

Dear reader,

since the first large-scale urban **bike sharing scheme in Copenhagen** in 1995, bike sharing has steadily grown. In 2007, the concept boomed after the start of **Vélib'** in Paris and **Bicing** in Barcelona and has now spread to many Eastern European countries, Asia and the Americas. We decided to this time make a very long e-update with two parts. First we provide an overview of recent developments and the current state of the art. At the end of the e-update we provide additional background information on the history of bike sharing (including an explanation of the first three generations of bike sharing), the fourth generation of bikesharing and the many different operators on the market. You might prefer to read [that part](#) first.

Bike sharing conquers Eastern Europe



Source: www.eltis.org

MM slowly takes root in Eastern Europe, and bike sharing is one of the success stories, as it is implemented in more and more cities, here some examples:

- Poland: **Veturilo** in Warsaw (Nextbike, June 2012); and Cracow is planning to upscale its 2008 **BikeOne** (PL) scheme from 120 bikes to a citywide, more convenient system ([read more](#)).
- Slovenia: Ljubljana's **BicikeLJ** attracted 16,200 users in just 2 months (JCDecaux, 2011).
- Albania: **Ecovolis** in Tirana – personnel-operated, 40 bicycles and 4 bike stations (March 2011).
- Slovakia: **tender offer** for a Bratislava Automated Bike System.
- Romania: **Cyclotheque** in Bucharest; “**I love velo**” in five Romanian cities (2010).
- Czech Republic: **Homeport Prague** includes electric bikes and cargobikes.

Does bike sharing work in every city?



In the **OBIS Handbook**, cities interested in implementing a bike sharing scheme can learn from the critical success factors identified from the analysis of 51 bike sharing schemes from 10 European countries. According to **OBIS**, climate and cycling modal share are the main factors that determine the appropriate scale and set-up of the bike sharing system to be chosen. Although bike sharing is not a viable option for every city, bike sharing is possible in the most diverse settings.



Vélib Paris - Picture by Quinn Dombrowski

Bike sharing in Paris, London, Barcelona, Lyon, and recently, **Mexico City**, has shown that bike sharing can create a cycling culture and give a boost to investments in cycling infrastructure in big cities with lots of car traffic. Generally, usage rates are higher in countries without a cycling tradition. Cities with a modal share for cycling less than 2,5% had almost triple the amount of rentals per bike compared with cities with a cycling share between 2,5% and 5% and about 14 times more than cities with a cycling share above 5% (**OBIS Handbook**).

Dublin's scheme, with **13 (!) rentals per bike per day** one of the most successful bike schemes in the world, is the living proof that bike sharing also works in cities with quite some rainfall. Cold cities (average temperature below 11 °C) are more likely to close down the service for the winter or to limit the availability of bicycles. In warmer cities, rental peaks are less high and occur more in springtime and fall (**OBIS Handbook**).



Véilvert France - Picture by Daniel Villafruela

Next to very dense urban bike sharing networks, there are also regional schemes with lower station density and longer rental periods (often targeted to tourists). **Usedomrad** (DE) in Germany even has some stations across the Polish border. In 2011, Vélib' in Paris introduced a new subscription formula called **Vélib' Passion** for commuters to the suburbs, whose trips often exceed the first free 30 minutes. For a higher subscription fee, 39 euros in stead of 29, they have 45 minutes for free for each trip. Together with the new reductions for youngsters, this new offer has generated a 45% increase in the number of subscribers in just one year.

In sum, bikesharing is an extremely successful scheme - have a look at the [Bike-sharing](#)

World Map. In Italy alone, EPOMM-partner Euromobility has counted 153 projects (see [state of the art presentation](#) in Italian). Euromobility is also leader of the Club Bike Sharing Cities in Italy - that has made an [analysis](#) of the costs of Bikesharing in 7 Italian cities.

How much does it cost?



Barclays Cycle Hire Scheme London

If bike sharing is considered as an extension of the public transport offer, it is a relatively inexpensive investment. Analysis in Barcelona showed that bike sharing schemes in big cities (> 0.5 million inhabitants) should at least have 500 bikes to serve the users' daily mobility needs. For large-scale station-based systems, infrastructure and implementation costs are estimated at 2,500 to 3,000 euros per bike. Running costs on average vary between 1,500 and 2,500 euros per bike and per year. 70% of implementation costs goes to the building of the stations, hence the rise of stationless systems (see below). **Social Bicycles** founder Ryan Rzepecki claims that his system lowers start-up costs to less than 1,000 dollar per bike. User revenues hardly ever cover operational and investment costs, so additional funding is needed.



Vélib casualty - Photo courtesy by Denis

Theft and vandalism are two major money-eaters. In Paris 7,800 bicycles have disappeared in the first two years of implementation and another 11,600 had been vandalised. Vélib' bicycles are quite expensive to replace (400 euros). In 2009 a large-scale campaign reminded the user that "Breaking a Vélib' is easy, it cannot defend itself!" resulting in three times less vandalism and theft in 2010. In Brussels, a quarter of operational bicycles were stolen in 2011 and even one third in 2010, but 70% of stolen bicycles were found again. Hangzhou on the other hand has low theft and vandalism rates, probably because of its inexpensive bikes (50 euros) and its high density of bicycles, which are free for the first hour. A new source of revenue is their **mascot**, which will be sold as a stuffed toy doll and a pin.

The impact of bike sharing



Vélo'v Lyon - Picture by Frédéric Bonifas

Success of a bike sharing scheme is not easy to measure, as it depends very much on the viewpoint of different stakeholders. In terms of usage rates per bike, Dublin is probably king with 13 rentals per bike per day. As for service quality, Vélo'v in Lyon was recently proclaimed as the **best out of 40 European bike sharing systems** in 18 European countries.

Millions of kilometres are travelled on shared bikes every day. But it is not exactly clear how much of those kilometres replace car trips. Vélo'v in Lyon, France, reports that bicycle use replaced 7% of trips that would otherwise have been made by private vehicles ([more information in French](#)). In Paris, 20% of Vélib' (Paris) users reported using personal vehicles less frequently. Bicycle riding increased by 70% in Paris with the launch of Vélib'. A [survey](#) in London showed that Barclays Cycle Hire in London has prompted three quarters of its members to start cycling or to cycle more in London. The Dutch Cyclists' Union found that 36% of PT-bike clients travelled by train more often because of the PT-bike. Most PT-bike trips however replace bus, train, tram and walking trips.



Vélib Paris - Picture by KTo288

Cost-benefit analyses should include the creation of green jobs through bike sharing: 10 to 30 jobs for smaller schemes and up to 30 to 50 jobs for large schemes (the [Bike-sharing Blog](#)). [Bicing Barcelona](#) (CAT) even employs an impressive 230 people. To estimate the environmental impact, one has to take into account emissions from redistribution and service traffic and energy consumption of bike sharing stations as well. A [small study](#) (FR) of French bike sharing systems concludes that overall, bike sharing has a good socio-economic balance of costs and advantages, on the condition that bicycles are used several times a day (which is not always the case in small-scale schemes). A [recent study of Spanish schemes](#) showed that more than half of the schemes do not meet that requirement. The report concludes that the greatest success of bike-sharing seems to be the increased of attractiveness of public transport, the promotion of cycling and the improvement of public health. In contrast, the contribution of bike-sharing to the reduction of car traffic and pollution is still low.

Integration with other services



OV-Fiets The Netherlands - Picture by Maurits90

By integrating bike sharing with other services, costs can be saved while simultaneously enhancing the attractiveness of the scheme. Integration with public transport can be done on three levels: information (e.g. the multimodal [Info-traffic app](#) in Lyon); physical integration with public transport stations (e.g. [Vcub](#) in Bordeaux); and access and charges with one single card and integrated tariffs (e.g. [Navigo Pass](#) in Paris or [Yélo](#) in La Rochelle).

The terminals of bike sharing stations could also integrate additional functions, like vending parking tickets or public transport tickets, signposting for pedestrians (e.g. [Legible London](#)), or perhaps distributing concert tickets or prepaid mobile phone credits (like PT ticket machines in Berlin) or print out directional maps or special coupons for near-by shopping (like the new bike-sharing kiosks in Wuhan, China)?

The Dutch [OV-Fiets](#) (NL) or 'PT-Bike' was conceived as an integrated addition to public transport, owned by the Dutch Railways. It combines elements of both bikesharing and rental services, as it has both automated docking stations and staffed rental offices; full-day rental periods, but without a deposit; and availability at several public transport nodes, but an extra charge for one-way trips. The Belgian railways introduced a similar concept, called [Blue-Bike](#).

And there is more...



Source: www.eltis.org

Besides public, city-wide bike-sharing schemes, there are also schemes limited to one site (e.g. at Aristotle University in Greece), schemes limited to one target group (e.g. [Bikes with ties](#) in Romania), cargo-bike sharing (e.g. in Ghent, both [public](#) and [private](#)), library bikes (e.g. in [Arcata, California](#)) and peer-to-peer bike sharing (e.g. [byke.mobi](#) in the United Kingdom).

Find out more

Must-reads on bike sharing:

- The [OBIS Handbook](#)
- [NICHES Policy guide on public bikes](#) (based on the very first third-generation bike sharing scheme in Rennes, France)
- MetroBike's [Bike-sharing blog](#)
- [Bike sharing videos](#)



Source: www.eltis.org

New MM publication and blog in the Netherlands

Dutch member KpVV has just published "[clever travel: how European cities and regions influence travel behaviour](#)", and a new [blog](#) covering international cases. It is all in Dutch language.



Upcoming events

- **SAFECYCLE final conference**
25 October 2012 – Vienna, Austria
www.safecycle.eu
- **ICSC 2012 – International Cycling Safety Conference**
7-8 November 2012 - Helmond, The Netherlands
fietsberaad.nl

For more events, please visit the [EPOMM Calendar](#).

Background information:

Three generations of bike sharing



White bicycles still in use in Veluwe Nature Reserve -
Picture by Ellywa



click to enlarge

To distinguish bike sharing from more leisure and tourism-oriented rental schemes, the OBIS project has defined bike sharing as “a self-service, short-term, one-way-capable bike rental offer in public spaces, for several target groups, with network characteristics.” (Source: [OBIS Handbook](#))

There have been roughly three generations of bike sharing schemes (see [Bikesharing in Europe, the Americas and Asia](#) by Susan Shaheen et al., 2010):

1. **White bikes:** In 1965, the Dutch anarchist movement Provo launched the idea of public bicycles by planting 50 unlocked **white bicycles** throughout the inner city of Amsterdam. Most of this type of schemes failed due to problems with theft and vandalism, except for La Rochelle’s “vélos jaunes” (1974, now **Yélo**).
2. **Coin-deposit systems:** piloted by **City Bike** in Copenhagen (1995) - Europe’s first large-scale urban bike sharing scheme. These systems were more reliable, but still theft-prone and most of them did not significantly alter mode choices.
3. **Information technology based systems:** users identify themselves through:
 - smart cards - e.g. **Vélib’** in Paris;
 - RFID tags - e.g. in the key-pendants of the **Barclays Cycle Hire Scheme** in London;
 - the purchase of a day or week ticket online or at a terminal; or
 - a mobile phone call or text message to obtain an access code – e.g. **Call a bike** (DE – see [case study in English](#)) in Germany.

The first citywide IT-based system was launched in Rennes, France (1998, **Vélo à la Carte** by ClearChannel– now **LE vélo STAR**). But the major break-through of third generation systems was caused by JCDecaux’ **Velo’v** in Lyon, France, in 2005 (see [video](#)).

Of course, less high-tech systems are still operational today, like these modern **white bikes**, systems with coded keys (e.g. **C’entro in bici** (IT) works with a coded key that unlocks all shared bikes in 102 Italian municipalities), or systems that are personnel-operated (e.g. in **Tirana**, Albania).

It is hard to say just how many bike sharing systems are operating in Europe today, but an estimation is given on this [map of bike sharing systems world-wide](#). In any case, more than 236,000 bicycles are being shared today on four continents. (Source: [ECF](#)) The world’s biggest bike sharing schemes are in China, in **Wuhan** (2009, now 70,000 bicycles, expanding to 90,000 by the end of the year) and **Hangzhou** (2008, now 60,600 bicycles and 2,200 stations), followed by **Vélib’** in Paris (now 23,000 bicycles and 1,700 stations) and **Citi Bike** in New York, which is due to be launched in March 2013 with 10,000 bicycles and 600 stations (find the feasibility study [here](#)).

Bike sharing, the Fourth generation



BIXI stations are non-intrusive - Photo by Euan Fisk



Call-a-bike Germany - Photo by Ralf Roletschek

A fourth generation of bike sharing schemes is emerging to overcome the shortcomings of current systems. The locations of fixed bike stations need to be very carefully planned, especially those that require substantial groundwork. BIXI addresses this issue by using mobile bicycle stations, which can be mounted in half an hour and relocated according to usage patterns (Source: [Wikipedia](#)). Users can also provide useful input for the planning of station locations through [crowd sourcing](#).

Redistribution among stations turns out to be necessary in all schemes with fixed stations and can generate considerable costs and emissions. For an average large-scale bike sharing scheme, redistribution takes up 30% of the budget for running costs. **Vélib’** in Paris uses 20 natural gas powered vehicles. Bixi Montréal has six teams redistributing bikes around the city 24 hours a day, but even then stations in the outer neighbourhoods quickly empty after re-stocking (Source: [Openfile.ca](#)). Customer dissatisfaction can be lowered by providing easy-accessible and real-time information about near-by availability of bicycles or empty stations, e.g. through smartphone apps like **AllBikesNow** by JCDecaux or **Spotcycle** in Barcelona and London. Another option is allowing a small amount of extra free time when a station is full. **Vélib’** users get 15 extra free minutes every time they return their bicycle in one of the less popular **V+ stations** (mostly in elevated places).

Emerging fourth-generation systems are exploring the concept of flexible stations. In Germany, **Call-a-bike** has always been working with flex stations, meaning that users can leave their bicycle at a major intersection and inform the programme where the bike is locked. With GPS tracking a bike sharing system can now automatically follow the exact locations of all its bikes, like in **OPENbike**, one of the winning proposals for the **new Copenhagen scheme** to be implemented in 2013. An example of a ‘smart bike’ which is already operational, is **Velobility**, e.g. in Germany, in Biel’s **velospot** scheme (website in German, but with pictures showing how unlocking does not require a kiosk). Several

GPS-based stationless systems are being developed in North-America too, e.g. [WeBike](#), [ViaCycle](#) and [SoBi Social Bikes](#). This kind of flexibility however raises [questions of accessibility and predictability](#) of the location of available bikes.

Another trend for the future is the incorporation of electric bicycles. [Myloop](#), the other winning proposal for the new Copenhagen scheme, features GPS-tracked electric bicycles that are recharged in a very compact docking station. The bicycles are [attached one on to the other](#), like supermarket caddies, allowing power to run between them. Some new bike concepts even generate energy, like [Hybrid Squared](#) and [GreenWheel](#).

Who is doing what?



Source: www.eltis.org

The OBIS project analysed 51 bike sharing schemes from 10 European countries. They found that the most common contracting approach is to find one single contractor for both infrastructure and operations. However, approximately 27% of the world's bike sharing schemes are operated by local governments (e.g. [Copenhagen](#)). [JCDecaux](#) and [Clear Channel](#) are in charge of 23% and 16% respectively ([Shaheen, 2010](#)).

Several "ready-to-go" systems exist, where a city buys the whole system (infrastructure, bikes, management software and hardware, operational service, staff, etc.) from one supplier. Examples are [Cyclocity](#) by JCDecaux (Paris, Brussels, Melbourne, ...), [SmartBike](#) by Clear Channel (Barcelona, Stockholm, Mexico City...), [Bicincittà](#) by Comunicare in Italy, [nextbike](#) (e.g. Germany, Austria and Poland) and [BIXI](#) by PBSC Urban Solutions in North-America and London. An (incomplete) [list of world-wide systems](#) can be found on Wikipedia. Each system allows some level of customisation in the visual design of the system and its communications, which was found to be an important factor for the success of a scheme by the OBIS project. Other providers offer bike sharing system components, like [Smoove](#).

