# JEAN-BAPTISTE LATIL D'ALBERTAS

## Business Developer @Navya

MIVB STIB

.brussels

Autonomous vehicles and sustainable mobility

100%Autonomous

100%Electric

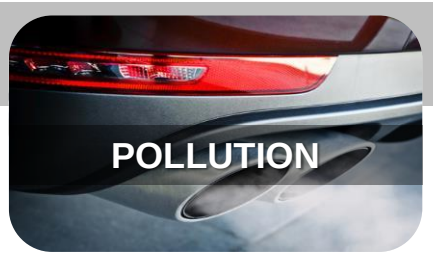
# THE CITY FACING NEW STAKES
# MUST BECOME A SMART CITY

2050

70%

*Worldwide population*

City population



navya

# THE AUTONOMOUS VEHICLE, MAJOR CONTRIBUTION TO A NEW MOBILITY SOLUTION

## INCREASE
transportation network system

## IMPROVE SERVICE
without $CO_2$ emissions

## SERVE NEW AREAS
thanks to a new economic model

navya

# KEY COMPANY INFO

- **220,000+** engineering man-hours
- **30+ MILLION €** capital increase (Oct 2016)
- **HQ in France** – US Offices in Detroit
- **2 PLANTS** in Lyon, FRANCE – Michigan, USA
- **STRATEGIC AGREEMENTS** signed with key partners

Valeo Keolis

- **160+** passionate people
- **50+ VEHICLES** operating worldwide
- **200,000+** passengers transported
- **2 solutions:**
  **AUTONOM SHUTLLE**
  **AUTONOM CAB**

# AUTONOM CAB

First experimentations in 2018

- Electric and driverless
- 6 passengers
- On demand transportation in urban area
- Dedicated app

# AUTONOM SHUTTLE

Already 50 in operation worldwide

- Electric and driverless
- 15 passengers
- First and last miles transportation

navya
GNSS Antenna
LIDAR
Sensors
Cameras
Odometry

# The most sophisticated multi-sensor technology on the market

AUTONOM CAB benefits from one of the most complete sensor architectures on the market. There are no fewer than 10 Lidar sensors, 6 cameras, 4 radars, 2 GNSS antennae and 1 inertial measurement unit (IMU). These sensors provide at least a triple redundancy across all functions, guaranteeing exceptional reliability.

## 6 Cameras

Cameras analyze the vehicle's surroundings, in particular road signs and traffic lights. Thanks to "deep-learning" algorithms, the cameras detect and categorize obstacles.

## 10 Lidar Sensors

Using laser technology to measure distance, Lidar sensors perceive the vehicle's surroundings in three dimensions. They ensure detection of obstacles and calculate the vehicle's precise positioning thanks to 3D-mapping. AUTONOM CAB uses the world's two best types of Lidar technology.

3 VLP Lidars from Velodyne provide 360° peripheral vision.

7 SCALA Lidars from Valeo are capable of seeing at distances greater than 200 meters.

## 2 GNSS Antennae

GNSS antennae are linked to a GNSS RTK system that provides precise positioning, accurate to the nearest centimeter.

## 4 radars

Radars determine the position and speed of nearby objects. They ensure long-distance vision.

## 4 odometry sensors

The odometry sensor estimates and confirms the vehicle's position and speed whilst moving.

## 1 IMU

The IMU measures vehicle accelerations and rotations, thereby allowing the vehicle to confirm positioning information and improve precision.

## V2X

AUTONOM CAB comes equipped with a V2X (OBU) device enabling it to interconnect with all types of urban infrastructure, particularly traffic lights.

## 4G

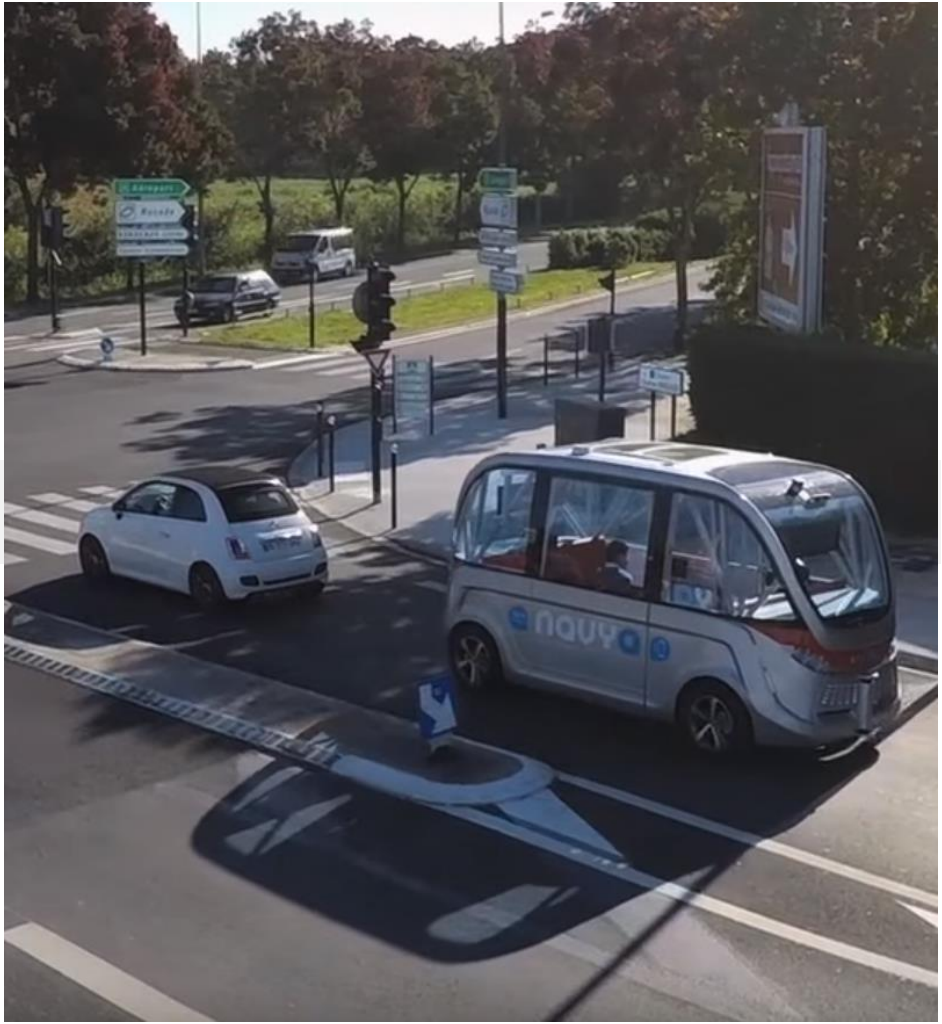
The vehicle is equipped with a MODEM meaning that it can communicate with the NAVYA supervision center (even though the vehicle does not need to be connected permanently).

## AUTONOM'S APPROACH TO MANAGING TRAFFIC SITUATIONS

**PERCEPTION**
The AUTONOM understands the surroundings, to detect obstacles and anticipate movement

**DECISION**
The AUTONOM calculates and determines its route and path.

**ACTION**
The AUTONOM carries out the decisions made by the vehicle's computer



# THE MOST ADVANCED SUPERVISION MANAGEMENT PLATFORM

1. FLEET MANAGEMENT in real time
2. SERVICE & EVENTS Management
3. REMOTE Control Access
4. DATA COLLECTION & ANALYTICS Visualization platform

# NAVYA ON PUBLIC ROAD & PRIVATE SITES

## ALL AROUND THE WORLD

# MULTI-SITE APPLICATION FOR FIRST AND LAST MILE

- Cities
  AUTHORIZATION REQUIRED
- Industrial sites
- Airports
- Campus
- Hospitals
- Theme parks

# PUBLIC ROADS

**NAVLY** - Lyon, FRANCE

**CARPOSTAL** - Sion, SUITZERLAND

**SMART TRANSPORT** - Doha, QATAR

**RAC INTELLIBUS** - Perth, AUSTRALIA

**DIGIBUS** - Salzburg, AUSTRIA

**MBC** - Cossonay, SWITZZERLAND

**TPF** - Fribourg, SUITZERLAND

**STIF** - Paris La Défense, FRANCE

And many others ...

# PRIVATE SITES

**EDF CIVAUX** - Civaux, FRANCE

**RENAULT TRUCKS** - Lyon, FRANCE

**MCity** – Michigan, USA

**CHRISTCHURCH AIRPORT** – Christchurch, NEW ZEALAND

**TAN TOCK SENG HOSPITAL** – Singapore, SINGAPORE

**WKCDA** - Hong Kong, CHINA

**NANYANG TECH. UNIVERSITY** – Singapore, SINGAPORE

**CURTIN UNIVERSITY** - Perth, AUSTRALIA

And many others….

# KEY FIGURES

**200 000** passengers transported

**50** vehicles operating worldwide

# OPPORTUNITIES OF DEVELOPMENT

## LEGAL FRAME EVOLUTION

## PERPETUAL TECHNOLOGICAL IMPROVMENT

## ACCEPTANCE BY THE BROAD PUBLIC

Paris operation in “La Défense” business district
→ 97% of users feel satisfied or highly satisfied
→ 89% want to use the shuttle again

*Survey conduted by IPSOS

Autonomous vehicles and sustainable mobility

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How to participate ?

1. Connect to
**www.wooclap.com/PROGRESS**
2. You can participate

# Questions sur Wooclap ?

# Vragen op Wooclap ?

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# LE TRANSPORT PUBLIC AU CŒUR DE LA TRANSITION

Rendez-vous de Progrès • **30 novembre 2017**

# HET OPENBAAR VERVOER IN HET HART VAN DE VERANDERING

Voortgangsbijeenkomst • **30 november 2017**

# PUBLIC TRANSPORT AT THE HEART OF THE TRANSITION

Progress Event • **30 november 2017**

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