

bicing

Public bikes in Barcelona

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Mobility Department

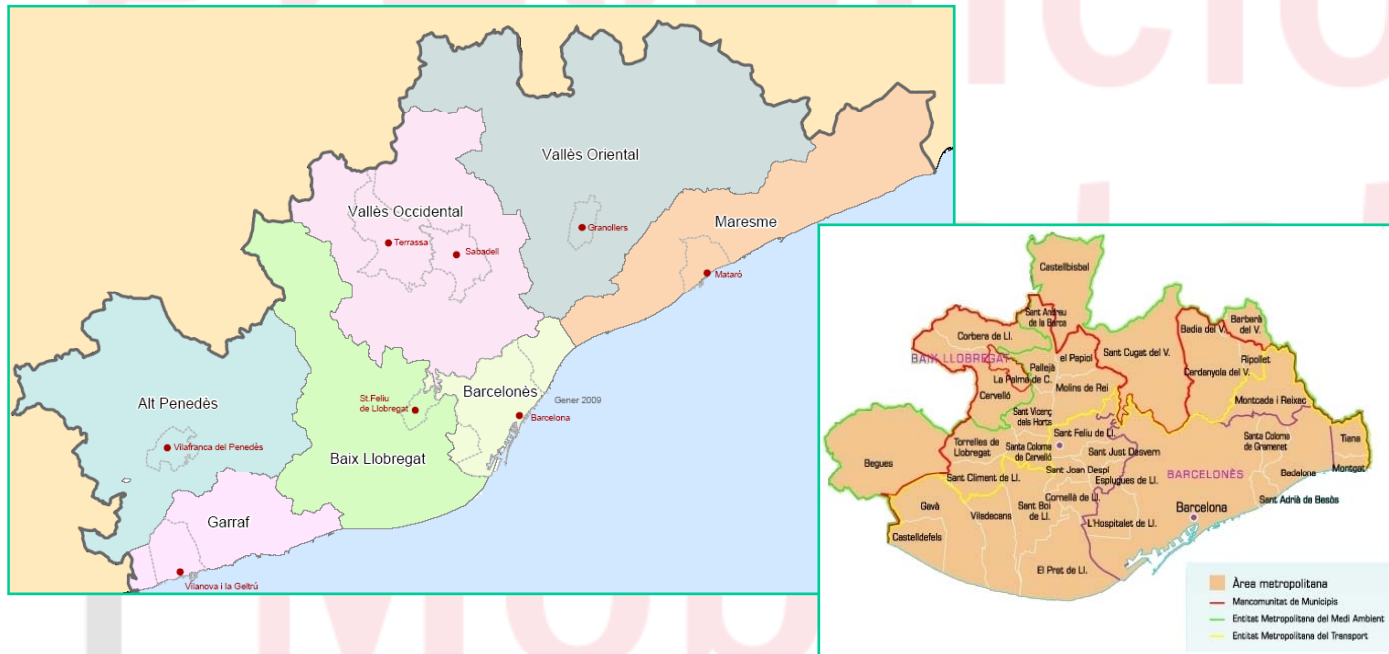


Ajuntament de Barcelona

Prevenió, Seguretat i Mobilitat

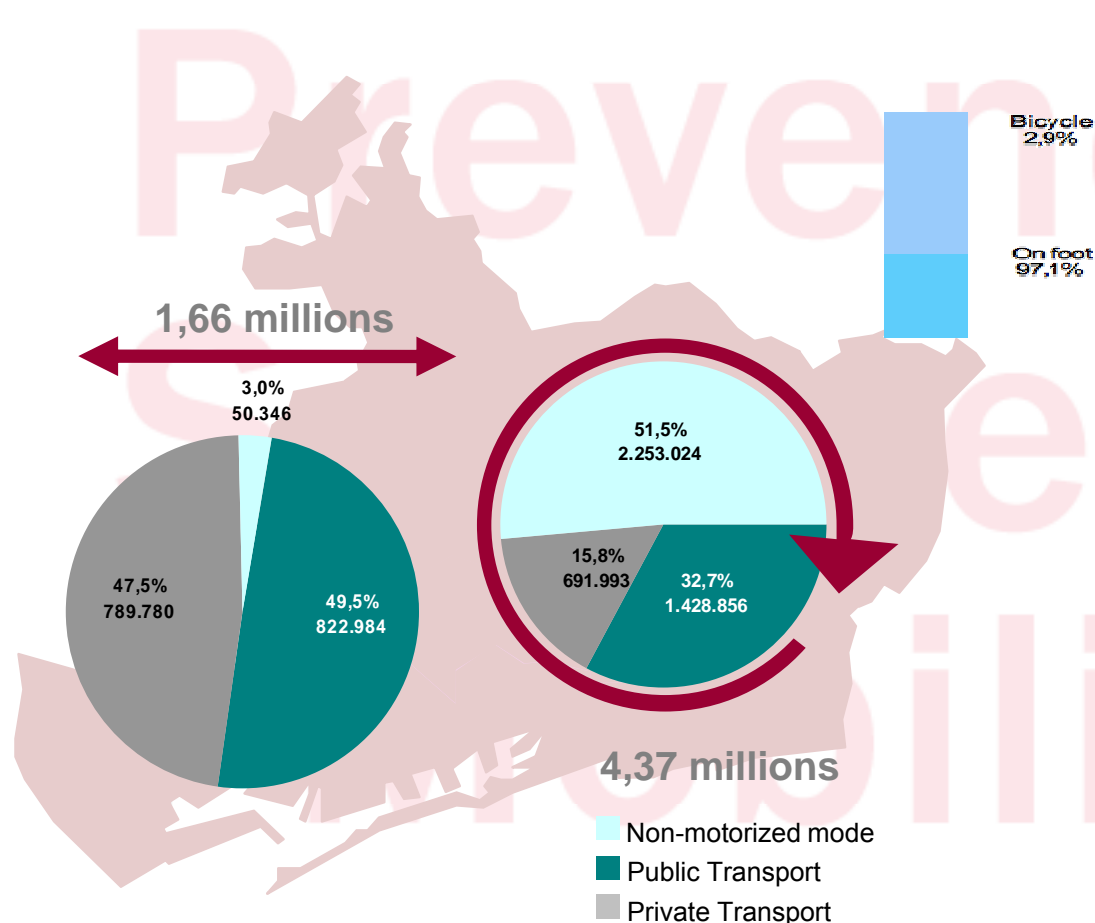
Barcelona: Mobility basic information

Barcelona is a city with a high **demographic density**, with 1.600.000 inhabitants in 101 km² (density: 15.963 inhabitants/km²).



Barcelona is the center of one of the biggest metropolitan areas in Europe: the **Metropolitan Region of Barcelona** that integrate 164 municipalities and 4.4 millions of inhabitants. (density: 1.359 inhabitants/km²).

Barcelona: Modal Distribution



The **non-motorized** modes of transport (51,5%) and the **public transport** (32,7%) are the most used on **intern** displacements

In the **connection** displacements, the **public transport** (49,5%) and the **private transport** (47,5%) have very similar proportions of use.

Barcelona: GLOBAL BICYCLE PROMOTION

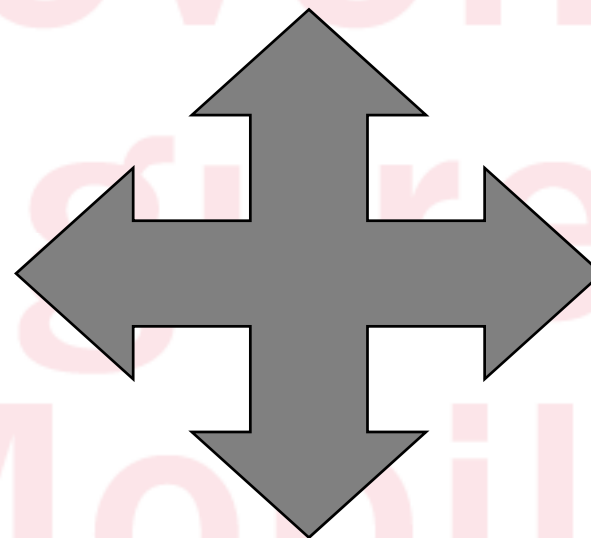


28 km of new cycle lanes

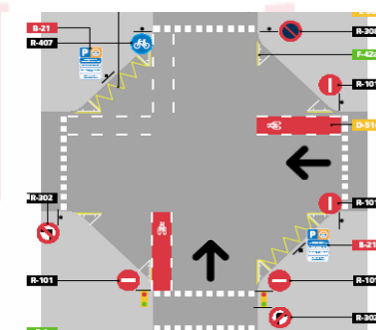


More bicycle parking places (from 14,000 to 25,000)

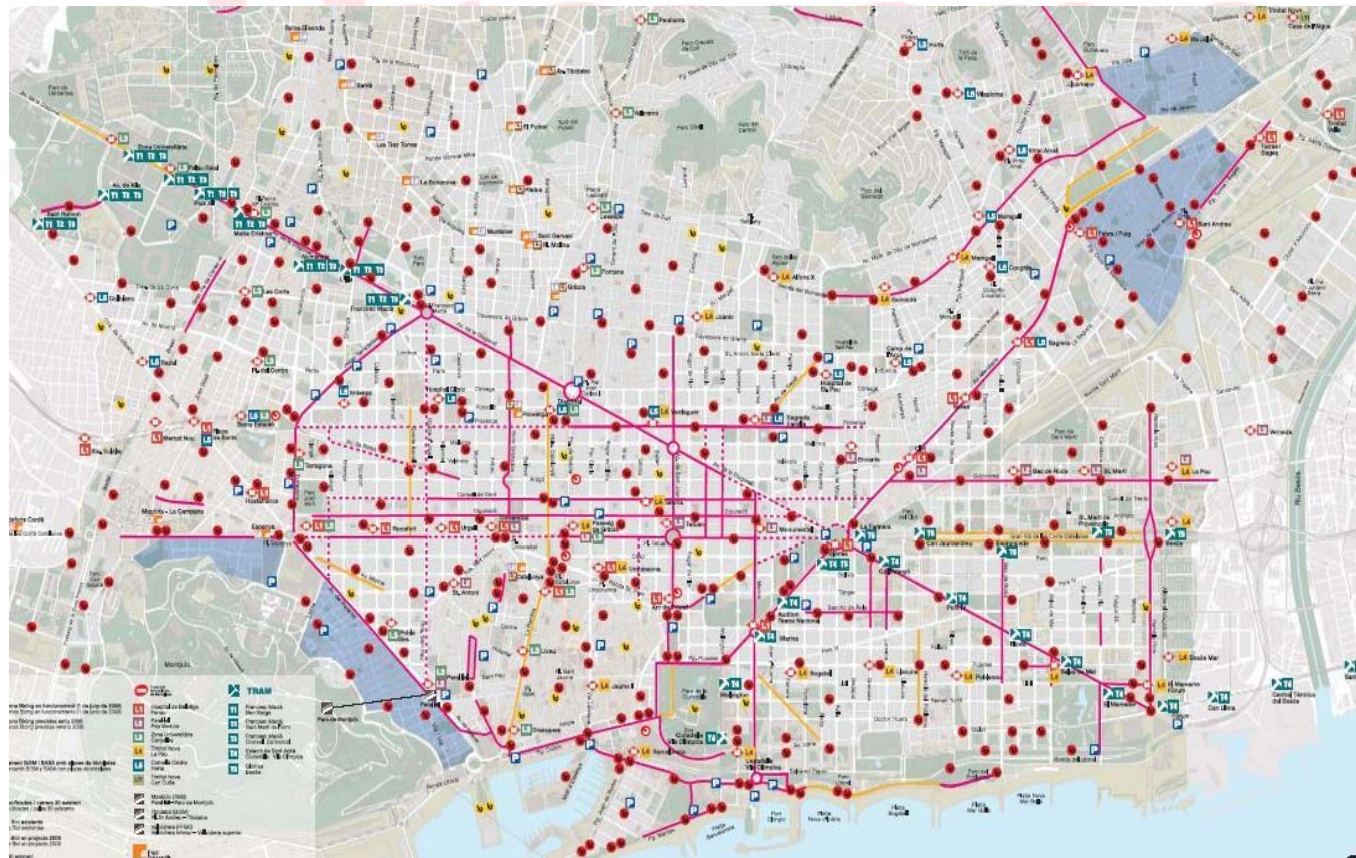
Improved safety for existing cycle lanes



More 30 Zones (car-bicycle co-existence)



MUNICIPALITY TERRITORIAL COVERAGE



Beginning on March 2007

- 6000 bicycles
- 400 stations
- Coverage 49 km²
- Coverage Range 197 m
- Slope < 4%

TPI contracting-financing forms

1. Using a service rendering contract: **Barcelona, Brussels, Sidney ... models**

The public bicycle service system is an open request for tenders as a providing of a public service. The administration have a direct control all over the system.

2. Included on the advertising contracts: **Oslo, Lyon, Paris ... models**

The public bicycle system is integrated in the advertising contract, as a part of the canon. The control mechanism is subject to the principal aim of the advertising contract.

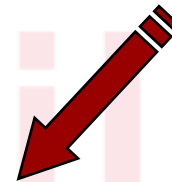
financing

Bicing is financed with the excess of the integral regulation parking system, the “Àrea Verda”, in accordance with the Fiscal Orderly establishes.

Object:
**Safe, Sustainable,
Equitable, Efficient
Mobility**



Car use restriction
instruments:
**Parking Integral
Regulation**



More sustainable modes
promotion: **Project**



2 years later...

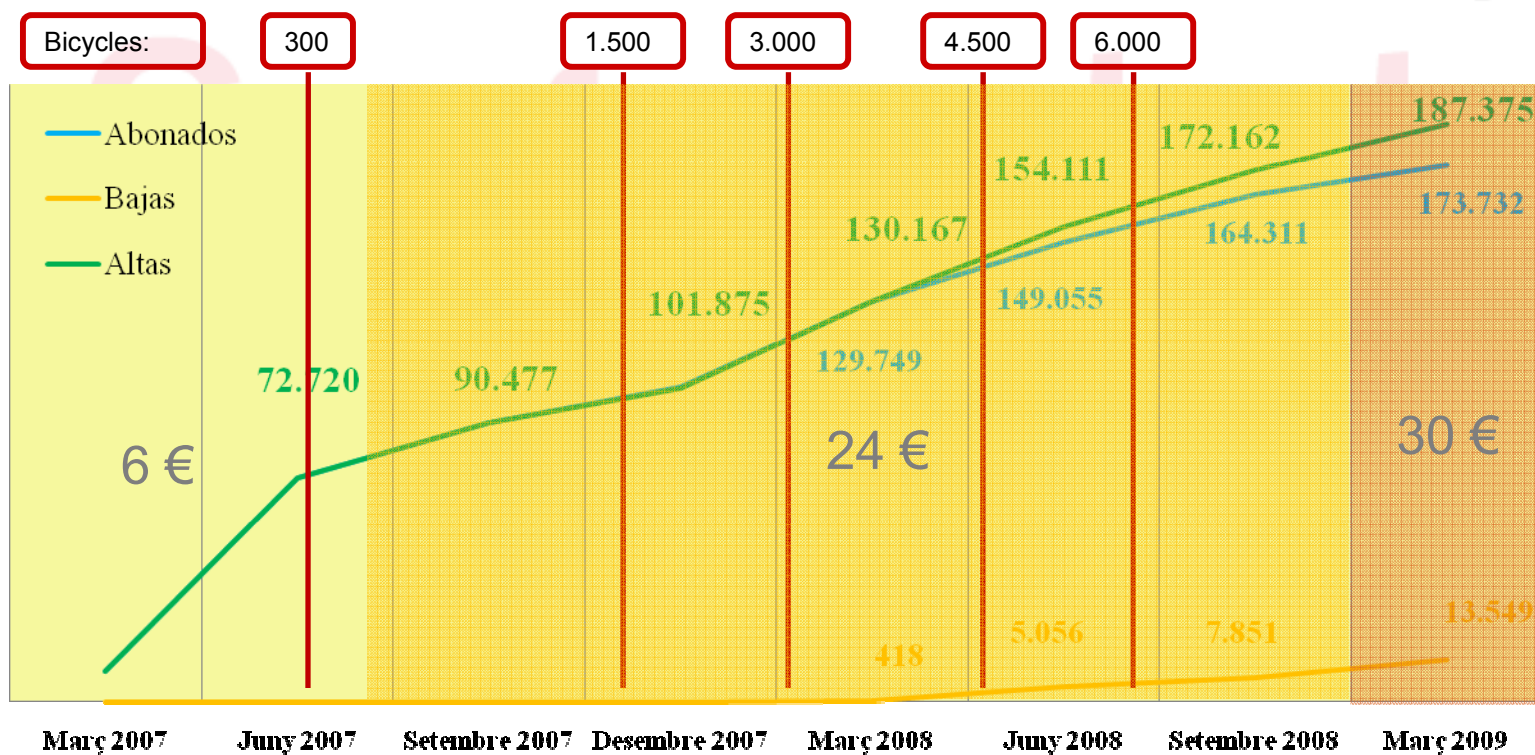


bicing customers

On May 2009:

- 187.375 joins.
- 6.000 bicycles.
- 400 stations.

Customers number evolution (Annual subscription)



Customers description

PROFESSION	% CUSTOMERS
Student	15,86%
Administrative	9,38%
Engineer	7,12%
Civil Service	4,86%
Self-employed	4,12%
Artist	3,69%
Teacher	3,22%
Economist	3,12%
Arquitect and quantity surveyor	2,48%
Manager / Director	2,26%

- Change in the bicycle customer role
- 59% of customers are older than 30 years old.
- Professional diversification

Before  :



Mainly users are young students involved with **sustainability** and **environment**.

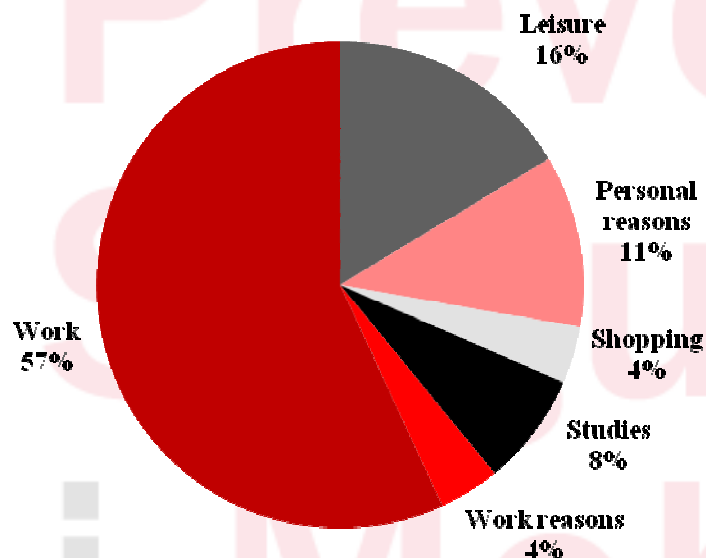
After  :



Professional diversification and increase of the bicycle customer average age. Use due to **comfort** and **speed**.

Use characteristics

BICING DISPLACEMENTS REASONS



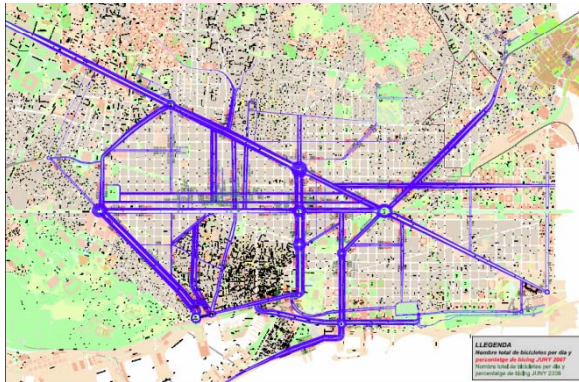
- 68,2% are **obligated mobility** journeys (work, studies, etc.)

- Bicing has assumed the role of an **usual urban transport mode** for all displacement reasons.

INTERMODALITY

- 63% are realized exclusively with **Bicing**
- 37% **combines** Bicing with **other transport modes**

Journey features

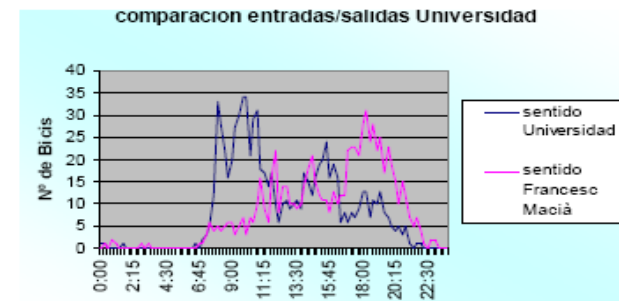


Every day 97.139 bicycle displacements take place in Barcelona

JOURNEY FEATURES WITH BICING

Journey	Average length	Working days: 14,1 minutes Holidays: 17,8 minutes
	Distance	3 km

Rush Hour
Example:
Zona universitaria

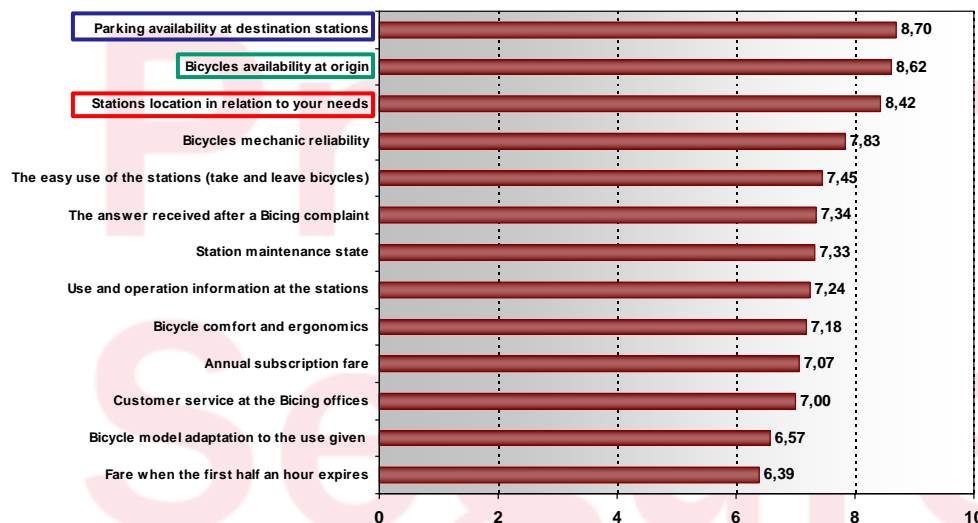


Displacements / day type	Summer (june)	Winter (january)
Working day	47,069	34,150
Holiday	32,127	19,244



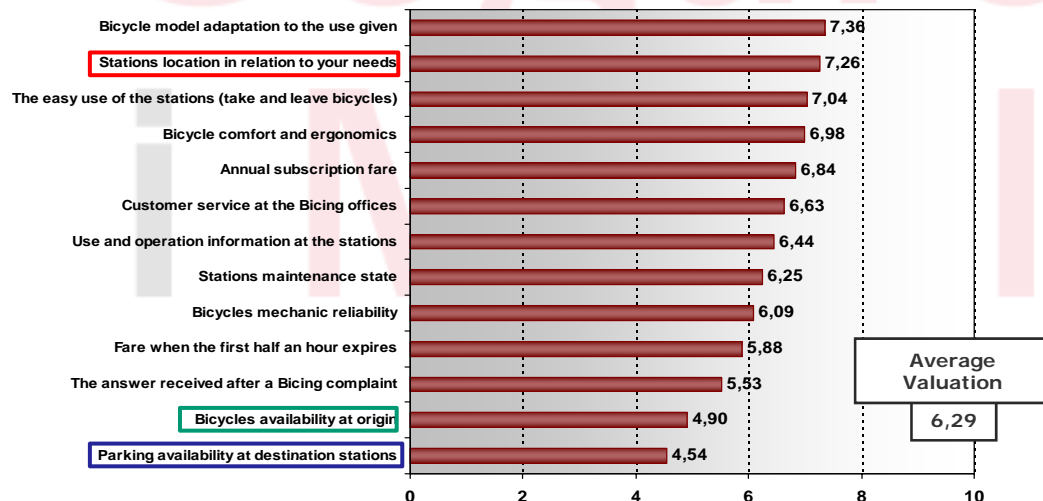
48,45 % of bicycle journeys during a favourable climate working day by BICING

Importance and Evaluation



Stations location (coverage) have a high valuation

The two points considered the most important (availability) are less valued



Average Valuation

6,29

Studies for improve:

- System compensation (Bicycles / Anchorages≈2)
- Distribution logistics

Prevenió, Seguretat

Reflections about the implementation and management of the Barcelona Bicycle Public Service

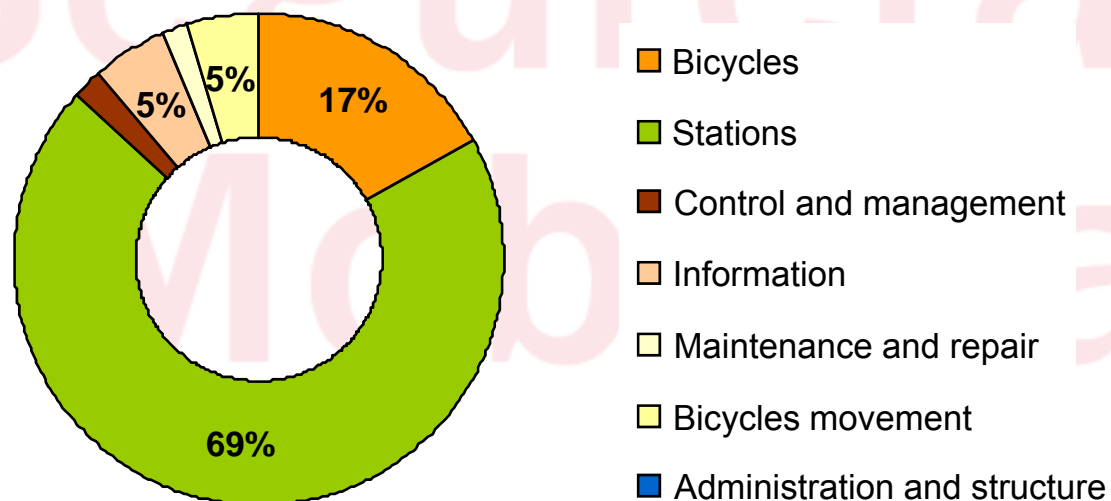


SERVICE COST

Investment and recovery costs

The estimated global inversion global for Bicing services is 15,9 million euro, emphasizing the stations cost that represents almost the 70% and, in the distance, the bicycles cost (17%).

INVESTMENTS DISTRIBUTION



SERVICE COST

Running costs

Personnel cost

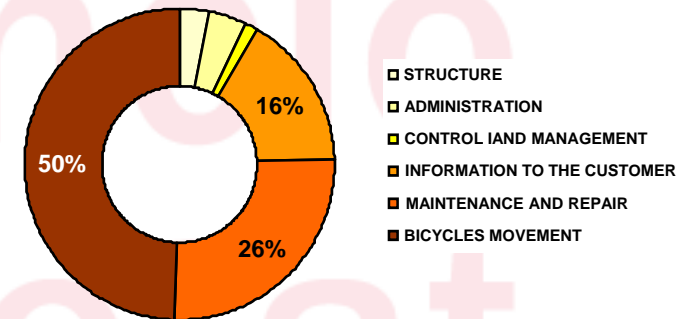
Bicing service staff are about 230 people, 50% of them are assigned to bicycles movement.

The estimated personnel cost is about 5 million euro.

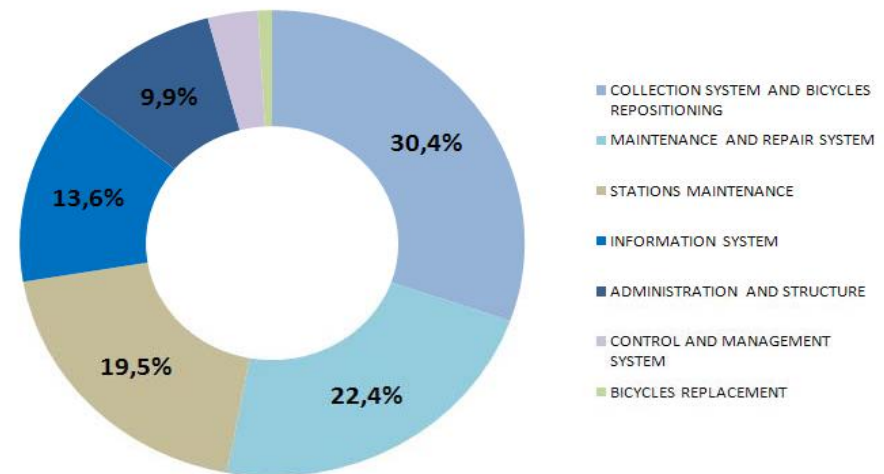
Service costs

Estimated global service costs: **10,2 million €/year**

BICING SERVICE PERSONNEL



RUNNING EXPENSES SUMMARY



SERVICE COST

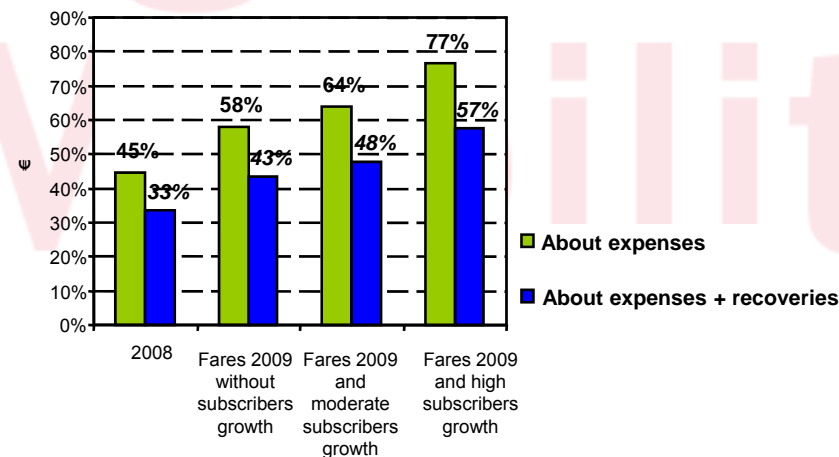
Cost coverage

Users income:

Users contribution as an income concept will be around 4,5 million euro. On 2008, 90% of them corresponds to annual subscriptions, and will be between **6,5 and 7,8 million on year 2009** depending on the customers number evolution, in accordance with new fares approved for this period.

Service collection coverage, with the actual price system, will be around 33% of running expenses and joint recoveries → (44% of expenses exclusively).

ESTIMATED INCOME COVERAGE

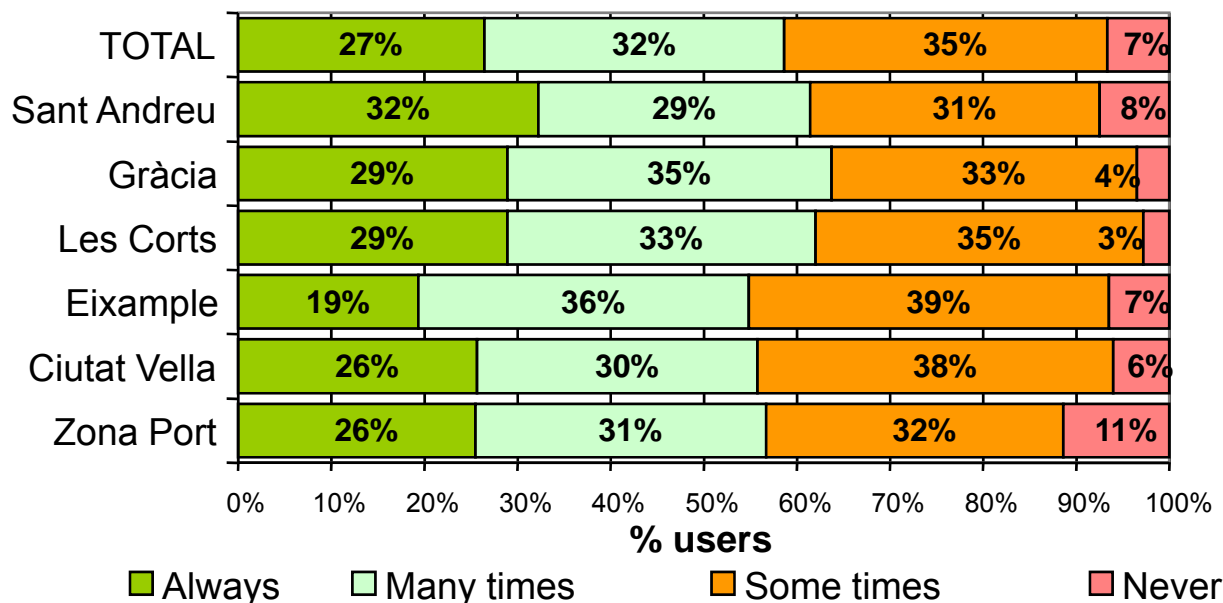


EVALUATION OF SERVICES PROVIDED

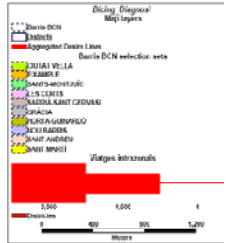
Availability of execute displacements on slope

A quarter of users assert that they always make Bicing trips on slope. 40% of users are not used to make slope routes.

AVAILABILITY OF EXECUTE DISPLACEMENTS ON SLOPE



Font: Estudi d'hàbits dels usuaris del Bicing. 2008



EVALUATION OF SERVICES PROVIDED

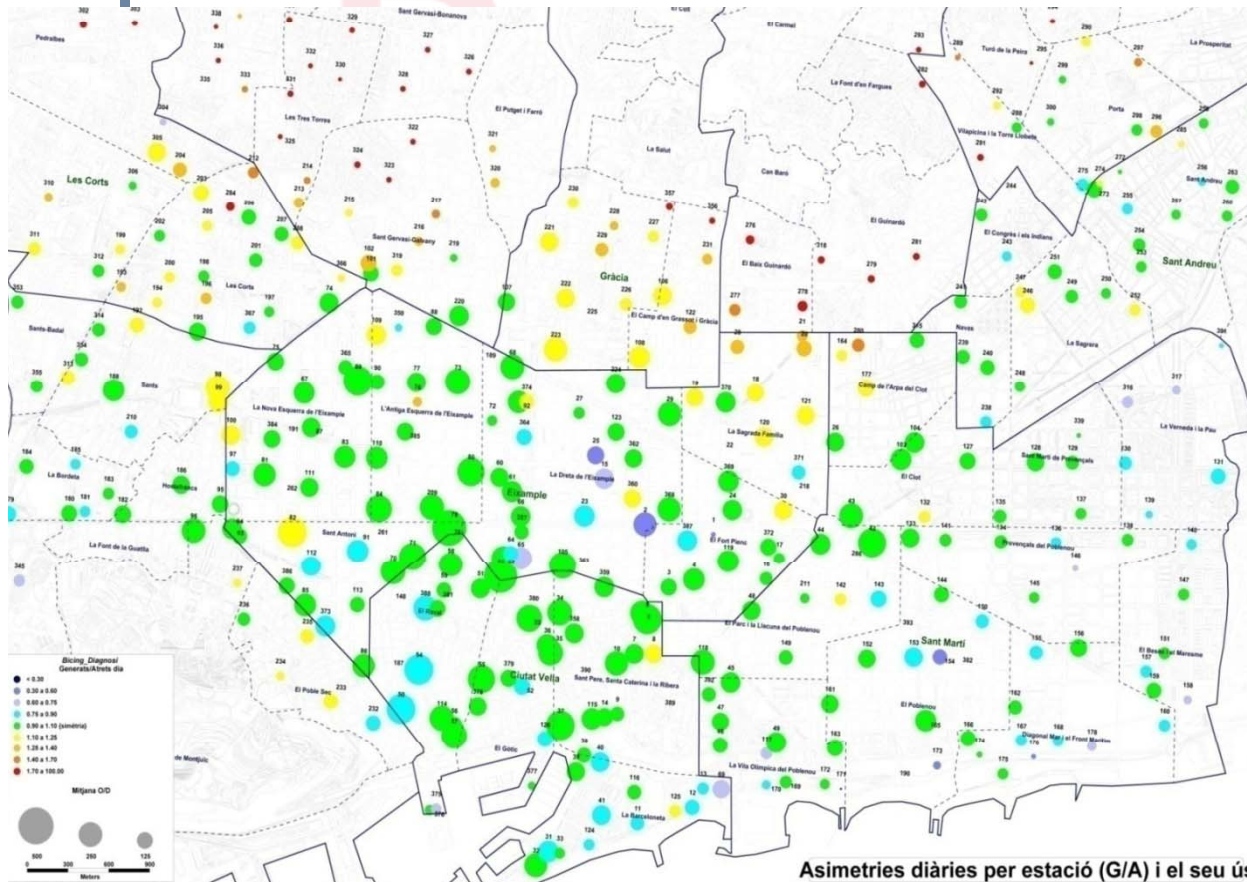
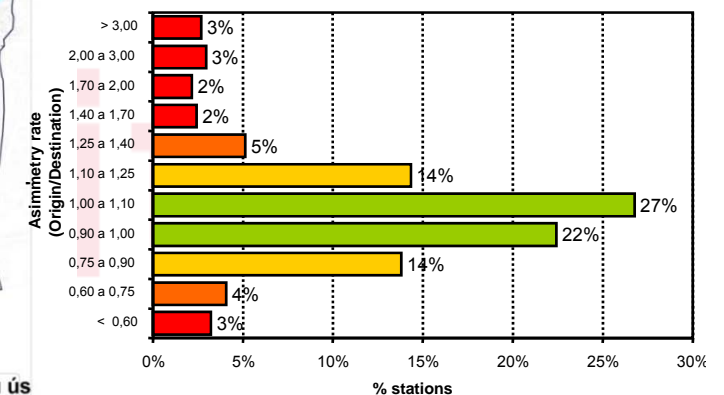
DAILY ASYMMETRY PER STATION DURING A WORKING DAY

Asymmetry (α) is represented as the relation between generated trips (G) and attracted trips (A):

$$\alpha = G / A$$

49% of stations have a balanced asymmetric rate.

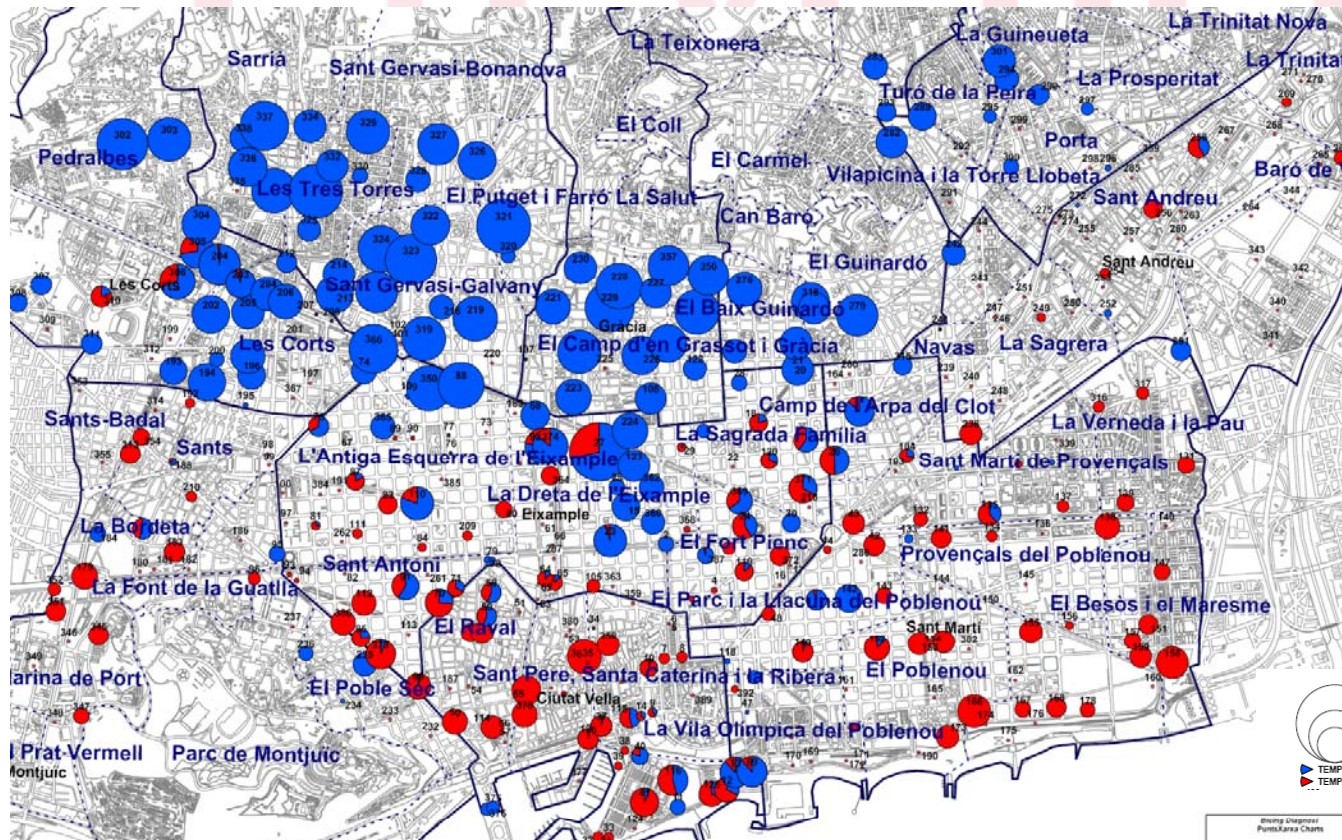
STATIONS CLASSIFICATION BY ASYMMETRY LEVEL



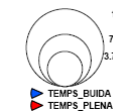
Each circle diameter indicate the volume of generated trips, whereas the colour represent the α value.

EVALUATION OF SERVICES PROVIDED

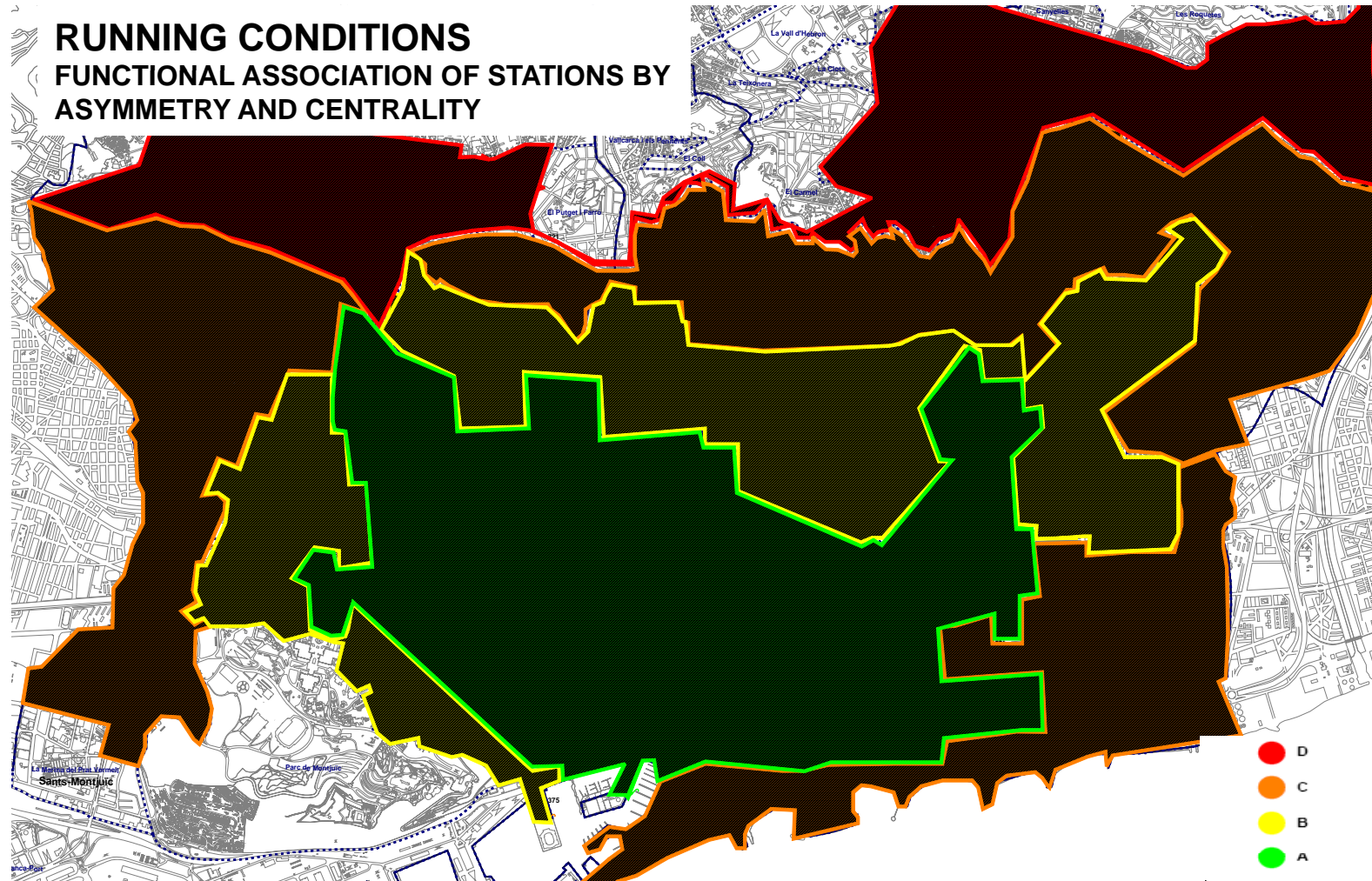
Blue circles represents the empty stations during the day, the red ones represents the completely full stations and its diameter represents the number of hours that have been full.



STATIONS
OCCUPATION.
WORKING DAY



EVALUATION OF SERVICES PROVIDED



IMPROVEMENT MEASURES

Studies execution:

- Studies about **mobility**:
 - Demand analysis:
 - Origin/destiny matrix
 - Self control by neighbourhood and zones
 - Schedule distribution
 - Stations imbalance
 - Supply analysis:
 - Territorial coverage
 - Agility of the system
 - **Search of alternatives for demand management, and improve/adapt the supply**
- Studies about **operative optimization**:
 - Analysis: problems detection
 - System resizing
 - Stations, slots, bicycles, redistribution systems, etc.

IMPROVEMENT MEASURES

Improvement proposal:

Most saturated and/or unbalanced zones boost:

- **Short term measures**

- Suggest to Clear Channel a **replacement route reorganization** by zones, to give an homogeneous service to unattended zones with minimum costs
- **Densification of clusters** at zones where the storage capacity is insufficient, extending the current stations when is possible, or opening new stations near to the existing ones
- At new programmed stations (Sants), preferably stations with 60 slots (2x30)

CL027	PLAÇA CATALUNYA
CL029	BARCELONETA
CL030	HOSPITAL DEL MAR
CL032	VILA OLÍMPICA
CL034	UPF

- **Long term measures**

- Periodic revision of the clusters zoning, the stock planning, and the van assignment, as the demand increase
- Use of a station stock control tool, for visits reassignment

IMPROVEMENT MEASURES

Improvement proposal:

- Solve of redistribution problems:
 - Access problems to some stations
 - Action protocol
 - Security improvement
 - Minimize the traffic affectation
- Revision of the service levels requirements (contract conditions).
- Improve on demand management:
 - Incentive for customers → Auto-balance of the system

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