Mobility in Barcelona: Sustainability policies, information systems and the SUPERHUB project

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Contents

- Some Barcelona mobility features
- Current sustainability policies in Barcelona
- Current information systems in Barcelona
- The SUPERHUB project in Barcelona
Barcelona

<table>
<thead>
<tr>
<th>MUNICIPIS</th>
<th>SUPERFÍCIE (Km²)</th>
<th>HABITANTS</th>
<th>DENSITAT (h./Km²)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Província de Barcelona</td>
<td>314</td>
<td>7.733</td>
<td>5.511.147</td>
</tr>
<tr>
<td>Regió metropolitana de Barcelona</td>
<td>164</td>
<td>3.241</td>
<td>5.012.961</td>
</tr>
<tr>
<td>Àrea metropolitana de Barcelona*</td>
<td>36</td>
<td>628</td>
<td>3.231.458</td>
</tr>
<tr>
<td>Barcelona</td>
<td>1</td>
<td>101</td>
<td>1.630.103</td>
</tr>
</tbody>
</table>

Metropolitan Barcelona Area (AMB): 3,200,00 people

Other SUPERHUB pilots:
- Milan 1,300,000 people
- Helsinki 575,000 people
Barcelona

Daily legs in 2010

1,70 millions

4,78 millions

Nonmotorized

Public Transp.

Private transp.
Barcelona Transportation modes (BCN-BCN)

Almost 5,000,000 journeys within BCN

Motorized
2,597,851 (52.5%)

Nonmotorized (bike + on foot)
2,346,250 (47.4%)

Public transp.
1,690,815 (65.1%)

Private transp.
907,036 (34.9%)

Colective
1,553,839 (91.9%)

Individual
136,976 (8.1%)

Regular
1,471,787 (94.7%)

Non regular
82,052 (5.3%)

Regular

Non regular

TAXI

A PEU
2,247,725 (95.8%)

BICI
98,525 (4.2%)

CAMIÓ + FURGONETA
134,524 (14.8%)

COTXE
468,960 (51.7%)

MOOTO
303,552 (33.5%)

METRO
731,767 (49.7%)

FGC
92,972 (6.3%)

bus TMB
589,526 (40.1%)

TRAM
39,140 (2.7%)

RENFE
18,381 (1.2%)
Barcelona

Relevant public entities

- Government of Catalonia – Departament de Territori i Sostenibilitat, the Catalan authority for mobility
- EMT (Entitat Metropolitana del Transport) is a local body formed by eighteen municipalities in the metropolitan area of Barcelona.
- ATM (Autoritat del Transport Metropolità) is the entity in charge of planning public transp. infrastructure, coordinating transport operators and managing the unified fare system for Barcelona.
- Barcelona City Council has competences within its municipality boundaries such as traffic management. Other departments concern about environment
Barcelona: Sustainable Mobility

Pla de Mobilitat Urbana 2006-2012. Ejes de actuación

- **Sustainable** – reduce energy consumption, renew bus fleet, Bicing, electric vehicle
- **Safe** – Campaigns to reduce accidents, less cars in the city
- **Efficient** – improve public transportation, increase occupancy of passengers per vehicle
- **Fair** – accessibility in metro stations, etc. New metro lines…
Barcelona: Sustainable Mobility

- Barcelona promotes nonmotorized transportation.
  - Extensive pedestrian areas (+ Zone 30)
  - Bicycle promotion (bike lane, **BICING**, green ring)
  - Restrictive parking policies: blue zone, green zone
- Barcelona fights against traffic congestion
  - Demand-adaptive computerized traffic lights
  - Freight in Special lane in *Balmes, Muntaner*, etc.
  - Unloading goods in the night. Surveillance and timecontrol.
Barcelona: Sustainable Mobility

- Barcelona promotes the public transportation
  - Bus has priority in several traffic lights
  - Bus/taxi lanes
  - Accessibility for handicapped in metro
  - AVM (Advanced monitory system) for all the bus fleets

- Barcelona promotes the electric vehicle
  - Electric Vechicle: LIVE project
  - Electric Motorbike being introduced
  - Electric Bicycle
Barcelona: Sustainable Mobility

Indicators for Mobility regarding the four axis: Safety, Efficiency, Fair and Sustainable

<table>
<thead>
<tr>
<th>Sustainable Mobility: Key Parameter Indicators</th>
<th>2006</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public transportation passengers / year / inhabitants</td>
<td>558</td>
<td>562</td>
</tr>
<tr>
<td>Energy consumption (kg/hab.)</td>
<td>256</td>
<td>218</td>
</tr>
<tr>
<td>Average age of urban buses</td>
<td>6.7</td>
<td>6.12</td>
</tr>
<tr>
<td>Emission of CO2 tons (reduction over 1990 data)</td>
<td>1,37</td>
<td>1,21</td>
</tr>
<tr>
<td>Noise (% of people living in spaces under &gt;65dbA)</td>
<td>52%</td>
<td>55%</td>
</tr>
<tr>
<td>NOx, SOx, O3, PM10, CO pollution crossing the limits (days/year)</td>
<td>45</td>
<td>23</td>
</tr>
<tr>
<td>Municipality vehicles using biofuel</td>
<td>5%</td>
<td>35%</td>
</tr>
<tr>
<td>Occupation of the road network (vehicles*made km / network km)</td>
<td>10500</td>
<td>10100</td>
</tr>
<tr>
<td>Users of BICING</td>
<td>...</td>
<td>35000</td>
</tr>
</tbody>
</table>
Barcelona: Mobility Information Systems

Provided by Generalitat de Catalunya

• Departament de Territori i Sostenibilitat
  • Mou-te as a route planner and information service
  • “Canal de mobilitat” informs about the mobility state

• Servei de Trànsit
  • Real time information about the traffic congestion
  • Public access to cameras
  • Maps with congestion level per stretch

Provided by Ajuntament de Barcelona

• BCN Open Data Portal
• Traffic information
Barcelona: Mobility Information Systems

Provided by transport operators

• Panels in the bus stops showing AVM data
  • TMB has its own AVM
  • ATM manages a coordinated AVM for smaller companies
• Web / APP information
  • TMB travel planner is widely used
  • TMB APP is also relevant
  • Other applications (Bicing etc.)

Provided by the users

• Social Networks about mobility in Barcelona
SUPERHUB Focus Groups - Barcelona

• Online Questionnaire
  • Most of the smartphone owners would use SUPERHUB app.
• What Focus Groups are
• Focus groups highlighted results
  • Bus frequencies are critical for regular users
  • Night Bus as a key service for young people
  • BICING as a service which still can be improved
  • Willingness to do carpooling, with the necessary condition of a rating system. The need of a centralized system, also controlling payment.
The SUPERHUB in Barcelona

• Handling of expected and unexpected events
  • Unexpected, like a sudden demonstration
  • Foreseen, like a F.C.Barcelona match
  • Non-scheduled, like rain flooding a certain channel

• Use of Social Networks information
  • Institutional information broadcasted in the Social Networks
  • Use of Twitter by train users
The SUPERHUB project revisited

- Towards a sustainable mobility model
  - Persuading towards a sustainable transportation system
  - Carpooling is currently very limited in Barcelona

- Improved information systems
  - A hard competence with existing, good and reliable systems
  - Nevertheless, none of the existing systems includes full multimodality, real time information and personalized planning

SUPERHUB can do much!
Thanks you very much