



## Shared autonomous transport service: issues and legal frameworks



The deployment of autonomous vehicles represents a revolution for mobility. In addition to technological innovation, there are a large number of arising issues, ranging from urban development to road safety, transport infrastructure, cybersecurity, competitiveness and employment.

Transdev's objective, as The Mobility Company, is to develop mobility solutions that enhance the quality of life and future development of our regions and cities.

Australian cities are growing faster than ever before and with this growth comes the added burden of congestion. Our aging population demands that we find new ways for people to move around our cities and regions through the provision of safer modes that provide greater flexibility.

At Transdev, we believe that the development of autonomous vehicles must be oriented towards shared mobility and, in particular, needs to be integrated coherently within existing public transport systems and networks.

We believe that the risk faced by governments around the world is that continued, unchecked development of autonomous vehicles for single use may increase congestion by a further 20-30% in urban areas. The case for investment and policy setting for the promotion of shared autonomous mobility is central to improving the overall liveability of our regions and cities.

Shared autonomous shuttles, for instance, provide a compelling value proposition for first- and last-mile transport that can enhance the efficiency of existing networks and grow patronage.

Around the world, Transdev has invested significant resources into shared mobility solutions, including autonomous vehicles and on demand transport solutions. The arrival of autonomous vehicles in the short to medium term provides a will provide passengers an increased serviced offering of accessible, flexible, reliable and connected transport services.

For governments, the opportunity exists to provide services that are wholly inclusive, integrate within a city's larger transport network and provide extended operational hours. For cities, the introduction of shared autonomous mobility will make our cities more sustainable, safer, accessible and provide communities with new ways to connect and travel.

### **Transdev Australasia Pty Ltd**

Level 8, 469 La Trobe Street  
Melbourne VIC 3000 Australia  
[www.transdev.com.au](http://www.transdev.com.au)



## Types of uses

Autonomous transport provides a safe and reliable solution to complete first- and last-mile journeys, with the ability to operate as an on-demand or regular timetabled services. Benefits can include safety improvements and service quality, and Transdev envisions that autonomous vehicles and shuttles will compliment existing transport solutions. Autonomous shuttles have been operating around the world on short urban routes for a number of years, and are rapidly evolving towards increasingly complex and flexible use cases and services.

### **AUTONOMOUS MOBILITY IS FOR EVERYONE**



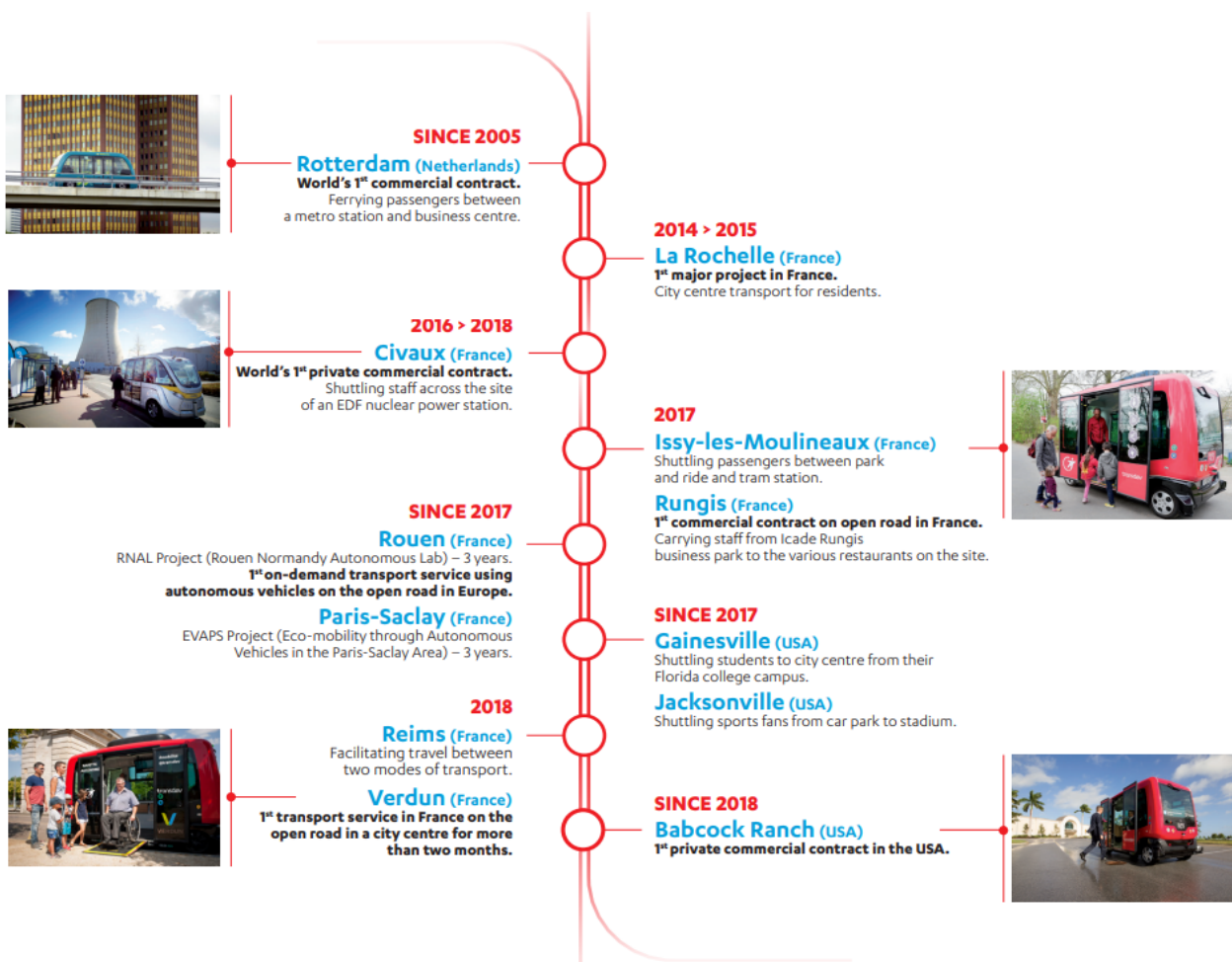
### Transdev Australasia Pty Ltd

Level 8, 469 La Trobe Street  
Melbourne VIC 3000 Australia  
[www.transdev.com.au](http://www.transdev.com.au)



## Transdev leading the way in autonomous mobility

Transdev believes autonomy is imperative to the future of transport, and we are uniquely positioned to be a thought leader in the creation of autonomous transport networks. With years of expertise in this space, Transdev has safely operated and maintained autonomous shuttles since 2005. Transdev already operates autonomous shuttles in closed networks (private roads) and is currently conducting numerous pilots on open sites (public roads) around the world.



**2 M** passengers transported

**350,000** kilometers travelled

using Transdev shared transport services with autonomous vehicles  
(no steering wheel or pedals)

### Transdev Australasia Pty Ltd

Level 8, 469 La Trobe Street  
Melbourne VIC 3000 Australia  
[www.transdev.com.au](http://www.transdev.com.au)



## Development of autonomous technology

Last June, Transdev launched the Rouen Normandy Autonomous Lab project. This on-demand, autonomous vehicle transport project was developed by Transdev Group in partnership with Rouen Metropolitan Area, Renault Group and Matmut group, with the support of Normandy Region and Banque des Territoires. Four fully electric Renault ZOE autonomous vehicles have been operating since October 2018 and connect key precincts within the city including the University and light rail network. The project will expand to include two further zones capturing the city of Rouen.

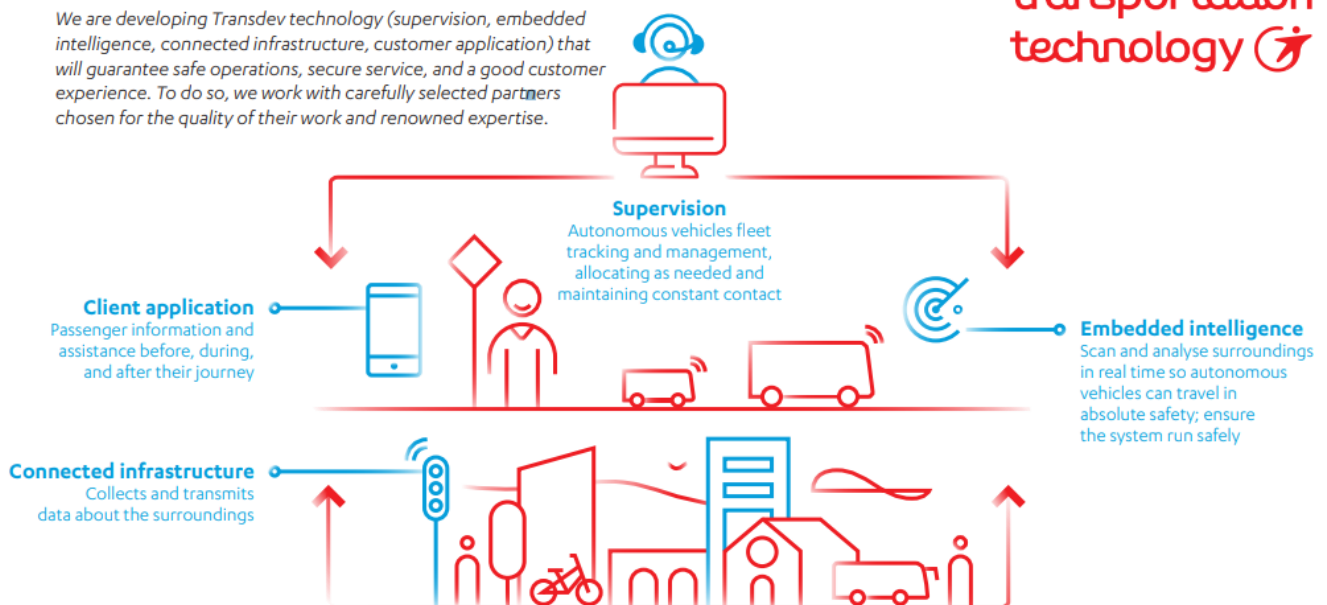


In partnership with Lohr, Transdev Group has also developed a research and development centre of excellence that will see the 'I-Cristal' in full production in the coming years. The I-Cristal is a 12-passenger autonomous shuttle that includes the latest in technology focusing on customer information, safety, around the clock supervision and cyber-security. This pioneering project will provide shared autonomous mobility services integrated with existing public transport network of the Rouen metropolitan area, whose global approach will make it possible to build a "complete system" of autonomous transport.

### THE TRANSDDEV AUTONOMOUS TRANSPORT SYSTEM

We are developing Transdev technology (supervision, embedded intelligence, connected infrastructure, customer application) that will guarantee safe operations, secure service, and a good customer experience. To do so, we work with carefully selected partners chosen for the quality of their work and renowned expertise.

transportation  
technology 



### Transdev Australasia Pty Ltd

Level 8, 469 La Trobe Street  
Melbourne VIC 3000 Australia  
[www.transdev.com.au](http://www.transdev.com.au)



## Partnership is key

Transdev's approach to working with multiple manufacturers and partners means our team can analyse the most recent technological innovations currently available in the market. This gives Transdev the ability to provide its customers with a wide range of solutions, with variation in design and operational implementation.

Our model ensures that we bring our global expertise of operational excellence, mixed with the latest technology to provide turn-key solutions for our Public Transport Authorities (PTAs).

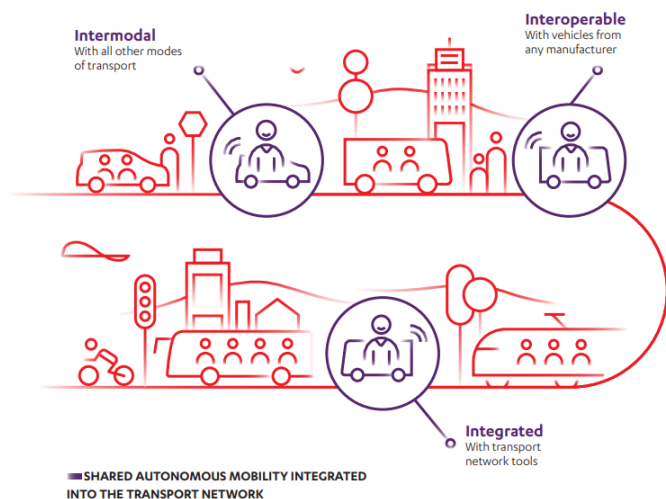


Our approach to-date has been to partner with PTAs, universities, developers, hospitals and nursing homes to pilot autonomous technology locally. This means we can demonstrate how this technology in its current form is changing the way that passengers feel about autonomous technology and the future of transport.

## The governing role of the Public Transport Authorities (PTAs) in deployment of autonomous vehicles/shuttles

As with any revolutionising technology, deployment must be managed through coherent governance in order to be implemented in a controlled environment, in line with public transport regulation and policies. As a public transport operator, Transdev aims to integrate autonomous vehicles into a global mobility system, such as encouraging the use of shared mobility. To this end, PTAs need to play a strong, governing role in initiating autonomous vehicle/shuttle trials.

Autonomous vehicles represent an opportunity to close the gap in fractured transport networks. PTAs could diversify their offer in developing first-mile last-mile solutions, in areas of reduced public transport options, over wider time slots and for people with reduced mobility.





## Transdev's Australian Roadshow

Transdev has played a role in shaping community perceptions of autonomous technology by delivering a 6 month roadshow that commenced as part of the ADVI (Australia and New Zealand Driverless Vehicle Initiative) conference in October 2017. In late 2017/early 2018, Transdev partnered with manufacturer Easymile to host an Autonomous Shuttle Roadshow in Australia. In partnership with local councils, Transdev hosted public demonstrations in 8 cities and regional centres (Adelaide, Canberra, Sunshine Coast, Cairns, Darwin, Melbourne, Ipswich, Redlands and Sydney). Over 2,250 members of the public boarded Easymile's EZ10 autonomous shuttle and experience autonomous mobility for themselves.



Transdev conducted 713 post-travel surveys throughout the roadshow. Overall, over 95% of those surveyed rated their experience above average or excellent, and over 92% would like to see self-driving technology as part of their local transport mix.

## Transdev's Autonomous Shuttle trial in Armidale early 2019

In 2019, Transdev will commence operations of its first autonomous shuttle in Australia in partnership with the Armidale Regional Council. As the operation and maintenance partner, Transdev will work with its partners to facilitate a 12 month trial at the University of New England and the city of Armidale as part of Transport for NSW's Future Transport 2056 strategy.

### Transdev Australasia Pty Ltd

Level 8, 469 La Trobe Street  
Melbourne VIC 3000 Australia  
[www.transdev.com.au](http://www.transdev.com.au)



# MOBILITY

Shared autonomous  
transport services



# Challenges in autonomous transport

## #PACE FUTURE'S MOBILITY



We believe that autonomous public transport will deliver profound changes, not only in how we travel, but also in how we live.

We aim to keep developing inclusive, efficient, and sustainable mobility solutions by gradually introducing shared autonomous vehicles into transport networks.

This is expected to bring a tide of benefits (as long as the autonomous vehicles are used for shared transport), including : flexible, customisable, and accessible services, more widespread stops in terms of time and distance, reduced sound and air pollution (100% electric vehicles), safer, more comfortable travel, and more integrated, smart services for the best possible customer experience.

We want to harness autonomous technology for shared transport, everywhere and for everyone !



The future of mobility is PACE: Personalized, Autonomous, Connected and Eco-Friendly. We are a world leader in public transport and on demand public services. As such, we are committed to testing out new kinds of mobility, giving our customers the best possible solutions to their travel needs.”

— Yann Leriche,  
CEO North America, Head of  
the global B2C business line &  
Autonomous Transportation Systems

### THE ADDED VALUE OF SHARED AUTONOMOUS TRANSPORT FOR ALL



#### Passengers



Practical



Flexible



Always available



Connected



#### Local authorities



Inclusive



Integrated



Inclusive



Intermodal



Expanded



#### Cities



Sustainable



Secure



Accessible



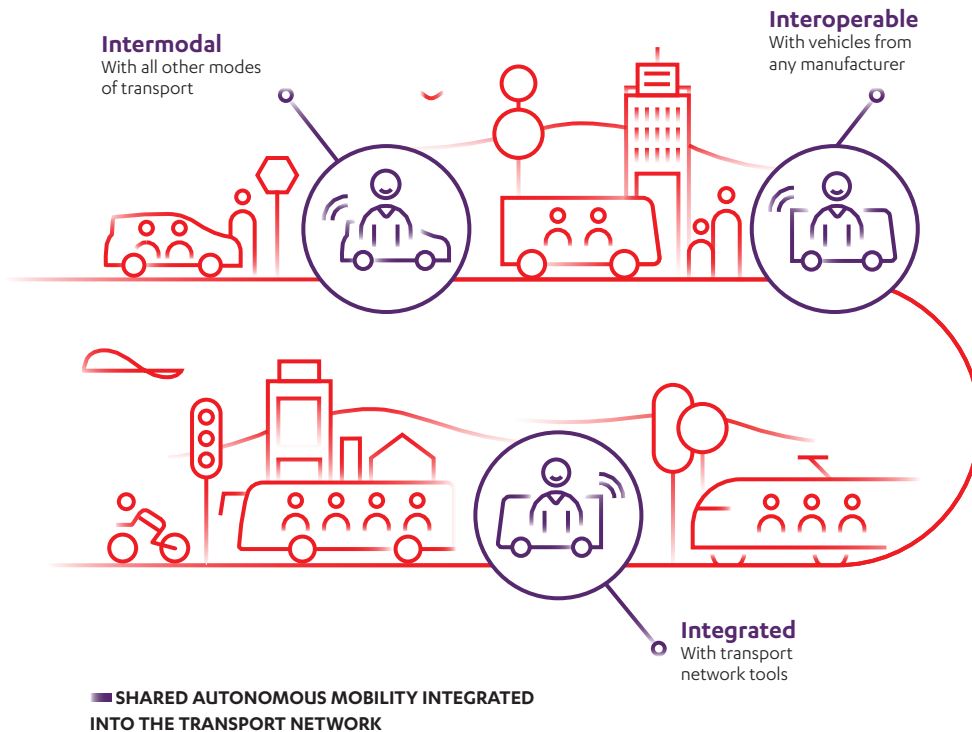
Opened up



Friendly



# Our turnkey solution



Thanks to our positioning with a range of manufacturers (EasyMile, Navya, 2GetThere, Lohr, etc.), we deliver transport services using autonomous vehicles from any brand.

**W**e offer turnkey shared autonomous transport solutions: from help choosing the right services or route, to rolling out and operating services including permit management and tracking customer satisfaction. We work closely with our customers every step of the way.

At the time of publication, 1000 passengers have surveyed and have given our various services an overall satisfaction score of 8,7/10, with a feeling of trust at 97%, and 97% likely to recommend us.

# The pillars of Transdev's expertise

**P**resent in 20 countries all over the world, Transdev designs, implements, and runs transport solutions combining every mode of transport, coupled with services that make passengers' everyday lives easier. We leverage mobility for quality of life and regional development.



A pillar of Transdev's strategy is the development of autonomous transport systems, one of the major disruptive innovations in the future of mobility."

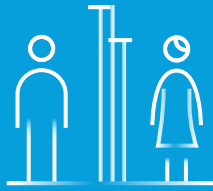
—Thierry Mallet,  
Chairman and CEO  
of Transdev Group

## A DEDICATED, PASSIONATE TEAM WORKING IN START-UP MODE

The Autonomous Transport Systems Department is staffed by international experts hailing from a variety of different sectors. The department includes an research and development team made up of expert specialists, which works closely with the Group's different business lines and subsidiaries around the world.



10  
Nationalities



74 %  
Men  
26 %  
Women



Engineering School  
Business School  
University  
Graduates



Automobile



Mobility



Robotics



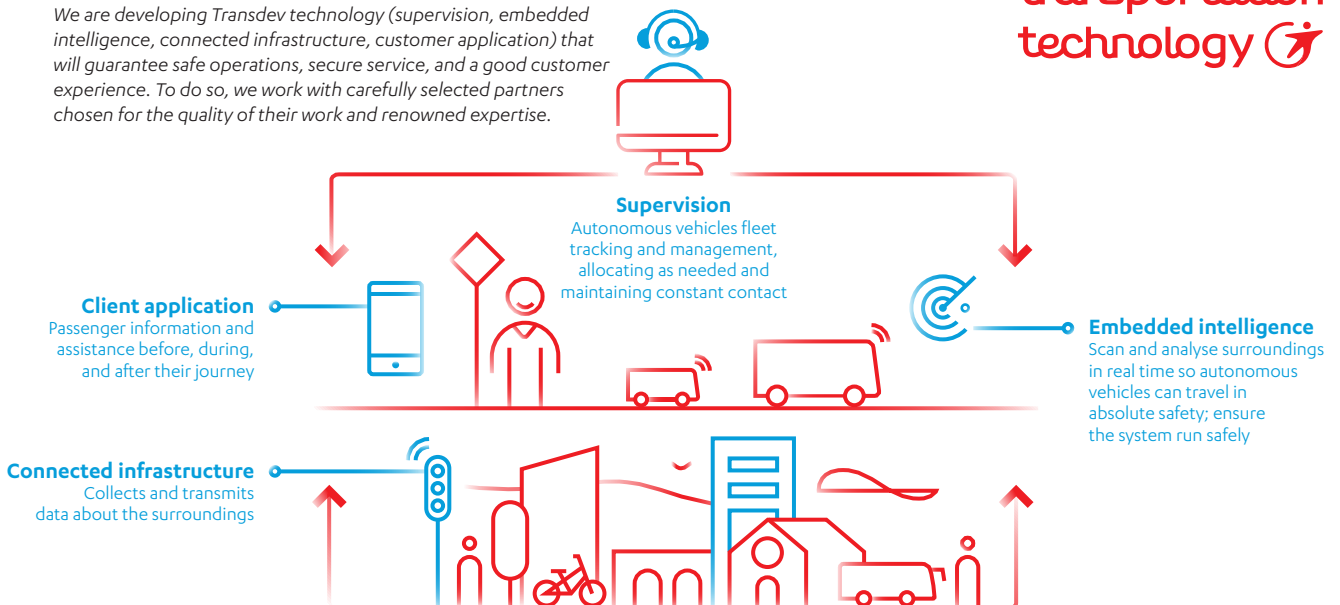
Research

### Experience

## THE TRANSDEV AUTONOMOUS TRANSPORT SYSTEM

We are developing Transdev technology (supervision, embedded intelligence, connected infrastructure, customer application) that will guarantee safe operations, secure service, and a good customer experience. To do so, we work with carefully selected partners chosen for the quality of their work and renowned expertise.

transportation  
technology



# Autonomous mobility services : tailored solutions to a range of needs are already here.

**A**s a transport operator today and in the future, we are already responsible for ensuring that our services run safely and securely, and guaranteeing a good customer experience.

The applications for autonomous mobility solutions are growing in number and variety with every new project. Increasingly complex services will become available, eventually meeting other mobility needs.

## APPLICATIONS DEVELOPED BY TRANSDEV



### Rouen (France)

**Project RNAL (Rouen Normandy Autonomous Lab) - 3 years :**

The first on-demand transport service using autonomous vehicles on the open road in Europe (three circuits of 10.5 km).

Offering shared autonomous transport services in **urban areas**, so that passengers can reach their destination in the Madrillet Tech Cluster, or get to the tram station from the Cluster **during the day**.



### Saclay (France)

**EVAPS Project**

**(Eco-mobility through autonomous vehicles in the Paris-Saclay Area) - 3 years :**

Providing shared autonomous transport services in **suburban areas**, so that residents can reach their home (in the Camille Claudel neighbourhood) or the Paris-Saclay campus from Massy station at night and during off-peak times.

An integrated service that complements current public transport options, and makes use of **existing infrastructure (TCSP Massy-Saclay)**.



### Verdun (France)

First transport service in France on the open road, in real traffic conditions, in a city centre, for more than two months.

Facilitating travel in Verdun **city centre**, providing access to the city centre shops and restaurants as well as the busy quayside area, all while providing connections to the bus network and park and ride facilities.



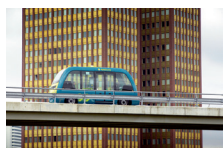
### Babcock Ranch (Florida, USA)

First private commercial contract in the USA.

Enabling residents **to travel around this new, green, solar-powered town thanks to a fleet of autonomous shuttles**. Experimentation with several modes of autonomous transport within this town under construction in the state of Florida, so that its 50,000 new residents can enjoy mobility "as a service".

# Leader in operating shared autonomous mobility services.

We offer a comprehensive range of services, based on a solid track record that stretches back to 2005.



**SINCE 2005**

**Rotterdam (Netherlands)**  
**World's 1<sup>st</sup> commercial contract.**

Ferrying passengers between a metro station and business centre.



**2016 > 2018**

**Civaux (France)**

**World's 1<sup>st</sup> private commercial contract.**

Shuttling staff across the site of an EDF nuclear power station.

**2014 > 2015**

**La Rochelle (France)**

**1<sup>st</sup> major project in France.**

City centre transport for residents.

**2017**

**Issy-les-Moulineaux (France)**

Shuttling passengers between park and ride and tram station.

**Rungis (France)**

**1<sup>st</sup> commercial contract on open road in France.**

Carrying staff from Icade Rungis business park to the various restaurants on the site.



**SINCE 2017**

**Rouen (France)**

RNAL Project (Rouen Normandy Autonomous Lab) – 3 years.

**1<sup>st</sup> on-demand transport service using autonomous vehicles on the open road in Europe.**

**Paris-Saclay (France)**

EVAPS Project (Eco-mobility through Autonomous Vehicles in the Paris-Saclay Area) – 3 years.

**SINCE 2017**

**Gainesville (USA)**

Shuttling students to city centre from their Florida college campus.

**Jacksonville (USA)**

Shuttling sports fans from car park to stadium.



**2018**

**Reims (France)**

Facilitating travel between two modes of transport.

**Verdun (France)**

**1<sup>st</sup> transport service in France on the open road in a city centre for more than two months.**

**SINCE 2018**

**Babcock Ranch (USA)**

**1<sup>st</sup> private commercial contract in the USA.**



# 2 M

passengers transported

# 350,000

kilometers travelled

using Transdev shared transport services with autonomous vehicles  
(no steering wheel or pedals)

Transdev Autonomous Transport Systems

Christine Peyrot

Commercial Director

christine.peyrot@transdev.com

[www.transdev.com](http://www.transdev.com)

