Electric car-sharing service - Autolib

Paris, France 🇫🇷

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The first public electric car sharing service started in Paris

The City of Paris, together with the Île-de-France region, was the first major European city, which successfully deployed a public electric car-sharing program. The program, named Autolib, was initiated by the mayor of Paris, Bertrand Delaone who was searching for another traffic option to complement the city's much-acclaimed bike sharing service, Velib [3,6]. Autolib is operated by the Bolloré Group enterprise, which won the contract to develop the service and to supply the area with electric cars and stations. The program started in 2011 with an initial fleet of 250 eco-friendly electric 'Bluecars' [2]. The program today (2015) has more than 3,000 cars operating on the streets of Paris and within the whole region. There are around 860 Autolib stations where users can subscribe, pick up or drop off the cars [8]. As well, there are 4,400 parking spaces and charging points reserved exclusively for "Bluecars". Electric car sharing services greatly contribute to the preservation of the environment and facilitate mobility in the bustling city of Paris. Electric 'Bluecars' are silent and have zero emissions locally, and their affordability and popularity continues to prevent more and more people from buying an own car [1,6].

Country/ City profile

	Country		City	
Population (2014)		66.21 million [11]	Population (2015)	2.34 million (city) [14]
				10.5 million (metropolitan) [14]
Land area (km²)		547,557 [12]	Land area (km²)	105.4 (city) [15]
				2,844 (metropolitan) [15]
GDP per capita (2014, current international $, at purchasing power parity)		38,847 [13]	GDP per capita (2008, US$, at purchasing power parity)	n/a (city)
				56,900 (metropolitan) [16]
Region		Western Europe	Region	Île-de-France/ Inland
City's physical geography	Location	✓ North central France, on the north-bending arch of the river Seine (flooding risk) ✓ Very large urban area, split by the river Seine, framed by two big forests of each side of the city ✓ Relatively low altitude (around 35 m above sea level, with several hills of which the highest is Montmartre at 130 ma.s.l)		
	Climate	✓ Western European oceanic climate (average temperature 5°Cduring the winter and 20°Cduring the summer) ✓ 652 mm annual rainfall		

Initiating context

Paris, together with the Île-de-France region, has an overall population of more than ten million inhabitants. It is estimated that there are around 330 cars per 1,000 inhabitants, while the average daily use of each car is up to 4 kilometres [3]. In order to fulfil France's commitment to reduce greenhouse gas emissions by 20% by 2020,there was a need to reduce traffic congestion along with the number of privately-owned cars (which are parked the vast majority of the time) and to search for more affordable and sustainable mobility alternatives [1,4].

After the great success of the "Velib" bike-sharing program, the former Socialist mayor, Bertrand Delaone, proposed the implementation of another 'individual transport' option for people who don't find themselves in need of a vehicle regularly, but may want to use a vehicle once in a while [5]. His aspiration was to introduce a mobility solution that covers a coherent territory in terms of density and variety of land use and travel needs. The municipalities of the region were consulted and joined into the public institution 'Joint Association Autolib' to

launch consultations with private companies about a public electric car-sharing program [4]. During the initial development of studies and research, there was a lot of scepticism about this project. Still, in 2010, a competition on solutions for the realization of such a project was published and the company Bolloré, which offered the best service package with lower rates and a more humane approach (based on the presence of more than 800 agents and ambassadors serving the project), won over two other bids [4,9].

Project description

The project consists of a full electric car-sharing service, which includes an interconnected on-street infrastructure and a supporting IT network system [10]. The so-called Bluecar, designed in collaboration of Bolloré with the Italian factory Pinifarina, is a tiny bubble shaped four-seater car with three doors. The car has a lithium-metal-polymer battery, can travel up to 250 km and can reach speed of 130 km/h [6]. Charging the car takes four hours. There are around 3,000 Bluecars and 870 Autolib stations spread throughout the region. Autolib is a widespread and a high-density network with more than 4,400 parking spaces [8].

Users can choose from a number of rental packages, with 30-minute fees varying from €4 to €8 depending on the rental plan [2]. To join the service, the users have to complete an online registration process during which passport, driving licence and credit card are scanned and recorded. After the details are confirmed, an electronic membership card is issued. The membership card is actually a badge that enables unlocking of the car or connecting it to the charger [1]. A car can be reserved online or via mobile application, collected for use from any rental station and returned to any other rental station. The on-board computer and GPS system gives the driver all the necessary information from battery life to the location of the nearest Autolib' charging point or parking place and how to get there. Also, it allows car tracking by the systems' operation centre [3].

Implementation process

Besides having strong political support, the project was supported with a clear marketing and communication strategy, which ensured good social acceptance of the service [7,8]. In the middle of 2011, the construction of the Autolib stations began and 66 Bluecars were produced for the preliminary trial period. This lasted for two months. The system officially started in December 2011, with an initial fleet of 250 electric cars and 250 rental stations serving the city of Paris and its 45 adjacent communities. In the beginning, a car availability problem appeared, as the interest in the service was greater than expected. Moreover, there was a temporary withdrawal of 40 cars from service due to vandalism and breakdowns [2]. Regardless of these setbacks, the number of users has been steadily increasing, while the system has been adapted. Nowadays (2015), Autolib operates around 3,300 vehicles distributed over 1,000 stations in 82 municipalities. With around 15,000 rentals per day and 200,000 subscribers, Autolib has been used 2.9 million times since its launch in December 2011 [7].

Projects implementation details [9,10]	
Process	After the planning and consulting phase, in 2009 a public tender for implementing a public electric car-sharing program was announced. In 2010 the offers were received and 3 best candidates were selected for further negotiations. Finally, the Bolloré company won the contract and started with service development, production of cars and construction of stations. After a two-month pilot phase launched in 2011, the project started officially.
Financing	Financing was conceived as a sort of public-private partnership. The Bolloré company, which received significant EIB loans, invested at least 100 M€ in this project. The City of Paris and involved municipalities also contributed financially, particularly by financing the construction of stations and the securing of parking spaces.
Leadership	The project was initiated by the City of Paris together with surrounding municipalities, which joined into a special organisation to implement the project.
Involved stakeholders	**Operators** ✓ City of Paris ✓ 45 municipalities in the Paris Metropolis and region of Île-de-France ✓ BolloréGroup enterprise **Users** ✓ City residents ✓ Tourists

Results

The success of Autolib Paris lies in the provision of an affordable and environmentally friendly service completely integrated with other transportation networks in the region [3]. Since the introduction of this practical service, many people decided not to buy a car, while some even sold the cars they owned. Also, some citizens claim that

they limited the use of their vehicles, particularly for shopping and leisure [6]. At the same time, those that still want to own a car decide more often for buying an electric car as they can jointly use the Autolib charging infrastructure installed all around the region. 6 Moreover, since the Autolib project offers also a renting scheme for private companies, many of such companies decided to hire a required number of Blue cars if requested rather than purchase their own fleet [2].

Altogether, it is estimated that 'the Bluecar revolution´ represents a reduction of around 22,500 vehicles which is equivalent to a reduction of 164,500,000 kilometres driven per year by cars based on fossil fuel driven engines. This resulted in a reduction of nearly 300,000t of CO_2 emissions per year and liberated parking spaces for pedestrians, bicycles and public use [1,3].

Lessons learned

The successful implementation of a public electric car-sharing program in a city as crowded and spatially challenged as Paris proves that it can be implemented everywhere. A relatively rapid expansion of this service in Paris was made possible by the strong support of local authorities, which were committed to the development of car-sharing [8]. In this case, it was the first time that a city manages a car sharing system. [5] Following the success of this service in Paris, Autolib has expanded to Lyon and Bordeaux in France, London in UK and as a small-scale service in Indianapolis in the USA [6]. Not only providing simple transportation services, car-sharing programs have been shown to be able to influence also users habits towards more sustainable practices in general.

References

[1]   Autolib official webpage: https://www.autolib.eu/en/
[2]   Wikipedia, Autolib description: https://en.wikipedia.org/wiki/Autolib%27
[3]   Eurisy (2104),project information: http://www.eurisy.org/good-practice-autolib%E2%80%99-shortdistance-electric-car-rental-network-for-the-paris-region-_39
[4]   Worldstreets, project information: https://worldstreets.wordpress.com/2010/12/20/autolib-paris-bets-big-on-new-carshare-technology/
[5]   Inhabitat, article about Autolib project: http://inhabitat.com/transportation-tuesday-autolib-electric-car-sharing/
[6]   The Guardian (2014), article about Autolib project: http://www.theguardian.com/cities/2014/jul/09/electric-boris-car-source-london-how-work-paris-autolib
[7]   Monomania, article about Autolib project: http://monomania.info/2015/11/24/autolib-not-so-green/
[8]   GIZ,car-sharing report: http://www.sutp.org/files/contents/documents/resources/B_Technical-Documents/GIZ_SUTP_TD12_Carsharing-Services-in-Emerging-Economies_EN.pdf
[9]   Polis network, Autolib implementation: http://www.polisnetwork.eu/uploads/Modules/PublicDocuments/Presentation%20Autolib-London%2020110406-small.pdf
[10] EIB, Autolib financing information: http://www.eib.org/infocentre/press/releases/all/2012/2012-140-france-pret-de-75-millions-deuros-au-groupe-bollore-pour-le-vehicule-electrique.htm
[11] World Bank, country population: http://data.worldbank.org/country/france
[12] World Bank, land area: http://data.worldbank.org/indicator/AG.LND.TOTL.K2
[13] World Bank, GDP per capita, PPP: http://data.worldbank.org/indicator/NY.GDP.PCAP.PP.CD
[14] World Population Review (2014), city population: http://worldpopulationreview.com/world-cities/paris-population/
[15] Wikipedia, land area: https://en.wikipedia.org/wiki/Paris
[16] World Cities Forum, city GDP per capita, PPP: http://www.worldcitiescultureforum.com/cities/paris

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