Optimising Bike Sharing in European Cities

Final Project Report

Homeport Vélo’v Vélib’ Cyclocity BiZiZaragoza Bari in Bici Barclays Cycle Hire Bicimia Hourbike Réflex Chemnitzer Stadtfahrer Bicincittà Velodi Greenstreet BikeOne Call a Bike OYBike BikeMi C’entro in bici Freiradl VéloMagg Örebro Cykelstaden Vélo à la carte Ambici Rimini in Bici Atac Italy bike sharing Citybike Sweden Stockholm City Bikes Call a Bike

Cycling Homeport Austria Vélo’v Vélib’ Cyclocity BiZiZaragoza Poland Bari in Bici Barclays Cycle Hire Bicimia Hourbike Stadtfahrrad Bicincittà Velodi Greenstreet BikeOne Call a Bike OYBike BikeMi C’entro in bici Freiradl VéloMagg Örebro Cykelstaden Vélo à la carte Ambici Rimini in Bici Atac bike sharing Citybike Stockholm City Bikes Czech Republic Call a Bike

Cycling Homeport Germany Pà cykel i Lundby Lånecyklar i Göteborg Citybike Servicio Municipal de Préstamo de Bicicletas de Vitoria-Gasteiz Germany Pà cykel i Lundby Lånecyklar i Göteborg Citybike Servicio Municipal de Préstamo de Bicicletas de Vitoria-Gasteiz United Kingdom Ambici Rimini in Bici Atac bike sharing Citybike Stockholm City Bikes

Supported by INTELLIGENT ENERGY EUROPE
The content of this report is based on the activities and results of the OBIS project.

**Editors:**

Janett Kalina (choice)

OBIS, August 2011

OBIS was funded under the Intelligent Energy Europe programme (IEE).

The sole responsibility for the content of this report lies with the authors. It does not necessarily reflect the opinion of the European Union. Neither the EACI nor the European Commission are responsible for any use that may be made of the information contained therein.
# Table of Contents

Document Information 3
Table of Contents 4
Figures 5
Tables 6

1. **Introduction** 8
   1.1 Project Background 8
   1.2 Aims and Objectives 8
   1.3 Target Groups 8
   1.4 Description of Work 9

2. **Activities and Results** 10
   2.1 Analysis and Research 10
   2.2 Demonstration Projects 11
   2.3 Knowledge Transfer and Awareness Raising 19

3. **Objectives and Lessons Learnt** 24
   3.1 Analysis and Research 24
   3.2 Optimisation of Schemes 24
   3.3 Policy Recommendations 25
   3.4 Communication 25

4. **The OBIS Partners** 26
<table>
<thead>
<tr>
<th>Figure</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>OBIS Work Programme Structure</td>
<td>9</td>
</tr>
<tr>
<td>2</td>
<td>BSS Influencing Factors</td>
<td>10</td>
</tr>
<tr>
<td>3</td>
<td>New Solar Terminal and New Docking Points for Berlin (Graphic: neo systems)</td>
<td>11</td>
</tr>
<tr>
<td>4</td>
<td>Keepod Device Usage at BikeMi-Station (Video by Bloonn and Legambiente)</td>
<td>12</td>
</tr>
<tr>
<td>5</td>
<td>Bicing Usage in Barcelona (Figure: Barcelona Municipality, Mobility Department)</td>
<td>13</td>
</tr>
<tr>
<td>6</td>
<td>Redistribution Truck Stockholm (Photo: Tim Birkholz, choice)</td>
<td>14</td>
</tr>
<tr>
<td>7</td>
<td>Czech Railways Booking Platform <a href="http://cz.pujcovnykol.cz/">http://cz.pujcovnykol.cz/</a> (Screenshot)</td>
<td>16</td>
</tr>
<tr>
<td>8</td>
<td>Barclays Cycle Hire Bikes (Photo: Tim Birkholz, choice)</td>
<td>17</td>
</tr>
<tr>
<td>9</td>
<td>LEIHRADL-nextbike (Photo: nextbike)</td>
<td>18</td>
</tr>
<tr>
<td>10</td>
<td>OBIS Handbook</td>
<td>20</td>
</tr>
<tr>
<td>11</td>
<td>OBIS Conference Berlin (Photo: Anke Bottermann, choice)</td>
<td>20</td>
</tr>
<tr>
<td>12</td>
<td>OBIS Conference Milan (Photo: FLI)</td>
<td>20</td>
</tr>
<tr>
<td>13</td>
<td>OBIS Conference Prague (Photo: Tim Birkholz, choice)</td>
<td>20</td>
</tr>
<tr>
<td>14</td>
<td>OBIS Website</td>
<td>21</td>
</tr>
<tr>
<td>15</td>
<td>Bike Sharing Leaflet (CDV)</td>
<td>21</td>
</tr>
<tr>
<td>16</td>
<td>External Dissemination Sites (screenshots)</td>
<td>23</td>
</tr>
</tbody>
</table>
Tables

Table 1: OBIS Facts  
Table 2: BSSs Studied per Country
1. Introduction

1.1 Project Background

OBIS (Optimising Bike Sharing in European Cities) was developed as a result of the 'Big Bang' in bike sharing – namely the start of Vélib' in Paris and Bicing in Barcelona in 2007. With the help of European funding from the Executive Agency for Competitiveness and Innovation (EACI) within the Intelligent Energy Europe Programme, the project gave 16 partners from nine countries the opportunity to assess Bike Sharing Schemes (BSSs) all over Europe. OBIS started in September 2008 and ended three years later in August 2011. foremost, compile and publish the results of this intensive work to share it with all relevant stakeholders in the field.

All these activities were carried out to improve the role and the opportunities of bike sharing as a valuable instrument to foster clean and energy efficient sustainable modes of transport mainly in urban areas.

1.3 Target Groups

Bike sharing schemes are planned, implemented and operated in an environment influenced by most diverse stakeholders from many fields. A variety of target groups was addressed by OBIS for both, the analysis within the project (e.g. by interviews) and for the dissemination of the results. At the same time, a representative selection of stakeholders was involved in OBIS as project partners:

- National ministries of transport, energy and environmental affairs and national ministries of education;
- Local authorities such as city councils, public administrators and urban planners;
- Representatives of cycling organisations;
- Providers of street furniture, outdoor advertisers, outdoor advertisers and other to bike sharing related companies;
- Bike sharing providers/ operators;

Table 1: OBIS Facts

<table>
<thead>
<tr>
<th>OBIS Facts</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Project Name</td>
<td>OBIS (Optimising Bike Sharing in European Cities)</td>
</tr>
<tr>
<td>Project Website</td>
<td><a href="http://www.obisproject.com">www.obisproject.com</a></td>
</tr>
<tr>
<td>Project Duration</td>
<td>September 2008 - August 2011</td>
</tr>
<tr>
<td>Project Partners</td>
<td>- choice GmbH (Coordinator)</td>
</tr>
<tr>
<td></td>
<td>- DB Rent GmbH</td>
</tr>
<tr>
<td></td>
<td>- Senate Department for Urban Development Berlin (SenStadt)</td>
</tr>
<tr>
<td></td>
<td>- Vienna University of Technology (TUW)</td>
</tr>
<tr>
<td></td>
<td>- Royal Institute of Technology (KTH)</td>
</tr>
<tr>
<td></td>
<td>- Altran Innovacion S.L.</td>
</tr>
<tr>
<td></td>
<td>- Safety and Mobility Department of Barcelona City Council</td>
</tr>
<tr>
<td></td>
<td>- Pomeranian Association &quot;Common Europe&quot; (PSWE)</td>
</tr>
<tr>
<td></td>
<td>- Ökoinstitut Südtirol/ Alto Adige (ÖKI)</td>
</tr>
<tr>
<td></td>
<td>- Carsharing Italia S.r.l. (CSI) [replaced by FLI in 09/2010]</td>
</tr>
<tr>
<td></td>
<td>- MTI Conseil</td>
</tr>
<tr>
<td></td>
<td>- Cete de Lyon</td>
</tr>
<tr>
<td></td>
<td>- CTC Charitable Trust</td>
</tr>
<tr>
<td></td>
<td>- Transport for London (TfL)</td>
</tr>
<tr>
<td></td>
<td>- Transport Research Centre v.v.i. (CDV)</td>
</tr>
<tr>
<td></td>
<td>- Fondazione Legambiente Innovazione (FLI)</td>
</tr>
<tr>
<td>Budget</td>
<td>EUR 1,467,648 (75% EU Contribution)</td>
</tr>
</tbody>
</table>

1.2 Aims and Objectives

The aim of the consortium was to: share knowledge; collect relevant information about more than 50 schemes; carry out innovative demonstration activities within the participating countries; and first and
ket potential for bike sharing in different countries including barriers and market needs. As a core element of the work programme, vertical demonstrations with the focus on new approaches, advanced technologies and extension of bike sharing schemes were tested, evaluated and optimised. With these experiences and results, OBIS derived policy recommendations and guidelines. Finally, OBIS promoted and disseminated the project results and with that raised the awareness of relevant actors with the intention to motivate them to adopt bike sharing as an innovative individual system of public transport.

1.4 Description of Work

The work programme of OBIS comprised horizontal and vertical activities. First, an inventory and market analysis assessed the current situation and market potential for bike sharing in different countries including barriers and market needs. As a core element of the work programme, vertical demonstrations with the focus on new approaches, advanced technologies and extension of bike sharing schemes were tested, evaluated and optimised. With these experiences and results, OBIS derived policy recommendations and guidelines. Finally, OBIS promoted and disseminated the project results and with that raised the awareness of relevant actors with the intention to motivate them to adopt bike sharing as an innovative individual system of public transport.

> Public transport operators;
> Large employers;
> Traffic researchers;
> Consultants;
> Customers;
> And many more...

![Figure 1: OBIS Work Programme Structure](image)
2. Activities and Results

2.1 Analysis and Research

2.1.1 Data Analysis

The OBIS consortium has carried out the broadest analysis of BSSs so far. 51 schemes in 48 cities located in 10 European countries were included in the qualitative and quantitative analysis (Table 2). Most figures were collected on the basis of 2008 and 2009. The aim of this analysis was to assess which influencing factors affect the configuration and the outcomes of such schemes.

<table>
<thead>
<tr>
<th>Country</th>
<th>Number of BSS studied</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>4</td>
</tr>
<tr>
<td>Belgium</td>
<td>2</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>1</td>
</tr>
<tr>
<td>France</td>
<td>8</td>
</tr>
<tr>
<td>Germany</td>
<td>7</td>
</tr>
<tr>
<td>Italy</td>
<td>11</td>
</tr>
<tr>
<td>Poland</td>
<td>1</td>
</tr>
<tr>
<td>Spain</td>
<td>7</td>
</tr>
<tr>
<td>Sweden</td>
<td>4</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>6</td>
</tr>
</tbody>
</table>

Table 2: BSSs Studied per Country

The descriptive analysis of the OBIS BSSs reveals a few regular patterns, providing a snapshot of the current status of European bike sharing.

- The larger the city is, the more likely it is to have a high-tech system.
- The larger the city is, the more likely it is to have a BSS that operates 24 hours per day.
- In warmer countries, the BSS is more likely to operate 365 days a year.
- In cold cities, the peak in demand is in summer. Warm cities have two peaks in demand: one in spring and one in autumn.
- The share of BSSs with long rental periods free of charge (> 30 min) is higher in small and medium cities.
- The number of bikes in the system depends on the size and expected demand in the area targeted.
- Automated schemes in large and medium cities provide more bikes per station and more docking points per bike than small cities.
- The larger the scheme/city, the higher the number of rentals per bike.

2.1.2 Success Factor Analysis

Another goal of OBIS was to ascertain success factors for BSSs. In order to achieve that goal, success for BSSs was defined from different stakeholder’s perspectives. Subsequently central success indicators identified by OBIS were collected and described. The approach used within the project does not provide a benchmarking tool to determine economic success or success in terms of numbers but it does provide a methodology that helps to explain the complexity of measuring success for BSSs.
“Call a Bike – Das Stadtrad für Berlin” has been initiated by the operator DB Rent. The project itself is funded by the Federal Ministry of Transport, Building and Urban Development (BMVBS) and supported by State Berlin, Senate Department for Urban Development (SenStadt). Further cooperation partners are local and regional public transport providers, Berliner Verkehrsgesellschaft (BVG), Verkehrsverbund Berlin-Brandenburg (VBB) and S-Bahn Berlin.

As a result of this research project, a completely new station-based bike sharing with (soon) 1,000 bikes at 80 stations in the first expansion phase was implemented in Berlin.

2.2 Demonstration Projects

Innovative demonstrations were one core element of the OBIS project besides research and knowledge transfer. They were included in OBIS to derive specific recommendations for particular problem areas. The following three areas were covered:

> Development and test of technologies;
> Development and test of concepts for redistribution, customer satisfaction, inclusion of additional stakeholders (e.g. companies, PT);
> Implementation and expansion of BSSs.

In the following, demonstration projects are categorised by their main activity field in the project.

The demonstration projects themselves (technical and operational set-up, organisation etc.) were not subject to funding in most cases but a detailed monitoring was supported by the IEE in all cases.

2.2.1 Development and Test of Technologies

Berlin

Call a Bike, a flexible BSS has been running in Berlin since 2002. However, usage rates remained comparatively low and customer surveys for Call a Bike revealed problems with user processes (telephone based system), low perceived bike availability and bike visibility.

To improve usage and visibility of Call a Bike, the research project “Call a Bike – Das Stadtrad für Berlin” has been initiated by the operator DB Rent. The project itself is funded by the Federal Ministry of Transport, Building and Urban Development (BMVBS) and supported by State Berlin, Senate Department for Urban Development (SenStadt). Further cooperation partners are local and regional public transport providers, Berliner Verkehrsgesellschaft (BVG), Verkehrsverbund Berlin-Brandenburg (VBB) and S-Bahn Berlin.

As a result of this research project, a completely new station-based bike sharing with (soon) 1,000 bikes at 80 stations in the first expansion phase was implemented in Berlin.

2.1 Further Information

Report: Identification of Key Attributes of Bike Sharing (2010)
Fact Sheet: European Transferability (2010)
Fact Sheet: Key Attributes of Bike Sharing – Practical Implications (2010)
Optimising Bike Sharing in European Cities – A Handbook (2011)
> Optimisation of user interfaces and user processes based on international experience. Results from technical test and customer surveys collected in other cities fed into the overall improvement of interfaces and processes.

> Cost analysis for new scheme: A comparison of the former Call a Bike Scheme and the new station-based scheme was carried out.

> Simplification of implementation processes: A common procedure for the implementation of stations was developed.

> Improvement of dialogue between involved stakeholders: All relevant stakeholders agreed on a roadmap for the development and implementation of the scheme. The city administration as well as public transport stakeholders were involved in optimising the scheme in close cooperation with the operator DB Rent.

> Public transport integration with discount tariff for PT card holders: Holders of a local PT card of a card for long distance services receive a discount tariff. The integration of the service into the local PT system is on the agenda for the next years.

> Integration of BSS in the Berlin Cycling Strategy: The bike sharing scheme was included in the new Berlin Cycling Strategy published in 2011.

**OBIS Impacts**

The following overall developments were supported by the OBIS activities:

> Development of station-based scheme with innovative concrete racks and (partly) solar terminals;

> Implementation of scheme with (soon) 1,000 bikes and 80 stations;

> Upgrade of fleet with new bike-lock-technology;

> New access media: RFID-card, Smartphone App;

> New tariffs (PT discounts, flat-rate).

**OBIS Partners Involved**

> DB Rent;

> SenStadt;

> choice.

**Milan**

At the beginning of OBIS a the integration of car sharing and a regional bike sharing service in Sesto San Giovanni (Milan Province) was subject of the demonstration. Later it turned out that difficulties in the implementation process made this demonstration impossible and thus BikeMi was chosen as demonstration subject.

In December 2008, the City of Milan Administration launched BikeMi, a BSS which has been positively accepted within the city. The first phase comprised 1,400 bikes and 100 stations (2,400 slots).

The second phase, planned for autumn 2010, was finally launched in February 2011 with a further 2,250 bikes taking the total to 3,650 bikes, and with the introduction of a night service.

BikeMi is an example of a publicity-based model, with Clear Channel operating and providing the BSS in exchange for advertising rights.

The core of the demonstration is the technical test of a completely new access device for bike sharing and car sharing: Keepod. The device can be "loaded" with applications and access permissions for all different kinds of services and does thus provide a promising basis for the integration of different modes of transport.

**OBIS Activities**

Within OBIS, the following activities were supported:

> Political dialogue in Sesto San Giovanni;
Activities and Results

> Development of a marketing concept for a BSS in Sesto San Giovanni;
> Concept for the integration of bike sharing and car sharing;
> Technical test of Keepod access device for BikeMi;
> Concept for the Adoption of Keepod as access medium for car sharing service GuidaMi;
> Promotion of the new access opportunity.

**OBIS Impacts**

The following overall developments were supported by the OBIS activities:

> Feasibility Analysis and political discourse Sesto San Giovanni;
> Implementation and expansion of BikeMi with 3,650 bikes.

**OBIS Partners Involved**

> FLI;
> CSI.

### 2.2.2 Development and Test of Concepts

**Barcelona**

Barcelona’s Bicing service is open to persons resident in Spain; there is only an annual subscription option. Visitors (tourists) are thus a negligible percentage of users. Use is free for the first half hour and increases exponentially to encourage bike return the same day. The service is open 365 days/year; from 5 h to midnight on workdays, and 24 hours on weekends and feast days. It covers an area of 49 km². Studies of usage (average of 5.9 rentals per day, 2.65 million km travelled per month) indicate that 44% of regular users use Bicing together with another mode of transport (37% of all users are combined mode travellers); also, 68% of users use Bicing for work or educational purposes. These figures indicate that a significant part of the Bicing users are “commuters”

During the OBIS project, the number of Bicing subscribers initially increased beyond 200,000 users (in association with the expansion from a city centre scheme to a city-wide service) and then lowered to 120,000 users.

The number of cycles has remained at 6,000 units (expansion from 4,500 units just before OBIS started), available at 420 stations. The main issues confronted during OBIS have concerned:

> Stabilising usage whilst increasing user-based revenue;
> Improving service performance in terms of initial surveys of user satisfaction;
> Developing indicators and procedures to monitor and optimise the service;
> Minimising the costs of redistributing bikes.

**OBIS Activities**

Within OBIS, the following activities were supported:

> Customer satisfaction monitoring;
> Utilisation monitoring;
> Development of implementation concept for new stations;
> Development of redistribution concept;
> Improvement of scheme accessibility (improvement of bike/slot availability, improvement of iBicing App).

**OBIS Impacts**

The following overall developments were supported by the OBIS activities:

> Stabilisation of user/subscription level;
> Decrease of redistribution costs;
> Improvement of overall customer satisfaction level;
> Increase of user-based revenue by introduction of increased subscription prices.

**OBIS Activities**

Within OBIS, the following activities were supported:

> Analysis of user surveys: Three user surveys were conducted in December 2008, 2009 and 2010. The resulting data have been analysed and reported in five master theses at KTH, Technische Universität Berlin (TUB) and École Polytechnique Fédérale de Lausanne (EPFL), and presented at one seminar at KTH and three Swedish conferences (except for the conferences arranged by OBIS – in Milan, Berlin and Prague): two Vinnova programme conferences in Stockholm, and Transportforum in Linköping in January 2010. The results have been shared with Clear Channel, the Traffic Administration of Stockholm and other bike sharing stakeholders in Sweden. The experiences from the demo have also been transferred to another project, which aims at setting up a BSS in Örebro.

> Analysis of BSS potential for companies with the help of the CERO database: The results from these surveys were used within the companies to inform the management about the employees’ travel habits and travel distances, as well as their preferences and restrictions, to set internal travel plan targets. The surveys were complemented with investigations on the internal costs for different travel modes, in order to formulate cost-effective incentives to reach those targets. For example, for a given CO₂ emission reduction target, the number of trips needed to be changed to a less emission-intensive mode are listed, by each

**Stockholm**

The Stockholm BSS is operated by Clear Channel under a publicity-revenue model. It has had a varying number of bikes depending on the year and the season – ranging from 125 to 1250 bikes at 74–91 stations during 2008–2011. The focus of the OBIS-study concerned the potential use of bike sharing for both commuter trips and business trips, at a number of large companies and other organisations in Stockholm and in a few other cities in Sweden. In order to gather data for this analysis, two databases were used:

1. A user survey from the bike-sharing scheme in Stockholm, which has been conducted annually at the end of the last three seasons (2008–2010).
2. A large database available from CERO, which is a target-oriented travel planning model developed at KTH (Robèrt, 2009), now applied in about 30 large companies, municipalities, county councils, and other organisations in Sweden. This database incorporates specific attitude and preference aspects regarding bike-sharing and bike commuting, as well as general socio-economic and work-specific factors.

The Swedish Transport Administration and the Energy Agency in Sweden have supported a number of municipalities and other public authorities to engage in CERO which has improved the quality and usefulness of the data-base. Examples of some of the large companies included in the CERO database are e.g. Europe’s largest transport company Posten/Post in Sweden and Denmark, the energy utility Vattenfall, Swedbank which is one of Sweden’s largest banks, the pharmacy company Apoteket, the

---

1. “Climate and Economic Research in Organisations”
Activities and Results

mode the trip is changed to (among which one could be bike sharing, possibly in combination with public transport). Together with the information on cost reductions, the best alternative modes can be chosen that should be encouraged by the management.

> Analysis of the city planning perspective: In some cases, the measures of the companies themselves are insufficient and need the support of the public authority. These cases include for example the location of bus stops, cycle lanes, bike sharing racks, or other public infrastructure. Many city administrations, both in the Stockholm area and elsewhere, are also participating in CERO mobility management, as the municipality itself is often the largest local employer. These cities are thus becoming increasingly aware of the importance of both soft and hard measures to influence the mode choices of both employees and citizens.

> Development of potential and perspectives for BSS use in companies and for commuter trips: By the analyses of the user surveys and the CERO database, some common characteristics and prerequisites among potential users have been identified, but also constraints and barriers related to, for example, public policy and planning, personal preferences, or complex, multidimensional choices. Some of these results were already known in the literature on general cycling and the choice of transport mode, while some are new and only related to the design of bike sharing systems for optimal usage.

**OBIS Impacts**

The following overall developments were supported by the OBIS activities:

> Number of rentals is increasing each year, and reached 338,000 in 2010, an increase by 54% from 2009;

> Number of regular users (seasonal cards sold) has increased from 4,600 in 2008 to 7,900 in 2010, an increase of 70% in two years; the short-term users (3-day cards) increased from 8,400 to 13,000 (54%) in only one year, from 2008 to 2009.

> Ongoing scheme expansion (currently 91 stations and around 1,100 slots).

**OBIS Partners Involved**

> KTH

**Czech Republic**

The Czech Railways have experienced a considerable development of bike tourism recently. In the past they have responded to this trend by diversification of service for cycle tourists. Rail bicycle transport is a current topic and simultaneously interest in using the services of bicycle hire at the Czech Railways has increased. A countrywide network of bicycle hire services has been implemented at chosen railway stations for the last three years. Czech Railways, the operator of this system, was planning to cancel it after two years. Fortunately, a complete network has been maintained at least in the South Bohemia region. Around 200 bicycles are provided at 13 train stations in the South Bohemian region at present. The system allows the users to return bicycles to 14 stations or to pick them up elsewhere according to prior agreement. Since August 2010 the bicycles can be rented not only for tourism but also to be used as public transport in district towns.

**OBIS Activities**

Within OBIS, the following activities were supported:

> Implementation of electronic order system to book bicycles via internet or telephone (2010);

> Fast booking service for bicycles in the area (254 reservations were processed in the period from April 2010 to August 2011);

> Establishment of the „Call bicycle rental centre’(144 customers were served);

> The final OBIS conference was held in the Czech Republic to present the project results to the public and promote the idea of BSS in the new EU member states. Additionally it was important to provide the opportunity to present and discuss specific Czech topics. Thus additional external presenters were invited.

A total number of 90 attendees from all over Europe joined the conference in the Czech Ministry of transport. Delegates heard all about the OBIS project and the successes and learning points relevant to public bike sharing which have emerged during the three years of the project.
The following overall developments were supported by the OBIS activities:

> ČD Bike system: 813 bicycles were rented at the 13 hire stations from April 2010 to August 2011. To promote the BSS as daily modes of transport, short-time rentals were promoted. 115 bicycles were rented during the observation period; most in the town Třeboň. The South Bohemian region became a good example for other regions of the Czech Republic. Currently CDV monitors the development of the system in three other regions: The Pardubice region, the Karlovy Vary region and the Vysočina region. New feasible solutions for the development of the system were explored and found. A new BSS site was proposed and implemented on the base of a contract between a municipality and the ČD. This system is inaugurated in Kroměříž; it will be further monitored and recommended in other towns.

> Marketing activities: OBIS helped to bring out the importance of additional marketing activities for the ČD Bike system. The BSS was promoted in the regional timetable with 40,000 leaflets and 350 posters.

> HOMEPORT system: In 2005 the city of Prague introduced an automatic BSS called Homeport with 30 bikes at 16 stations. This system has been studied during the OBIS project. In April 2011 the primary first Homeport system version in Prague - Karlin was replaced by the completely new generation. New Homeport bikes with a modern design are now available at eight stations. Since 2011 the Homeport system has been adapted for the use of bicycles with an auxiliary electric motor “Homeport Electro”, as well for freight bicycles “Homeport Long John”.

### OBIS Partners Involved

> CDV

#### 2.2.3 BSS Implementation and Expansion

### London

On the 30th July 2010, London launched a central London Bike Sharing Scheme known as Barclays Cycle Hire. Phase 1 of the scheme covers an area of approximately 40 km² within central London, covering the entire City of London and parts of eight London boroughs and some of the Royal Parks.

It opened with 315 docking stations based approximately every 300 m with a total of 5,000 bikes (by the end of Phase 1 in Spring 2011 the number of stations and bikes had increased to 6,000 bikes and 400 docking stations). The scheme was initially launched to registered users but since 3 December 2010 has been open to casual users too.

Membership is available for single day, weekly or annual periods. Registered users are issued with an access key (cost £ 3) whereas casual users are provided with a pin code for use on the docking stations. The first 30 minutes of a journey is free with an escalating payment scale after this period.

London is the first major BSS to have a single corporate sponsor. Barclays have agreed to a 5 year contract to sponsor the scheme.

Phase 2 is currently in the planning phase and will be implemented during 2012. The second phase will add 2,000 bikes and 4,200 docking points within the expanded zone.

#### OBIS Activities

Within OBIS, the following activities were supported:

> Knowledge transfer and regular progress information: Regular updates about the implementation status, usage figures and overall developments were provided for the OBIS consortium as well as
for external stakeholders. Findings gained in the planning and implementation process were provided for the OBIS Handbook and further project material.

**OBIS Impacts**

The following overall developments were supported by the OBIS activities:

> Implementation and expansion planning of Barclays Cycle Hire scheme;
> Wider publicity about the benefits of BSS schemes as, where appropriate, it enabled publicity about the London scheme to link with OBIS providing a European dimension and broadening people’s awareness of different ways of implementing BSS schemes.

**OBIS Partners Involved**

> TfL;
> CTC.

**Lower Austria**

The scheme FREIRADL operated from 2003 to 2009 in about 73 towns in Lower Austria. The system required staff for hiring bicycles. Most towns were provided with only one station, which was normally a depot in a representative building e.g. a town hall. The rental was for free.

The Leihradl-nextbike pilot project was launched in April 2009 in a small agglomeration of seven towns close to Vienna (which operates its own BSS) as a technological upgrade of Freiradl which was disbanded at the end of 2009. The user is charged € 1 per rental hour and € 5 per rental day. The new scheme offered 180 bicycles at 32 stations in 2009. Rental is automated, with phone-based access instead of manual pick up.

After the pilot project’s good results, LEIHRADL-nextbike was expanded to 650 bikes at 163 stations in 62 towns in 2010.

The system focused on the improvement of the interconnection between the BSS and the railway network. As a result of the collaboration between ÖBB (Austrian Railways) and LEIHRADL-nextbike, many BSS stations were located close to railway stations.

The Vienna University of Technology carried out research within the framework of the OBIS project to analyse the transition between FREIRADL and LEIHRADL-nextbike. The goal of the research was to find out the effects of the evolution of the BSS from a manual system to an automatic system in rural areas.

**OBIS Activities**

Within OBIS, the following activities were supported:

> Three telephone surveys in 2009 comparing bicycle ownership, public awareness, usage, trip purpose, impact on cycling, combination with public transport, barriers, satisfaction of users and willingness to pay with the respective service for FREIRADL and LEIHRADL-nextbike. The first survey took place between February and July 2009 and it comprised 1,078 random interviews in 20 towns where FREIRADL was implemented. The second one was carried out in the framework of the pilot project of LEIHRADL-nextbike in September 2009 with 195 random interviews in seven towns. The third survey was a specific user survey and 40 registered users of the pilot project of LEIHRADL-nextbike were interviewed in October 2009.
> Study of operational LEIHRADL-nextbike data analysing usage, usage development, duration of rents, origin and destination of routes, usage throughout the week, trip purposes in different operating areas and impact of pricing.
Activities and Results

OBIS Impacts

The following overall developments were supported by the OBIS activities:

> Implementation of the LEIHRADL-nextbike pilot scheme with 180 bikes at 32 stations: the scientific support of the Vienna University of Technology and the project OBIS encouraged the operator of bike-sharing in Lower Austria to undertake a technology development from FREIRADL to LEIHRADL-nextbike.

> Expansion of the LEIHRADL-nextbike scheme to 650 bikes at 163 stations: The results of the three telephone surveys carried out in 2009, especially the ones dealing with user satisfaction, barriers and willingness to pay, contributed to know the opinion and characteristics of bike-sharing users in Lower Austria. This information was taken into account when selecting the most suitable cities for the expansion of the scheme.

> Improvement of BSS-PT integration: The three telephone surveys carried out in 2009 revealed the great potential of bike-sharing in combination with public transport in Lower Austria. This conclusion encouraged the bike-sharing operator to increase the physical and price integration. Numerous bike-sharing stations at the expansion of LEIHRADL-nextbike were located close to railway stations and price reductions were offered for railway card holders (ÖBB Vorteilscard).

> Introduction of 30 minutes free of charge for each ride in the region of Mödling: The usage fee of the pilot project was € 1 per hour and € 5 per day. The results of the telephone surveys concerning opinion and willingness to pay of users of the pilot project of LEIHRADL-nextbike revealed that a reduction of price might be recommended to increase usage. As a consequence, the operator of LEIHRADL-nextbike decided to offer 30 minutes for free in two operation regions. The later study of operational data showed that in the regions where the free rental period was implemented the number of rents per bicycle and usage of the bike-sharing scheme for daily mobility increased while leisure mobility decreased.

> Advice for operator concerning optimisation of the scheme: The number of rents per bicycle is an indicator of optimisation of usage of a bike-sharing scheme. Changes in the scheme, e.g. using fee, technology, etc., may have influence on usage. The study of the pilot project of OBIS in Lower Austria has analyzed the value of this indicator during the operation of FREIRADL and LEIHRADL-nextbike. This study has provided useful information for the operator to monitor the development of the scheme avoiding negative impacts on usage.

OBIS Partners Involved

> TUW

Poland

The Demonstration was intended to complement the existing public transport network in the city of Tczew with a bike sharing system in a year of celebration of the 750th anniversary of the city. It was supposed to strengthen the message that the city of Tczew is aiming to become a leading cycling city in Poland. The demonstration was also supposed to show the possibility of using the public bikes with a single city...
Further Information 2.2

Report: Optimising Bike Sharing - Results and Recommendations (2010)
Fact Sheet: Optimising Bike Sharing (2010)
Optimising Bike Sharing in European Cities – A Handbook (2011)
Presentations: www.obisproject.com
--> About OBIS --> Project Meetings

2.3 Knowledge Transfer and Awareness Raising

The dissemination of the OBIS results, knowledge transfer within and outside the project and an open dialogue with externals was essential for the positive impact of the project on the overall awareness and perception of cycling and bike sharing. Communication and dissemination activities were thus one central part of OBIS.

2.3.1 The OBIS Handbook

The main result of the project - “Optimising Bike Sharing in European Cities - A Handbook” - presents interesting facts and figures from bike sharing schemes in ten European countries. Scheme characteristics such as technology, scheme size, service design etc. are described in connection with external factors of the cities. Finally the handbook gives comprehensive advice for all three stages in the lifetime of a BSS: Planning, Implementation, Optimisation.

The handbook is useful for local, regional and central governments involved in traffic issues, bike sharing providers and other companies and organisations related to bike sharing (such as providers of street furniture, outdoor advertisers, municipal parking operators), public transport operators, urban planners and cycling organisations.

To maximise the coverage of the handbook, it was produced in all project languages and as electronic version in the project languages plus Romanian, Slovenian and Russian. It is available online, as CD Rom or as print version disseminated by different stakeholder groups in the respective OBIS countries.
Further Information 2.3.2

All conference presentations are available on the OBIS Website

www.obisproject.com

--> About OBIS --> Project Meetings

2.3.2 Project Conferences

Three public conferences were held by the OBIS team during the three project years. Those conferences gave the team the opportunity to share the OBIS results with relevant stakeholders. Additionally 20 external experts from science, associations, cities, public transport and operators were invited and contributed with presentations to broaden the perspective.

Public conferences were held in:

> Berlin, April 2010;
> Milan, September 2010;
> Prague, June 2011.
2.3.3 Website

A project website (www.obisproject.com) is the main information portal for stakeholders around the world and will stay online until August 2013.

The Project Website provides:

- Project key facts;
- Project participant information;
- Work plan information;
- Project results and documents;
- Meeting/ conference descriptions & material;
- Newsletters;
- Bike sharing links.

The website is accessible in eight languages: Czech, English, French, German, Italian, Polish, Spanish, and Swedish. Around 40,000 visitors were recorded up to the end of the project.

Figure 14: OBIS Website

2.3.4 Newsletters

During the project, stakeholders were informed about the project progress with the help of six newsletters available in the project languages. The OBIS newsletter had more than 200 regular subscribers.

- Issue 1: Press Release with general project information;
- Issue 2: First project results after one year of OBIS;
- Issue 3: Berlin conference report;
- Issue 4: Milan conference report;
- Issue 5: One decade of bike sharing 2001-2011;

Further Information 2.3.4

All newsletters are available on the OBIS Website
www.obisproject.com
---> News --> Newsletters

2.3.5 Further Dissemination Materials

The OBIS team produced several dissemination materials as electronic versions and hardcopies for distribution among relevant stakeholders at conferences, meetings or via existing networks.

Basic project information was provided by a leaflet covering all project languages.

A national leaflet on bike sharing was produced by the Czech partner CDV. This leaflet contains broader information on bike sharing in general as the topic needs special dissemination efforts in Czech Republic.

Figure 15: Bike Sharing Leaflet (CDV)
2.3.6 Other Dissemination Activities

The OBIS results were not only disseminated with the help of the produced project materials and the website but mainly with the help of external conferences, existing networks, other websites, blogs, newsgroups, magazines, newspapers and scientific publications. Some examples can be found below.

International conferences:

> Velo-City 2009 Brussels, 2010 Copenhagen, 2011 Sevilla;
> ECOMM 2010, Graz;
> EcoMobility Congress Changwon 2011.

National and regional conferences:

> Czech Cycling Conference 2009, Prague;
> National Cycling Conference 2009, Berlin;
> “Fa’ la Cosa Giusta” Fair 2009, Milan;
> Cycling Conference 2009, Lower Austria;
> Promoting Health Through Cycling 2010, Bolton;
> Polish Active Mobility Congress 2010, Gdansk;
> Czech Cycling Conference 2010, Brno;
> Cyclenation 2010 Conference, Scotland;
> Radlgipfel 2011, Salzburg.

Networks:

> IEE Info Days 2009 Torun, Berlin;
> IEE Project Report Brochure Issue 5 2009;
> IEE News review Issue 5 2009;
> Impacts Network meeting 2009, Berlin;
> Dialogue with EPOMM/ ELTIS networks.

Newsletters & Network Publications:

> CTC;
Figure 16: External Dissemination Sites (screenshots)
3. Objectives and Lessons Learnt

3.1 Analysis and Research

OBIS aimed to analyse the bike sharing market in ten European countries to provide relevant stakeholders with key figures of the included schemes. The intention was to identify the “best schemes” and to analyse transferability.

Lessons Learnt

Bike sharing schemes, being a relatively new phenomenon, bear many optimisation potentials. As data and business figures are hardly available, optimisation approaches are hard to find. Cities do often play a key role for bike sharing and they often pay considerable shares of the costs. Thus they are in the position to articulate specific information requests to operators and providers;

Data requirements do often differ from site to site and thus comparability of data sets is not always given. The long-term solution to these data problems is to:

> Put more effort on the definition and collection of standardised data. In terms of assessing behaviour change it is particular important to standardise the way in which questions are asked to users;

> Define in detail the data to collect, i.e. purpose, origins and type (number or vehicle-km) of trips for mode shares, relevant city boundaries for population and employment, length of total road network vs. cycle network, etc.;

> Collect data on failing systems;

> Follow up on the BSSs included within OBIS in future research projects.

To measure success and to identify the best BSS concept for the respective city turned out to be one of the most complex tasks within OBIS. Matching framework information of a city (such as socio-economic data, topographic data) with BSS features cannot be done easily. All results and the success measurement approach developed within OBIS serve as a tool for individual analyses within a city.

Some main findings in terms of BSSs characteristics, targets and success are:

> Bike sharing means different things in different cities, depending mainly on size and traffic context (mode share for non-motorised modes, existing cycling infrastructure etc), but also on the aim of the system (commuting or tourism, urban or regional), and the initiator (municipality, private company, or independent association/NGO). Local characteristics like climate, hilliness, and cycling tradition all play roles in how a system is implemented and whether it succeeds or not;

> If the aim is to maximise the use of the BSS, the most important factor is density and availability of stations/bicycles. User fees do not normally cover more than a small share of the expenses of a BSS; therefore, additional funding is necessary. The expenses rise rapidly with the intensity of redistribution of bicycles, within the system, therefore also from this point of view it benefits from a high density and relatively large stations (i.e. many bicycles per station).

3.2 Optimisation of Schemes

The practical elements of OBIS - the “Demonstration Projects” - comprised a large variety of approaches such as new technologies, operational concepts or the evolution of schemes. The Demonstration Projects themselves took place outside OBIS and could therefore hardly be influenced by the consortium.

Lessons Learnt

The experience gained during monitoring of the Demonstration Projects helped to develop a large number of useful hints for relevant stakeholders. Those hints and practical information can be found in various OBIS reports and in the Handbook. Some lessons learnt are:

> The difficulty of expanding systems (the slow process of getting permissions for the installation of new stations) indicates that the initial size of
the scheme should not be too small to avoid necessary expansion steps;
> Progressive implementation with user waiting list can avoid early demand/supply problems;
> Optimisation of service levels can only be addressed if enough data – including end-user satisfaction indicators - is collected and assessed. Customer surveys are a necessary tool to improve user processes and overall service quality;
> The development of new station technologies (WiFi, RFID) can reduce implementation efforts, implementation costs and speed up the overall implementation process;
> Willingness for support increases if city administrations are involved in the planning and implementation process for a BSS;
> Cooperation with PT providers, car sharing operators and others provide the basis for integrated mobility products. Therefore both, the technical and operative preconditions have to be established;
> Regional BSSs linked to railway stations increases synergies between small cities so that attractiveness of bike sharing for tourism and even for commuting increases.

3.3 Policy Recommendations

BSSs mostly depend on the willingness and ability of politicians and decision makers to support the schemes with appropriate instruments.

Lessons Learnt

Some policy recommendations made by the OBIS consortium:

> With the increase in systems on the market, knowledge about BSSs grows in places where the systems have been implemented, but this knowledge is not automatically transferred to cities without a BSS. Therefore it is essential to share experiences and knowledge. Cities and municipalities can learn from each other. Therefore, national discussion and information forums with the support of national transport and urban development ministries should be created;
> Grants can help in implementing BSSs. They help to cover high infrastructure investments or part of the running costs, especially in smaller cities.

However, a critical view of the costs and outcomes of the BSS is necessary. Therefore, grant funded schemes should be monitored and evaluated;
> The number of bikes in the system depends on the size and expected demand in the area targeted.
> BSSs are not the panacea for urban and regional transport problems. To unlock their full potential, they must be embedded in a comprehensive cycling and transport strategy. Cycling infrastructure, bike sharing, communication campaigns, PT strategies, and planning for roads and parking should all go hand in hand.

3.4 Communication

European projects involving main stakeholders boost the visibility and importance of bike sharing. Especially for those partners located in countries with only few bike sharing initiatives, the OBIS project provided great opportunities to get in touch with relevant stakeholders.

Lessons Learnt

> BSSs have found their way to mass media. They are subject of articles and discussions. This (mostly positive) media coverage can be used to promote the overall BSS and cycling image of a city or a region;
> The OBIS project was a forerunner for BSSs conferences. Three events, covering all BSS-related issues were organised by the consortium. This has proven that there is need for discussions. More and more organisations now offer BSS-related events.
Choice GmbH is the coordinator of the OBIS project. The company was founded in 1998 by the Social Science Research Centre Berlin (WZB) amongst others. Choice is an independent research, consulting and development company with a focus on bike sharing, E-Mobility and intermodal concepts.

Altran is a multinational company, providing global business solutions, strategy, engineering and development of technology applications focused on innovation. Created in 1982, it is today the European leader in Innovation Consulting. Altran Group is present in over 26 countries and has a team of more than 17000 consultants covering all fields of engineering and consulting. Altran has been present in Spain since 1993, specialising in Innovation Consulting, Engineering and Technology, Organization and Information Systems, and Strategy and Business.

Barcelona Municipality acts as the traffic authority for the urban area and published its first Cycling Master Plan in 2006. The Mobility Department coordinates and executes mobility projects defined within the Municipal Action Plan, covering all modes of transport. Since 2007, it has promoted an innovative Bike Sharing System called Bicing.

The Berlin Senate Department for Urban Development (SenStadt) is part of the administration of the Federal State and City of Berlin, responsible for an integrated urban transport policy. The new Urban Transportation Plan (StEP Verkehr 2025), focussing on improving energy efficiency in transport and the protection of the urban environment, was adopted by the Senate of Berlin in April 2011. The new Berlin Cycling Strategy was adopted by the Senate in November 2010.

Car Sharing Italia (CSI) manages different car sharing services in Italy. CSI parking areas are strategically located near PT hubs to encourage commuters to use the existing PT infrastructure, and thus reduce pollution. CSI was replaced by FLI in September 2010.

CETE de Lyon (CETE) is an agency of the French Ministry of Ecology, Sustainable Development, Transport and Housing. CETE works for central government offices, local authorities, semi-public and private companies. The main activities are engineering studies, inspections and tests, research and methodology and consultancy and assistance.

CTC – the UK’s national cyclists’ organisation, has 70,000 members and supporters and is the oldest and largest cycling body in the UK, established in 1878. CTC provides a comprehensive range of services, advice, events, and protection for members and works to promote cycling by raising public and political awareness of cycling’s health, social and environmental benefits.

The Czech Transport Research Centre (CDV) has more than fifty years tradition of research and development. The institute is under the responsibility of the Ministry of Transport. Its missions are to provide: expert service for the Ministry and the transfer of foreign experiences and knowledge as well as the adaptation of EU legislation to the Czech Republic.
DB Rent GmbH as the mobility service provider of German Railways (German Railways) has been offering its know-how since 2001. DB Rent creates customised mobility from door to door by cleverly linking rail transportation offers and intermodal mobility offers making intelligent, environmentally friendly mobility concepts available to consumers as well as innovative strategies to interlink traffic systems.

Ecoistituto Alto Adige (ÖKI) was founded in Italy in 1989 as a not for profit organisation. Its projects and activities are focused on the promotion of and applied research into ecological innovation. ÖKI acts as a consultant for public administrations and private companies, conducts research projects financed by public administrations and implements cultural and educational initiatives.

Fondazione Legambiente Innovazione (FLI) is a part of Legambiente, the most widespread environmental association in Italy, with 20 regional branches, about 1,000 local groups and more than 115,000 members and supporters. FLI promotes innovation in the environmental field and the distribution of environmentally friendly goods, services and technologies.

MTI Conseil is specialised in engineering and intermodal management assistance work in areas related to issues of local transport. This structure employs forty full-time consultants. The entire staff consists of engineers, economists, transport experts, urban development specialists, sociologists and marketing experts. Transport experts, geographers trained in territorial analysis, cartographers and computer specialists form a multidisciplinary team.

The Pomeranian Association Common Europe (PSWE) is a process and project oriented non-governmental organization having as its primary aim the development of Pomerania, Poland, based on the use of new technologies in connection with promotion of active mobility, healthy life style and protection of the natural environment. The organization is involved in activities of a number of international networks, such as: the European Cyclists’ Federation (ECF) and the ‘Cities for Mobility’ (CfM).

The Royal Institute of Technology (KTH) was founded in 1827 in Stockholm. The university has extensive international research and educational exchange programmes with universities and colleges, mainly in Europe, the USA and Australia, but also increasingly in Asia. KTH participates actively in various EU research programmes and also cooperates with Swedish and international development agencies.

Transport for London (TfL) was created in 2000 as the integrated strategic body responsible for London’s transport system. The primary role of TfL, which is a functional body of the Greater London Authority, is to implement the Mayor’s Transport Strategy and manage transport services across the Capital. TfL is, among others, responsible for London’s buses, the Underground and also for the new BSS Barclays Cycle Hire.

The Vienna University of Technology (TUW) was founded in 1815 and currently it has eight faculties and around 70 Institutes. The Research Center of Transport Planning and Traffic Engineering has particularly wide ranging experience in the field of modelling, methodology development and assessment of transport policies. Several integrated planning and management measures have been applied or studied in pre- and post analyses for many cities.