
<td>4</td>
</tr>
<tr>
<td>User characteristics</td>
<td></td>
</tr>
<tr>
<td>$\beta_{\text{num_car}}$</td>
<td>5</td>
</tr>
<tr>
<td>$\beta_{\text{gender}}$</td>
<td>6</td>
</tr>
<tr>
<td>$\beta_{\text{age}}$</td>
<td>7</td>
</tr>
<tr>
<td>$\beta_{\text{employ}}$</td>
<td>8</td>
</tr>
</tbody>
</table>

Stated preferences (the model)

$$U_{\text{yes}} = \beta_1 \cdot \text{fixed\_fare} + \beta_2 \cdot \text{var\_fare} + \beta_3 \cdot \text{capill} + \beta_4 \cdot \text{return} + \beta_5 \cdot \text{num\_car} + \beta_6 \cdot \text{gender} + \beta_7 \cdot \text{age} + \beta_8 \cdot \text{employ}$$
For the moment we decide for a simple interpolation (to consider the different scenarios from the point of view of modal split)

<table>
<thead>
<tr>
<th>Modal split: scenario A</th>
<th>certamente</th>
<th>+ molto prob.</th>
<th>+ probab.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0,4%</td>
<td>2,0%</td>
<td>8,6%</td>
</tr>
<tr>
<td>Modal split: scenario B</td>
<td>1,2%</td>
<td>5,5%</td>
<td>17,3%</td>
</tr>
<tr>
<td>Modal split: scenario C</td>
<td>0,5%</td>
<td>2,9%</td>
<td>12,1%</td>
</tr>
</tbody>
</table>

The demand scenarios are:
- **realistic** → “certamente”
- **optimistic** → all the positive answers
Summary

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The scheme

Best practices and literature review

Context analysis

Service idea identification

Strategic design

Hw & sw development

Full scale service design

Trial

Final recommendations


communication & partecipation
The trial

- Buildings → via Scarsellini & via Donadoni
  (for residents that want to join the service)

- Amazing opportunity to test an alternative model
  for a sustainable mobility in the city of Milan

- No-profit: payments will repay the costs and
  are useful to test the willingness to pay of users

- Verify the economic sustainability and
  the performances of the condominium car model
Cooperative, Via Scarsellini, Bovisa (Milano)

~ 100 families, common spaces
Cohousing, via Donadoni, Bovisa (Milano)

~ 30 families, common areas & services, open activities
The communication phase

First impression of the users
The video
The website (www.greenmove.polimi.it)
1. Perché se il servizio è senza fine di lucro è necessario corrispondere un pagamento per l’utilizzo?
2. A chi vanno i soldi?
3. Quali sono i vantaggi per l’utente?
4. Se mi iscrivo al servizio devo necessariamente registrarmi ogni mese e corrispondere il corrispettivo pagamento?
5. Come avviene il pagamento?
6. Le auto sono assicurate?
7. Cosa succede in caso di incidente?
8. Essendo iscritto a e-Vai, posso utilizzare anche le auto del servizio esterne alla sperimentazione?
9. Essendo un servizio basato sulle prenotazioni, cosa succede se porto in ritardo l’auto?
10. ..
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Conclusions

1. **Specific communities** → p2p, condominium, ...

2. **Services *ad hoc*** based on specific needs

3. **Decision aid** for the strategic design (an innovative service)

4. **Multidisciplinary** approach → 8 research centers

5. **Stakeholder** → involvement and role

6. **Lack of rules** and procedures

7. **Communication** tools … (for communities)
References

References

• Alberto Colorni
  alberto.colorni@polimi.it

• Green Move
  www.greenmove.polimi.it

Thanks for your attention