

Measure title: **City Bike Scheme**

City: **Donostia–San Sebastián** *Project:* **ARCHIMEDES** *Measure number:* **58**

Executive Summary

After a pilot test with 5 dispatch points, the municipality of Donostia-San Sebastián has permanently implemented and enlarged the City Bike scheme initiated in 2008 to 9 dispatch points throughout the CIVITAS corridor and introduced 150 new public bicycles.

The system requires registration, after which the user receives a magnetic card that allows making use of the bicycles at the dispatching points. This way, the system can track the usage of the bicycles, including the name of the user, remaining responsible if it is stolen, vandalised or damaged in any way, in which cases the users would be charged a penalty fee. During the first hour the service is free. The user pays 1 € for the next second hour and 3 € for the third and fourth hour, being the use of the system limited to a maximum of 4 hours. Penalty fees and service restrictions are foreseen for delayed users. The public bike-sharing service is available between 7:30 am and 9:00 pm everyday of the week, 52 weeks a year, with only 3 days per year in which the service is not working. The system is also open for tourists' use.

The goal of this measure is to increase the cycling culture by providing those who doesn't own a bicycle the opportunity to use this mode on any or part of their daily trips. In particular, it is expected that non cyclist use the bike scheme for occasional unplanned trips and/or as access mode to other transport services (intermodal trips). The measure can be considered a success, both in terms of system operation indicators and public acceptance.

Regarding system operation, the number of users registered on the service has increased every year, reaching 5.006 subscribers in 2011, when the 4 new dispatch points and 50 additional bicycles started operating. As for the number of trips made using the system, in 2010 a 50% increase was accounted as compared to the previous year, while in 2011 this yearly increase reached a 64% as compared to 2010. This means that registered users are getting used to the service for their daily trips in the city, reducing the use of the car and using the bicycle as element of intermodality with the public transport. Also the number of uses per bicycle per day has increased since the system started operating, from 1,84 uses per bike per day in 2009 to 4,59 uses per bike per day in 2011. The majorities of the uses have duration below 15 minutes and are made during the weekdays, which means that the service is being used mostly for daily mobility in the city and not for leisure.

Regarding public perception, a huge majority of the population approves the system (90% in 2011), but the average rate resulting from the surveys reveals that, although the population still perceives the public bike scheme as good (7,2 in 2010 and 6,2 in 2011), the acceptance of the system has decreased over time. The reason for this is the big increase of users and uses of the system, which makes sometimes difficult to manage the system in specific points and times, where there is sometimes lack of availability for bicycles or parking space. Complementing this information, the survey revealed that 80% of the population believed that the public bicycle service help increase the overall use of the bicycle in the city.

The impact of the measure is stimulating people to make more use of their own bicycles. In 2011 there has been an increase of 25% of movements by private bicycle over 2010.

A Introduction

A1 Objectives and target groups

A1.1 Objectives

The measure objectives are:

(A) High level / longer term:

- To reduce the use of private cars, thereby reducing congestion and pollution

(B) Strategic level:

- To Increase use of cycling and encourage people to make greater use of their own bicycle.

(C) Measure level:

- a. To reach an average of 11,000 monthly uses of city bikes during the last year of the project (2012).
- b. To contribute to the city level objective of reaching an increase of bicycle use of 30% as compared to 2008 figures.

A1.2 Target groups

Donostia residents and commuters from the metropolitan area (Donostialdea), as well as visitors/tourists.

A2 Description

After a pilot test with 5 dispatch points planned and tested before ARCHIMEDES project, ADS has permanently implemented and enlarged the City Bike scheme to 9 dispatch points throughout the CIVITAS corridor and introduced 150 new public bicycles. The system is managed automatically using a membership card system. The measure is focused on implementing a wide public bike-sharing service to citizens and visitors in order to increase the cycling culture and the number of cycling trips.

To make use of the bicycle-lending system in Donostia-San Sebastian it is necessary to register in UDALINFO (citizen's information office). To register, users must have the Donostia – San Sebastian citizen card and pay a fee of 20 €/year.

Once registered, the user receives a magnetic card that allows him/her to use the bicycles at the dispatching points. This way, the system can track the usage of the bicycles and the person under whose name the bike is registered, remaining responsible if it is stolen, vandalised or damaged in any way. In case the bicycle is stolen, lost or damaged, CEMUSA (operator of the service) would charge the user 150 €.

During the first hour the service is free. The user pays 1 € for the next second hour and 3 € for the third and fourth hour. It is not possible to use the bicycle for more than 4 hours. In case someone uses the bicycle more than 4 hours and less than 24 hours, each delayed hour would cost 3 € and the gets penalized by not allowing him/her to use the system again for 1 week. In case the delay is more than 24 hours, the penalty would be 3 € per hour delayed and the impossibility to use the system for 1 month.

The public bike-sharing service is available between 7:30 am and 9:00 pm everyday of the week, 52 weeks a year. There is only 3 days per year in which the service is not working: 25th of December, 1st of January and 20th of January.

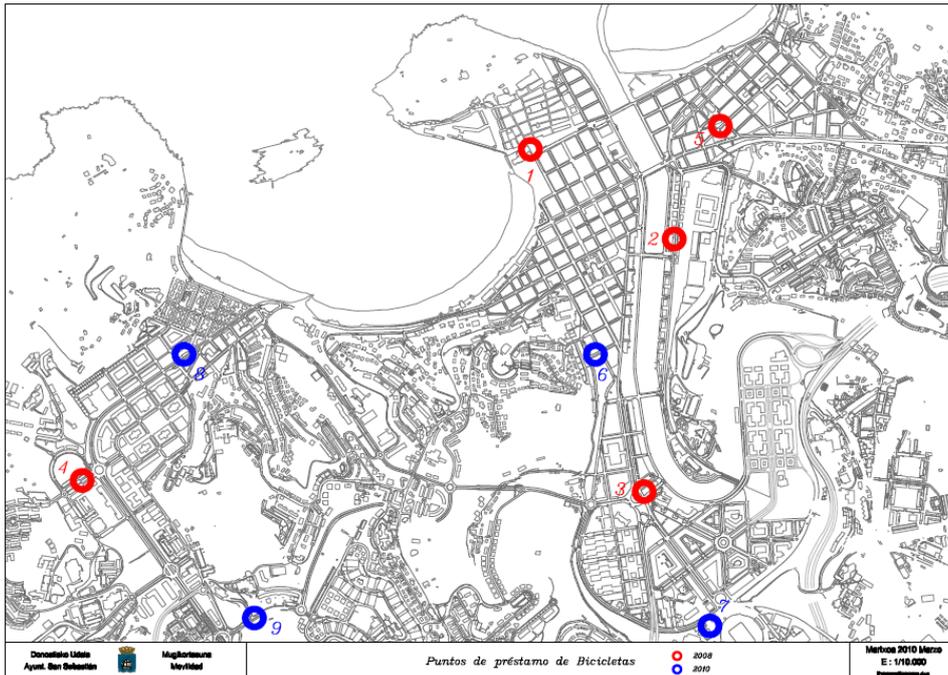


Figure 1 – Public bike scheme dispatch points: red 2008 and blue 2010

The system is also open for tourists' use. They are allowed to use the system for four hours without paying the annual fee. The basic conditions of use of the bicycles for tourist are:

Purchase the card:

Where: Boulevard 8, SAN SEBASTIÁN TURISMO-DONOSTIA TURISMOA, SA,

Timetable:

- Monday to Saturday: 10:00-13:00 / 15:30-18:00
- Sundays and bank holidays: 10:30-13:00

Summer

- Monday to Saturday: 10:00-19:00
- Sundays and bank holidays: 10:30-18:00

Return the card:

- In the same place on the day after the card runs out
- If it is not returned in time: the deposit will be forfeited (without prejudice to any legal actions relating to non-compliance with the conditions)

Cost (cash payment):

- 1 day: 8 €
- 3 days: 15 €
- 1 week: 25 €
- Deposit: 20 €

Hours of use:

- Monday to Sunday: 10:00-21:00
 - Maximum continuous use: 4 hours
 - Once the bike has been returned to one of the bicycle stations, it can be used again after 30 minutes.
-

B Measure implementation

B1 Innovative aspects

The innovative aspects of the measure are:

- **Targeting specific user groups** (at local level): the aim is extending the use of bicycles to people who do not have their own bike because they cannot (do not have where to store the vehicle for example) or do not want (perhaps have suffered the theft of their own bike); moreover it is expected that the measure will lead to a major share of cycling in the modal split of the city.
- **New physical infrastructure solutions** (at local level): many areas of the city are covered with the new service.

B2 Research and Technology Development

Not relevant

B3 Situation before CIVITAS

During the last years a bicycle network of 25 kilometres was implemented in Donostia-San Sebastián. In 2002 the modal split for internal trips was as follows: 48% pedestrians, 28% private car, 18% public transport and 6% other modes including cycling.

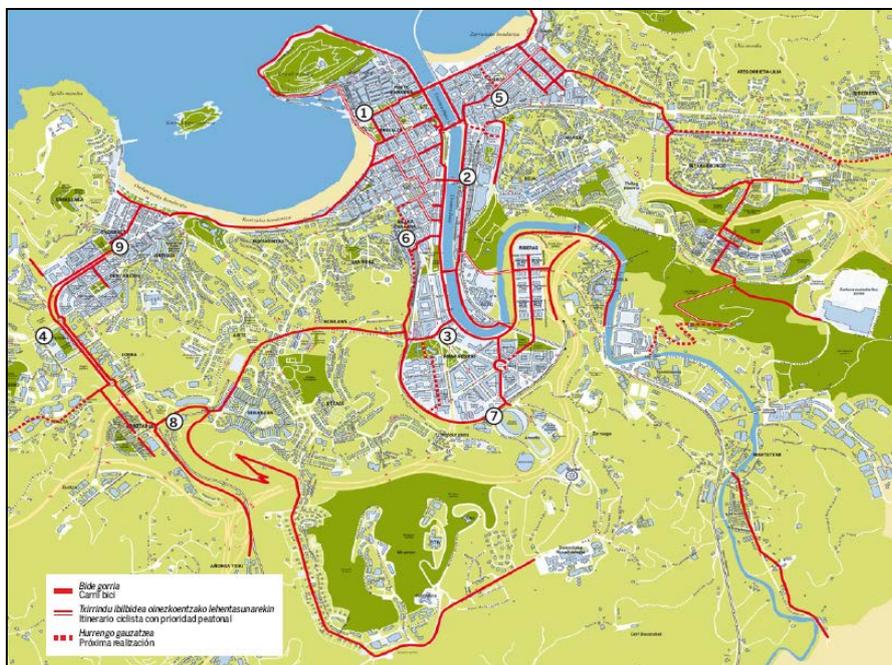


Fig 2 – Bicycle lane network and public bike-sharing dispatch points user map

The public bike sharing service in San Sebastian had a first trial during the mobility week celebrated in September 2005, when bicycles were available for free at 5 dispatch points: Train Station, Plaza Easo, Pio XII–Bus Station, Alderdi Eder–Town Hall, Zurriola Beach.

In October 2005, a research of different public bike sharing services over Spain was conducted by the Mobility Department. In this research the cases of Vitoria, Gijon and Madrid were analysed. Also the management of the public bike sharing service and the criteria used in these cities were analysed. A suggestion of criteria and possible locations of dispatch points in Donostia – San Sebastian was included.

Following this research, in the framework of the CIVITAS-Archimedes project, a pilot project of bike sharing was implemented in 2008 with 5 dispatch points in the city centre and 100 bicycles (operating since November 2008, Month 2 of the project).

On 2nd of July 2010 (month 21), 4 additional dispatch points have started working in the city with another 50 bicycles. This service has also been opened for visitors and tourists to Donostia- San Sebastian in this second phase of the development scheme.

B4 Actual implementation of the measure

The measure has been implemented according to the following stages:

- **Stage 1: Beginning of the implementation of the system :**
(November 2008 – March 200)

The results of the first 5 bicycle dispatch and 100 bicycles in service were analysed, including the economical dimension of the service (*March 2009*)



Fig3.- Dispatch point, Boulevard



Fig 4.- Dispatch point, Unibertsitatea



Fig 5.- Dispatch point, Iparreko Geltokia



Fig 6.- Dispatch point, Plaza Secundino Esnaola



Fig 7.- Dispatch point, Pio XII

- **Stage 2: Implementation of the remaining points of bike loan**

(April 2009 – July 2010)

Following the analysis in the previous stage of the measure, it was decided to reduce the number of additional loan points to four units due to economic viability reasons. A report defining the technical requirements and the need in terms of public space adaptation was developed before the implementation of the measure. On July 2010 (month 21), the 4 additional dispatch points started operating with 50 additional bicycles. The service was opened for visitors and tourists to Donostia- San Sebastian (July 2010).



Fig 8.- Dispatch point, Plaza Easo



Fig 10.- Dispatch point, Zumalakarregi



Fig 9.- Dispatch point Anoeta



Fig 11.- Dispatch point Lugaritz

- **Stage 3: Monitoring and evaluation**

(October 2008 – September 2012)

Monitoring and evaluation activities are being carried out according to the Evaluation Plan since the measure started operating until the end of the project.

B5 Inter-relationships with other measures

The measure is related to the following measures, also directed towards an increase in the number of non-motorized trips:

- **Measure DSS 24.** Extension of the infrastructure for cycling and walking in Donostia - San Sebastian
 - **Measure DSS 57.** Vertical Transport in Donostia - San Sebastian
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C Planning of Impact evaluation

C1 Measurement methodology

C1.1 Impacts and indicators

C1.1.0 Scope of the impact

Being part of an overall strategy to reduce the number of private cars entering the city and circulating within its neighbourhoods, this measure is part of a package of measures directed to increase the use of non-motorized modes (Measures nº 24, 57 and 58).

In particular, the goal of this measure is to increase the cycling culture by providing those who doesn't own a bicycle the opportunity to use this mode on any or part of their daily trips. In particular, it is expected that non cyclist use the bike scheme for occasional unplanned trips and/or as the access mode to other transport services (i.e. as a stage of an overall intermodal trip). Eventually, it is expected that this measure will encourage individuals to purchase their own bicycle and promote cycling as a regular basis.

Benefits in terms of reduced transport related emissions and safer mobility patterns (fewer accidents) are foreseen. Moreover, it is expected that the promotion of bicycle use will improve health values of the population, by favouring physical activity on a regular basis.

Modal shift to non-motorised modes will relief traffic congestion on Donostia-San Sebastián streets, favouring time saving for motorised modes, and improving public transport reliability, which, in addition to improved access to bus stops, may contribute to increase the public perception of this mode, and therefore its use.

This measure will also impact on the intermodal integration of the transportation system, by improving non-motorised access to some of the main transport terminals in the city.

Complementarily, this measure is expected to have a positive effect on the number of stolen private bicycles.

Since bicycle usage, traffic performance and environmental effects are already evaluated within other measures with a major contribution to these goals, the impact evaluation of this measure will focus on results directly associated to scheme.

C1.1.1 Selection of indicators

NO.	EVALUATION CATEGORY	EVALUATION SUB-CATEGORY	IMPACT	INDICATOR	DESCRIPTION	DATA /UNITS
ECONOMY						
2a		Costs	Costs	Capital costs	Capital cost per system or unit	Euros, quantitative
2b			Costs	Maintenance Costs	Maintenance cost per system or unit	Euros, quantitative
SOCIETY						
14		Acceptance	Acceptance	Acceptance level	Attitude survey of current acceptance of the measure	Index (%), qualitative, collected, survey
			Bicycle theft	Bicycle theft level	Number of stolen private bikes.	No., quantitative, collected.
TRANSPORT						
		Transport System	Bike use	Subscribers of the city bike scheme	Number of system subscribers	No., quantitative, collected.
			Bike use	Average use of the public bikes	Number of transactions per city bike per day.	No., quantitative, collected/survey
20		Safety	Transport Safety	Injuries and deaths caused by transport accidents	Number of accidents, fatalities and casualties caused by transport accidents	No, Quantitative, measurement

Awareness indicators are not included as the first City Bike scheme has been already implemented in the city, with great support from citizens. This scheme is an extension and improvement of the initially developed in Donostia-San Sebastian.

C1.1.2 Methods for evaluation of indicators

No.	INDICATOR	TARGET VALUE	Source of data and methods	Frequency of Data Collection
2a	Capital costs		ADS expenses in infrastructure and technology associated to the City Bike scheme.	When implementation or purchase takes place
2b	Operating costs		Financial accounts from operator with costs related to the operation of the City Bike system.	Annual
14	Acceptance level		Data have been collected through a specific survey over a representative sample of citizens living in hilly neighbourhoods. The target audience is citizens of all ages and gender living in the different neighbourhoods along the CIVITAS corridor. The survey method will be based on on-street personal interviews. A sample size of 400 interviews is defined (95% confidence level).	2 times, after the launch of the system
	Bicycle theft level		Police records on the number of stolen private bikes.	Yearly
	Subscribers		Operator collects the data	Yearly
	Average use of bikes		Operator collects the data	Yearly
20	Injuries and deaths caused by transport accidents		Police records on accidents with bicycles involved will be analysed before and after the implementation of the measure.	Yearly

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C1.1.3 Planning of before and after data collection

EVALUATION TASK	INDICATORS INVOLVED	COMPLETED BY (DATE)	RESPONSIBLE ORGANISATION AND PERSON
Design and conduct a survey focussing on the acceptance of bicycles in general in the city; Specify the new bike scheme.	14	Month 24-36	ADS – Fermín Echarte
Analyse police records on the number of stolen private bikes	Bicycle theft level	Months 18/30/42	ADS – Fermín Echarte
Analyse data on city bike scheme subscribers	Subscribers	Months 18/30/42	ADS – Fermín Echarte
Analyse data on city bikes usage	Average use of bikes	Months 18/30/42	ADS – Fermín Echarte
Registration of accidents in CIVITAS zone.	20	Months 18/30/42	ADS – Fermín Echarte

C1.2 Establishing a baseline

The public bike sharing service in San Sebastian had a first test during the mobility week celebrated in September 2005, during which bicycles were available for free at 5 dispatch points: Train Station, Plaza Easo, Pio XII–Bus Station, Alderdi Ede–Town Hall, Zurriola Beach.

After this first test, the public bike sharing service with electronic and telecommunication technologies was established by CEMUSA in November 2008. This technology has made the service easier and more useful.

Being a new service in the city, there is not reference year to undertake a before and after comparison regarding economic, social and system indicators. Therefore the evaluation has focussed on the situation before and after the enlargement of the system. Thus the base year to compare the collected data until the end is 2009 (month 15 of the project) which is the first full year with the measure in operation.

For evaluation purposes it has been considered that all investment costs for the initial implementation of the system occur in 2009 (reference year).

Society indicators results have been gathered through two on-street surveys in the neighbourhoods affected by the measure. The sample size was calculated with a 95% confidence level and a 5% margin of error over the population of Donostia-San Sebastián. In the following chart we can see how the enquiries were distributed:

DISTRITS TO SURVEY	ANTIGUO	CENTRO	GROS	INTXAURRONDO	TOTAL
Population	17.411	14.200	20.396	17.155	69.161
% Population	25,17%	20,53%	29,49%	24,80%	100%
Nº Survey	96	79	113	95	383

Table 1. Distribution of enquiries by districts

Usage data of the service has been collected through the service operator. Periodically a report is received including the following information:

- 1) Number of people in the service (Indicator)
- 2) Percentage of users by male/female sex/year
- 3) Percentage of users by age and year
- 4) Number of uses of the service by year
- 5) Number or uses per month (indicator to compare with the target)
- 6) Number of uses per bike/day (indicator)
- 7) Number of uses depending on time use
- 8) Uses by day of the week
- 9) Number of tickets bought by tourists

For evaluation purposes this information has been accounted yearly.

C1.3 Method for Business as usual scenario

If this measure would have not been implemented, the city would continue operating the same bike sharing scheme as in 2008, consisting of 5 stations and 100 bicycles. Bicycle

usage will follow the same patterns as in previous years (historical data would be used to estimate usage indicators on future years).

For evaluation purposes, the following criteria have been used to estimate the BaU scenario:

- Economic indicators: since the scheme would have not been extended, under the BaU scenario there would not be any investment in the future years. As for maintenance costs, it is assumed that they would remain constant.
- Society indicators: before the CIVITAS project, there was not a regular survey program to assess public perception regarding public transport services, therefore is not possible to estimate a BaU scenario for these indicators.

Regarding the bicycle thief level, the number of stolen bikes has been put in relation with the number of bicycle users. According to the average ratio recorded before the reference year, this indicator has been estimated for the BaU scenario.

- Transport indicators: it is not possible to estimate a BaU scenario for the number of subscribers and the average use of public bikes, since the city bike scheme only remained in operation for one full year before its extension. Therefore there is not sufficient data to estimate an evolution trend for those indicators.

C2 Measure results

C2.1 Economy

The initial installation of the service is part of a pilot program funded by the Basque Government to study the system and try to expand it to other cities or villages of the Basque Country. Part of the cost of the installation and maintenance during this time of the service has been assumed by CEMUSA, which is the company that manages the system, the publicity and urban equipment of the city.

For the evaluation of the cost and maintenance of the service we have used data provided by CEMUSA.

Table C2.1.1: Costs

Indicator	Before (2009)	BaU (2010)	After (2010)	BAU (2011)	After (2011)
2a. Capital costs	433.175,00 €	0 €	237.935,00€	0 €	0 €
2b. Maintenance costs	446.290,00 €	446.290,00 €	446.290,00 €	446.290,00 €	446.290,00 €

Indicator	Difference: 2010 –Before	Difference: 2010 – BaU	Difference: 2011 –Before	Difference: 2011 – BaU
2a. Capital costs	-195.240,00 €	237.935,00€	-433175,00 €	0 €
2b. Maintenance costs	0 €	0 €	0 €	0 €

As it can be seen in the table above there has not been any increase in the maintenance cost during these years, because the main cost is the personal needed to manage the system and it has been the same before and after the extension of the system.

The analysis of the data reveals that before the enlargement of the system, the maintenance cost for each bicycle per year was, 446.260,00 €/100 bicycles= 4.462,60 € per bicycle per year, while after the extension this cost is 446.260,00 €/150 bicycles = 2975,06 € per bicycle per year.

C2.2 Society

Table C2.2.1: Acceptance

Indicator	Before (2009)	BaU (2010)	After (2010)	BAU (2011)	After (2011)
14. Acceptance level	N/A	N/A	98,94%	N/A	89,66 %

Indicator	Difference: 2010 –Before	Difference: 2010 – BaU	Difference: 2011 –Before	Difference: 2011 – BaU
14. Acceptance level	N/A	N/A	N/A	N/A

Regarding “Acceptance level” indicator, citizens has been asked about their overall assessment of the public bicycle service of Donostia-San Sebastián. Answers ranked from 0 to 10 (very bad to very good).

A huge majority of the population (99%) approved the system in 2010 (ranked the system with a score of 5 or higher). In 2011 the 90 % of the population has approved the system (ranked the system with a score of 5 or higher). But the average rate resulting from the surveys reveals that, although the population of Donostia-San Sebastian still perceives the public bike scheme as good (7,2 in 2010 and 6,2 in 2011), the acceptance of the system has decreased over time. The reason for this is the big increase of users and uses of the system, which makes sometimes difficult to manage the system in specific points and times, where there is sometimes lack of availability for bicycles or parking space.

Results are shown in the following charts:

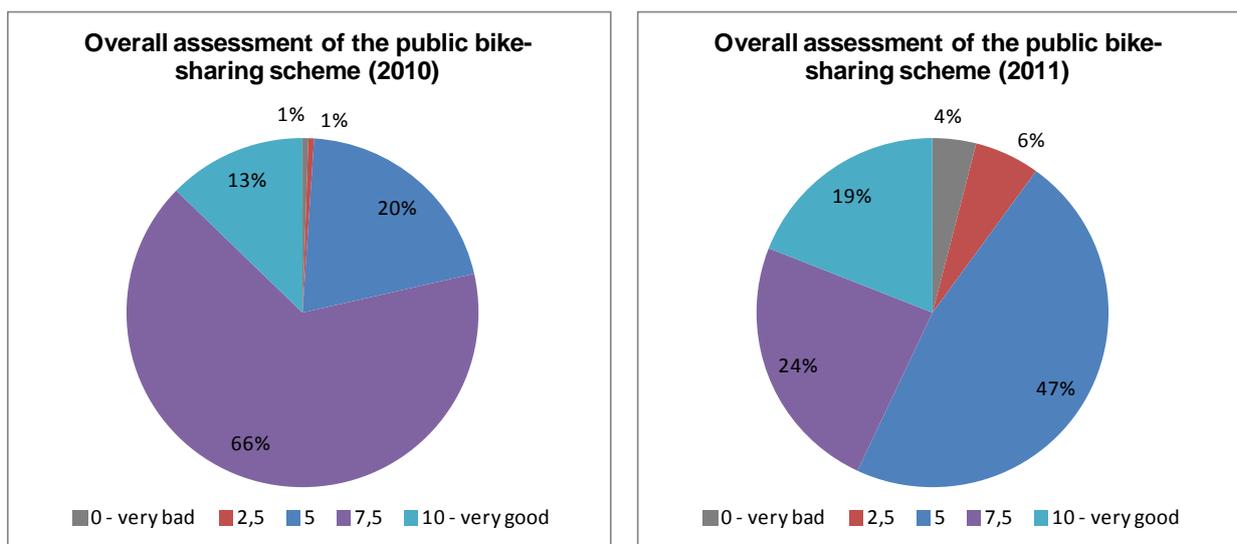


Fig.12.Overall assessment of the bike-sharing scheme

Complementing this information, the survey revealed that in 2010 an 87% of the population of the affected neighbourhoods believed that the public bicycle service help increase the overall use of the bicycle in the city. While in 2011 this percentage decreased to an 80% of the population.

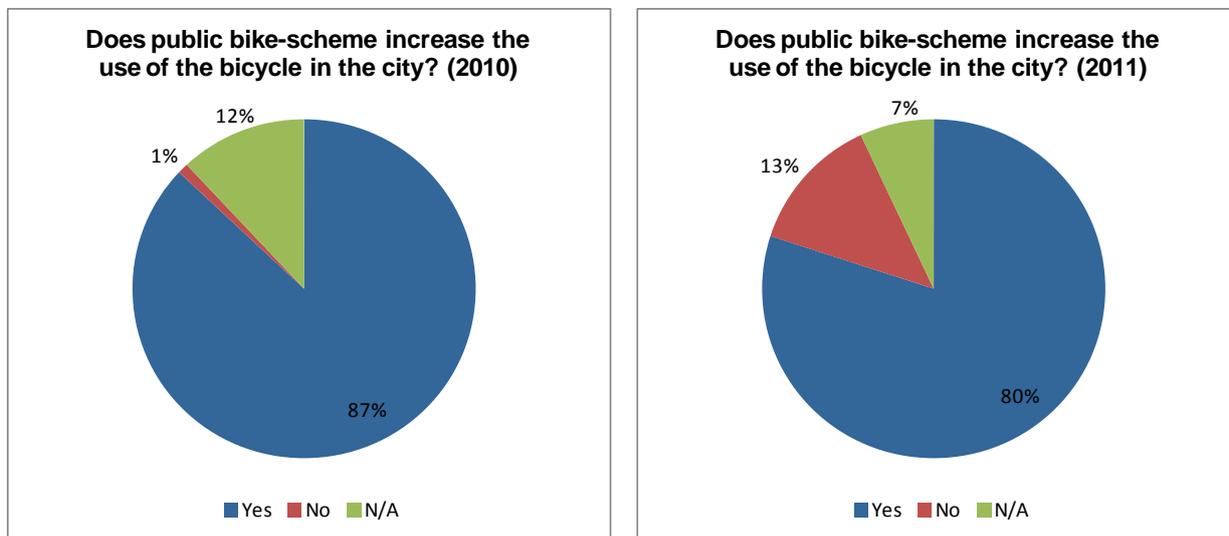


Fig. 13. Public opinion regarding the influence of public bike scheme in the overall cycling levels

Table C2.2.2: Bicycle theft level

Indicator	Before (2009)	BaU (2010)	After (2010)	BAU (2011)	After (2011)
Bicycle theft level	883	869	849	1092	947

Indicator	Difference: 2010 – Before	Difference: 2010 – BaU	Difference: 2011 – Before	Difference: 2011 – BaU
Bicycle theft level	-34	-20	64	-145

In addition to the acceptance, bicycle theft level has also been assessed. As it can be seen in the table below the number of stolen private bicycle has increased between the years 2008 and 2009. In 2010 a slight decrease in bicycle thief levels was accounted, at the same time that the number of recovered bicycles has increased. But in 2011 the number of stolen bicycles increased again.

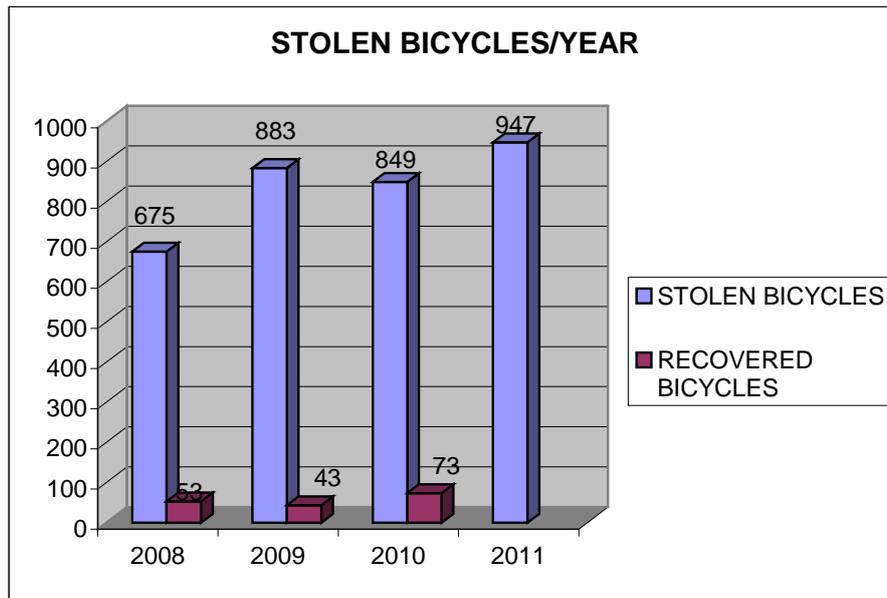


Fig. 14. Number of stolen and recovered bicycles by year

Taking into account that the number of movements is increasing, it looks like the bicycle theft level is decreasing, which is a very positive result for the promotion of bicycle use. In order to assess this, a coefficient that shows the relation between the number of bicycle movements and the stolen bicycles has been calculated. It can be seen that this number is decreasing since 2009.

	2005	2006	2007	2008	2009	2010	2011
BICYCLE USERS	10163	9646	10113	11631	11185	12278	15424
STOLEN BICYCLES	657	875	711	675	883	849	947
RECOVERED BICYCLES	32	18	46	53	43	73	
COEF (STOLEN/USERS)X100	6,46	9,07	7,03	5,80	7,89	6,91	6,14

Table 2. Number of stolen and recovered bicycles

C2.3 Transport

The public bike sharing service is managed with the electronic and telecommunication technologies established by CEMUSA. Transport indicators results have been obtained by the data provided by this organization.

Periodically CEMUSA sends a report with the data collected by the system. What follows is a summary of the main results:

Table C2.3.1: Transport System

Indicator	Before (2009)	BaU (2010)	After (2010)	BaU (2011)	After (2011)
Subscribers of the city bike scheme	2.422	N/A	3.563	N/A	5.006
Average use of the public bikes	1,84	N/A	2,96	N/A	4,59

Indicator	Difference: 2010 –Before	Difference: 2010 – BaU	Difference: 2011 –Before	Difference: 2011 – BaU
Subscribers of the city bike scheme	1.141	N/A-	3.563	N/A-
Average use of the public bikes	1,12	N/A	2,75	N/A

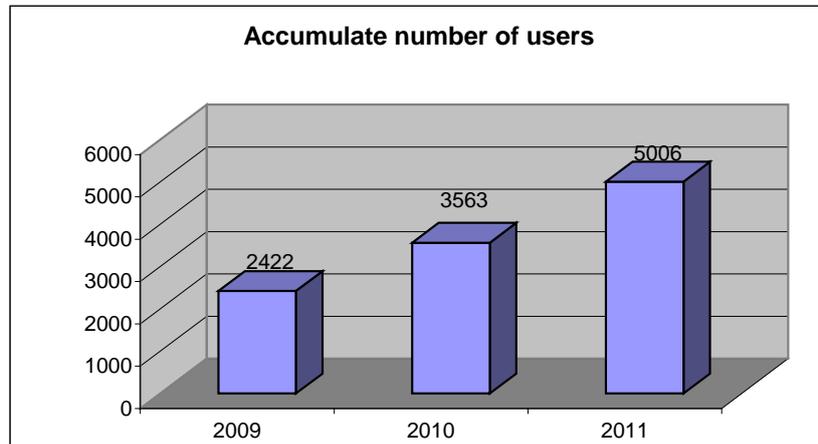


Fig 15: Accumulated use of bicycles 2009-2011

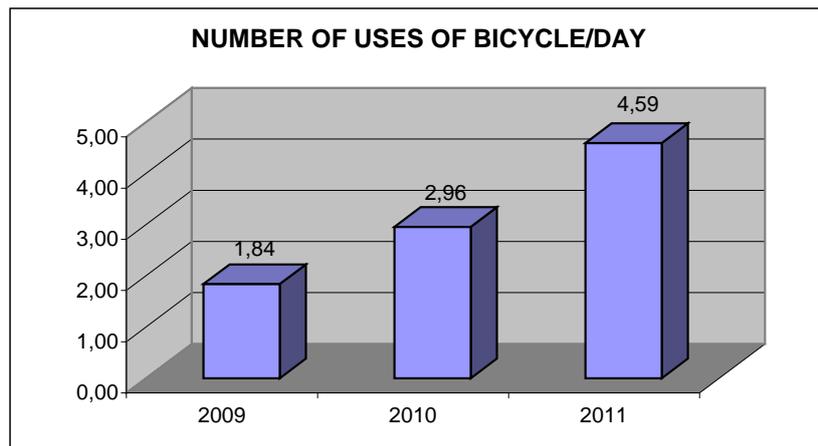


Fig 16: Average number of uses of bicycle per day 2009-2011

The information provided by CEMUSA allows undertaking a detailed analysis of the different variables of the service:

1.-“Number of people in the Service” (indicator)

As it can be seen in the graphic below, the number of users registered on the service has increased every year.

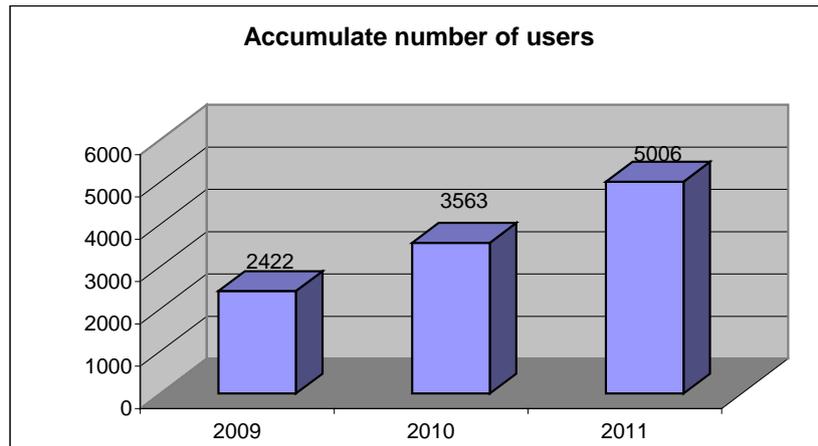


Fig 17: Accumulate number of users 2009-2011

The registered number of users in 2011 has increased as compared with 2010, when the 4 new dispatch points and 50 additional bicycles started operating. These figures indicate the great success of the system, with more people getting registered every year.

As it can be seen in the graph, the year 2009 has been the one with more new users of the service. It was the first year of the service and it had a very good acceptance. Nevertheless, the system has accounted for a significant number of new users ever since.

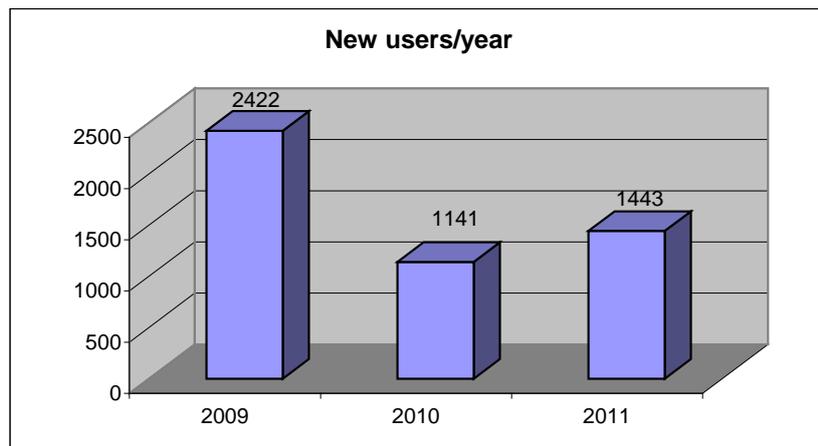


Fig. 18: New users in years 2009-2011

2.- Number of uses of the service per year

As for the number of trips made using the system, in 2010 a 50% increase in the number of uses was accounted as compared to the previous year, while in 2011 this yearly increase reached a 64% as compared to 2010. This means that registered users are getting used to the service for their daily trips in the city, reducing the use of the car and using the bicycle as element of intermodality with the public transport.

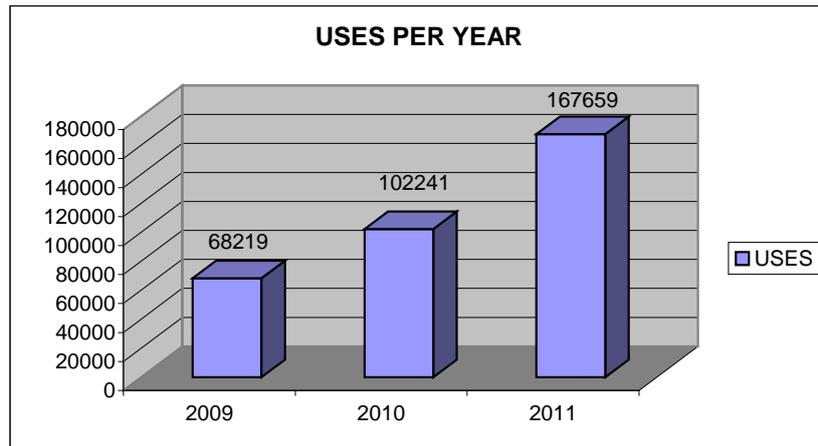


Fig 19: Number of uses by year 2009-2011

The impact of the measure is stimulating people to make more use of their own bicycles. In 2011 there has been an increase of 25% of movements by private bicycle over 2010.

With all the above in consideration, it can be concluded that the service is being a success.

3.- Percentage of users by gender

As it can be seen in the graph below, the distribution of use by gender is quite balanced. Every year the percentage of uses is around 50%.

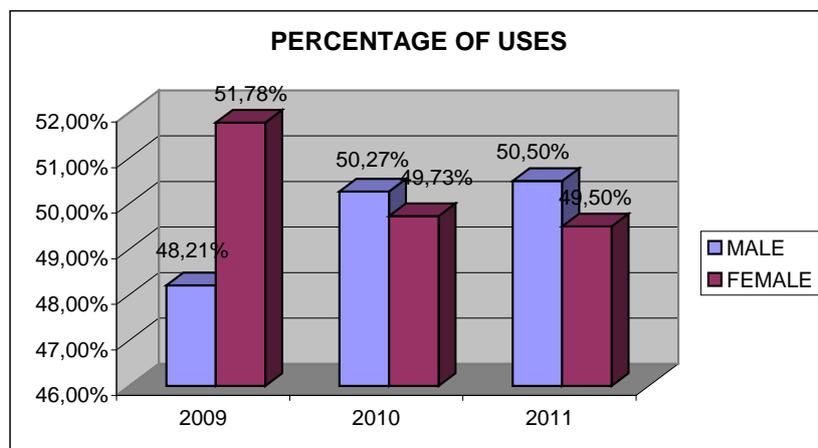


Fig. 20: Percentage of users by gender 2009-2011

4.- Percentage of users by age

As it can be seen in the graph below, 41% of the users of the service are between 20 – 40 years old and 47% are between 40 – 60 years old. People between 0-20 years don't use as much as older people do, since more often they own their own private bicycle.

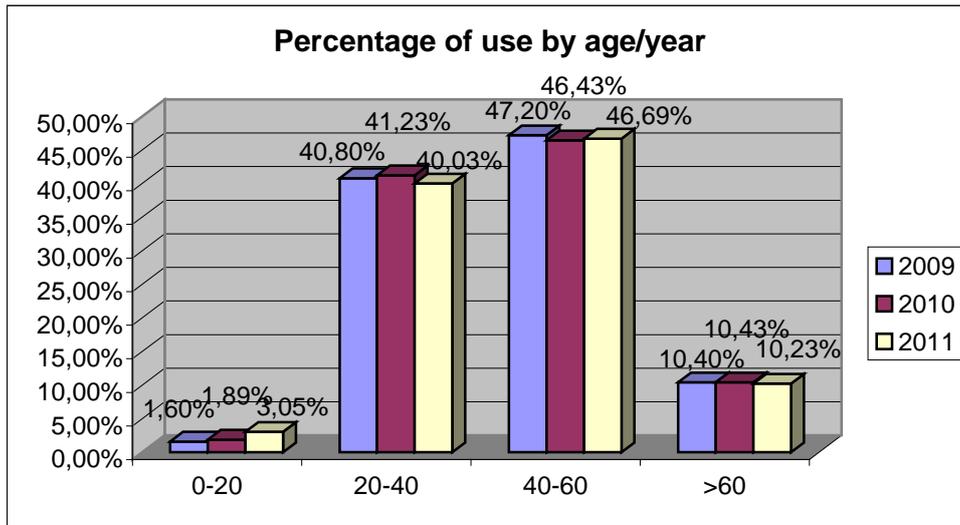


Fig. 21: Percentage of users by age 2009-2011

It is important to highlight the significant number of users of the service older than 60 years (10% of the total number users of the service).

5.- Number of uses per month (indicator)

As it can be seen in the graph below, the number of uses per month increased in 2010 by a 49% comparing with 2009, reaching over 8.500 uses per month in 2010. While in 2011 this increase was a 64 % as compared with 2010, reaching over 13.900 uses per month in 2011.

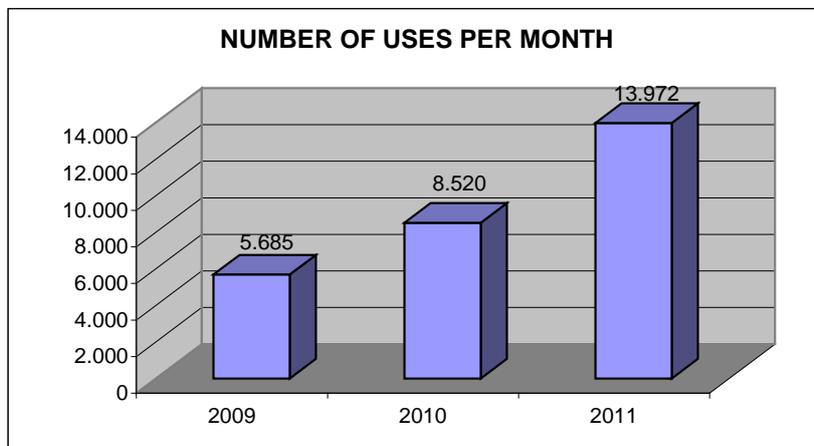


Fig. 22: Percentage of uses by month 2009-2011

The initial objective of the measure was to reach an average of 50.000 monthly uses of the city bikes during the last year of the project. This objective was laid down for 40–50 dispatch points and 500 public bicycles. Now a day this measure is implemented with 9 dispatch points and 150 bicycles so it is impossible to reach that objective. A new objective of 15.000 monthly uses during the last year of the project has been defined.

According to the evolution in the number of monthly uses, this objective seems suitable.

6.- Number of uses per bike/day (indicator)

The graph shows information on a very important indicator which is the number of uses of each bicycle on the service. It can be observed that the number of uses is growing. The number of bicycles used since the service was extended to 9 dispatch points is of 100 hundred. The other 50 bicycles are used to serve stations that have more demand and some of them are usually repairing, so the calculation has been done with 100 bicycles/day.

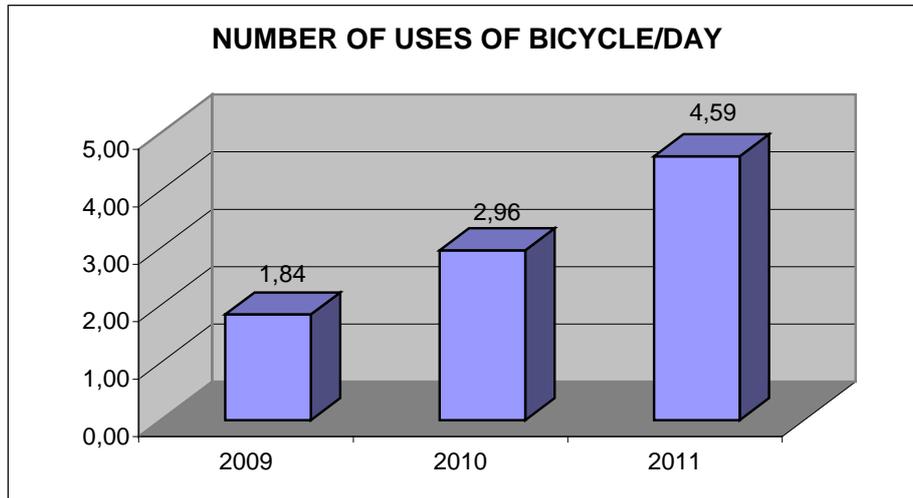


Fig. 23: Number of uses per bike/day

7.- Average duration of public bike uses

As the graphics below reveal the duration of most of the uses of the bicycles are below 15 minutes, which means that the service is being used for daily mobility in the city and not for leisure. There are few uses longer than 1 hour. It should be reminded that the first hour of the service is free and the area covered by the service makes that most of the movements are shorter than 1 hour.

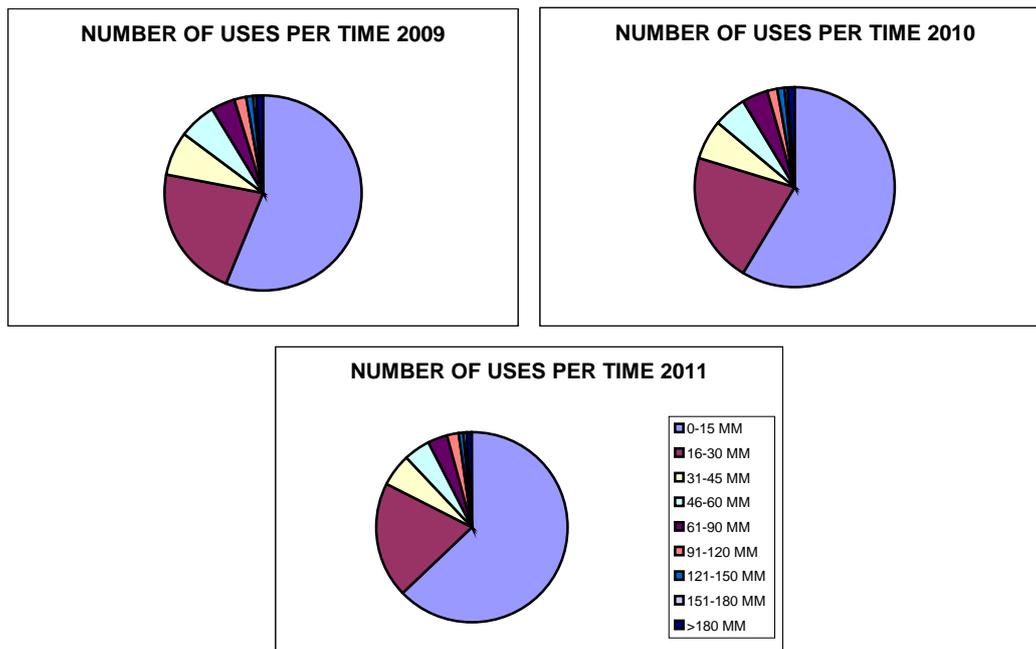


Fig.24: Number of uses per time in years 2009-2010-2011

8.- Uses by day of the week

As it is shown in the graphic below the use of the service is mainly during the weekdays. If we have a look at the age of the people that use the service and the days of the week with more uses, it can be noticed that the service is working as an element of daily mobility in the city on the way of reducing the use of private car.

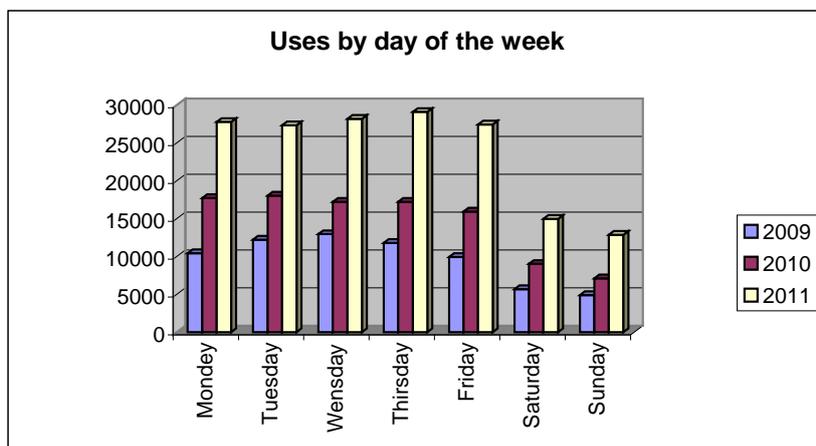


Fig. 25: Number of uses by day of the week 2009-2011

9.- Number of tickets bought by tourists

The service was opened for tourist on July 2010. As it can be seen on the table below the use of the service was very already during that summer of 2010. Most of the people took the card for one day.

CARDS BOUGHT BY TOURISTS

2010	1 day card	3 days card	1 week card
July	234	48	4
August	291	60	15
September	260	22	3
October	122	14	0
November	34	2	0
December	37	2	0
	978	148	22

2011	1 day card	3 days card	1 week card
January	22	2	
February	36	3	
March	85	6	
April	178	13	1
May	129	18	
June	186	18	3
July	239	43	15
August	299	57	11
September	188	40	
October	112	13	2
November	66	6	1
December	65	5	1
	1605	224	34

Table 3. Cards bought by tourists

The use of the service by the tourists in summer 2011 has been much higher than in 2010 which show the success of the system. Mainly 1 day card has been used also during 2011.

The number of bicycles for tourist in the same day is limited to 25 bicycles. The service is specially designed for the mobility of registered users of the city.

Table C2.3.2: Transport Safety

Table C2.5.1: Safety

Indicator	Before (2008)	After (2009)	After (2010)	After (2011)
20. Deaths caused by transport accidents.	2	6	4	5
20. Accidents with injured people	730	675	666	627
20. Accidents with no injured people	1048	955	880	889
20.- Knock down people	99	99	107	110

Indicator	Before (2008)	BaU (2009)	BaU (2010)	BaU (2011)
20. Deaths caused by transport accidents.	2	6	6	6
20. Accidents with injured people	730	737	737	737
20. Accidents with no injured people	1048	951	863	783
20.- Knock down people	99	93	88	83

Indicator	2009 –2008	2010 - 2008	2011 - 2008
20. Deaths caused by transport accidents.	4	2	3
20. Accidents with injured people	-55	-64	-103
20.-Accidents with no injured people	-93	-168	-159
20.- Knock down people	0	8	11

Indicator	2009 –BaU	2010 - BaU	2011 - BaU
20. Deaths caused by transport accidents.	0	-2	-1
20. Accidents with injured people	-62	-85	-139
20.-Accidents with no injured people	4	17	106
20.- Knock down people	6	19	27

As it can be seen in the comparison of before and after data there has been an increase in the number of death people. Nevertheless it should be noted that 2008 (the reference year) was a very positive year in this regard.

Both accidents with injured people and accidents with no injured people have decreased compared with the reference year. If compared to the BaU estimation, it can be seen how the number of accidents with no injured people has grown as a consequence of increased mobility patterns, including a higher number of bicycle users, which results in a higher accident risk level. Nevertheless, the number of severe accidents, with injured people, has significantly decreased as compared to the BaU scenario.

Also a consequence of the higher exposure to accident risk, the data of knock down people has increased compared both with the reference data and with the BaU.

As a conclusion, it could be inferred that the promotion of sustainable modes, usually followed by a significant increase in demand of non-motorised modes, can have implications in terms of an increased number of accidents due to a higher risk exposure. This should not lead to the consideration that bicycle use is dangerous, but should be taken into account in order to further improve traffic safety for non motorised users. Also it should be noted that the kind of accidents that have increased are accidents with no injured people, while those with injured people involved have decreased.

As it can be seen in the table below the number of injured people has increased compared to 2009 and 2010 levels. But if we have a look in the coefficient accidents / users, we can say that the injured people related with the number of users have decreased. If we have a look to the different typology of accident, it can be seen that the most important increase is cyclist itself and cyclists with car.

KIND OF ACCIDENT	2009	2010	2011
Cyclist itself	18	24	33
Cyclist with pedestrian	11	8	10
Cyclist with cyclist	2	3	4
Cyclist with motorbike	12	7	9
Cyclist with car	25	28	26
Cyclist with bus	1	2	1
Cyclist with van/lorry	0	1	3
Cyclist with more than 1 vehicle	1	0	1
TOTAL	70	73	87
USERS	11.185	12.278	15.424
COEF(ACCIDENTS/USER) X 1000	6,26	5,95	5,64

Table 4. Number and kind of accidents

The first one it is caused by lack of concentration of the cyclists on cycle lanes: using mobile phone, headphones or other elements. Now a day we are working in a campaign with the police to reduce this kind of accidents.

In the case of cyclists with a car, as we can see in table most of them happened while crossing at Zebra Crossing and by the road. The use of the road for cycling is increasing so that could explain the rise in the number of accidents with car,

We have detected that the speed of the cyclists when they arrive to the Zebra Crossings, makes impossible sometimes for the drivers to stop. In the next cycling net map a explanation will be included on the way to change people behaviour.

UBICATION OF THE CYCLISTS WHEN THE ACCIDENT HAPPENED

	2009	2010	2011
Riding by the road	16	22	33
Riding by bus lane	1	0	0
Riding by cycling lane	11	12	21
Changing road to sidewalk	2	3	1
Changing sidewalk to road	0	2	1
Cycling by pedestrian area	1	2	1
Cycling by sidewalk	14	8	10
Crossing the road (places not allowed)	4	1	3
Crossing a Zebra Crossing	18	25	20
Cycling by the mountain	3	0	0
Others	2	1	1
TOTAL	72	76	91

Here there are included cyclist not injured.

Table 5. Number and location of accidents 2009-2011

As it can be seen on the table below most of the injuries are slight injuries. This kind of injuries has decreased. The number of seriously injured people has increased and most of them has been in Zebra Crossings and riding by the road.

There has not been any death cyclist in the city during the last years.

VICTIMS AND SERIOUSNESS OF WOUNDS

	Victims and severity of injuries								
	2009			2010			2011		
	Death	Seriously injured	Slight injury	Death	Seriously injured	Slight injury	Death	Seriously injured	Slight injury
Pedestrian	0	0	11	0	0	8	0	0	9
Cyclists	0	2	60	0	8	58	0	5	76
Motorbike drivers	0	1	7	0	0	4	0	0	4
Bus passengers	0	0	0	0	0	1	0	0	1
TOTAL	0	3	78	0	8	71	0	5	90

Table 6. Victims and severity of the injuries 2009-2011

It is significant the number of pedestrian injured by cyclists. It can be seen how the number of pedestrian injured by cyclists is very low.

This data show how important is to build new cycle lanes and creating 30-km-zones to increase the security of cyclists and pedestrians. In the other hand it is important to analyse the existing crossing on the network in order to identify dangerous points.

C3 Achievement of quantifiable targets and objectives

No.	Target	Rating
1	Installation of 9 dispatch points and 150 bicycles	**
2	15.000 users/month for the last year of the project	*
3	Reaching to increase the use of the bicycle 30 % in the city	***
NA = Not Assessed O = Not Achieved * = Substantially achieved (at least 50%) ** = Achieved in full *** = Exceeded		

C4 Upscaling of results

There are two options for up-scaling this measure:

- The city bike scheme is expanded with more bikes and stations within present area
- The city bike scheme is expanded to cover a larger area; even neighbour municipalities with a functional relation with Donostia-San Sebastian could be included in the scheme

C5 Appraisal of evaluation approach

The reports sent periodically by CEMUSA have included enough data for doing a good evaluation process. The electronic and telecommunication technologies made much easier to get data for the evaluation.

This technology has made possible to know how the service is working and all the movements between the dispatch points, allowing for a good management of the service. CEMUSA knows how many bicycles are in each dispatch point. This way they can know if there is any specific need in any moment the keep the service running appropriately.

Therefore it is considered that the methodology followed to do the evaluation has been correct and the data collected have been enough.

C6 Summary of evaluation results

The goal of this measure is to increase the cycling culture by providing those who doesn't own a bicycle the opportunity to use this mode on any or part of their daily trips. In particular, it is expected that non cyclist use the bike scheme for occasional unplanned trips and/or as the access mode to other transport services (i.e. as a stage of an overall intermodal trip).

The measure can be considered a success, both in terms of system operation indicators and public acceptance.

Regarding system operation, the number of users registered on the service has increased every year, reaching 5.006 subscribers in 2011, when the 4 new dispatch points and 50 additional bicycles started operating.

The year 2009 has been the one with more new users of the service (2.422 new users). It was the first year of the service and it had a very good acceptance. Nevertheless, the system has accounted for a significant number of new users ever since.

As for the number of trips made using the system, in 2010 a 50% increase in the number of uses was accounted as compared to the previous year, while in 2011 this yearly increase reached a 64% as compared to 2010. This means that registered users are getting used to the service for their daily trips in the city, reducing the use of the car and using the bicycle as element of intermodality with the public transport.

Also the number of uses per bicycle per day has increased since the system started operating, from 1,84 uses per bike per day in 2009 to 4,59 uses per bike per day in 2011.

The majority of the uses has a duration below 15 minutes and are made during the weekdays, which means that the service is being used mostly for daily mobility in the city and not for leisure.

The system is equally used by men and women. In terms of age, 41% of the people that uses the service are between 20–40 years old and 47 % between 40–60 years old, with a significant number of users older than 60 years (10% of the users of the service are older than 60 years old). Youngest people don't use as much the system as other users do, since more often they own their own private bicycle.

The impact of the measure is stimulating people to make more use of their own bicycles. In 2011 there has been an increase of 25% of movements by private bicycle over 2010.

Finally, it should also be highlighted that the system had a very good acceptance between tourists especially during the summer months. One day tickets are mostly used by this group of users.

Regarding public perception, a huge majority of the population approves the system (90% in 2011), but the average rate resulting from the surveys reveals that, although the population of Donostia-San Sebastian still perceives the public bike scheme as good (7,2 in 2010 and 6,2 in 2011), the acceptance of the system has decreased over time. The reason for this is the big increase of users and uses of the system, which makes sometimes difficult to manage the system in specific points and times, where there is sometimes lack of availability for bicycles or parking space.

Complementing this information, the survey revealed that 80% of the population believed that the public bicycle service help increase the overall use of the bicycle in the city.

Finally it should be noted that the service has a very high capital and maintenance cost (currently being partly funded by CEMUSA and the Basque Government as a pilot program). Nevertheless, the system was enlarged without increasing the maintenance costs associated to the service.

C7 Future activities relating to the measure

An analysis of different ways of funding the service will be done. At the same time, a study of possibilities to expand the service in the future will be done, depending on economical and political decisions, to hilly areas.

As for the evaluation, the evaluation plan will continue as it was conceived. Data collection will be done.

D Process Evaluation Findings

D0 Focused measure

X	0	No focussed measure
	1	Most important reason
	2	Second most important reason
	3	Third most important reason

D1 Deviations from the original plan

The deviations from the original plan comprised:

- **Number of dispatch points and bicycles**

The objective of placing 40 – 50 dispatch points has been considered disproportionate technically and especially economically for Donostia – San Sebastian Municipality or public funding. It is reasonable technically and economically placing 9 dispatch points and 150 bicycles.

- **Target of 50.000 movements a month for the last year**

The initial objective included in the measure was to reach an average of 50.000 monthly uses of city bikes during the last year of the project. This objective was laid down for 40 –50 dispatch points and 500 public bicycles.

Now a day this measure is implemented with 9 dispatch points and 150 bicycles so it is impossible to get that objective of 50.000 monthly uses of city bikes during the last year of the project. The new objective for the number of dispatch points and bicycles would be 15.000 during the last year of the project.

D2 Barriers and drivers

D2.1 Barriers

The main barriers encountered for the development of measure 58 are:

Preparation phase

- **Political/Strategic:** There might be opposition from bike rental companies due to the extension of the service to tourists and visitors.

Implementation phase

- **Economical:** The economic viability of the City Bike scheme is the main risk of the measure. The system must be planned taking into account the economic viability of the service. Although quite obvious, funding for the service must be defined in advance.

Operation phase

- **Problem related:** the high number of tourists in summer has obliged to put limit on the number of bicycles available for them.

D2.2 Drivers

As for the drivers, the main ones affecting the measure are:

Preparation phase

- **Positional:** The measure is part of an overall strategy towards sustainable mobility in the city. Improvements in public transport services, road safety and non-motorized infrastructure will ease the implementation of this measure. In this regard, improvements in cycling conditions of the city have helped the successful implementation of the measure

Operation phase

- **Cultural:** There was already planned a pilot experience with public bikes with 5 dispatch points. Citizens were not new to this kind of service and are already aware of its potential and associated benefits.

D2.3 Activities

In order to handle the above referred barriers and/or to make use of the drivers, the following activities were taken during the implementation of the measure:

Preparation phase

- **Planning:** ADS has studied the technical and economic feasibility of the City Bike scheme in order to reorganise the service.
- **Political/Strategic:** Cooperation agreements have been established with bike rental companies within the framework of bicycle strategy in the city.

Implementation phase

- **Planning:** An on-going monitoring and evaluation of the system is being carried out in order to analyse the economic feasibility of the service
- **Involvement/Communication:** Continuous awareness rising and marketing efforts are being developed.

Operation phase

- **Positional:** A significant extension of the cycling network has already been undertaken

D3 Participation

D.3.1 Measure partners

Following there is a brief description of all project partners and its level of involvement with the measure:

- **Department of Mobility - City of Donostia-San Sebastian** - Responsible of the planning and implementation of the measure.

- **CEMUSA (service operator)** – Responsible of the daily maintenance of the city bikes and dispatch stations.

D.3.2 Stakeholders

The main stakeholders of these measures are:

- **Bicycle Mobility Observatory** – On-going monitoring and evaluation of the system and its impact on overall bicycle mobility in the city.

D4 Recommendations

The implementation of this measure is very helpful to promote the use of bicycle instead of the car, making possible a change in the behaviour of the citizens. This measure is related with the use of private bicycle and it helps to increase the use of it. At the same time, the use of the bicycle is good for health.

D.4.1 Recommendations: measure replication

- **Limitation on the number of users** - It is important to limit the number of users depending on the dimensioning of the service. Exceeding the number of users can make the management of the service difficult.
- **Funding study** - It is very important to undertake a funding study to guarantee the economic viability of the service.
- **Analysis of the location and dimensioning the service** – It is very important to do a previous analysis of the population served, number of dispatch points and area covered, number of bicycles, orographic characteristics and infrastructure construction cost and maintenance cost.
- **Intermodality** - It is very important to locate the dispatch points near from the bus and train stations. This is useful for people using public transport to make them able to use the bicycle for the last part of the trip.
- **First hour free** – A good way to encourage the use of the service is to make the first hour of the service free, at least during the beginning stages of the system.
- **Service for tourists** - It is important to open the service to the tourists but limited on the number of users/day. This is important in very touristic cities.

D.4.2 Recommendations: process

- **Gain support from affected stakeholders:** To avoid opposition from affected stakeholders, it is recommended to establish an on-going dialogue with them, especially bike rental companies, and look for cooperation fields in the framework of the overall bicycle strategy in the city
- **Citizen's awareness.** It is very important that the citizens are committed with the idea and in favour of a behavioural change towards sustainable mobility. Continuous awareness raising activities are required for that purpose.