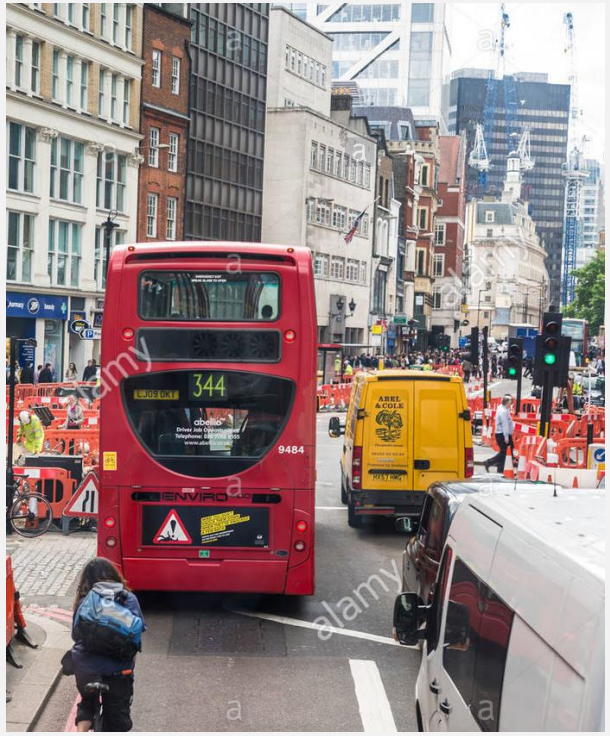
Neavia
LACROIX
A brand of LACROIX City

Bridging today's road managers' needs to tomorrows autonomous vehicle deployment with V2X

AUTONOMOUS & CONNECTED VEHICLES ARE HERE…
…WITH CHALLENGES AND OPPORTUNITIES !

For tracks dedicated



For work managment

For channel assignments

For constrained urban environments

OUR TECHNOLOGY **CONNECTS ROAD INFRASTRUCTURES TO VEHICLES**

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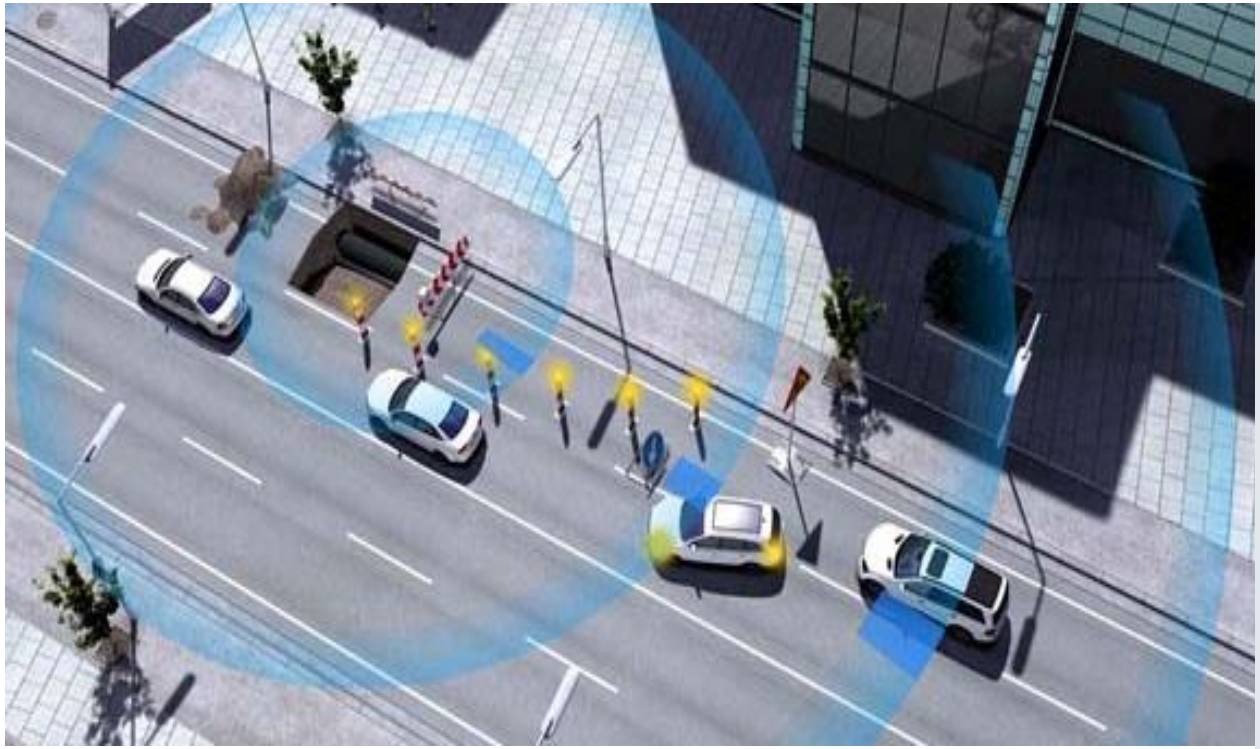
Why **CONNECTED And** Autonomous Vehicle ?

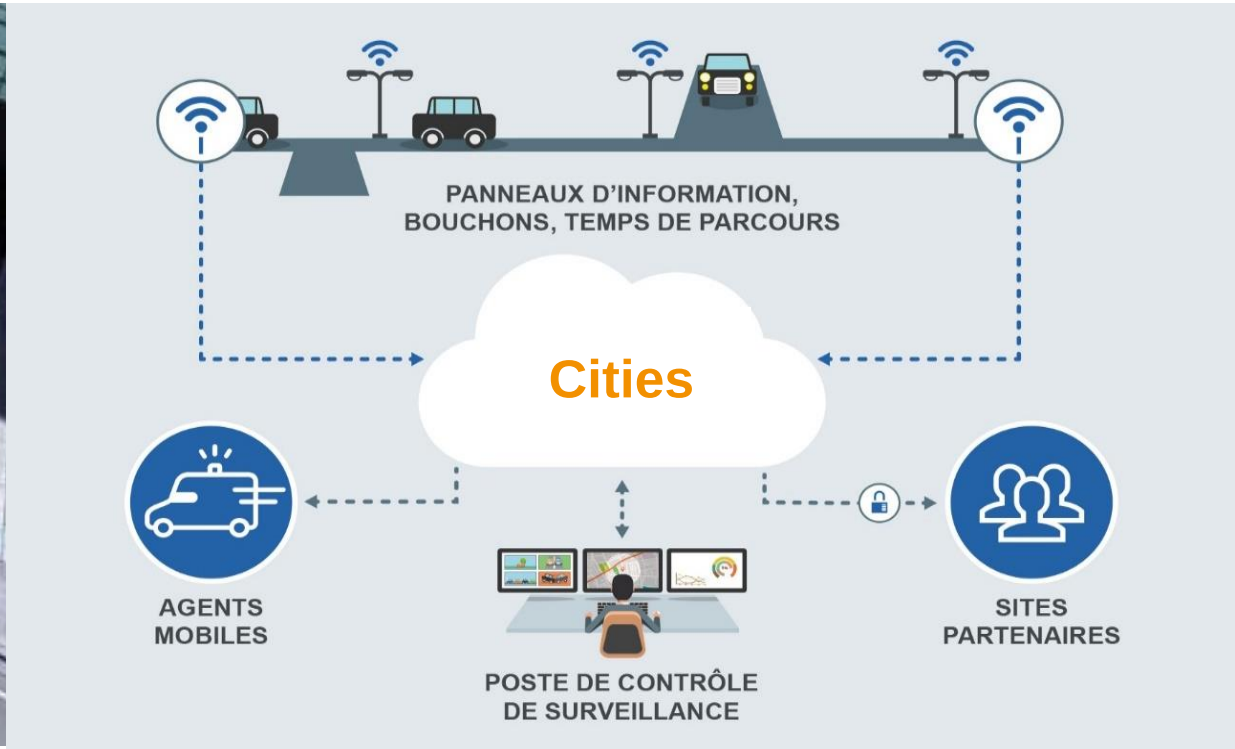
Accelerate time-to-market and early adoption

Enhance security and safety (ADAS)

Build advanced city's data

Enabling new services





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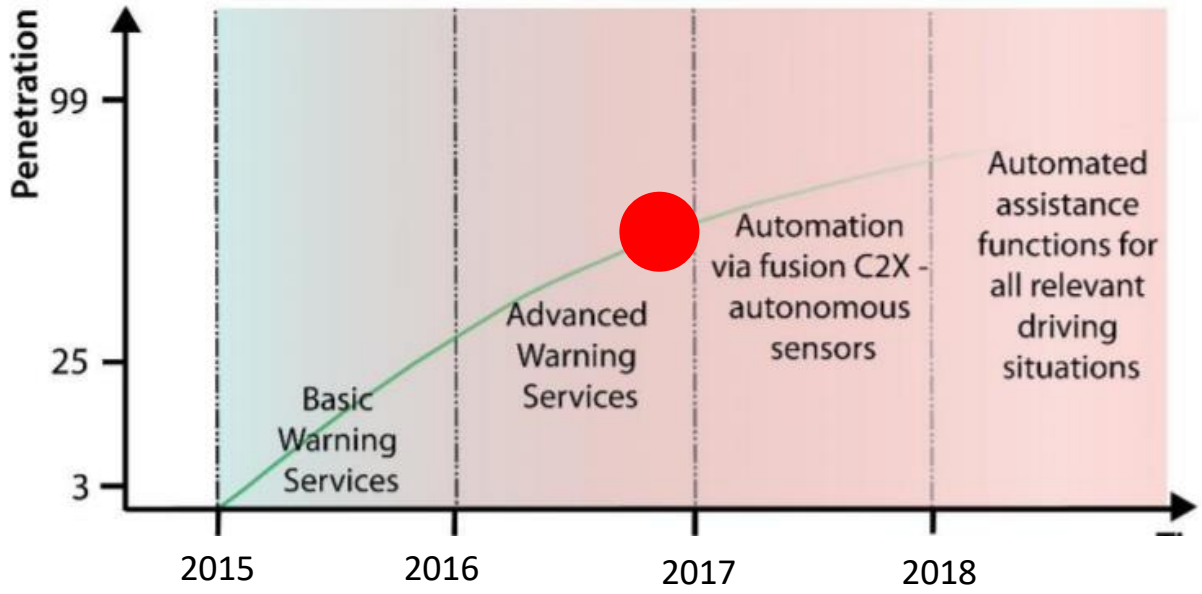
V2X Connectivity uses cases phases

- Use cases and messages
  - Emergency break
  - Emergency vehicle approaching
  - Stationnary vehicle
  - Traffic information
  - Hazardous area
  - Roadworks
  - Signal violation
  - Embedded signage
  - Contextual speed notification
  - GLOSA (Green light optimized speed advisory)



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Some projects…. It moves fast !

- **2011**: **30 Firsts prototypes of V2X RSU** deployed on French FOT **Score@F**
- **2012**: First European FOTs with **Neavia RSU (Sweden, NL)** on EU FOT **Drive V2X**
- **2013**: **Compass 4D** installation around Bordeaux (FR), firsts traffic lights connected
- **2014**: **Versailles City centre** V2X traffic lights management with Vedecom autonomous car
- **2015**: **2000km of V2X RSU + OBU (Scoop@F) with Lacroix connectivity**
  - https://www.youtube.com/watch?v=l5chTlVI5aM
  - https://www.youtube.com/watch?v=iqUr4xYLVTQ
- **2016**:
  Deployment of **« Sensored » V2X corridor between France and Italy** [SYNCRO]
  Management of a **truck crossing traffic lights using Neavia V2X** [TRANSPOLIS/VOLVO Truck]
  -
- **2017**: **Neavia Autonomous vehicles V2X solution** for **safety** with **cybersecurity**
  - Navya / Easymile / Vedecom new vehicle (RSU+OBU)
    First demonstration of a **toll crossing solution for autonomous cars** using Neavia V2X
  - VINCI Highways + PSA / SANEF Highways + Renault
    - https://www.youtube.com/watch?v=UbtSVExmZJA
    - https://www.youtube.com/watch?v=l90JmGzufLA
  - **Intercor Testfed** compliance tests

ETSI World Class Standards 2015 2016 2017

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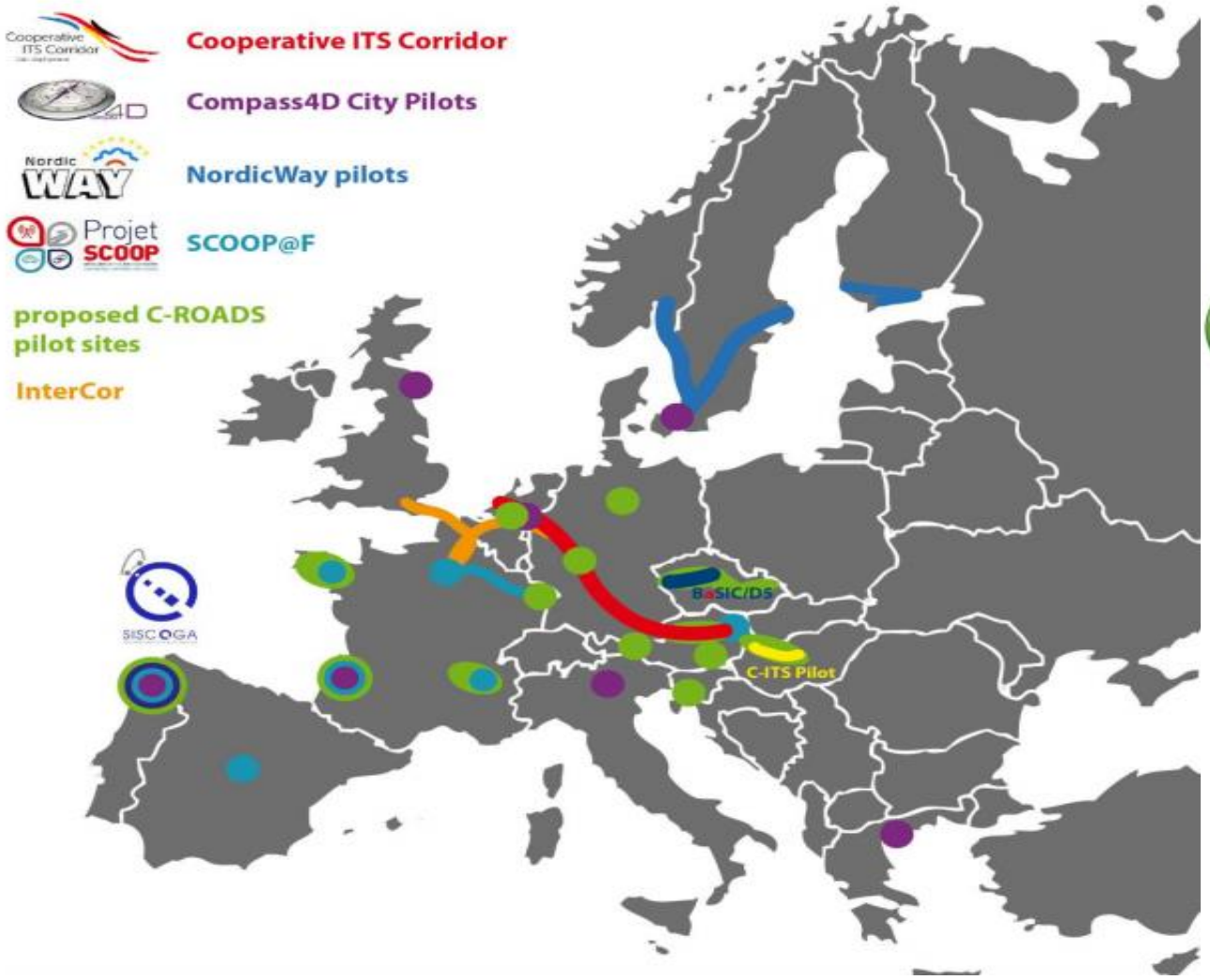
And now everywhere in Europe & in the US



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Why such an interest for this technology ?

- Devices **ready now** !
- Ensured **Interoperability**
- **Cybersecurity** management of the communications
  - Same level as physical secured payment
- **Sensing full environment for vehicles and cities**
  - Multiple sensors' information
  - Enhacing Traffic Management Centers

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A global approach

Interurban / Highways

- **Needs:**
  - **Connectivity for safety**
  - **Combine V2X + sensors to provide an accurate and fast answer to local difficulties**
  - **Specific needs regarding roadworks/ work men safety**
- **Opportunity:**
  - **Managing V2X+Sensors allows right now a complete vision of the road, even with non equipped vehicles**

Cities areas

- **Needs:**
  - **Connectivity for safety**
  - **Combine V2X + traffic lights to manage autonomous deployment pilots**
- **Opportunity:**
  - **By enabling right now V2X connectivity to traffic lights, Buses/Emergency Vehicles can be managed using an +interoperability +cybersecured +long term solution**

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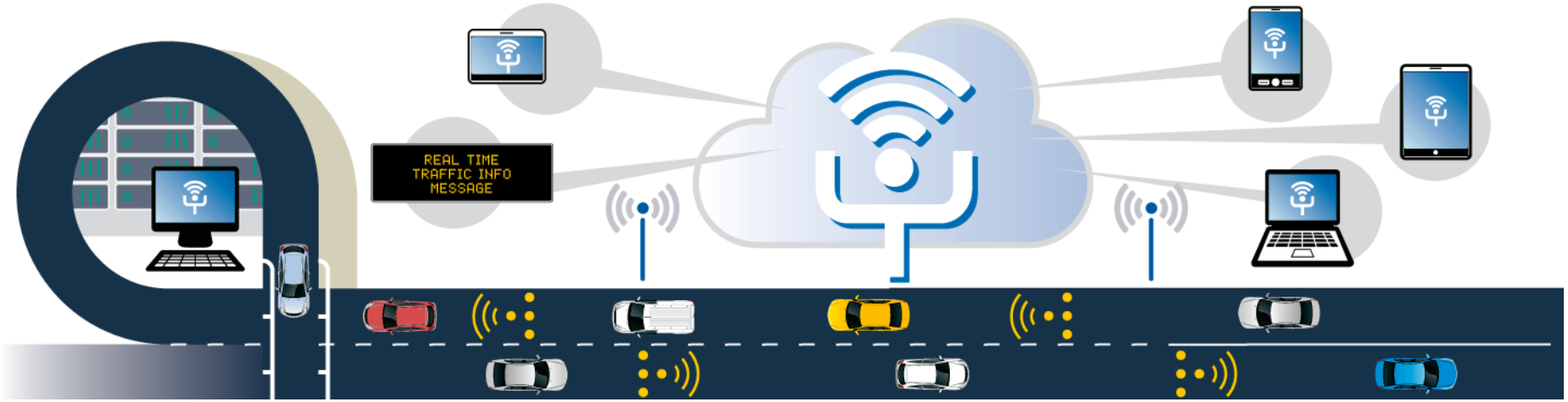
Interurban needs – the SYNCRO Project

- Cross border project
- Funded by EU
- Council of Isere (Alps), FR and Citta metropolitana of Torino, IT

- Road Data collection + V2X connectivy

- Ready from the first equipped vehicles

- Provides a complete vision of the road status:
  - Traffic counting using mangetometers
  - Meteo measurements
  - Bluetooth / Wifi scanning for real-time travel time measurements



SYNCRO
SHARING SMART MOBILITY

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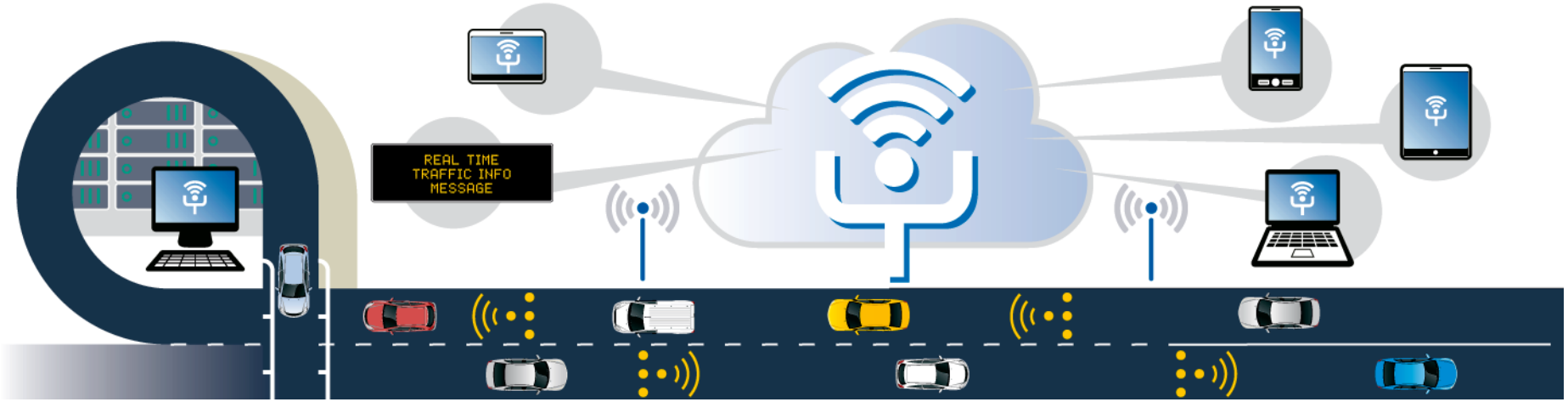
Interurban needs – the SYNCRO Project

- Pilot installed in 2016
- 35 devices in deployment all around Grenoble and roads of the Isere Council
- Integrated to the Traffic management Center
- http://www.syncromobility.eu/



SYNCRO
SHARING SMART MOBILITY

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City center management

- Paris, Rouen, Versailles…
- Interoperability allows to manage new kinds of mobility with autonomous shuttles

⇒ V2X Traffic lights equipped

- **Ready for Emergency and buses priority management** over the same road infrastructure

ROUEN NORMANDY AUTONOMOUS LAB
BY TRANSDEV & MÉTROPOLE ROUEN NORMANDIE

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Heterogen approach (Interurban + City center)

- Manage 2 kinds of autonomous services through the same project
- Several areas to connect to manage this mobility:
  - Round abouts
  - Priority crossing areas
  - Right turn priority management

An interurban / high speed autonomous cab

An autonomous shuttle for shopping areas

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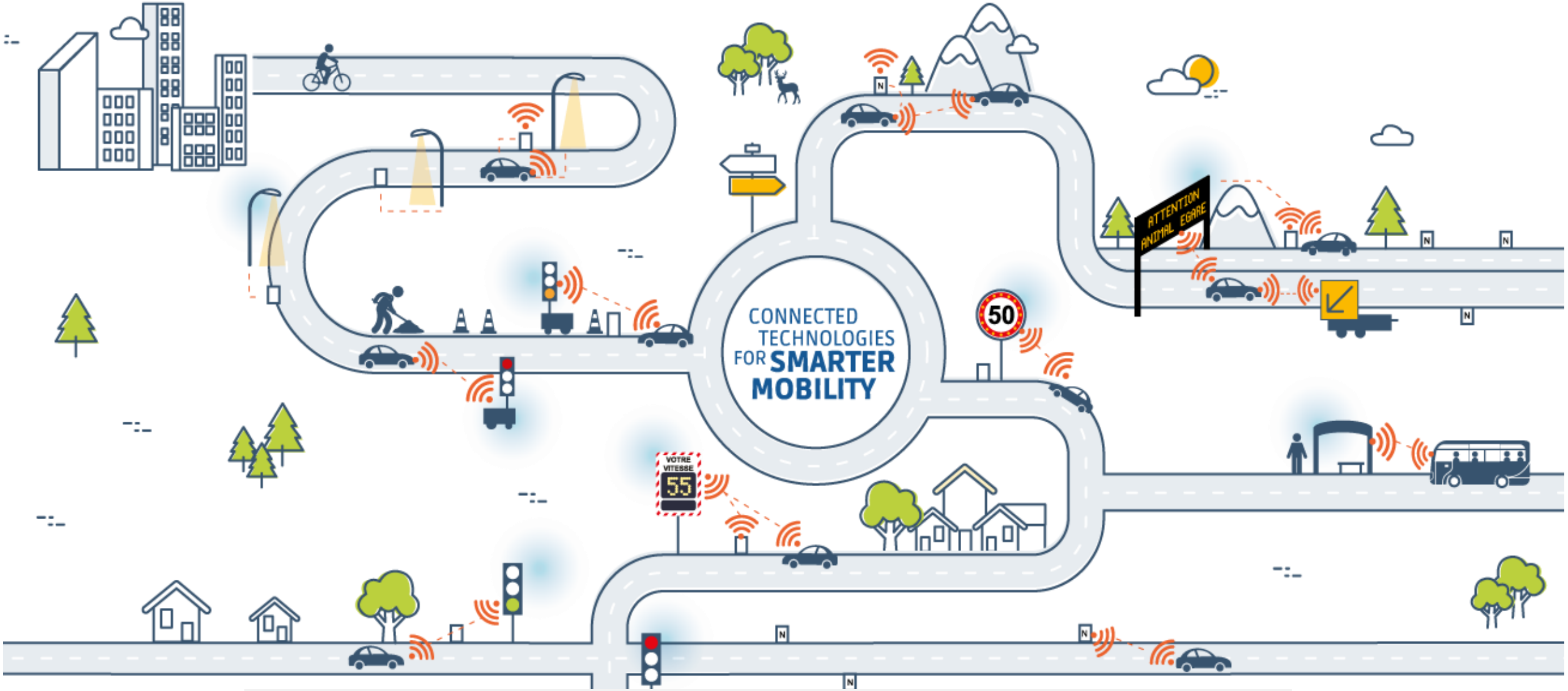
Lacroix connected driving solutions



V2X is the core connectivity solution for Smart Cities

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A winning solution for Cities and Citizen

Actions have to be taken now for a more efficient and a safer road… today !

REDUCE
POLLUTION

REDUCE
TRAFFIC JAMS

ENHANCE
SAFETY

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Guillaume GROLLEAU
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Thank you

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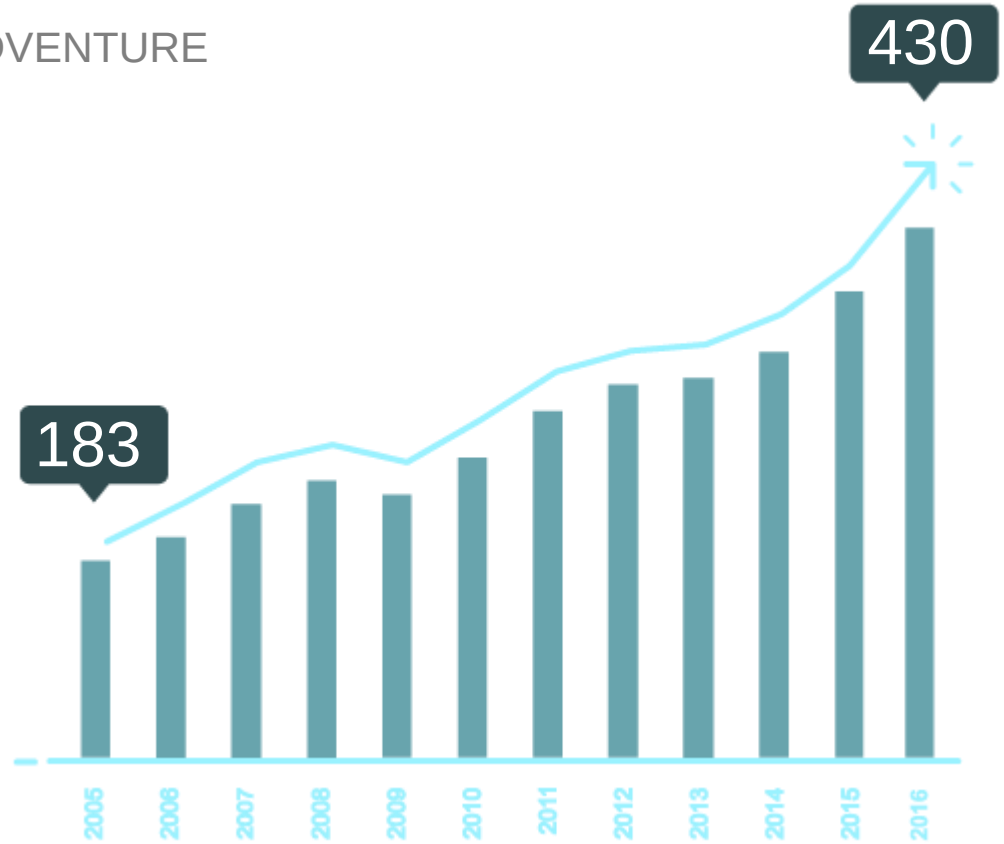
AN ENTREPRENEURIAL AND INTERNATIONAL ADVENTURE

€430M
REVENUE

3900
PEOPLE



Continued growth

X **2,13**
In 10 years

An international Group

60 % revenue outside France

Investment capability

Gearing: 0,40

POLIS 2017 ANNUAL POLIS CONFERENCE
6-7 December 2017, Brussels
Innovation in Transport for Sustainable Cities and Regions

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3 COMPLEMENTARY ACTIVITIES

PROVIDING OUR CUSTOMERS WITH
EQUIPMENT FOR A SMARTER AND MORE SUSTAINABLE WORLD

LACROIX City

Develops equipment aimed at directing, enhancing and securing **vehicle and people flows**.

LACROIX Sofrel

Develops equipment for the remote control and management of **water and energy facilities.**

LACROIX Electronics

Industrializes the electronic functions of its customers' products

Users
Local & Regional authorities
Operators
Businesses

Drinking water
Energy
Wastewater treatment

Industry
Healthcare
Home automation
Civil & Defense avionics
Automotive

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Lacroix City : Connected technologies for smarter mobility

Urban Traffic

Smart Lightning

Cities

Road Smart Signs

Connected Autonomous Mobility

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Linking from Cities to Vehicles: Some References

CITIES & TOWNS

PARIS MAIRIE DE PARIS

Lille Métropole

Ville de Saint-Brieuc

VEHICLE MANUFACTURERS

nauya

PSA

RENAULT TRUCKS

VOLVO VOLVO TRUCKS

EASY MILE

HIGHWAYS

ASFA AUTOROUTES & OUVRAGES CONCÉDÉS

sanef

sapn

ATMB Autoroutes et Tunnel du Mont Blanc

VINCI AUTOROUTES

APRR

MOBILITY CLUSTERS

Cerema

INSTITUT VEDECOM DU VÉHICULE DÉCARBONÉ ET COMMUNICANT ET DE SA MOBILITÉ

TRANSPOLIS

MOST FRENCH COUNTIES

Liberté • Égalité • Fraternité RÉPUBLIQUE FRANÇAISE

Routes de Guadeloupe

Loire Atlantique

isère CONSEIL GÉNÉRAL

Ille & Vilaine LE DEPARTEMENT

Conseil Général Haut-Rhin

jura LE DÉPARTEMENT

Département de VAUCLUSE

MISC.

AÉROPORTS DE PARIS

EIFFAGE

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