LES AMIS DE
l'École de Paris
du management

The story of Autolib'

by

■ **Sylvain Géron** ■

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Overview

The Autolib' scheme is a technical and operational success. But is it also a commercial success? All its expectations have been met. This electric car-sharing service which started in Paris and now operates in Lyon (under the name 'BlueLy') and Bordeaux ('Bluecub') is now going global: the latest city where the scheme will be adopted is Indianapolis ('BlueIndy'). Autolib' is a rather risky venture launched by a number of entrepreneurs. They include Vincent Bolloré, who, in line with the five generations which preceded him, took his family's well-known business and decided to invest in sustainable development and technological innovation; and the members of Polyconseil, a small company specialising in telecommunications technology and is known for managing bold projects. With Autolib' and due to the Bolloré group's 'clout' and reputation, Polyconseil has demonstrated its ability to achieve the impossible.

Report by Pascal Lefebvre • Translation by Rachel Marlin

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Autolib' is a rather crazy entrepreneurial venture. It was started by Vincent Bolloré who launched a project to create an electric battery about fifteen years ago. An invitation for tender, launched by an association of communes in the Paris region called the Syndicat Mixte Autolib' (SMA), offered him the opportunity to demonstrate the performance of his battery on a large scale. Once he had won the tender, it was necessary to find the means to rise to the challenge of devising the IT side of this project in under twelve months. This apparently impossible challenge was entrusted to a small company called Polyconseil which I created with my associates in 2001, and which was recently bought by the Bolloré group.

The launch of Autolib'

The Autolib' service was launched for 'beta testing' (the second stage of a software development phase) in Paris on October 2nd, 2011, nine months after Vincent Bolloré asked Polyconseil to work on the project. At that time, there were 66 cars and 33 car rental stations. The day the beta test was launched, the service was still not perfect, but it was the start of what is still the largest urban electric car-sharing scheme in the world, allowing drivers to rent a car at one location and return it to a different location. Other car-sharing schemes have generally not used electric cars, and usually the driver has to return the car to the place where he rented it.

The Autolib' service is available in 66 communes in the Paris region. This number will increase in 2015. Autolib' has more than 200 'ambassadors' (our teams on the ground) and a fleet of 3,000 cars. We expect to add a further 500 cars in 2015 in response to the rapid increase in demand (2 % per week on average). Our cars have covered a total of 80 million kilometres and there have been 8 million rental contracts. We have 900 rental stations (500 of which are in Paris) and 5,000 charging stations (in other words, more than half of all the existing electric charging stations in France). Since each charging station occupies one car parking space, 5,000 charging stations represent approximately 15 kilometres of road space which we had to request from the elected representatives of the Paris region.
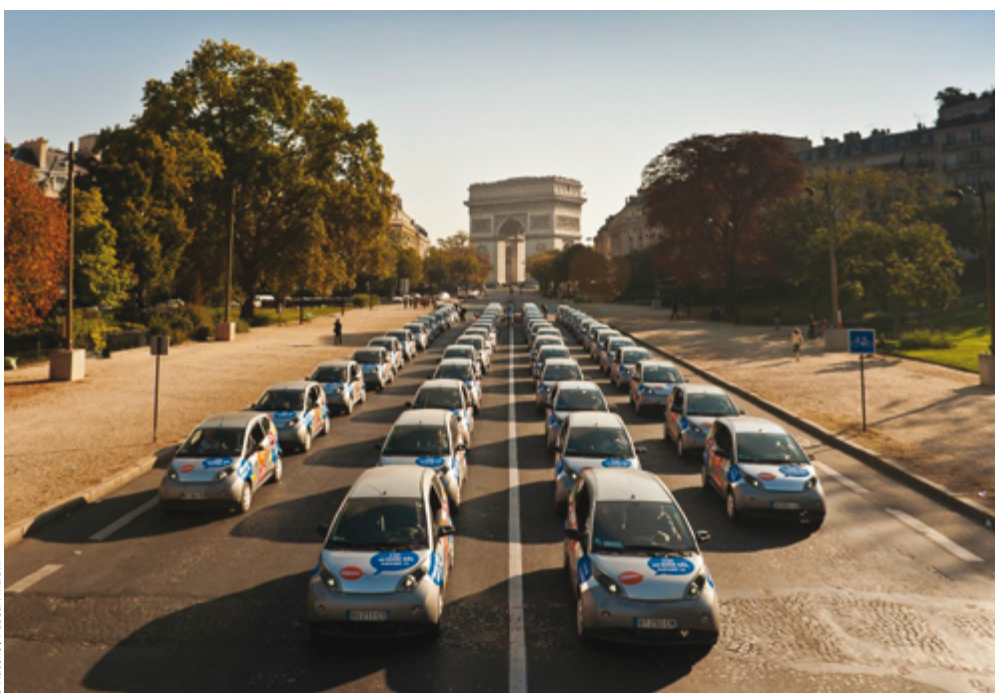
The launch of Autolib', Paris december 5th, 2011

Every day there are, on average, 15,000 rentals, and each car is rented on an average of six times per day. Our cars are therefore very visible to potential clients. We have 70 subscription kiosks. Since Autolib' was launched, more than 205,000 people have subscribed to one of our subscription plans. There are currently more than 72,000 Premium subscriptions (one year membership plans). Studies show that the potential market in Paris is still very far from being saturated.

In conclusion, Autolib' has been a commercial success and has conformed to its original business plan. The financial breakeven point, estimated to be 80,000 Premium subscriptions, will be reached at the beginning of 2015. The service is proving to be viable and may be deployed in other cities in France and around the world. After Lyon and Bordeaux, where schemes began in 2014, we are getting ready to launch a service in Indianapolis (USA) in the middle of 2015. We hope to start a scheme in an Asian city, probably Singapore, and we have met representatives from a number of large capital cities to discuss the advantages of our service in their cities.

Subscriptions

Subscribers to the yearly Premium subscription plan are generally male, but the distribution is moving towards more young subscribers who live within the Paris *Ppériphérique*. Many of them have abandoned their principal or secondary cars. Therefore, several thousand fewer cars have not been bought or resold. The number of cars which we have added in Paris is therefore largely compensated by those which have been removed from the equation because of the existence of our scheme.

Our service is easy to use. It is possible to take out a subscription using a computer, smartphone or subscription kiosk in the street. The driver can transmit the relevant documents, and reserve a car or a parking space thirty minutes in advance. When the driver has the documents in hand, the subscription process only takes 5 to 7 minutes following which the rental starts straightaway.

Even though we only have 3,000 cars today, the technical and IT complexity is the fact that Autolib' is truly a transport service operator. We have to manage clients in the street, cars which have on-board computer systems, stations which require technical maintenance, teams on the ground to assist users, and our call centre. This complexity is, proportionally speaking, rather similar to a transport operator like the SNCF, the French national train operator.

A completely new profession

We had very little time to set up this scheme. During 2010, we helped Vincent Bolloré respond to the invitation to tender launched by the Syndicat Mixte Autolib' which at the time included about forty communes including Paris. The Bolloré group, which was the only industrial operator among the other candidates vying for the tender, won the tender in November of the same year. On February 1st, 2011, Vincent Bolloré asked Polyconseil to manage the IT side of the project. I immediately formed a small team of five people. By March 1st, we had devised the 'Customer Journey' (the stages clients 'travel through' in their relationship with a particular product) and we had started on the IT side with several computer programmers. On May 15th, we launched the invitations to tender for the telecom infrastructures, networks and IT systems. On June 15th, the first 'Proof of Concept' (PoC) demonstration was carried out in a private location and tested the feasibility of renting a car. On October 2nd, there was a pre-launch of the service with 33 stations and 66 cars. On December 5th, the mayor of Paris inaugurated the scheme in the streets of the capital with 250 stations and as many cars. The Polyconseil consultants were exhausted, some even cried from tiredness and others for joy on the day of the launch. We had arrived at the finishing line after ten extremely draining months, and everything had been completed.

Polyconseil was responsible for the entire project, ranging from the development of the IT system, to the telecom infrastructures and for establishing the operational centre with all of its systems and telephony. We also had to interconnect different technical systems with the subscription kiosks, rental and charging stations, and with the cars and their on-board computers. We had to put in place the communication system between the different

ambassadors on the ground and the operational call centre which defines what they have to do and with which they are continually in touch, as well as everything to do with payment, insurance and staff management.

The company IER was in charge of the terminals. It is the leader in this sector and makes ticket terminals in train stations and airports, as well as security gates. We interact with this company because their terminals are controlled by our central system. Blue Solutions, a company which has been working for fifteen years on the Bolloré group's battery, was in charge of the car itself. These companies hardly knew each other before this project started, but have since become closer, and are now part of Blue Solutions, Vincent Bolloré's 'grand project'.

We designed the system architecture for these various interconnections, but the part which required the greatest amount of human investment and brainpower was the design of the central software. Autolib' created a profession which had never existed before, and we had to develop a system which was capable of managing it from scratch. By the time we launched this service at the end of 2011, about fifteen programmers had been working on it for ten months. Today, the system is about twenty times bigger because we have changed from what was just the 'bare essentials' when we started, to what is necessary to operate it today, with all the maintenance, team management, balanced location of its fleet of cars, and the variety of subscriptions plans on offer. It is similar in its diversity to that of a telecommunications operator. This is where the intelligence of the entire project lies : it is possible to change the terminals, the people and the cars, but the central software is the key to the structure. It would take between 150 and 200 man-years of work for someone to arrive at the same result having started from scratch.

Having started with just one person, then five people in the second week, the team gradually organised itself and now looks like the technical team in any large company while still managing to be flexible. The IER and Polyconseil technical teams have merged and I am in charge of this new structure which employs 200 people. They continue to work in order to improve the service, but they also devote themselves to the development of new projects, in particular in cities like Indianapolis where we intend to launch a new scheme.

Born to be an entrepreneur

I began my career at ARCEP, the telecoms regulator, before I quickly realised that it would be much more interesting to create a company instead. Between 1996 and 2000, 150 new telecom operators were created in France and naturally I also wanted to try my luck. I jointly founded the first French ADSL operator, two years before Free, and at this time we had 10,000 clients, twice as many as Orange ! In 2001, our financial backers started having doubts about the future viability of ADSL, and stopped funding us and all our rivals. It was at this time that the Internet bubble burst. In the United States, the Covad group, which had a similar project to ours and was worth $30 billion on the stock exchange, suddenly lost all its value in just a few days, and had to sell back its ADSL infrastructures as fast as possible to operators who today have made a great deal of money from it.

We dissolved our company in 2001 and I was unemployed. Marc Taieb (my future associate) and I received an email from ARCEP which said that it was looking for people who could analyse the quality of mobile networks in France. The following day, we sent out letters to all the general councils (assemblies of the départements) in France) presenting ourselves as specialists in the method recommended by ARCEP. A few days later, we received our first job offers. For the next three weeks, it was 'action stations' and I even got my brother, Aurélien, to come back from Canada urgently to help us to set up this system. At the end of the month, Polyconseil had completed its first network analysis for the Orne *département*. Subsequently, half of all the French *départements* asked us to do the same. Towards the end of our work, we had eighteen rivals, but our head-start in number of clients still gave us a significant advantage.

At the same time, Marc, Aurélien and I created a second company, Wifirst, which provides high-speed WiFi Internet access. Wifirst equipped almost all the state-funded university accommodation buildings in France, and has therefore become a specialist in the deployment and management of networks in student halls of residence. It has also equipped all the bases for French military personnel and some hotels in the Accor chain. These two companies, Polyconseil and Wifirst, eventually became part of the Bolloré group. Between 2003 and 2005, I worked with the government minister Renaud Dutreil to draw up a law regarding business creation. In May 2005,

Polyconseil only employed about fifteen people, and Wifirst had still not generated a great deal of business as is often the case for these sorts of activities initially.

Polyconseil and Bolloré

At this time, Vincent Bolloré became interested in the telecoms sector and particularly licensed WiMAX frequencies which had just appeared on the market. He was looking for a consultancy which could help him acquire these licenses and so he called us. We obtained these licenses for him, and as a result he wanted to become a shareholder in our company. This had a large impact on Wifirst which is an infrastructure company. Having such a financial backer on board was a huge boost to its development and helped the company to get off the ground. It subsequently became the indisputable leader in its sector with more hot-spots in France than either SFR or Orange (not counting private broadband routers). Polyconseil continued to have other important clients as well as Bolloré, such as the SNCF (for which we provided WiFi access in their high-speed TGV trains travelling to Eastern France) and the World Bank (for which we made a strategic analysis report about the possibilities of laying underwater cables in the Pacific Ocean, and which today is a reference in the region). We were in charge of a project laying cables from New Caledonia to Australia, and another from Tonga to Fiji. There is currently a project underway to lay a cable from Samoa to Fiji. These consultancy activities are a long way from Bolloré's core business, and it was only in 2011, when he was considering who could manage the IT part of the Autolib' project that Vincent Bolloré remembered us and entrusted us with this project.

Polyconseil's values are those of entrepreneurs, and the people we recruit must have entrepreneurship in their blood. Whoever tells us that his future is to create a company will almost be hired on the spot! Even though Polyconseil's name has nothing to do with the École Polytechnique, a large number of our employees are graduates of this institution, including Marc Taieb and myself. This gives the company a very 'engineer' and cohesive feel to it. This is the sort of spirit which was at the heart of Autolib''s success. The growth of Polyconseil has been linear, about 25 to 30 % every year for the past eight years, and we currently employ about one hundred people to which one must add the IER staff.

These experiences and the profiles of our consultants have led us to the conclusion that we now have the ability to manage projects from the time that strategic guidelines are given at the beginning until final implementation. We feel that our added value is our ability to offer all the expertise necessary from start to finish of a project. As a result of our work on Autolib', we have gained credibility and recognition, and several industrialists, especially in the automobile sector, have already contacted us for projects.

The Autolib' Customer Journey

The Autolib' Customer Journey incorporates a variety of elements. It includes the subscription, the reservation, the rental of the car, the on-board computer, the client's experience in the car, his contact with the operational centre and, finally, the financial transaction.

In Paris, there are 70 subscription kiosks. Their locations were chosen in accordance with the Monuments de France, the state body which manages the monuments of France's national heritage. Clients can also take out a subscription on the Autolib' website or by using their smartphone. It is a multi-channel experience, in other words one can start the subscription procedure using one of these means of communication, and continue it using another. The technology necessary to implement the subscription process is highly sophisticated, and its most original feature is that clients

An Autolib' and a subscription kiosk

© Autolib'/Pascal Anziani

can enrol via videoconference with a service centre. This is the only form of 'street videoconferencing' which exists in the world, and we had a number of difficulties setting this up with the interbank network in France (Groupement des Cartes Bancaires) because it is not standard practice to take out subscriptions in public places. Consequently, our enrolment operation had to be tested, validated and is now potentially available to other companies.

The procedure is as follows. The client enters the information required using a touch screen. He is then photographed and his documents are digitally scanned. The enrolment process is complete when a RFID (Radio Frequency IDentification) badge is printed out giving the client access to the car. This procedure took me four minutes; but for a person unaccustomed to the procedure it takes about seven minutes. This is a truly technical achievement and a large part of our subscriptions continue to be taken using this method. Visual contact is therefore very useful in developing this service commercially. The Autolib' website looks like any other subscription website. It is also possible for clients to take out subscriptions using our app. Unfortunately the client cannot print out the badge using this method, but it is sent to him within forty-eight hours unless he wants to go to a kiosk in the street and print it out there. Half of our subscriptions are made using the kiosks. The rest are made via the Internet: one third of these are completed using the kiosks, another third receive the badge in the post, and the remainder are subscription requests which have not been successfully implemented, representing a certain loss which we are trying to reduce. Nonetheless, we think that itr was a wise commercial move to have invested a significant amount of money in these subscription kiosks on the streets of Paris.

The on-board computer

Having completed the subscription procedure, the client then holds the badge over the reader at the rental terminal. He is then asked a number of questions, for example, whether he has recently consumed alcohol or drugs. If the answers are satisfactory, the driver is assigned a car from a charging bay the number of which is indicated on the screen. The rental terminal may appear disproportionately large for the function it performs, but more than half of its volume is taken up with the electrical equipment which supplies the charging terminals. In cities where we intend to operate this scheme in the future, we are in the process of preparing a radically different version where the electrical equipment is located elsewhere and interaction with the client takes place at the charging terminal itself. We are also simplifying other functions in order to improve the system.

The client can reserve his car and parking for free. The car reservation can be made using an iPhone or Android app. One just needs to confirm by clicking on the button which indicates that a specific car is available, and five seconds later it will be reserved for the next thirty minutes. This is the same procedure for reserving the parking place where one wants to return the car. We are working on a future version whereby the driver merely has to specify his current location and desired destination so that the nearest car and final parking place can be reserved automatically. The driver can also choose to reserve a parking place at his destination using the on-board computer inside the car, and the navigation system will direct the driver to this place. Of course, any reservation made using a smartphone will be transmitted to the system and the navigation system of the car being used.

The on-board computer has a large blue button which allows the driver to contact the call centre if necessary. This also works the other way round: if the driver does something inappropriate, for example drives outside the Paris region, in other words, leaves the authorised Autolib' perimeter, we can call the driver in the car to tell him to come back. This happens from time to time. Given the fact that the on-board computer is constantly connected to the centre, the car 'knows' the driver and his Autolib' experience is unique to the driver. When one gets into the car, the computer greets the driver using his first name. It preloads the driver's favourite audio selections (which have been saved from a previous Autolib' rental experience) and the first programmed radio station available is the last one which the driver listened to in a previous Autolib' car. It also knows the driver's saved destinations

('favourites'). Overall, the driver is made to feel that this is 'his' car and his needs are important. We intend to develop this personalised approach as a result of the requests which we receive. In the short term, changes which are implemented are the result of an increasing number of contributions made by clients to improve the service. We encourage them to give us feedback about, for example, the state of the car, both inside and out.

The call centre is the nerve centre of the system. Its control screen is similar to that of a telecom operator. The agents who help clients to enrol via videoconference are located in the call centre. This is also where we offer assistance if cars are damaged or when a parking place has been reserved, but has been taken by another car. In this case, we direct the driver to another place or, in rare cases, we allow him to leave the car wherever it is and we send someone to pick it up. This call centre is evolving: it now manages private fleets of cars. Our approach has won various prizes for its innovation with regard to the client experience, as well as for its design and futuristic projects.

Autolib' and Vincent Bolloré's entrepreneurial project

The Bolloré group was founded in 1822 and manufactured fine paper, such as the paper used in bibles and cigarette paper. A family-run company for six generations, it currently employs 55,000 people and has a turnover of $15 billion. Having specialised in the fine paper industry, the Bolloré group turned its attention to plastic film and then to paper for condensers (a sector where it is the world leader), and finally to electricity. During the 1990s, the group started investing in the electric battery sector where it produced its first prototypes a decade later. This is how it came into contact with the large car manufacturers.

These manufacturers were not very enthusiastic about producing an electric car, and so Vincent Bolloré decided to make it himself. The result was the Bluecar and the Autolib' car-sharing scheme was its first major client. Autolib' became Bolloré's platform which proved that the right choices had been made, firstly with regard to the battery (which is at the heart of the group's investments) and secondly the car itself. Today he is the only person to have 3,000 cars in circulation which use an electric battery, each car clocking up between 30,000 and 40,000 kilometres without needing to be changed.

The Bolloré group has developed a Bluebus, Bluetram and Blueboat. They all rely on the electric battery manufactured by the company. There is also a Bluesummer convertible car which exists on the Côte d'Azur and in the West Indies. We have signed an agreement to work with Renault on incorporating the Renault Twizy cars into our BlueLy fleet of cars in Lyons. This means that we have to work on the Twizy's on-board computer system in order to make it compatible with ours. This assignment is in line with Polyconseil's core business. We are beginning to develop management software regarding bus and tram routes, supervising private cars and providing long-distance assistance.

The Bolloré group is also developing other uses for the battery, notably stationary storage linked to intermittent renewable energy sources. These sorts of applications associated with the battery may be connected to solar panels, and make it possible for a variety of sites to have a degree of energy autonomy.

An Autolib' battery pack provides thirty kilowatt-hours and weighs 300 kilos. For a boat it weighs 600 kilos and for a bus, 900 kilos. The Autolib' car runs on a Lithium-Metal-Polymer (LMP) battery which is a solid mixture compared to Lithium-Ion batteries which are liquid and need to be cooled. It is also much more stable: this is an essential factor for all mobile applications or for use in hot countries. Up to thirty-six of these batteries can be combined on a stationary site and stored in containers for up to one megawatt-hour. The group is also involved in tests with French and foreign operators to 'smooth out' renewable energy inputs (in other words, to adjust fluctuations).

Our most significant developments at the moment are the Bluezone projects in Niamey (Niger) and Togo. The Bluezones are areas covering several hectares equipped with solar panels and containers filled with LMP batteries. These Bluezones are able to provide autonomous energy to the area as well as a telecom service and, since we are the only ones in the area to have energy, we have set up clinics, created sports facilities and cinemas, and produced

drinking water. As a result, these Bluezones are the only places with electricity at night in these African cities. These developments have helped to strengthen the group's presence on the continent, even though it has already been there for some time.

These projects are carried out by a company called Blue Solutions, a Bolloré subsidiary which includes IER and Polyconseil. Blue Solutions was floated on the stock exchange in October 2013, and was estimated to be worth approximately 450 million Euros. This valuation has more than doubled subsequently. The Bolloré group's aim is to become a major global player in the sector of electricity management and storage.

Today, Vincent Bolloré is in charge of the Autolib' project and more broadly speaking, Blue Solutions. Despite his very busy timetable, he spends every Monday morning reporting to us about the events of the past week, and giving us up-dates on each project. Given Autolib''s complexity, this sort of project could not be handled in any other way.

Discussion
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Question : *How do you deal with accidents ?*

Sylvain Géron : There are two types of accidents, those where declarations are made and those where they are not. The former are covered by our insurance policy : we are completely covered, but the client has to pay a penalty. As far as the latter situation is concerned, it is very likely that we can find the person responsible because information is cross-checked because of the telemetry (remote surveillance) we use, and the sensors in the car which measure any impact on the car. However, most of the time, the clients who are responsible instantly admit their part in an accident.

Q. : *Do the cars get damaged a lot, and how do you maintain them ?*

S. G. : There is not much vandalism inside the car. However, Parisians are not very good about leaving the cars clean ! We find cans, bottles, newspapers, and so on. We thought there would be more damage in fact, and the small amount of vandalism which we have noted is localised to a very specific geographical area of rental. One of our rental stations located in a housing estate was burned and we decided not to rebuild it because we thought that the inhabitants did not react favourably to our scheme.

Q. : *Who designed the car ?*

S. G. : Pininfarina, the well-known Italian designer, designed the car. Because the bodywork is in raw aluminium, the car does not really have a colour. This is justified for ecological reasons (since there is no colour, there are no solvents, and there is more autonomy) and economic reasons (no need to buy paint after maintenance or an accident). We intend to make some changes to the design.

A unique savoir-faire

Q. : *How do you protect the sophisticated computer technology which is at the heart of your system ?*

S. G. : We have registered a large number of patents, but our best protection is the fact that it is highly sophisticated and cannot be copied easily.

Q.: *How will you manage to copy your Parisian savoir-faire elsewhere in the world?*

S. G.: In Indianapolis, the operation system will be based in France, at least in the beginning. Of course we will employ local teams and there will be an on-site help centre, but the main operating centre will remain in Vaucresson, France. Due to the time difference, we will be working in shifts, and we will have English-speaking call centre agents. Having a centre which is very reliable and whose activity we can monitor on a daily basis, boosts our performance. If the results are not satisfactory, we can always set up an operating centre over there.

Q.: *Does this type of service purely exist because the car is electric?*

S. G.: The first aspect of this choice is political. The mayor of Paris would only let us go ahead with the scheme because our cars were electric. In fact this factor is one of the main advantages to the scheme cited by various cities when they have approached us. Indianapolis is one of the famous 'car cities' of the United States with its famous car race, the Indy 500, but its mayor is now encouraging environmentally-friendly policies.

New operators who have car-sharing schemes using cars which run on petrol are now arriving on the scene. Their cars have sensors which let their operations centre know how much petrol they have left. Schemes using cars which run on petrol means that lorries have to drive around the city, filling up empty petrol tanks. As far as we are concerned, we had to set up a large battery charging system which was costly. We also have a project to add solar panels to our network.

Knowing how to take a risk

Q.: *How do you think the electric car will evolve?*

S. G.: The Autolib' experience in Paris was essential for the development of the electric car because, in a very short space of time 5,000 functional charging terminals were installed. That corresponds to roughly one terminal every 200 metres. London decided to finance a study to develop and install charging terminals, but this was independent of any car-sharing system. There are currently several thousands of terminals in London but half of them are not working because they are not used enough due to the small number of private electric cars. Creating a network without thinking about how it will be used afterwards has clearly been a mistake. We answered an invitation for tender which we won, and we took on the management of this network in London.

There is now a law in France which stipulates that the French government will determine where to place charging terminals in all French urban areas, and the Bolloré group will be one of the bodies involved. Autolib' was the first step in this development.

Q.: *Vincent Bolloré has the wealth which allows him to take on a risk like this. He also has unusual foresight. You bring a unique savoir-faire. Your relationship illustrates in a very striking way the close link between the client and the project manager. Has this restricted you to providing only one service and made you lose your autonomy?*

S. G.: The person who would have lost everything had this not worked would have been the entrepreneur, in other words, Vincent Bolloré. The public operator merely granted the right to provide a service. I think the critical factors for the success of the project were courage, as well as taking the risk of losing one's time or money. Assigning a project to people who know how to make it successful is a key factor in the role of an entrepreneur.

Polyconseil is still active in its initial role as a consultancy. Currently, one of our clients is the Paris Saclay scientific cluster which is developing the city of the future on the Palaiseau plateau. We are advising them about how to install sensors by creating a centralised, operational service.

Q.: *What happened to your agreement with Renault?*

S. G.: This agreement underlines the credibility of Bolloré's industrial project and in particular the production of its electric battery.

Q. : *How were you sure that a car-sharing scheme was going to be profitable? Had you tested it before? How did you finance it?*

S. G. : The Autolib' business plan already existed on an Excel spreadsheet in 2011! It is only now, as a result of our operational activity, that we can demonstrate that the model actually works. Each car is rented from between two to six hours every day. It is this factor which really determines the main part of our turnover.

Q. : *Who are your rivals?*

S. G. : We do not really have any significant rivals. There are a number of small operators in Nice or La Rochelle who have a few cars, but they are not really rivals because they do not work on an industrial scale, and they manage their activity with a small number of cars.

Q. : *What are the obstacles to the development of electric mobility?*

S. G. : We follow the Bolloré group investment activities every year, whether it be in offering our service to new cities (many have shown interest) or improving our service.

■ Presentation of the speaker ■

Sylvain Géron: graduate of the École polytechnique, Télécom ParisTech and Sciences Po. He helped to open up the French telecom market between 1997 and 1999 when he worked for the ARCEP, before he became a 'serial entrepreneur'. He was a co-founder of Mangoosta, the first ADSL operator in France (1999), then Polyconseil (2001) and Wifirst (2002). The last two companies are very successful. Wifirst is the French leader in WiFi Internet access, and Polyconseil, a strategic consultancy employing more than one hundred people, developed Autolib', the first electric car-sharing service in the world.

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