The Mobility & Tourism Nexus Barcelona’s case, part 2

HIGH LEVEL TRAINING COURSES ON SUSTAINABLE MOBILITY
Barcelona, 11-13 June 2019

Alvaro Nicolás, mobility advisor
Barcelona City Council
<table>
<thead>
<tr>
<th></th>
<th>MUNICIPIS</th>
<th>SUPERFÍCIE (km²)</th>
<th>HABITANTS</th>
<th>DENSITAT (hab./km²)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Provincià de Barcelona</td>
<td>311</td>
<td>7.726</td>
<td>5.542.680</td>
<td>717</td>
</tr>
<tr>
<td>Regió Metropolitana de Barcelona</td>
<td>164</td>
<td>3.241</td>
<td>5.046.743</td>
<td>1.557</td>
</tr>
<tr>
<td>Àrea Metropolitana de Barcelona</td>
<td>36</td>
<td>635,8</td>
<td>3.226.600</td>
<td>5.075</td>
</tr>
<tr>
<td>Barcelona</td>
<td>1</td>
<td>101,3</td>
<td>1.608.746</td>
<td>15.881</td>
</tr>
</tbody>
</table>

Font: IDESCAT.INE.
2.1. Nombre de desplaçaments diaris segons l’EMEF 2016

Característiques de l’enquesta

- Enquesta telefònica a 9.490 individus a l’àmbit STI, dels quals 2.245 a la ciutat de Barcelona.
- No es tenen en compte els desplaçaments dels professionals del transport.
- No es tenen en compte els desplaçaments dels menors de 16 anys.

![Diagrama de barris amb percentatges]

<table>
<thead>
<tr>
<th>Percentatge</th>
<th>Número de desplaçaments</th>
</tr>
</thead>
<tbody>
<tr>
<td>46,8%</td>
<td>894.212</td>
</tr>
<tr>
<td>49,8%</td>
<td>951.304</td>
</tr>
<tr>
<td>32,5%</td>
<td>1.364.550</td>
</tr>
<tr>
<td>15,5%</td>
<td>649.342</td>
</tr>
<tr>
<td>3,4%</td>
<td>64.448</td>
</tr>
</tbody>
</table>

Total: 1,91 milions
Main Challenges

SAFETY

URBAN SPACE DISTRIBUTION

POLLUTION
Barcelona commitment to improve Mobility

Urban Mobility Plan PMU 2006 - 2012
Urban Mobility Plan PMU 2013 - 2018
Urban Mobility Plan PMU 2019 - 2024
Goals of Barcelona PMU 2013 - 2018

- **SAFE MOBILITY**
  - Reduce number of accidents related to mobility.

- **SUSTAINABLE MOBILITY**
  - Facilitate modal shift towards more sustainable modes.
  - Reduce air pollution caused by traffic.
  - Reduce noise pollution caused by traffic.
  - Moderate traffic energy consumption and reduce its contribution to climate change.
  - Increase use of renewables and “clean” energies.

- **EQUITABLE MOBILITY**
  - Encourage alternatives uses of public road.
  - Ensure accessibility to the mobility system.

- **EFFICIENT MOBILITY**
  - Increase transportation systems efficiency.
  - Incorporate new technologies to manage mobility.
Barcelona Transport Modes Hierarchy

1. BY FOOT mobility
2. BICYCLE mobility
3. PUBLIC TRANSPORT mobility
4. Urban distribution of GOODS
5. PRIVATE TRANSPORT mobility
REPARTO MODAL

2011

- Peatón: 31,9%
- Bicicleta: 1,5%
- Transporte Público: 39,9%
- Coche particular: 26,7%

Escenario tendencial 2018

- Peatón: 35%
- Bicicleta: 2,3%
- Transporte Público: 40,4%
- Coche particular: 22,3%

Escenario PMU 2018

- Peatón: 35,1%
- Bicicleta: 2,5%
- Transporte Público: 41,3%
- Coche particular: 21,1%

Desplazamientos/dia

6,5 M

2011-PMU 2018

- Peatón: +10%
- Bicicleta: +67%
- Transporte Público: +3,5%
- Coche particular: -21%
Barcelona Urban Mobility Model

**Actions**

Current Model vs Superblocks Model:

- **Current Model**:
  - Public Transport Network
  - Bicycles Main Network (Bike Lane)
  - Bicycles Signposts (Reverse Direction)
  - Free Passage of Bicycles

- **Superblocks Model**:
  - Private Vehicle Passing
  - Residents Vehicles
  - Urban Services and Emergency
  - Dum Carriers

- Dum Proximity Area
- Access Control
- Basic Traffic Network
- Single Platform (Pedestrians Priority)
Actions
Barcelona Urban Mobility Model

**Actions**
Actions

Incorporate new technologies to improve the management

- Optimize the utility of the spaces of loading and unloading.
Actions
Regulating personal mobility vehicles and cycles with more than two wheels in Barcelona
A pioneering set of regulations

Barcelona has put together an unprecedented plan to regulate personal mobility vehicles (PMV) and cycles with more than two wheels, with the aim of solving compatibility issues over public spaces and promoting a safe and sustainable mobility, given the growing presence of this new mobility which will continue gaining road space.

What are personal mobility vehicles?
They are electric devices which, depending on their features, are classed as follows:

A
Electric wheels, platforms and scooters of a smaller size and lighter

B
Electric platforms and scooters of a larger size

What are cycles with more than two wheels?
They are cycles which, depending on their features, are classed as follows:

C0
For personal use, can be likened to a bicycle *

C1
Intended for an economic activity

C2
Intended for transporting goods

* This vehicle is governed by bicycle-traffic regulations

Traffic areas and conditions

Traffic conditions and areas have been regulated according to the classification of these types of vehicles.

<table>
<thead>
<tr>
<th>Type</th>
<th>Maximum Capacity</th>
<th>Standard Helmet</th>
<th>Lights and reflectors</th>
<th>Identification and registration</th>
<th>Insurance</th>
<th>Minimum age</th>
<th>Marked road group</th>
<th>Max. speed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type A</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>16</td>
<td>3-6 + guide***</td>
<td>2 + guide</td>
</tr>
<tr>
<td>Type B</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>16</td>
<td>3-6 + guide***</td>
<td>2 + guide</td>
</tr>
<tr>
<td>Type C1</td>
<td>driver +3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>16**</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Type C2</td>
<td>driver</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>16</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

* For economic activities.

** Where people are transported in a standardised device, drivers.

***A distance of 30 m must be maintained between groups.

Pedestrians take precedence, we are promoting positive community life.

Penalties: Fines for infringements: minor, up to €100; serious, up to €200 and very serious, up to €500.
Traffic areas and regulations

Drivers of PMVs and cycles with more than two wheels must act with diligence and caution to avoid harming themselves or others, avoid putting other road users at risk and always respect the right of way of pedestrians.

The right of way of pedestrians must be respected, speeds adapted to their movements and no manoeuvres carried out that may have an adverse effect on their safety.

**Pavements**

Driving is not permitted on pavements.

- Where pavements are more than 4.75 m wide and there is 3 m of free space: Type C2 vehicles may access them to reach premises and shops where goods are loaded and unloaded.

**Bicycle lanes on pavements**

Types A, B, C1 and C2 may travel along these lanes, provided the width of the cyclist infrastructure allows it.

They may only travel in the direction indicated on the lane's signs, up to a maximum of 10 km/h and they must respect the roads signs that are provided.

**Single-level streets**

If the area is exclusively for pedestrians, only Types A and C2 may travel along them, at a maximum speed of 10 km/h.

- If a single-level street allows vehicle traffic, then Types B and C1 can also travel along them, at a maximum speed of 20 km/h.

**Bicycle lanes on roads**

Types A, B, C1 and C2 may travel along these lanes, provided the width of the cyclist infrastructure allows it.

They may only travel in the direction indicated on the lane's signs, up to a maximum of 30 km/h and they must respect the roads signs that are provided.

Vehicles must slow down when they are crossing a pedestrian path to avoid conflict situations with pedestrians and take all the necessary precautions.
Where can the vehicles be parked?

The vehicles may only be parked in authorised parking places. They may not be tied to trees, traffic lights, benches or other types of urban furniture where this affects their functioning or purpose; parked opposite loading and unloading zones, in places reserved for other users, for people with reduced mobility; or in services or areas where parking is not allowed; in emergency exits, hospitals, clinics or out-patients’ departments; Biking service areas, and on pavements where this obstructs pedestrians.

Crash helmets are mandatory

For users of Type A vehicles, where there is economic activity, and for all users of Type B vehicles.

In all other cases, crash helmets are merely recommended.

Reflective elements, lights and bells

It is mandatory for all vehicle types to bear reflective elements, lights and bells, with the exception of Type A vehicles, where it is only recommended they bear these for better visibility along public roads.

30 km/h zones

Types B, C1 and C2 may travel in these zones, up to a maximum of 30 km/h and in the direction indicated on the traffic signs.

- Type A may only travel in these zones where the maximum vehicle speed allowed is over 20 km/h.

Roads

Types C1 and C2 may travel on all roadways, except along roads that are part of the basic network (which concentrates a large flow of traffic and connects to the city), where they are banned.

Nevertheless, if the street or road in the basic network is provided with a cyclist infrastructure (cycle lane), mobility vehicles and cycles with more than two wheels may travel along this lane.

Parks

Types A and B vehicles may only travel up to a maximum speed of 10 km/h.

- Types C2, goods transport vehicles, may only travel along them to access refreshment and food stalls for loading and unloading.

They must respect the right of way of pedestrians, the natural heritage and the urban furniture. They must respect the indications of the signs provided, cyclist paths and the routes of the paved or unpaved areas, if there are any. They may not travel on flowerbeds or areas or zones with vegetation of any kind, or along any area prohibited by a sign.
Insurance

It is mandatory for a civil liability insurance policy to be taken out for all natural and legal persons concerned, whether as vehicle owners or by any other title, against third parties and passengers in type C1 vehicles and to cover any alternative compensation for any harm, damage and/or loss arising from the use of such vehicles and cycles by users given access to them for free or for hire.
Where the use of the vehicle is personal, the insurance is not mandatory but recommended.

Minimum age

The minimum age for driving PMVs or cycles with more than two wheels is 16 in all cases.
Where people are transported on a standardised device (Type C1), drivers must be of legal age (18).
It may be used by an individual under the age of 16 outside traffic areas in places that are closed to the traffic under the responsibility of parents or tutors, provided that the vehicle is suitable for that individual's age, height and weight.

Penalty system

Changes to the Byelaw's text include a penalty system that establishes fines of up to €100 for minor infringements, up to €200 for serious infringements and of up to €500 for very serious infringements.
Identification and registration

When personal mobility vehicles and bikes with more than two wheels are put to commercial use, it is obligatory to identify and register them. Vehicles will be identified using a QR code, except those with a power output of over 250 W, which do not form part of this classification as they are vehicles which require a number plate.

How should vehicles be registered?

1. A prior appointment should be booked by calling B:SM customer services (938 875 034).

2. All the required documents for each vehicle should be taken to the appointment to register them with the B:SM customer support office (C/ Calabria, 66. Barcelona).

3. B:SM will send each operator the corresponding stickers and keyring cards for each vehicle which meets the requisites of the register.

4. The stickers should then be put on the vehicles as instructed.

5. Further information at bsmsa.cat.

Special conditions for economic activities

Where personal mobility vehicles are performing a profit-making commercial, tourist or leisure activity, they need to abide by several special traffic conditions.

Types A and B vehicles, with a maximum of two people and mandatorily accompanied by a guide, and that of Type C1, with a maximum of one vehicle per person, must meet the general traffic conditions for the type of vehicle and area it travels through.

Groups, made up of between three and six people with Type A or B vehicles must be accompanied by a guide and may only travel along the designated routes marked out on the map.

A distance of over 50 metres must be kept between the groups.

Whoever is responsible for the economic activity must ensure that the users of the personal mobility vehicles and cycles with more than two wheels have a minimum level of aptitude to guarantee their safety and the safety of all the other users of the public road.

They must also be informed of authorised routes and their traffic conditions.

There may be specific restrictions in areas and districts where there is pressure from traffic or special problems with this type of vehicle.

For sustainable mobility for a healthier city

barcelona.cat/bicicleta
Routes authorised for groups

- HORTA-GUINARDÓ 1 ROUTE (4.4 km) TYPE A
- HORTA-GUINARDÓ 2 ROUTE (3.5 km) TYPE B
- EIXAMPLE 1 ROUTE (6.6 km) TYPE B
- EIXAMPLE 2 ROUTE (6.4 km) TYPE B
- SANT MARTÍ 1 ROUTE (8.6 km) TYPE B
- SANT MARTÍ 2 ROUTE (7.4 km) TYPE B
- SANT MARTÍ 3 ROUTE (4 km) TYPE A
- FRONT MARÍTIM ROUTE (11.6 km) TYPE A + TYPE B
- CIUTADELLA ROUTE (3.7 km) TYPE A
- MONTJUÏC 1 ROUTE (8.3 km) TYPE B
- MONTJUÏC 2 ROUTE (7.6 km) TYPE B
- MONTJUÏC 3 ROUTE (5.2 km) TYPE A
- SANTS ROUTE (2.4 km) TYPE B
- SARRIÀ-SANT GERVASI ROUTE (10.4 km) TYPE B
Sharing: regulation proposal
Sharing models

1. Station based

2. On street free-floating

3. Off street free-floating
Current situation…

• Studies on the **current situation** of the city.

• **Analysis and benchmarking** of regulations on vehicle sharing in **other European cities** such as London, Milan, Amsterdam or Berlin.

• Analysis of the **objectives, risks and opportunities** of the **sharing system** in the city of Barcelona.

• Studies of the **capacity of vehicle parking** (bikesharing and motosharing) in the public space of the city of Barcelona.
Objectives of sharing regulation:

- Promote more sustainable, more efficient and safe mobility in the city.
- Reduce the use of private vehicles and fleets of cars and motorbikes.
- Provide more flexible mobility and safer speeds.
- Reduce the number of accidents and their severity.
- Promote and watch over the transition between public transport, and all the vehicle sharing systems.
- Reduce local emissions, air pollution, noise and visual impact of the space occupied by private vehicles.
Ecologia Urbana – Mobilitat i Infraestructures

**Motosharing:**
- Free floating: 6 empreses
- Back to base: 1 cooperativa
- Peer to peer: 1 cooperativa

**Carsharing:**
- Back to base: 2 empreses i 1 cooperativa
- Free floating: 0 empreses
- One Way: 0 empreses
- Peer to peer: 4 empreses i 1 cooperativa

**Bikesharing:**
- Back to base: 0 empreses
- Free floating: 1 empresa
- One way: 2 empreses

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**Motosharing**

<table>
<thead>
<tr>
<th>Company</th>
<th>Num. motos (June 2017)</th>
<th>% sobre el total de places d'aparcament públic en superficie híbrida + cavi/pàdel</th>
<th>% sobre el total de places d'aparcament públic en coixina</th>
<th>% sobre el total de places d'aparcament en rotonda</th>
<th>% sobre el total del parc de metes de Barcelona</th>
</tr>
</thead>
<tbody>
<tr>
<td>scoot</td>
<td>550</td>
<td>0,80%</td>
<td>0,86%</td>
<td>19,13%</td>
<td>0,29%</td>
</tr>
<tr>
<td>YUGO</td>
<td>210</td>
<td>0,30%</td>
<td>0,33%</td>
<td>4,11%</td>
<td>0,08%</td>
</tr>
<tr>
<td>motH</td>
<td>250</td>
<td>0,36%</td>
<td>0,39%</td>
<td>4,98%</td>
<td>0,09%</td>
</tr>
<tr>
<td>mobik</td>
<td>200</td>
<td>0,29%</td>
<td>0,31%</td>
<td>3,98%</td>
<td>0,07%</td>
</tr>
<tr>
<td>auto</td>
<td>490</td>
<td>0,39%</td>
<td>0,76%</td>
<td>3,99%</td>
<td>0,07%</td>
</tr>
<tr>
<td>Total motosharing (Total)</td>
<td>1780</td>
<td>2,46%</td>
<td>2,65%</td>
<td>33,85%</td>
<td>0,63%</td>
</tr>
</tbody>
</table>

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**Carsharing**

<table>
<thead>
<tr>
<th>Company</th>
<th>Num. coches (June 2017)</th>
<th>% sobre el total de places d'aparcament públics (interior + superficial)</th>
<th>% sobre el total de places d'aparcament públics (interior)</th>
<th>% sobre el total de places d'aparcament públics (superficial)</th>
<th>% sobre el total del parc de barrios de Barcelona</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drivy</td>
<td>350</td>
<td>0,13%</td>
<td>0,24%</td>
<td>0,27%</td>
<td>0,16%</td>
</tr>
<tr>
<td>Amovens</td>
<td>120</td>
<td>0,34%</td>
<td>0,87%</td>
<td>0,08%</td>
<td>0,02%</td>
</tr>
<tr>
<td>Muga</td>
<td>450</td>
<td>0,16%</td>
<td>0,31%</td>
<td>0,35%</td>
<td>0,08%</td>
</tr>
<tr>
<td>Total coches carsharing (Total)</td>
<td>1500</td>
<td>2,46%</td>
<td>2,65%</td>
<td>33,85%</td>
<td>0,63%</td>
</tr>
</tbody>
</table>

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**Bikesharing**

<table>
<thead>
<tr>
<th>Company</th>
<th>Num. bicicletes (June 2018)</th>
<th>% sobre el total de places d'aparcament en superficie</th>
<th>% sobre el total de places d'aparcament en bicicletes privades (2015)**</th>
<th>% sobre el total de places d'aparcament en bicicletes privades (2015)**</th>
</tr>
</thead>
<tbody>
<tr>
<td>Avancar</td>
<td>400</td>
<td>1,48%</td>
<td>0,08%</td>
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</tr>
<tr>
<td>Indbike</td>
<td>0</td>
<td>0%</td>
<td>0%</td>
<td></td>
</tr>
<tr>
<td>Gobike</td>
<td>1500</td>
<td>17,73%</td>
<td>0,25%</td>
<td></td>
</tr>
</tbody>
</table>

*Names es contemplen les places d’aparcament en rotonda que estan marcades o delimitades.

** No s'ha inclòs la llinda de vehicules del FGC en aquesta analisi

** S'ha utilitzat la UMO per què no es disposa de dades sobre el sexe de bicicletes.
Licensing for occupation of public space:

- Companies must pay a **tax per vehicle**, as a fee for the **use of public space**.
- Licenses are **not transmissible**.
- Companies will be **obliged to use them**.
- Awarding through **submission of tenders and draw**.
- The validity or duration of the licenses will be \((3 + 1)\) years.

Conditions for the use of bicycle racks:

- Exclusive parking reserve for personal use in those areas of the city with higher tourist population or demand
- Maximum occupancy of 50% of the parking lot for economic activity.
Technical requirements to accomplish for out-licensing:

- Establishment of a minimal coverage area.

- Regulated parking in surface for bikesharing and motosharing:
  - Mandatory requirement to have anchoring system
  - Parking permitted under the motorcycle parking regulations

- System of redistribution of the vehicles to guarantee their availability, rotation and maintenance.

- Minimum technical requirements for vehicles: identification, geolocalized system, Compliance with laws and international safety standards.

- Minimum age, policy of insurance against liability for damage to third parties

- Data exchange: Data of use of the system in real time, complete records of the data related to the journeys

- Exclusively electric motorbikes
Car sharing – work in progress

• The current amount of the on-street parking in regulated areas is very high

• Public space is limited

• Availability of underground parking throughout the city

• Opportunity to promote the electric vehicle

• Current availability of car-sharing systems

• The City Council is working…