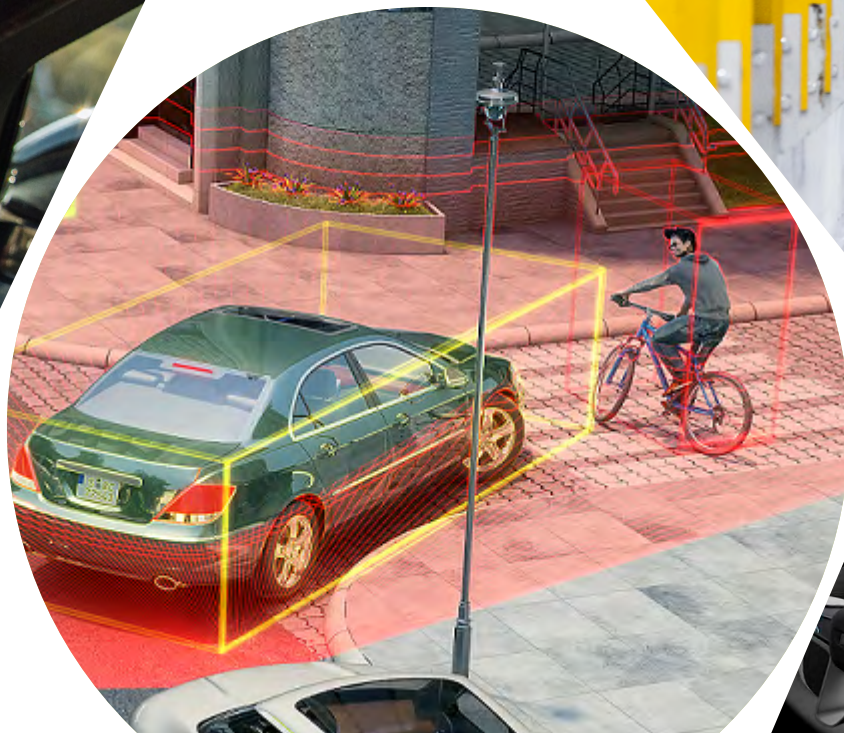




Producing tomorrow's automobiles in France

13 – 14 February 2019



A word from the President



Emmanuel Macron
President of the French Republic

Motor vehicles are part of most French people's everyday lives. They play a key role in our lives, our transport, our leisure activities and our work. At the crossroads of mobility, ecological transition and digital transformation, the car has to meet new needs, new uses and new expectations.

A hundred years after the International Organization of Motor Vehicle Manufacturers was founded here in Paris itself, France, a historical automobile industry country, stands ready to take up the challenges of the next hundred years.

Such is the purpose of the ambitious approach we are unveiling today to drive France forward as a world-class location for the global automobile industry. We can count on many assets to achieve this goal: renowned expertise, high-quality infrastructures and a unique capacity for innovation. This roadmap has been developed in close association with all the sector's players: manufacturers, hauliers, local government and trade unions. The Strategic Automobile Sector Committee will regularly monitor its progress.

France is geared up to build tomorrow's automobile industry by preparing today the connected, self-driving, clean vehicles of the future.

France is already the leading European destination for foreign investment in the automobile sector. Our sights are firmly set on the future, ready to take up its challenges with the global players who place their confidence in us.

Choose France!

Presentation

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1. The automobile industry in France



- The automobile industry is **one of the leading industrial sectors in France**.
- France is a **historical automobile industry country**. The automobile industry based in France boasts a wealth of major automobile manufacturers and original equipment manufacturers, an extremely dense fabric of sub-contractors and a high level of service. **France is also home to startups and innovation** for digital technologies, transportation and energy.
- France is an attractive automobile destination for its excellent geographic location and the quality of its manpower and its infrastructures, making it **the leading destination for job-rich foreign industrial investment** in the automobile sector in Europe.
- Motor vehicles play **a major role in many French people's daily lives**, especially in rural and suburban areas. Some 70% of French people go to work by car every day.

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2. Mosquet-Pélata mission



- On 29 October 2018, the French Prime Minister tasked Xavier Mosquet and Patrick Pélata with a mission to define measures to further improve France's positioning **as a world-class location for the automobile industry and its associated services**.
- This mission follows **the strategic automobile sector contract signed by the Government and the Strategic Automobile Sector Committee (CSF Automobile)** on 22 May 2018. The CSF will be tasked with implementing the measures decided on by the Government.
- The mission has the support of all the preparatory work for **the mobility policy** act and the strategy for the development of **self-driving vehicles** coordinated by Anne-Marie Idrac.

3.

Our priorities to produce tomorrow's automobiles in France



Development of electric and hybrid vehicles

Flagship measure During 2019, drawing up a multiannual trajectory up to 2022 for the bonus for purchase of zero-emission vehicles.

France had 207,000 all-electric and plug-in hybrid vehicles in use as at the end of 2018.

The target is to have one million in use by 2022.

Deployment of charging stations

Flagship measure A charging station deployment acceleration plan with adapted measures to develop a dense and high quality network in France.

90% of recharging at home or work.

An increase from nearly 25,000 charge points open to the public in early 2019 to 100,000 charge points in 2022.

Creation of a French and European battery sector

Flagship measure Earmark €700 million to help develop a battery production industry and support a European partnership based on a French-German consortium.

A reduction in carbon content and battery recycling are important concerns in the battery production process.

Development of the connected and autonomous vehicles

Flagship measure Deploy full-scale, on-demand autonomous transport services by 2021.

The target is to make France the leading driverless vehicle country in Europe.



1.

The automobile industry in France

Key points

The automobile industry is a key industrial sector for France. The sector boasts a wealth of major automobile manufacturers and original equipment manufacturers, an extremely dense fabric of sub-contractors and a high level of services.

In addition to the sector's weight in the French economy, motor vehicles play a major role in many French people's daily lives, especially in rural and suburban areas.

France is an attractive automobile destination owing to its excellent geographic location and the quality of its manpower and its infrastructures, making it the leading destination for job-rich foreign industrial investment in the automobile sector in Europe.

The automobile industry in France: a strategic asset for our country's economy ...

France is a historical automobile industry country. The automobile industry based in France boasts a wealth of major automobile manufacturers and original equipment manufacturers, an extremely dense fabric of sub-contractors and a high level of service.

The automobile sector

4,000
industrial firms employing

400,000
staff in France

a turnover of
155 Md €
18% of the manufacturing
industry's turnover

an export volume of
49 billion €



The automobile sector files the most patents in France. It invests over 5.8 billion euros in R&D every year;

The industry's downstream sector consists of service companies that represent a particularly dense ecosystem of mid-caps, SMEs and VSBs (distribution, quality control, maintenance and repairs, road safety and education, circular economy and mobility solutions). It has a total of 139,000 companies employing over 400,000 staff.

The automobile sector plays an important role in our decarbonisation strategy: with 33 million vehicles in use and 2 million new vehicles per year, renewal of the stock of vehicles and the arrival of new vehicles provide major industrial opportunities.

... And plays a major role in French people's daily lives

In addition to the sector's weight in the French economy, motor vehicles play a major role in many French people's daily lives, especially in rural and suburban areas.

The french vehicle fleet

As at 1 January 2018, France had

39.5 million motor vehicles in use

including

32.7 millions

passenger cars

An estimated 84% of households are motorised, with 47.5% owning one car, 31.1% with two cars and 5.3% with three or more cars



92,000

buses and coaches



6.1 million

light commercial vehicles



540,000

heavy goods vehicles

Automobile density (number of passenger cars and light commercial vehicles per 1,000 inhabitants) stands at approximately 600 in France, on a par with our German, Spanish and British neighbours.

A regional anchor sector

Map of the main automobile plants in France



Activities in the automotive industry

Manufacturers

Equipment suppliers



"Territoires d'Industrie" concern by automotive sector

"Territoires d'Industrie" boundaries

Competitive clusters



Invest in the automobile sector in France

France is an attractive automobile destination with a number of major assets.

Choose  **!**

An attractive destination for the automobile sector

France is coveted by international original equipment manufacturers for its excellent geographic location and the quality of its manpower and infrastructures: 132 foreign firms have operations in the country, representing 58% of the sector's turnover. This makes France the leading destination for job-rich foreign industrial investment in the automobile sector in Europe.

France, a land of innovation and experimentation

France boasts an unrivalled taxation scheme for R&D and innovation in the shape of the research tax credit.

France has an extremely dense automotive innovation ecosystem, including four automobile-mobility competitive clusters (CARA, ID4CAR, MOV'EO and the Véhicule du Futur cluster) and leading public research bodies (IFP Energies Nouvelles, The French Institute of Science and Technology for Transport, Development and Networks (IFSSTAR), the French Alternative Energies and Atomic Energy Commission (CEA) and the universities).

The Government's Invest for the Future programme has granted over 650 million euros in support to automotive R&D projects for a total investment volume of over 2 billion euros by the automobile sector. The Government is set to take forward and scale up France's innovation effort with a comparable level of support in the years to come and targeted support for disruptive innovation.

Skills: The recruitment support plan

Skills, especially training, form a major factor of our country's attractiveness. Businesses seeking to set up operations in France need bespoke assistance in this area. **We will therefore be offering businesses with major job-creating projects a "recruitment support plan"** setting out the bespoke service available to each business. In this agreement, which will reflect the company's goals for investment and employment, the Government and its operators, as well as the local authorities that wish to be involved in the approach, **will make commitments regarding legal and technical assistance**, use of the public employment agency **to facilitate hiring**, and contacts with partners at local level.



2. Mosquet- Pélata mission

A mission to position France as a world-class location for the automobile industry

On 29 October 2018, the French Prime Minister tasked Patrick Pélata and Xavier Mosquet with a mission focused on the country's attractiveness to the automobile sector.

The main purpose of this mission was to define measures to further improve France's positioning as a world-class location for the automobile industry and its associated services.

This mission follows the strategic automobile sector contract signed by the Government and the Automobile Platform (PFA) on 22 May 2018. It comes amid rapid sector developments, especially the emergence of electric and hybrid vehicles, intelligent vehicles (connected and autonomous) and new mobility services.

The mission's recommendations informed the development of the measures presented in this document.

The Government's action plan is also based on all the preparatory work for the mobility policy act and the strategy for the development of self-driving vehicles coordinated by Anne-Marie Idrac.

Les missionnés



«The vehicle of the future will be cleaner, more autonomous and shared. In this environment of change, France is set to uphold its leading automobile country ranking by developing its market for users, supporting the players in place and attracting more foreign players. We have many assets to achieve this.»

Xavier Mosquet
Senior Partner & Managing Director of BCG
Automobile Specialist



«France and its territories are working to speed the pace of electric and autonomous vehicle developments, but also to help the automobile industry, infrastructures and the urban ecosystem adjust to these developments, thereby preparing the ground for a massive uptake of electric vehicles and the driverless vehicle's first steps.»

Patrick Pélata
President of Meta Consulting LLC
Former COO of Renault

Monitoring the implementation of the strategic automobile sector contract and its outcomes

The Strategic Automobile Sector Committee (CSF) chaired by Luc Chatel, Chairman of the Automobile and Mobility Sector Platform (PFA), coordinates the industrial sector and the energies put into strategic projects for the future. The automobile sector contract was signed on 22 May 2018. Luc Chatel was appointed Chairman of the Strategic Automobile Sector Committee to monitor the implementation of the action plan detailed in this document and oversee its sound execution.



« Never since it was invented has the motor vehicle been faced with such challenges. The French sector is ready to take up these challenges, rallied around the same strategic vision for the future. And an ambition: to make France, a leading automotive country in the 20th century, a mobility leader in the 21st century. »

Luc Chatel
Chairman of the Automobile and Mobility Sector Platform (PFA), Chairman of the Strategic Automobile Sector Committee (CSF)



3. Our priorities to produce tomorrow's automobiles in France

Deployment of charging stations

Flagship measure During 2019, drawing up a multiannual trajectory up to 2022 for the bonus for purchase of zero-emission vehicles.

The charging station deployment plan

Flagship measure A charging station deployment acceleration plan with adapted measures to develop a dense and high quality network in France.

Creation of a French and European battery sector

Flagship measure Earmark €700 million to help develop a battery production industry and support a European partnership based on a French-German consortium.

Development of the connected and autonomous vehicles

Flagship measure Deploy full-scale on-demand autonomous transport services by 2021.

Development of hybrid and electric vehicles

FLAGSHIP MEASURE During 2019, drawing up a multiannual trajectory up to 2022 for the bonus for purchase of zero-emission vehicles.

France had 207,000 electric and plug-in hybrid vehicles in use as at the end of 2018.

The target is to have one million in use by 2022.

State of play and challenges

An all-electric vehicle (EV) is a vehicle whose engine is powered by a battery. CO² emissions of all-electric vehicles in operation are zero.

A plug-in hybrid electric vehicle (PHEV) is a hybrid electric vehicle driven by an internal combustion engine and a battery-powered electric motor. As a rule a PHEV can cover between 30 and 50 km on batteries only. CO² emissions for a plug-in hybrid electric vehicle can be under 50 g/km.

By the end of 2018 France had over 167,000 EVs and 38,000 PHEVs in use, totalling some 205,000 vehicles.

In 2018 EV sales rose by 26.7%, as against 2017, to almost 40,000 units, putting France second behind Norway in Europe for registrations and number of electric vehicles in use.

PHEV sales reached 14,528 units in 2018, up 22.4%.

Our target: one million all-electric and plug-in hybrid vehicles in use by 2022

The national target, laid down in the strategic contract for the automotive industry, is one million electric vehicles by 2022, with 600,000 all-electric vehicles and 400,000 plug-in hybrid vehicles.

Significant investment in France has been announced to reach this target:

- Renault: €1bn for three flagship EV sites (Flins, Cléon and Maubeuge) and to introduce a new Alliance EV platform in Douai.
- PSA: Investment with Japanese NIDEC for production of electric motors in France.
- Daimler: €500m investment in Hambach site to produce the first Mercedes electric vehicle.

Flagship measure

During 2019, drawing up a multiannual trajectory up to 2022 for the bonus for purchase of zero-emission vehicles.

Comparative advantages

The Mobility Policy Act and its support plan will pave the way for the regulatory and operational conditions required to introduce benefits attached to using clean vehicles throughout France (reserved lanes, reserved or even free parking, low emission zones, etc.).

Public procurement

The Government intends to improve target monitoring processes from 2020.

Supply, particularly by French manufacturers

Arrival of new electric and hybrid vehicles on the market by late 2019, with the target of covering almost the whole range by 2022.

Equivalent retail pricing, in terms of total cost of ownership, for new internal combustion and new electric vehicles from 1 January 2020.

Availability of second-hand electric vehicles from dealerships, including for leasing, as of now.

The Government will set up one-stop website (jechangemavoiture.gouv.fr) providing all the information needed to change a vehicle (operating cost calculator, financial support, charging station locations).

At the end of 2019 and in conjunction with industrialists, an information campaign will be conducted on the benefits of electric vehicles.

Zero-emission refuse collection vehicles



The project is using three prototypes to study the economic viability of all-electric refuse collection vehicles. Despite the higher purchase cost because of the battery, refuse collection vehicles lend themselves to electrification on account of their constant stop/start operation.

Total public funding
€3 M

The charging station deployment plan

FLAGSHIP MEASURE A charging station deployment acceleration plan with adapted measures to develop a dense and high quality network in France.

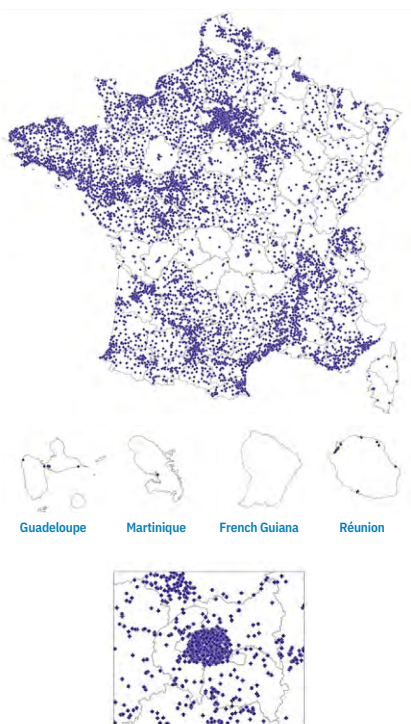
Recharging: 90% at home or work. This is our priority.

An increase from nearly 25,000 charging points open to the public in early 2019 to 100,000 charge points in 2022.

Public charging pools

As at 1 January 2019

10,491 pools representing
24,808 charge points



State of play and challenges

Provision of public recharging infrastructure to match domestic and workplace equipment is a key issue for increasing electric-vehicle use in France.

As at 1 January 2019, France had 24,808 public charge points – i.e. 1 charge point for every 6.7 electric vehicles on the road – and 180,800 private charge points (according to an Enedis estimate). This ratio is an advance on the target of at least one public charge point for every ten electric vehicles.

The Invest for the Future Programme (*Programme d'Investissement d'Avenir* – PIA) contributed to the funding of deployment projects of 20,000 charging points (61 million euros), with significant support from local authorities.

Our goal: Developing a dense charging network in France

Use of home infrastructure guarantees cheap and easy recharging. Workplace recharging is used to complement domestic recharging or even replace it in some cases. In California and Norway, for instance, where use of electric vehicles is well-established, it has been found that 90% of recharging is done daily at home or work.

It is nevertheless important to deploy public access charging stations both for households without private parking spaces at home and for charging during longer distance trips. The strategic contract for the automotive industry sets out to increase the number of public charging stations to meet a benchmark ratio of one charge point for every ten vehicles on the road, i.e. 100,000 charge points nationwide by 2022, not counting charging stations at home or work.

New provisions in the Mobility Act

The Mobility Act is set to introduce new provisions to facilitate deployment and recharging of clean vehicles, particularly by reducing costs of connection to charging infrastructure, with the share covered by the standing charge for use of the public power grid being raised from 40% to 75%. It also provides for installation of electric-vehicle service equipment, including for persons with reduced mobility, in all car parks attached to new or extensively renovated buildings that have more than ten spaces, as well as simplification of the right to install charging stations on jointly owned property.

Flagship measure

A charging station deployment acceleration plan with adapted measures to develop a dense and high quality network in France.

This plan is intended to expedite the growth in charging stations for different uses, including home, workplace and public recharging. The following new measures are being implemented:

Home	<p>Ensuring that installation of a charging station is routinely offered with purchase of an electric vehicle from a dealership.</p> <p>Improving the right to install charging stations on jointly owned property in order to halve the installation times (from six to three months).</p> <p>Maintaining financial support for installation of domestic charging stations for individuals in single-family dwellings.</p>
Workplace	<p>Making it simpler for businesses to provide charge points for their employees by providing the option, from 2019, to offer this service free of charge.</p> <p>Changing the rules on benefits in kind to make provision of electric company cars more attractive.</p>
Public Access	<p>Clarifying the rules on fitting out underground car parks.</p> <p>Promoting trials and encouraging development of local programmes for on-demand charging stations to speed up deployment of neighbourhood charging stations through support for local authorities, publicising of best practice and easier access to Advenir grants.</p> <p>Speeding up charging station installation in government complexes.</p> <p>Introducing a public charging map and a charging-station roaming and interoperability requirement from 2020. Users must be able to recharge easily at any public charging station wherever they are and whatever their vehicle.</p>

Project INFINI DRIVE



The project aims to design a standard charging protocol for electric vehicle fleets. It provides businesses and local authorities with a smart system connecting vehicles, charge points, the grid and the existing information system, tailored to use and environment.

Total public funding
€3.4 M

Creation of a French and European battery sector

FLAGSHIP MEASURE Earmark €700 million to help develop a battery production industry and support a European partnership based on a French-German consortium.

A reduction in carbon content and battery recycling are important concerns in the battery production process.

State of play and challenges

The battery is a strategic component of today's electric vehicles and is their main source of energy. An electric vehicle's battery is considered to account for 30 to 40% its value. There are batteries of different types, depending mostly on their main component (lithium, nickel, cobalt, graphite, manganese, etc.). Those currently used to power electric vehicles include, for example, lithium-ion and lithium-metal polymer batteries.

Batteries are also a strategic concern in terms not only of supply but also of recycling and environmental impact during manufacture.

Our goal: To develop a European battery sector.

The energy transition is leading to rapid growth in battery requirements, including in the automotive sector. Given the strategic nature of this sector and its economic importance, development of French and European battery manufacturing is a priority area for the government. This goal also encompasses innovative, eco-friendly manufacture of powders and battery cells in Europe. To achieve this, France and Germany have decided to initiate a major European project that might be designated an important project of common European interest (IPCEI).

Flagship measure

Earmark €700 million to help develop a battery production industry and support a European partnership based on a French-German consortium.

Complementary measures

The launch of the Great Challenge (“Grand Défi”) on high-density storage for mobility in December 2018 aims to stimulate the best R&D skills.

Battery decarbonisation is essential if vehicle electrification is to have a positive environmental impact. The Government has begun work in conjunction with the European Commission to ensure that carbon content can be measured and taken into account in the regulations and financial incentives.

Raw materials represent an important part of battery costs. The securing of resource procurement is therefore a sovereignty challenge that the French Government intends to take up.

Even though volumes are still currently low, recycling appears in the long term as the best way of limiting the environmental impact of batteries and securing access to raw materials. The Government aims to develop a French recycling chain.

At the sixth Ministerial Conference of Friends of Industry in December 2018, Bruno Le Maire, the French Ministry for the Economy, and Peter Altmaier, his German counterpart, declared their support for development of large-scale European projects for innovative and eco-friendly battery production.

Le projet UEX2



This industrial demonstrator has been designed to treat and recycle rechargeable lithium batteries from electric and hybrid vehicles.

Total public funding
€2.7 M

Development of the connected and autonomous vehicles

FLAGSHIP MEASURE Deploy full-scale on-demand autonomous transport services by 2021.

The target is to make France the leading driverless vehicle country in Europe.

State of play and challenges

An autonomous vehicle is a vehicle that, once programmed, travels on public roads with little or no intervention by its users. On-board radars, sonars, cameras, lidars, computers and software allow driving of the vehicle to be partially or fully delegated.

In order to develop driverless vehicles, France has both startups and innovative companies working on sensors, vision, GPSs, cyber-security, smart processors and simulation, as well as recognised AI institutes (INRIA, SystemX, LAAS, CEA-LIST, etc.). Two of the four French Cross-Disciplinary AI Institutes (3IA) focus particularly on transport-related applications.

In line with European Commission strategy, the French strategy published in May 2018 is built around three goals: safety, a gradual approach and acceptability. This strategy has been designed and is being implemented in conjunction with public and private players, under the aegis of Ms Anne-Marie Idrac, a former minister, who was appointed High Representative for Autonomous Vehicles in November 2017.

A round table on acceptability has been launched to closely monitor public perceptions through surveys and discussion forums. Acceptability is a prerequisite for development of automated vehicles.

Our goal

Make France the leading European country for autonomous vehicles and allow every type of testing from this year, followed by full-scale operation, including the highest levels of automation, by 2021.

Testing remains a key stage for moving from theory to practice and improving the technology whilst maintaining safety. Since 2015, 68 trial authorisations have been granted, almost half of which for public transport services. These trials represent over 200,000 km of driving in a wide variety of traffic conditions. Thousands of people have been transported, with no casualties. A new national trial programme supported by the public authorities was launched in June 2018 (EVRA: Expérimentation du Véhicule Routier Autonome (autonomous road vehicle trial), with 40 million euros of public support).

Flagship measure

Deploy full-scale on-demand autonomous transport services nationwide by 2021.

National regulatory framework for deployment of highly automated vehicles

Establish the framework for testing vehicles with the highest levels of automation (PACTE (Action Plan for Business Growth and Transformation Act)).

Put in place a legislative framework for establishing permanent transport services (Mobility Act) from 2020.

Development of key technological components and support for innovation

Continue supporting industry R&D in key areas such as algorithm certification. Foster the creation of a common European database on driving scenarios.

Meeting public/local needs and expectations

Set up an acceptability monitoring unit to take account of key concerns, including the ethical dimension, in design of these systems.

Establish a network of areas and local authorities to pool needs and share experience.

Deploy the connected infrastructure of the future.

Increase mobile network coverage along transport routes and deploy connectivity for Cooperative Intelligent Transport Systems (C-ITSs).

Driving change in the international environment

Take steps internationally and at the European level to expedite international work in this field and on vehicle validation methods (2019).

Le projet EVAPS



The EVAPS project (Paris-Saclay autonomous vehicle trial) is designed to test driverless transport services in dedicated lanes between Massy station, the Plateau de Saclay and private sites, with two types of electric vehicle (cars and shuttles), also serving the last mile. The project plans to supervise the vehicles remotely and study the impact of the infrastructure equipment.

Total public funding
€5.5 M