



# Transdev @ Mondial.Tech 2018

# Press kit technology & innovation



October 2-6,2018 Hall 7.3, Stand J90 Transdev, one of the world's leading providers of mobility services, continues to develop and deploy sustainable solutions in line with its vision of mobility, embodied by the acronym PACE: Personalized, Autonomous, Connected and Electric & Eco-friendly.



**Personalized mobility** involves developing smart solutions for transportation on demand to offer users services that best meet their needs to promote multi-modal systems and improve mobility for all. These new offerings have already been rolled out in France, the Netherlands, the United States and Australia.

Transdev is actively working to implement solutions that promote **autonomous mobility** as an integral part of transportation systems. That is the goal of the agreements and projects it has launched with its partner manufacturers—the Renault-Nissan-Mitsubishi Alliance and Lohr—and local authorities. One such example is the creation of the Rouen Normandy Autonomous Lab in France.

Transdev has also conducted a number of experiments in France and the Netherlands to promote **smart mobility** as part of an approach that allows travelers to plan every step of their journey by making the most of all available means of transportation, including ticketing.

These initiatives have put Transdev at the forefront of the **energy transition**, already embodied by an array of clean **e-mobility solutions**. The company now operates nearly 500 electric buses and minibuses across 27 sites in seven countries and is Europe's largest e-bus operator, with contracts in Amsterdam and Eindhoven, two cities that have some of the world's cleanest bus systems.

In addition to its conventional passenger transportation services, which include train, metro, light rail, BRT, bus, coach, ferry and more, Transdev is expanding into four areas of technology and innovation that hold real promise for the future:

- 1. Transportation On Demand (TOD).
- 2. Mobility as a Service (MaaS).
- 3. New fuel solutions:
  - o Gas, hybrid, battery electric, hydrogen and fuel cell.
- 4. Autonomous transportation services:
  - o Making individual vehicles and shuttles an integral part of the urban transit system.

## 1. <u>Transportation On Demand (TOD):</u>

Traditional public transportation systems such as bus, light rail and metro are best suited to busy city centers and inner suburbs. Today, people living in areas with a lower population density have to contend with an inferior level of service. They are forced to use their own cars or walk long distances to get to their destination or point of departure, or to connect to the public transportation system. This first-mile and last-mile coverage has a direct impact on the type of transportation they choose. According to a survey in the United States, the need to walk more than 0.8 km to the nearest stop reduces use of public transportation by around 90%. Transit authorities face a difficult choice: extend transportation services at high cost and lower frequency or resign themselves to partial coverage in less-populated areas.

In addition to traditional means of public transportation, Transdev's comprehensive range of mobility services incorporates solutions tailored to specific or less-populated areas in the shape of Transportation On Demand (TOD). Traditional TOD services are gradually being turned into smart on-demand solutions that make it easier for passengers to arrange a pickup while providing real-time information and streamlining driver communications. These upgraded solutions are designed for both local authorities and companies. They benefit from Transdev's clean technology and algorithms as well as partnerships with the best startups in the market to offer customers and passengers an unparalleled range of mobility solutions tailored to their needs.

#### Transdev's TOD services span:

- More than 150 sites in France.
- Traditional TOD and smart on-demand services that can optimize journeys and coverage while making reservations easier and providing real-time information on the vehicle through the app.
- More than 300 engineers who work daily at the four Transdev tech centers (in France, the Netherlands and the United States) to continuously improve solutions, test new concepts and develop apps and websites.
- Teams dedicated to ensuring solutions fit the specific needs of the region and the existing transportation system.

TOD meets specific travel requirements. It provides an off-peak service in less-populated areas and places without a fixed route. It complements the services provided through fixed routes to improve the overall transportation system. TOD can be tailored to passenger needs and can be incorporated into the existing network to unlock synergy.

Personalized mobility involves developing smart TOD solutions offering users services that best meet their needs to promote multi-modality and improve mobility for all. These new offerings have already been rolled out in Germany, Australia, the United States, France, the Netherlands and Sweden.

Transdev has made transportation on demand a centerpiece of its mobility strategy going forward. Its ability to offer a broad array of customized solutions is undergirded by cutting-edge innovation and a deep understanding of passenger needs.

TOD provides an alternative to public transportation to serve less-populated areas, especially in rural and outlying regions. It can meet specific needs for people with reduced mobility, enable shared journeys and provide access to more remote areas.

#### Taxis and private hire: meeting individual needs

In the US, Transdev has established a solid foothold in taxi services and is the biggest operator in Baltimore, Denver, Pittsburgh and Kansas City. In Europe, its subsidiary Connexion Taxi is the leader in the Netherlands, with 30% of the market. Transdev is also a partner of taxi companies in Sweden and France. Private hire—passenger cars with a driver—is a solution that complements taxi services and has become part of the urban transit ecosystem.

#### Shared transportation, shared solutions

The concept of shared transportation intrinsically covers a broad, evolving range of services based on shared services. Transdev is actively involved in developing the sector to offer more innovative, cost-effective, ecological solutions.

#### Supershuttle

# SuperShuttle.

This ride-sharing airport shuttle pools demand and arranges passenger pickups to ensure unbeatable value for money.

#### Car sharing



Self-service car pools offer an individual-yet-shared mode of transportation that is playing an increasingly integral part in urban mobility. Transdev operates a number of car sharing plans including the Auto Bleue (Nice) and Yélomobile (La Rochelle) in France.

# Paratransit: autonomy and safety

Accessible transportation allows people with disabilities or reduced mobility to be more independent and maintain their social activities. In addition to accessibility solutions for public transit, Transdev offers doorstep pickup services that provide comfort, convenience and safety adapted to the specific needs of each disability. Transdev is also active in providing medical transportation in Canada and the Netherlands, where its subsidiary Connexxion handles 17% of ambulance services. In France, Transdev has joined forces with an established partner in medical transportation to create Santé Mobilité Services, which aims to provide optimal solutions for patient mobility and assist companies in the sector with their transformation.



Examples of TOD and Transdev initiatives include Chronopro, Flexigo, Karos (pending) in France. PTFlex in the Netherlands and the United States. Mobility as a Service (MaaS) is the future of TOD.

# 2. Mobility as a Service (MaaS):

This emerging concept pioneered in Finland approaches mobility as a service that lets people travel from A to B by any means of transportation, public or private. It is based on unifying mobility services and pooling multimodal information and ticketing tools.

#### What is MaaS?

In developing transportation solutions, the need to interconnect different systems quickly became apparent, which led to the introduction of intermodal and multimodal concepts as part of public policies, including park & ride and multimodal hubs designed to provide transit solutions that limit car use. Now, the boom in information and communications technologies (ICT) has put an entire range of mobility solutions in users' pockets. There has been a raft of recent initiatives in France and abroad using a single pass to provide access to different services that improve mobility and everyday life, as seen in Angers, Montpellier, Lyon and Mulhouse.

It was against this backdrop that Mobility as a Service (MaaS) emerged in Finland. MaaS aims to reduce car congestion by promoting access to services mainly through a single smartphone-based, integrated fare system for public transportation and car sharing services. The concept currently has a wide array of definitions and variants and will need to be adapted to specific local requirements that differ greatly from one city or country to the next. In the future, however, information will be fully multimodal and access to services will be increasingly coordinated and integrated.

# MaaS can comprise:

- A basic combination of passenger information and ticketing for an individual service, for passengers.
- A combination of different mobility solutions with or without a single fare system, for service providers.
- A revised, integrated fare system that includes all mobility services to promote new patterns of behavior. In this respect, MaaS is instrumental in shaping a new approach to mobility.

It is a fact that 75% of people take their car to work and only 11% use public transportation. This trend is set to continue as the cost of car use falls. Yet there is real scope for progress. Half of all car journeys in cities are under 3 km, with one person per car at rush hour. MaaS could bring about changes by ensuring efficient coverage in cities and regions and encouraging new mindsets. Achieving that goal will mean making digital solutions an integral part of a comprehensive mobility and planning policy.

MaaS will provide a smart 21st century mobility solution if it embraces individual needs and public policy issues.

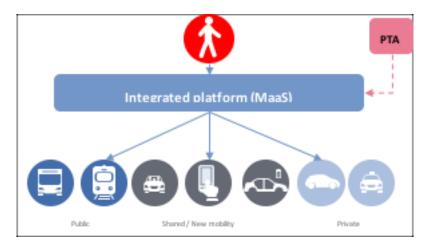
MaaS embodies the Transdev promise to make mobility a genuinely comprehensive, integrated service spanning all means of transportation, public and private, through a single user app.

For Transdev, MaaS represents the transition from a transportation system to an **integrated mobility service** delivered to the same high standard as the other services it operates. That service must be door to door, seamless, personalized, safe, inclusive, green, affordable and enjoyable. Transdev plans to set the MaaS standard as an established pioneer in the market.

MaaS needs to be adapted to individual needs through highly customized, tailored solutions that still provide freedom of choice and are safe, inclusive and environmentally conscious. It will need to offer all-inclusive ticketing through a system that lets people log in, use mobility solutions, then benefit from a competitively priced post-payment option.

Transdev plans to develop its own **generic MaaS offering**, which transit authorities can then customize. The goal is to create a form of mobility alliance with select partners such as car-rental companies and insurers. This future solution, provided by Transdev as a systems integrator, is now in development and will

be based on a tried-and-tested integrated platform such as those provided by Tranzer and Citiway (Transdev subsidiary).



A few examples of MaaS and Transdev initiatives:

Tranzer Netherlands

# TRANZER

The Tranzer app was launched in the Netherlands at the beginning of December 2017. With the app, you plan and buy your entire trip in one go. It is operator and mode independent – it does not matter which operators or modalities are used, and included train, tram, bus, metro and taxi. In the app the ticket is issued, therefore no smart card is required. Large operators such as NS, RET, Connexxion, GVB and EBS are connected and taxis can also be booked and paid in the app. Tranzer is available in the Netherlands and is currently expanding within Europe. This is possible through collaborations with LeasePlan, Transdev and KLM.

• Compte Mobilité Mulhouse



Compte Mobilité is a **unique service in Europe** introduced by Mulhouse Alsace Agglomération in partnership with Transdev and Cityway. The goal is to promote alternatives to traveling by private car while reducing energy consumption, greenhouse gas emissions and pollution. The Compte Mobilité mobile app and website provide a single sign-up option that provides access to all services in just a few easy steps. Following an initial trial period in the spring of 2018, the service has been opened for commercial general public service since September 20, 2018.



A streamlined solution: A single account for all forms of transportation and a single payment based on actual use, ensuring the best prices, only one payment at the end of the month—just like water, gas and phone bills—with real-time tracking and budget alerts, and the option to withdraw at any time.

A comprehensive solution: The single-signup system provides access to all mobility services and end-of-month billing based on actual use.

Public transportation: Three light rail lines, a BRT route and 23 bus routes give users a whole array of public transportation options in Mulhouse and the surrounding area in partnership with Soléa.

Self-service bicycles: Vélocité provides a way to get around quickly and easily, with 240 bikes available between 40 stations in Mulhouse town center. With a station every 400 meters and a 24/7 service, there is always somewhere to pick up or drop off a bicycle.

Car sharing: Car sharing is the perfect solution for people who don't need a car every day. Citiz provides cars at seven stations throughout Mulhouse.

Parking lots: Transdev partners Citivia and Indigo offer spaces right next to the city center to make parking easy.

Bicycle rental and safekeeping: Médiacyles is the perfect option to rent bikes or leave your bike somewhere safe.

## 3. New energy models:

The French population is expected to grow from 66 million to 71 million people by 2050. That is an increase of more than 2%. There is now widespread awareness of related issues and all stakeholders agree on the need to mitigate the anthropogenic impact on the environment. This general goal has led to two major eco-challenges: the global problem of climate change, which, in just a few decades, has come to represent a huge threat to humanity, and pressing public-health concerns on a local level, especially in cities. In response, the EU has committed to a 40% reduction in greenhouse gas emissions by 2050; France has announced plans to reduce them fourfold, and has also created a fund to finance the energy transition. Faced with these challenges, local authorities are stepping up their sustainability goals, curbing greenhouse gas emissions and cutting local air and noise pollution by promoting cleaner energy solutions. Transdev strives to be a responsible, engaged partner working to help transit authorities design mobility solutions more suited to their specific needs and ensure operations that promote the highest standards of performance.

## Transdev has identified four focal points to develop new energy models:

- 1. The first involves <u>improving "mass transit" solutions</u> (metro, light rail, BRT, bus, train and coach) to make these services more attractive and enhance quality to grow ridership and promote a modal shift from dirtier forms of transportation like cars.
- 2. The second consists in offering <u>new mobility solutions</u> to continually enhance environmental performance by improving access through new approaches like car sharing, TOD and "soft" transportation.
- 3. The third component aims to <u>shrink the ecological footprint</u> directly attributable to our operations by focusing on fleet consumption, which accounts for 90% of the group's fuel costs, largely from diesel.
- 4. The fourth point ties in with the others to <u>develop innovations</u> that will improve ridership, promote new patterns of behavior and curb consumption/emissions. Examples include smartphone-based personal travel apps and the transition away from overwhelming dependence on diesel by developing e-mobility and alternative solutions for urban buses.

Transdev continues to pioneer e-mobility solutions and by the end of 2018 will operate over 500 all-electric buses using the full array of charging and storage technologies available to date.

The energy transition is a challenge shared by legislators, manufacturers, transit authorities and operators. Transdev aims to turn this into an opportunity for all cities and regions by leveraging and exploring the current diversity of solutions in a wide range of conditions to better harness their potential and offer customized solutions for each system.

To sync this approach with France's Energy Transition law, Transdev has committed to the following timetable:

- 50% of the fleet replacements will be low-emission vehicles by 2020.
- 100% of fleet vehicle replacements will be low-emission vehicles by 2025.

This approach targets two goals: reducing the use of non-renewable fuels and curbing air and noise pollution. Different solutions ranging from the Euro 6 standard to all-electric, compressed natural gas (CNG), biofuels and hydrogen are now being rolled out and developed.

As for "clean" vehicles, 56% of the total Transdev bus and coach fleet—representing 24,000 out of more than 43,300 vehicles—are considered low-emission vehicles: Euro 5, Euro 6, electric, CNG, biogas and hybrid.

Meanwhile, Transdev continues to pursue more efficient clean-diesel solutions not just for its bus and coach fleet but also for diesel-powered trains in Germany and ferries in Sweden and Australia, which do not currently use clean solutions.

The first step, and the simplest for the current fleet, involves **upgrading the oldest diesel buses** (Euro 2 to Euro 5) towards solutions that can remove particulates and nitrogen oxide (NOx) and eventually retiring all buses that fail to meet the most stringent clean-mobility standards (Euro 6) from service. A study is now underway to continue improving the efficiency of systems used to curb NOx emissions, which are currently reduced by injecting AdBlue. Examples include even more efficient systems such as ammonia in the form of gas that can further reduce these pollutant emissions. For new fleets, the purchase of Euro 6-compliant diesel buses is now the only option, even though some networks have chosen not to order combustionengine vehicles.

The campaign to lower CO<sub>2</sub> emissions also involves buses that run on **compressed natural gas** (CNG), which is a tried-and-tested technology. Transdev operates 1,000 vehicles across a number of systems in France, including Nantes, Chambéry, Dunkerque, Valence and Beauvais. The solution undoubtedly has benefits: it is a resource that is more abundant that oil, it is renewable (biogas), and it represents a booming market. It is also a well-established technology that has been around for more than 20 years and can

reduce noise pollution. However, it is a choice that requires a compressor station and modifications to depots. It involves a significant investment with a long-term commitment. Maintenance costs are 25% higher than those of diesel buses and local pollutant emissions are very different from those of Euro 6 diesel buses. The technology has real advantages over older diesel vehicles in terms of noise, NOx and the virtual absence of particulate emissions. It offers a natural transition to biogas through the injection of recycled gas into the GRDF CNG network, which is constantly growing. Biogas production capacity totaled 1,000 GWh in 2017, representing around 1,800 buses. There is also a new market player, Air Liquide, expanding on the offering of established distributor GNVERT.

The next step involves the introduction of **hybrid buses** (Euro 6), which is the most obvious step in tackling the energy transition by making the most of frequent braking between stops and in busy urban traffic. Batteries can thus be charged while maintaining service along the route. However, hybrid buses only run on electricity at low or cruising speeds, and all-electric autonomy remains limited entailing substantial extra costs compared with diesel buses. Hybrid technology is an attractive solution in terms of reducing air and noise pollution but is seen only as an interim option because the cost of hybrid technology is hard to recoup over the service life of a vehicle. The higher the price of diesel, the more hybrid technology tends to pay off.

Transdev continues to pioneer the energy transition with a range of **battery-electric buses** enabling clean e-mobility solutions. The company now operates nearly 500 all-electric "zero emission" buses and minibuses at 27 sites in seven countries (the UK, Canada, Finland, United States, France, the Netherlands and Sweden). It is Europe's largest e-bus operator, with contracts in Amsterdam and Eindhoven, two cities that have some of the world's cleanest bus systems. Similar systems are due to be rolled out leading up to 2024, mainly in the United States and the Netherlands, which should allow Transdev to double the size of its fleet, with nearly 1,000 electric vehicles due to go into service.

Transdev currently operates 100 all-electric buses in the area around Schiphol Airport. Its fleet of "zero emission" buses will be expanded over the next few years, with around 90% comprising electric buses by 2021. The system will employ 800 people and represent around 30 million kilometers traveled a year.

Elsewhere in the Netherlands, transit authorities in Eindhoven and Amsterdam have opted for spacious 18 m articulated buses with lighter batteries that will run on a mixed system combining top-up terminus charges lasting under 30 minutes with complete overnight depot charges lasting four to five hours. Electric buses in the Netherlands run solely on renewables, mainly from wind power. Respective Transdev investments total €250 million in Amsterdam and €100 million in Eindhoven.



The buses recharge overnight in the depot and use opportunity charging (in the depot, at the terminus and at stops) provided by three different types of technology: pantograph, inductive and robotic-arm charging. This gives vehicles a "standard" range of 250-300 km per day and a capacity of 100 passengers per 12 m bus. It also keeps the impact of any necessary infrastructure to a minimum and helps avoid service drawbacks by reducing the time taken to charge at stops.

In France, Valence Romans Déplacements (VRD) will introduce 12 all-electric buses built by Heuiliez Bus in Spring 2019, when they will begin running on Citéa's busiest urban system (Cité 1), which is about 10 km in length. The Transdev-operated Citéa network serves 69 communities, home to a total of 250,000 people.



The backbone route serves several schools and universities. It also passes by Valence central station and multimodal hub. The service represents 15% of total ridership in the area and carries 2.5 million people a year.

The buses will have a range of 230 km and will be charged every evening at the depot. For Valence Romans Déplacements, the transit authority responsible for organizing mobility services, the project represents an investment of €7.5 million, with €3 million financed by Auvergne Rhône-Alpes regional council.

Hydrogen/fuel-cell electric buses. This technology has real promise for the future. Fuel cells provide an onboard means of generating the electricity needed to power the electric motor. They run on hydrogen, which, when combined with the oxygen in the air, produces the electricity needed to provide traction. Water and steam are the only by-products... which means zero pollution in the surrounding environment and a range of more than 350 km with an embedded solution. However, the upfront costs are high and the hydrogen distribution system needs to be put in place in the face of an as yet limited industry offering. Transdev plans to test fuel-cell buses this year in the Netherlands (Eindhoven, Hoekse Waard-Goeree Overflakkee - HWGO) and France (Auxerre, Lens).

## 4. Autonomous transportation services:

Autonomous mobility services provide flexible solutions that are easy to incorporate into existing transportation systems. These solutions can expand the scope of public transportation to better serve places like airports, universities, business complexes and new towns and cities. They are adapted to first-mile and last-mile travel, either on demand or for fixed routes. The goal is to get passengers to their destination swiftly and seamlessly. Transdev believes autonomous mobility solutions are the future of transportation. The company is already operating driverless vehicles on closed sites and is conducting an array of tests on open roads.

Transdev aims to lead the way in mobility services based on fleets of shared autonomous vehicles while ensuring the highest standards for safety, reliability and customer experience. Autonomous services already meet a wide range of needs: streamlining transportation for town centers and tourist destinations, covering a private or restricted area, taking passengers to the station or the nearest stop and providing services at night or during rush hour.

Transdev's strategy is twofold: since 2005, the company has been providing transportation services with autonomous vehicles made by several manufacturers, such as 2GetThere, EasyMile, Lohr and Navya. It is also developing propriety solutions for traffic supervision, embedded software, smart infrastructure, user apps and more to ensure the utmost safety and security and offer an optimal user experience.

Transdev expertise in shared autonomous transportation stems from experience in carrying over two million passengers more than 350,000 km since 2005 through initiatives in Australia, Canada, France, the Netherlands and the United States.

By the beginning of the next decade, the goal is to provide commercial transportation services through fleets of shared autonomous vehicles that are a seamless part of conventional transportation systems.

## A defining partnership with the Renault-Nissan-Mitsubishi Alliance



#### RENAULT NISSAN MITSUBISHI

In February 2017, Transdev and Renault-Nissan-Mitsubishi signed an R&D contract to develop mobility services using autonomous vehicles for public transportation and transportation on demand (TOD). The two groups will work together to design a complete, modular transportation system that will allow customers to reserve their journeys and operators to management a fleet of autonomous vehicles. Research will initially focus on field tests at Paris Saclay with the Renault ZOE and Transdev's dispatch, supervision and routing platform.

The Rouen Normandy Autonomous Lab is a pioneering project to promote shared autonomous mobility services as part of an existing public transportation system in the city of Rouen.



Métropole Rouen Normandie, Transdev Group, Groupe Renault, Matmut—partners in the Rouen Normandy Autonomous Lab initiative—are testing, with the support of the Normandy Region and Banque des Territoires, the first on-demand shared mobility service to use autonomous vehicles on open roads in Europe. The service will be made available to the public in the final quarter of 2018 with four autonomous Renault ZOE all-electric vehicles and an i-Cristal autonomous urban shuttle jointly developed by Transdev and Lohr.

The Rouen Normandy Autonomous Lab service will provide extensive coverage in Rouen's "Technopôle du Madrillet" business park in Saint-Etienne du Rouvray through connections to the "Technopôle" tram stop. The goal is to provide mobility solutions in an area to which conventional public transportation services are poorly suited, in a first-mile and last-mile approach.

Users can call a vehicle in real-time from the smartphone app.



The vehicles will run on three routes covering a distance of 10 kilometers, with 17 stops across the district and a link to the Rouen public transportation system.

The four Renault ZOE all-electric cars used in the project are already being tested on open roads and are equipped with autonomous systems developed by Transdev and Renault. The tests cover all considerations related to typical traffic conditions, such as other vehicles, intersections, rotaries and building exits. The fleet will also feature an i-Cristal autonomous urban shuttle jointly developed by Transdev and Lohr.

After a period of tests, this on-demand experimental service is due to be made available to the public in September 2018, subject to obtaining the necessary approvals, and will the run until December 2019. This trial will provide an opportunity to fine-tune the technology and gain insight into usage and take-up among local residents to enable necessary adjustments.

A unique public-private partnership shaping the future of shared mobility solutions

Rouen Normandy Autonomous Lab embodies a joint commitment by all partners to invest in the future of mobility by pooling their respective expertise and cutting-edge capabilities in support of a pioneering drive to develop innovative, sustainable transportation solutions.

<u>The city of Rouen and the Normandy region</u> aim to offer Norman people an innovative new service that is a first in Europe and an initial step toward developing a state-of-the-art industry cluster dedicated to future mobility solutions.

<u>Caisse des Dépots Group</u> sees the experiment as a tangible showcase for the "Smart City" initiative launched in November 2016 to help roll out innovations in cities and regions. Caisse des Dépots teams have supported from the start this innovative project with upstream engineering to help structure the group of partners.

<u>Transdev Group</u> is a subsidiary of Caisse des Dépôts and brings a wealth of expertise to the project as a provider of transportation services (operation, fleet management and customer relations) and its technologies for autonomous transit systems (supervision, user app, embedded software and smart infrastructure).

<u>Groupe Renault</u> is a European leader in electric vehicles and has a wealth of expertise as a carmaker and provider of smart, autonomous technologies and mobility services. The project is part of the group's strategy of offering automated, on-demand mobility services as of 2022.

<u>Matmut Group</u>, historically based in the Rouen area, offers insight into issues related to auto insurance to help understand how self-driving cars will affect the future of mobility and the responsibilities these changes will bring.

A groundbreaking initiative to promote shared mobility using autonomous vehicles as part of an existing public transportation system in and around the city of Rouen

The pioneering project is unique in its comprehensive drive to build a "complete" autonomous transportation system by testing innovative technologies able to create an all-encompassing transportation system and provide an open-road service at speeds equivalent to those of conventional vehicles while ensuring passenger safety.

The system includes a user app to request transportation, along with a fleet control room, smart infrastructure and secure telecommunications networks. The operator can monitor the fleet from the control room and take action where needed to reduce the speed of vehicles or bring them to a halt. Audio and video communications between passengers and the control room will also be possible at any time.

The system was developed through a partnership between Groupe Renault and Transdev, with each providing key expertise: Renault for the vehicle and smart, autonomous technology; Transdev for the tracking system, smart infrastructure and secure telecommunications. Matmut also covers all issues related to insurance, responsibility and future regulations.

Rouen Normandy Autonomous Lab is an integral part of the public transportation system provided by the Métropole de Rouen transit authority. The latter's close involvement in the project, which is also backed by the Normandy region, reflects a commitment among local authorities to integrate these new services and step up the transformation toward more efficient smart cities and better quality of life.

The initiative is underpinned by a drive to foster people's acceptance of on-demand solutions that use autonomous vehicles while empowering the public to play an active part.

The projet EVAPS project (Eco-mobilité par Véhicules Autonomes Paris-Saclay)

The EVAPS project, on the Paris-Saclay territory, aims to offer an autonomous shared transport service in peri-urban areas allowing residents to reach their homes (Camille Claudel district) or the Paris-Saclay campus from Massy station, or vice versa, at night or during off-peak hours. This project brings together five partners: the Transdev Group, the Renault Group, Vedecom, SystemX, the University of Paris-Saclay and EPAPS, and is supported by the "Investissements d'Avenir de l'État" entrusted to ADEME.

The service, which is integrated and complementary to the current transport offer, will use the infrastructure of the Massy-Saclay TCSP on which the autonomous i-Cristal Transdev / Lohr shuttle will operate. Two autonomous Renault ZOE vehicles will be used on demand for a more convenient service to the campus. Beyond extending the transport service over time, the key elements of the project include the integration of the autonomous transport service into the public transport network, the testing of the connected Infrastructure, as well as the testing of the Operational Control Centre (with supervisors).

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