Seminar – 5th and 6th April 2018

Projet SCOOP
véhicules et routes connectés
connected vehicles and roads

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TOWARDS NEWS SERVICES

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Hybrid architecture

Hasnaâ ANISS, IFSTTAR

April, 6th 2018

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Hybrid definition

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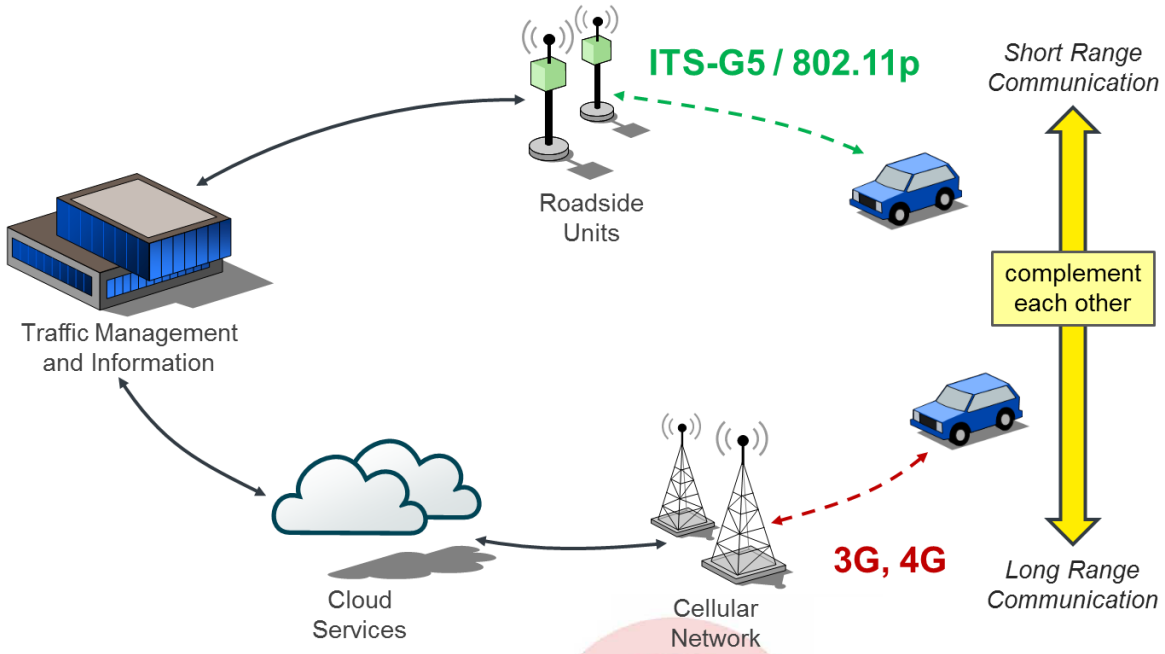
- Main goals:
  - Coupling short and long range communications
  - Larger coverage,
  - Able to reach non ITSG5 vehicles
- Hybrid in France is :
  - ITSG5 link always ON to be interoperable with ITSG5 vehicles so that local information is always available for all connected vehicles
  - With the hybrid architecture, there is an additional IP link ON (cellular)
- Different architectures are specified in SCOOP even if we know they might not be long term solutions
- The goal is to assess these solutions



- short range : BTP/geonet/ITS-G5
- long range : IP/cellular or IP/ITS-G5

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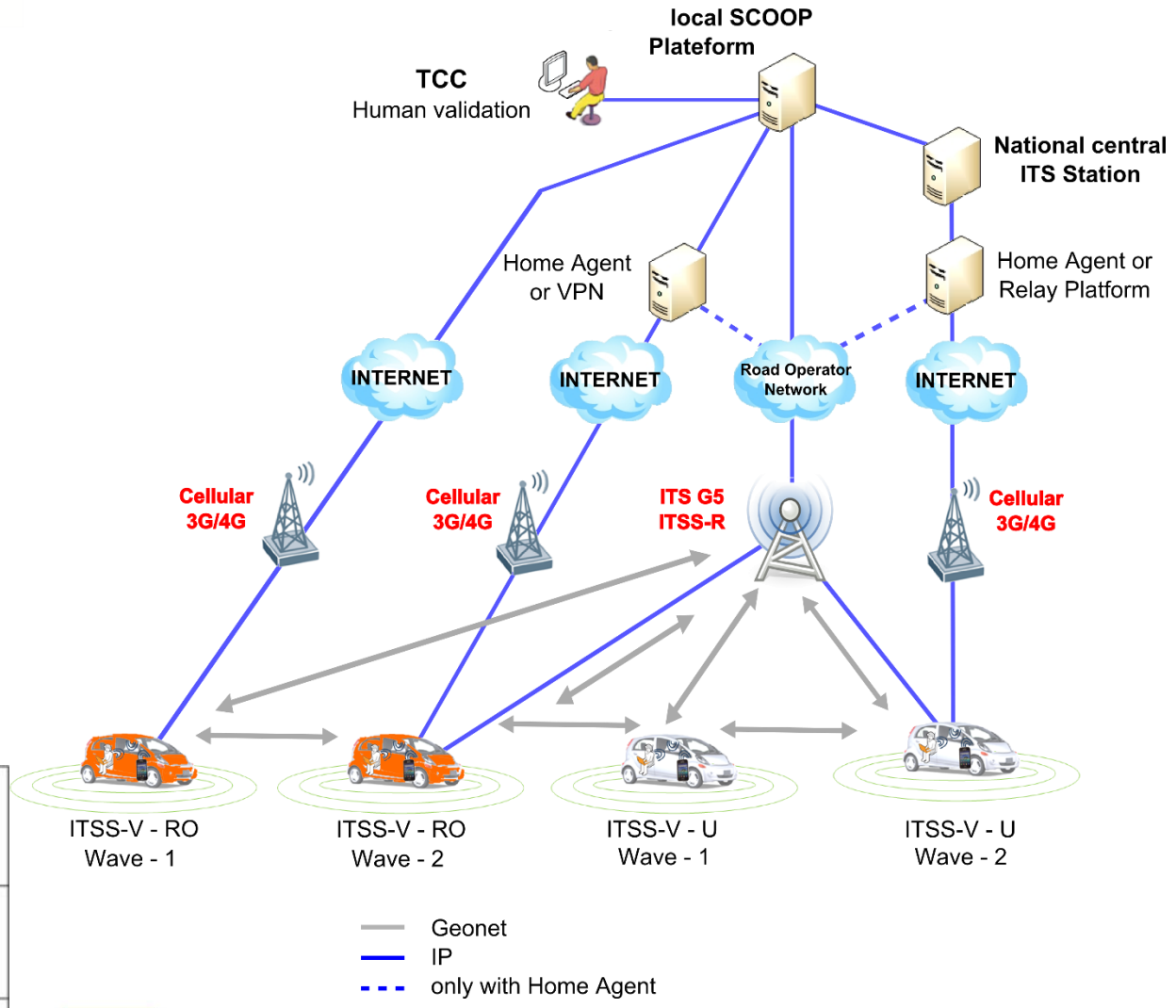
Global functional architecture



- Wave 1: only ITSG5
- Wave 2: Hybrid (IP/ITSG5 or IP/cellular)
- National C-ITS = Super R-ITSS

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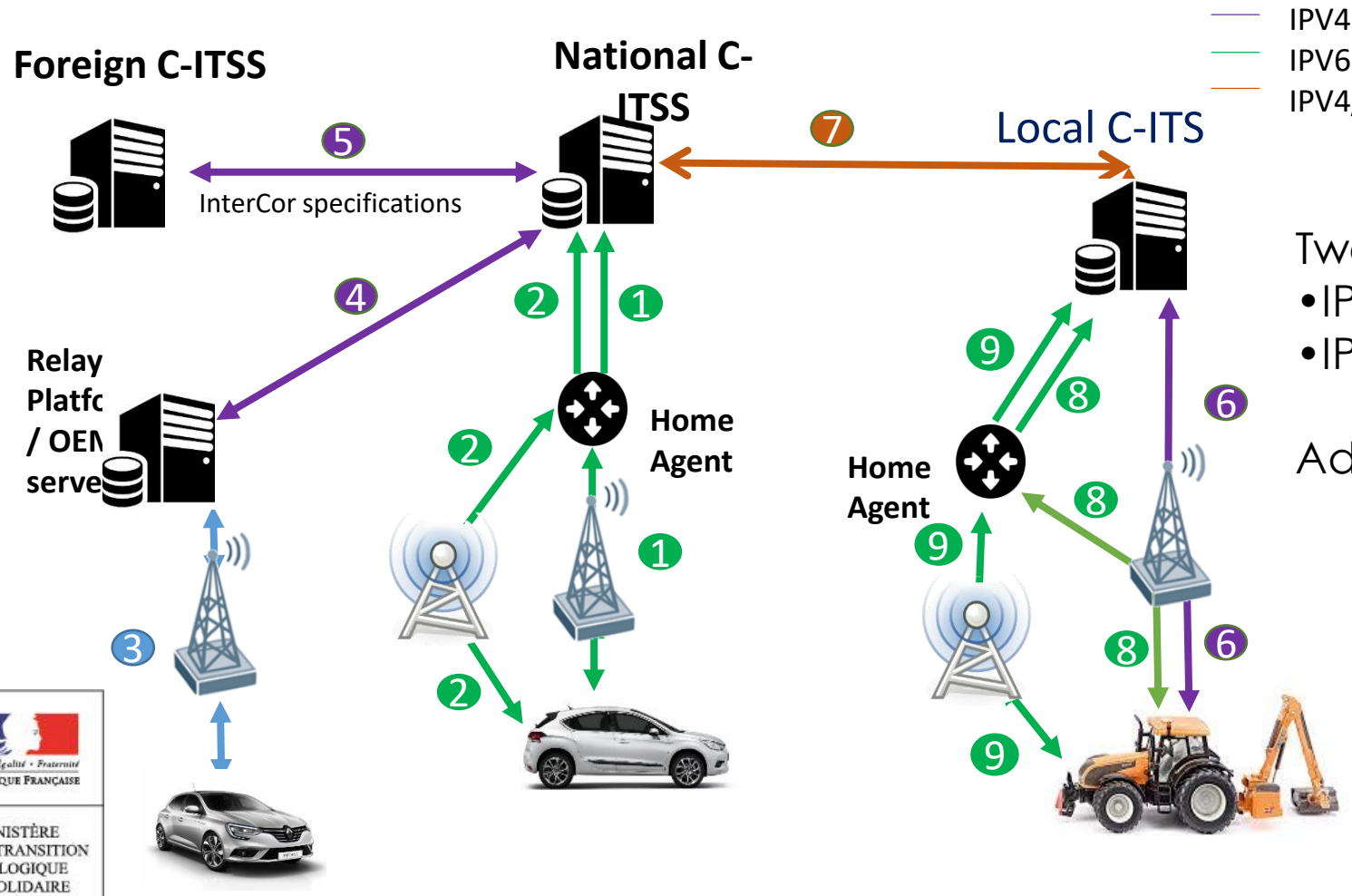
Interface definition



Two categories:
- IPV4
- IPV6

Advantages:
- In IPV6, we have a seamlesss connection between ITSG5 and Cellular
- In IPV4, all actors are using IPV4

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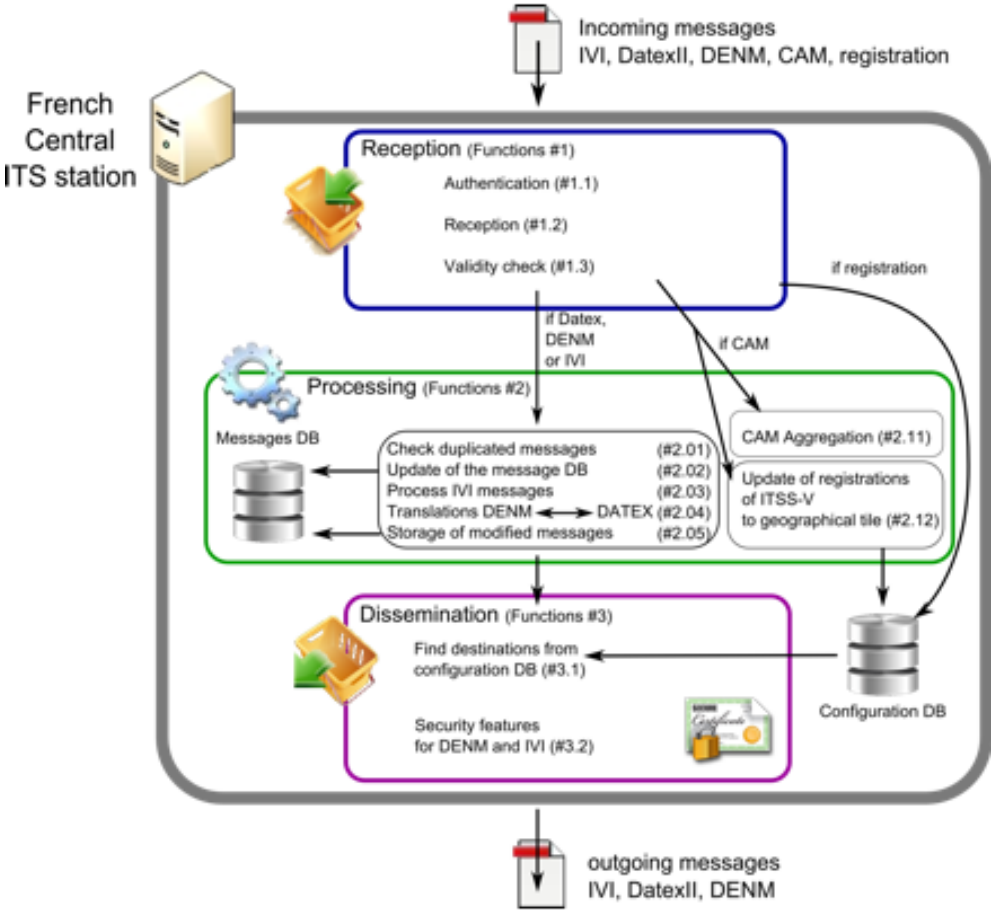
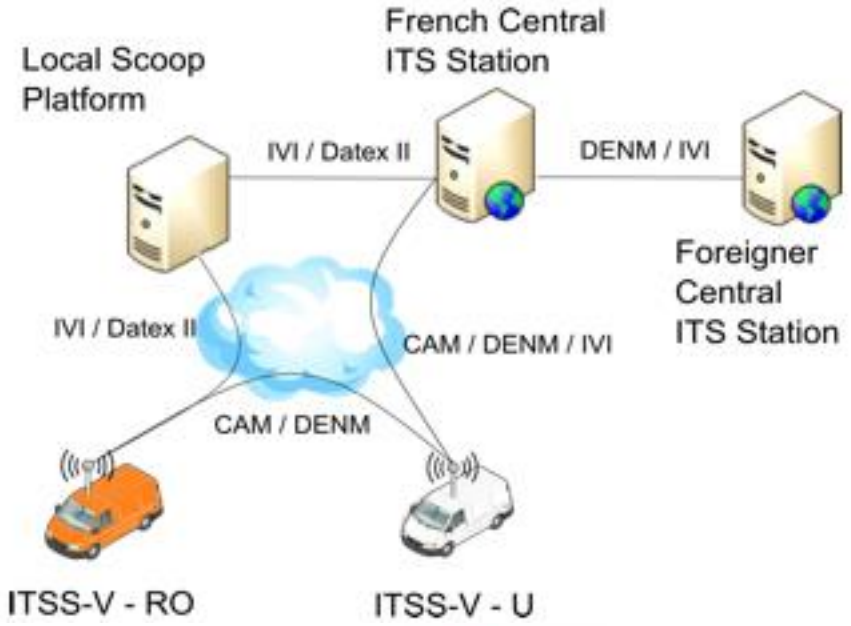
National C-ITS





- → IP Interface with foreign national C-ITS with subcribe/publish mechanism linked to the tiles
- → Only relevant information for end-users is sent
- → Specifications for foreign national C-ITS link in InterCor Project

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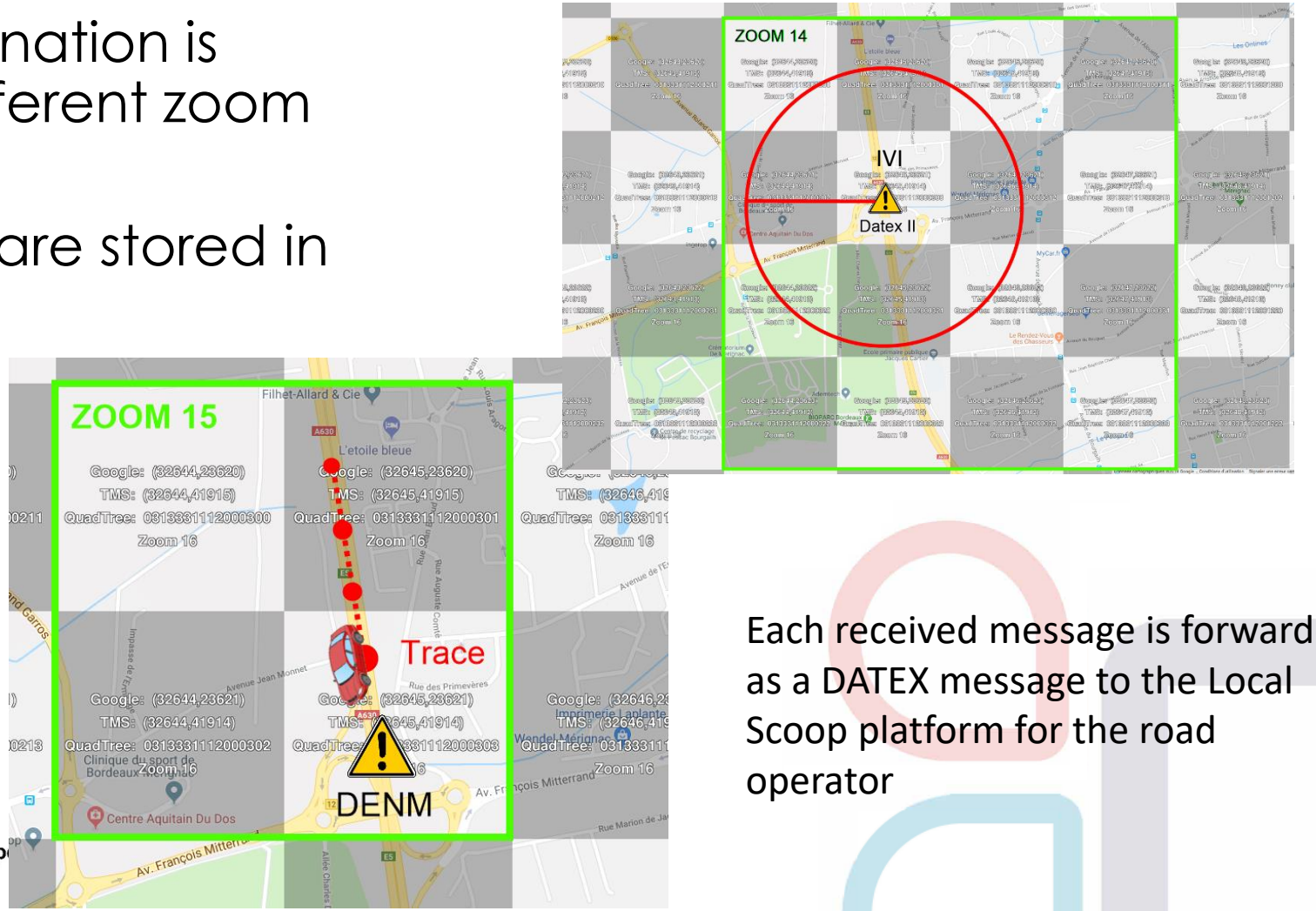
Dissemination on hybrid

- Geographical dissemination is based on tiles with different zoom levels
- DENM, IVI and DATEX are stored in tile database

Tiles: 500X500m to 10kmX10km



Each received message is forwarded as a DATEX message to the Local Scoop platform for the road operator

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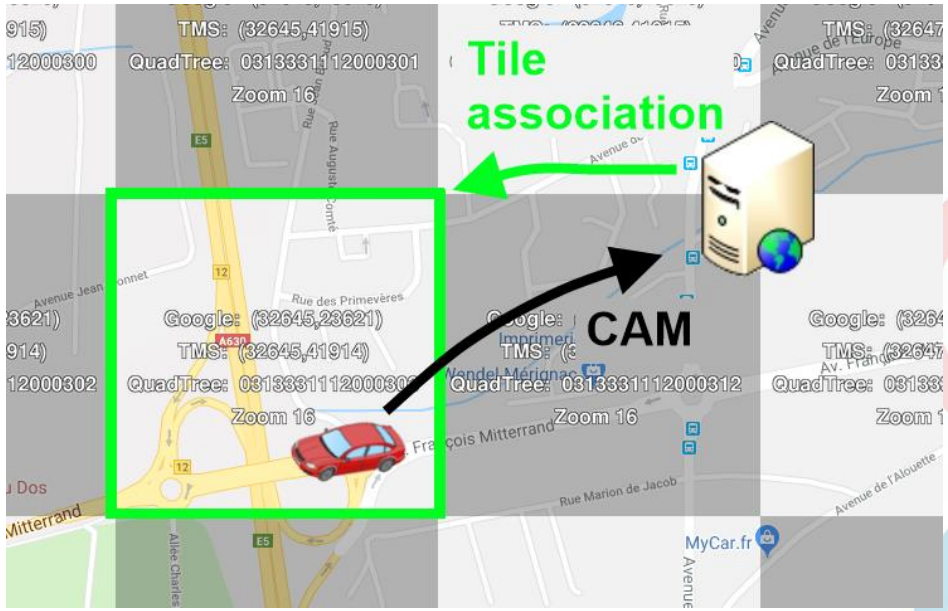
Dissemination on hybrid

- Two strategies for dissemination towards vehicles relating to the architecture (IPV4 or IPV6)- OEM choice but National C-ITS can handle the two options
  - Push all messages to an OEM server which deals after the dissemination to its vehicles network – Protection of the privacy by the OEM based on a trust contract with the client
  - Thanks to CAM used for PVD, the position of each vehicle is linked to a tile (after that, the position is erased in order to respect Privacy)
    - Push only relevant messages to vehicles listed in the database for a given tile
- For future specifications, mechanism of publish/subscribe for vehicle on a tile



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Still work to do on C-Roads Platorm to define an European architecture and ensure security, use cases and communications interoperability

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C-Roads France and InterCor France

Marie-Christine ESPOSITO

(French Ministry of Transport)

SCOOP@F, C-Roads France and InterCor France technical project manager

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Summary

- Presentation of C-Roads France
- Presentation of InterCor – and InterCor France
- Reminder : use-cases catalog
- New use-cases for C-Roads France and InterCor France
- Next steps

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C-Roads France

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- 2016-2020. Co-funded by the European Commission
- Extension of the SCOOP@F services to additional areas to increase service coverage
- New end-user services of 2 types:
  - Services in the urban environment and at the urban/interurban interface, with the objective to reach seamless continuity
  - Traffic information services increasing comfort on transit stretches
- Pragmatic and user-centric approach: to increase penetration rates, it will develop a C-ITS smartphone application supporting early I2V services roll up and further scale up.
- Supported by a hybrid technology enabling a seamless switch between ITS G5 and cellular for not safety-critical applications.

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C-Roads France consortium

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ROAD OPERATORS	– Ministry: public road operators (DIRs Est, Centre-Est, Atlantique, Ouest) – ASFA: concessionaries road operators (APRR, SANEF and VINCI Autoroutes)
MAJOR URBAN NODES	– Strasbourg Eurométropole – Bordeaux Métropole
CAR MANUFACTURERS	– Renault – PSA
RESEARCH INSTITUTES	– CEREMA – IFSTTAR
UNIVERSITIES AND HIGHER EDUCATION AND RESEARCH INSTITUTIONS	– Université d'Auvergne Clermont-Ferrand – Université de Reims Champagne-Ardennes – Institut Mines Télécom (Telecom ParisTech)
SECURITY EXPERTS	– IDnomic
MOBILITY LABS	– Car2road – Transpolis

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C-Roads France – pilot sites

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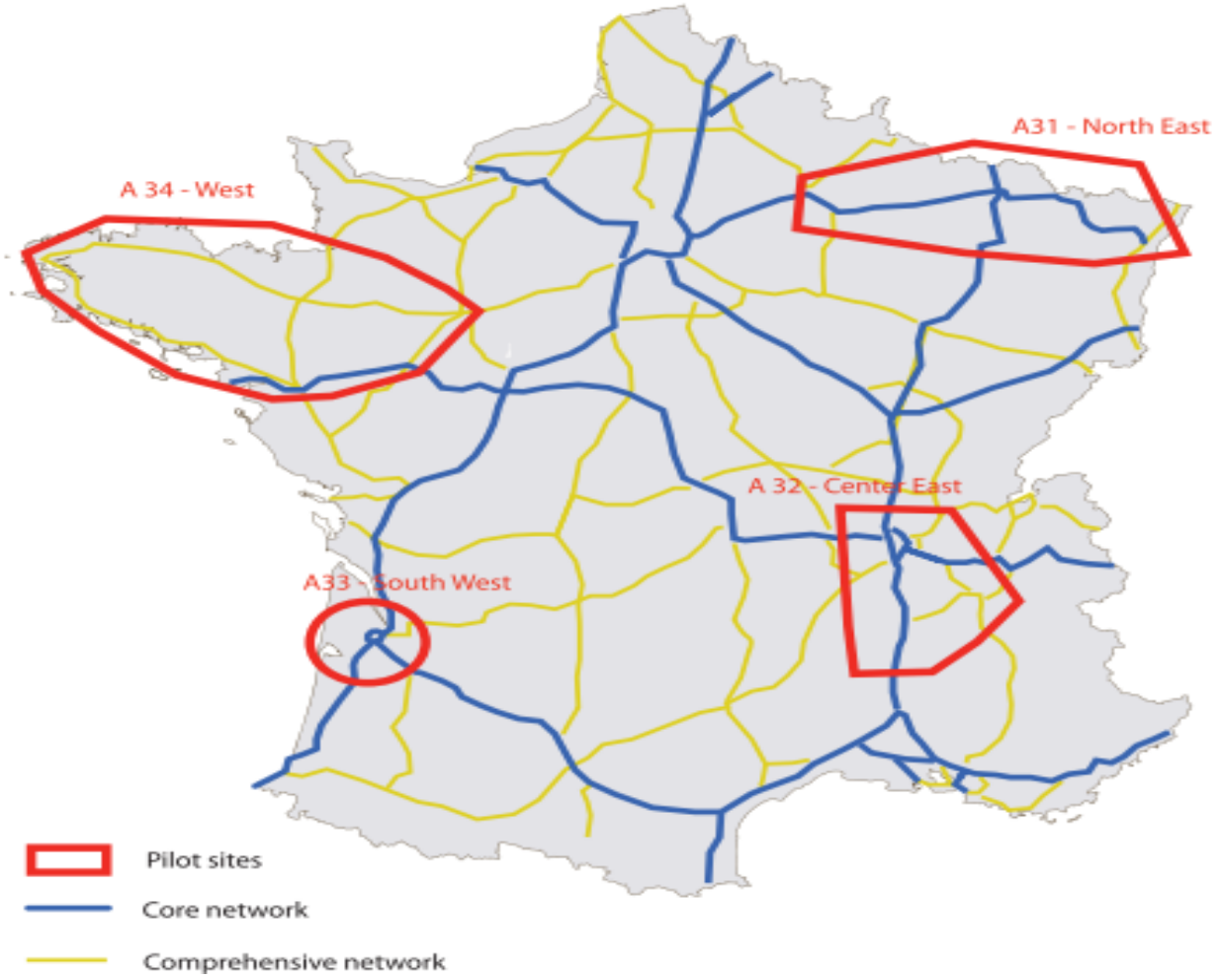

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InterCor

Projet SCOOP
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connected vehicles and roads

- 2016-2019. Co-funded by the European Commission
- 4 countries : France, the Netherlands, the UK, Belgium/Flanders
- Extension of the SCOOP@F services towards the North of France to increase service coverage
- New services, in particular in the field of freight and logistics
- Demonstrating a large-scale interoperable deployment of C-ITS through the Netherlands, Belgium/Flanders, UK and France to achieve safer, more efficient and more convenient mobility of people and goods
- Fostering a hybrid communication approach based on the experience from France and the Netherlands
- A specific focus on security across borders

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InterCor France - consortium

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ROAD OPERATORS	–Ministry: public road operators (DIRs Nord, Ile-de-France) –SANEF
LOGISTICS EXPERTS	–I-Trans –Gyptis –Geoloc Systems
RESEARCH INSTITUTES	–IFSTTAR
UNIVERSITIES AND HIGHER EDUCATION AND RESEARCH INSTITUTIONS	–Université de Valenciennes –Université de Reims Champagne-Ardennes –Institut Mines Télécom (Telecom ParisTech)
SECURITY EXPERTS	–IDnomic

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InterCor – pilot sites

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Reminder : use-cases catalog

Projet SCOOP
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connected vehicles and roads

- Categories of services
  - A – Probe vehicle data
  - B – Road works warning
  - C – Signage applications
  - D – Hazardous location notifications
  - E – Traffic information and smart routing
  - F – Parking, park & ride, multimodality
  - G – Intersections
  - H – Traffic management
  - I – Vulnerable users
  - J – Logistics

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Reminder : SCOOP@F services

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SCOOP@F

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C-Roads France new specific services

- Categories of services
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  - F – Parking, park & ride, multimodality
  - G – Intersections
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  - I – Vulnerable users
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SCOOP@F

C-Roads France

- Note : all SCOOP@F services will be developed in C-Roads France pilots

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C-Roads France – new use-cases

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- C – Signage applications
  C2 – In-vehicle dynamic speed limit information
- D – Hazardous location notifications
  D12 – Emergency vehicle approaching
- E – Traffic information and smart routing
  E4 – Smart POI (to confirm)
- F – Parking, park & ride, multimodality
  F1 – Information on parking lots location, availability and services (smartphone application)
- G – Intersections
  G1 – GLOSA
- H – Traffic management
  H4 – Dynamic lane management – reserved lane (I2V)
- I – Vulnerable users
  I3 – Road workers in the field

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InterCor France new specific services

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- Categories of services
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  - C – Signage applications
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  - E – Traffic information and smart routing
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SCOOP@F

C-Roads France

InterCor France

- Note : all SCOOP@F services will be developed in InterCor France pilots

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InterCor France – new use-cases

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- C – Signage applications
  C2 – In-vehicle dynamic speed limit information
- F – Parking, park & ride, multimodality
  F1 – information on **Truck** parking lots location, availability and services
- G – Intersections
  G1 - GLOSA
- H – Traffic management
  H1/H2 : Permanent and dynamic traffic ban to specific vehicles **(trucks)**
  H4 : HGV overtaking ban
- J – Logistics (smartphone application)
  J1 – Truck ETA in the terminal
  J2 – Assigning a slot to a given vehicle for cross-channel traffic
  J3 – Information on the site-s access conditions
  J4 – Guide the truck in the port (terminal or truck parking)

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Next steps

- Consolidate the French technical specifications for those new use-cases, in line of the European inputs
  - InterCor
  - C-Roads Platform

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Thanks !

marie-christine.esposito@developpement-durable.gouv.fr

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The European Project C-the Difference

Beyond Traffic Jams

Cooperative Intelligent Transport Systems (C-ITS) urban pilots

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Introduction

Projet SCOOP
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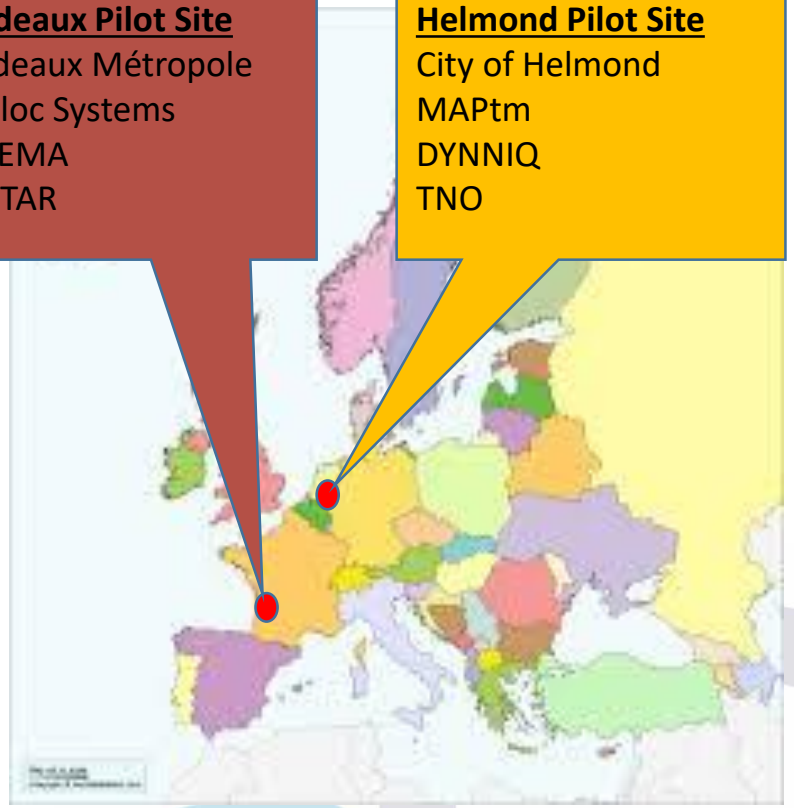
- Funding: EC DG MOVE
- Period of activity: October 2016 – September 2018
- Consortium:
  - Cities
  - Industry
  - Research
  - Consultancy: BLERVAQUE Sprl
- Consortium Leader: MAP Traffic Management
- Project Manager: Vincent BLERVAQUE

Bordeaux Pilot Site
Bordeaux Métropole
Geoloc Systems
CEREMA
IFSTTAR

Helmond Pilot Site
City of Helmond
MAPtm
DYNNIQ
TNO



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Bordeaux pilot site

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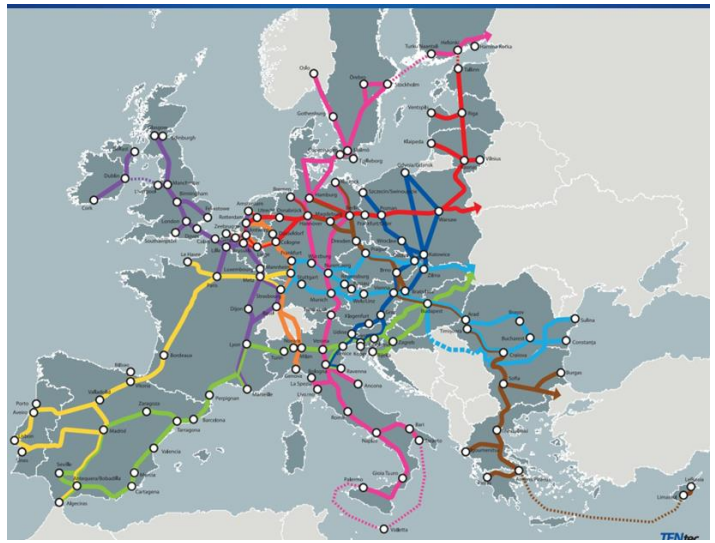
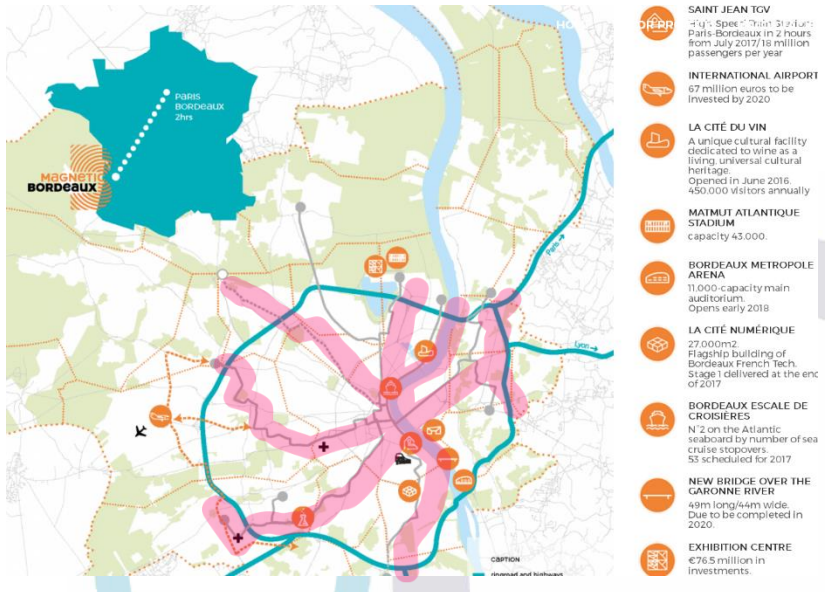
- A key hub on the Atlantic Arc
- An attractive metropolis,
  - Local Transport and Mobility Authority
  - Endowed with a global strategy of metropolitan mobility (2016)
  - A high-performance PT network benefiting of the positive tram effects (152 M trips in 2017)
  - The ring-road and its role within the agglomeration mobility system
  - Challenges up to the scale of urban area
- A line of C-ITS Projects carried out on the territory
  - Compass 4D
  - SCooP wave 1





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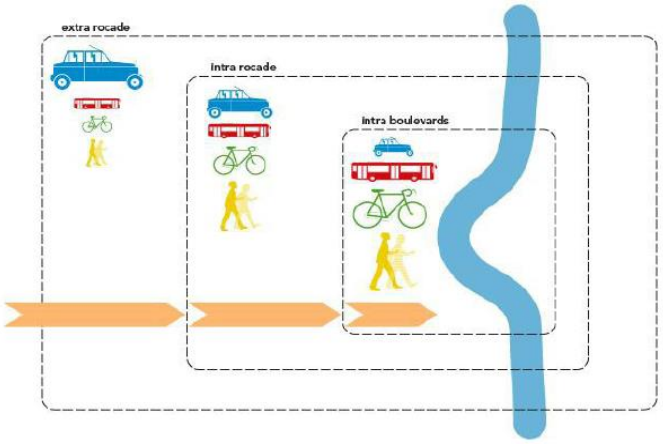
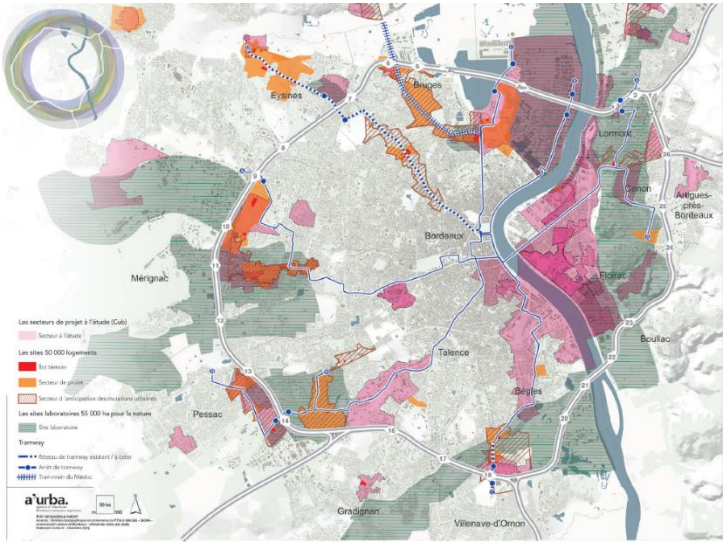
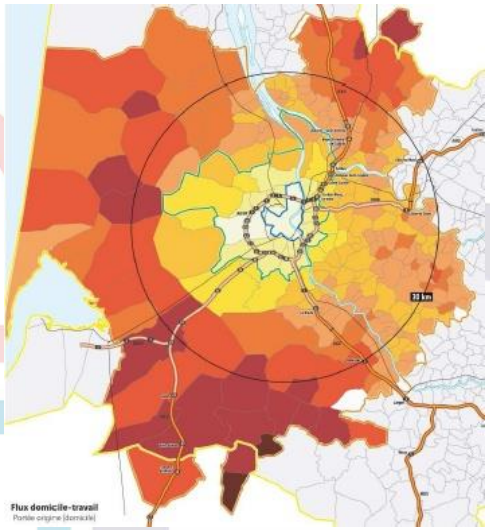
Issues





C-ITS are parts of solution to :

1. Enhance attractiveness and improving quality of life,
2. Lead to and implement a more sustainable, intermodal, clean and efficient transport
3. Innovative traffic management
4. Improve urban and inter-urban (ring road) safety,
5. Improve vulnerable road users protection.



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Focus on the Bordeaux Pilot Site

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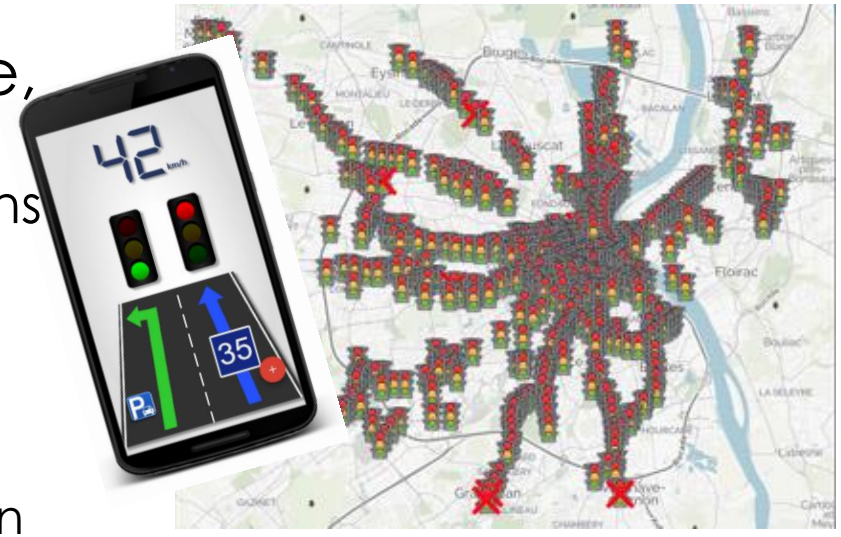
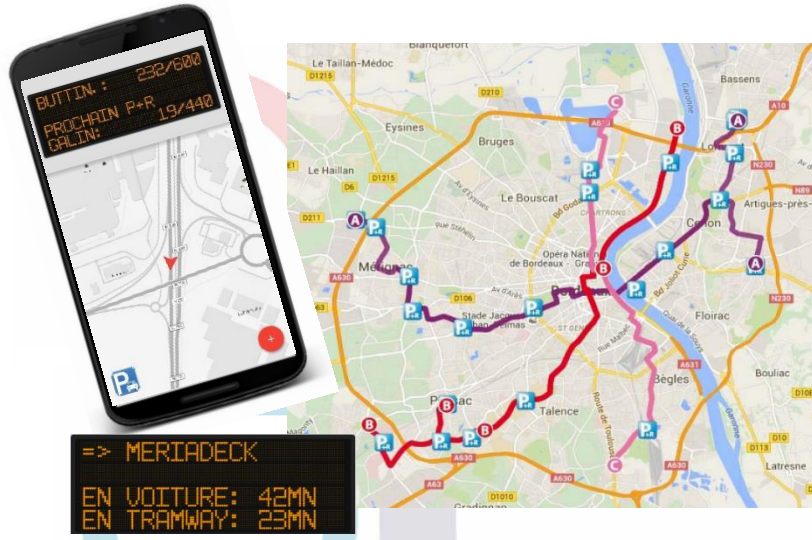
- Lead to and implement a more sustainable, intermodal, clean and efficient transport
  - Increasing traffic fluidity and decreasing emissions (Day 1 application)
- Promote seamless mobility
  - Sreamline the modal shift and integrate the car into the mobility chain
    - Information on availability of parking spaces within Park & Ride (Day 1.5 application)
    - Information on availability of parking spaces within Off-street parks(Day 1.5 application)
- Provide dynamic information on board
  - In-vehicle signage (Day 1 application)





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Experimented services

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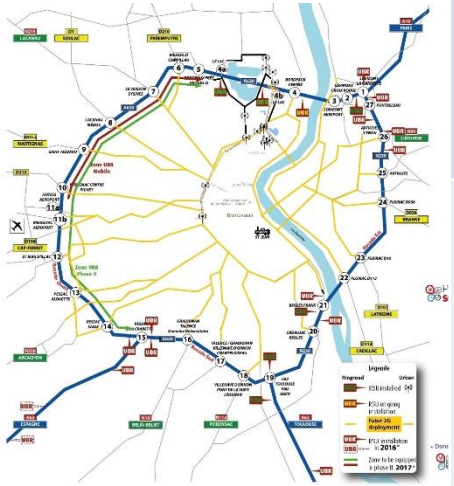

	Bordeaux Living Lab
Communication V2I, V2V	Hybrid: 41 RSU ITS G5 + cellular communication 3G/4G (only for I2V)
Pilot Site coverage	Overall agglomeration •546 traffic light intersections •1636 traffic lights •2898 preselection lanes (442 km in total)
Vehicle Fleet	
Passenger cars	Nearly thirty equipped cars (embedded V-ITS-Station) More than 1000 smartphone app users
Commercial vehicles	9 equipped vehicles (embedded V-ITS-Station)

Experimented services
Emergency vehicle approaching
Road hazard warning
Road works warning
In-vehicle signage
Park & Ride information
Probe vehicle data
Signal violation / Intersection safety
Traffic signal priority for designated vehicles
Green Light Optimal Speed Advisory (GLOSA)
Tram GLOSA

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Increased traffic management

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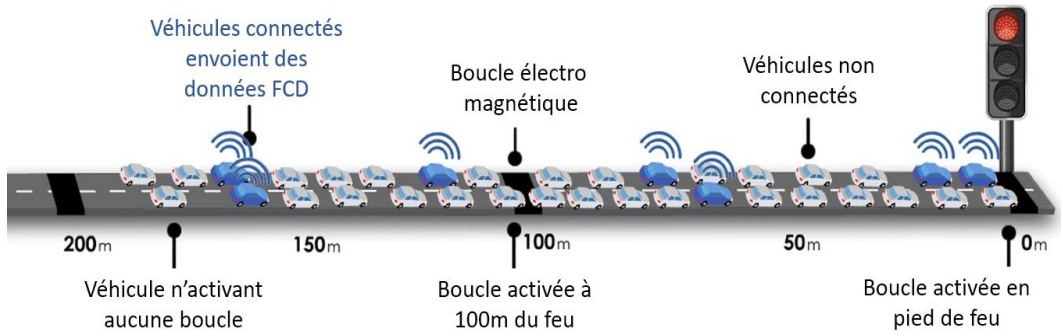
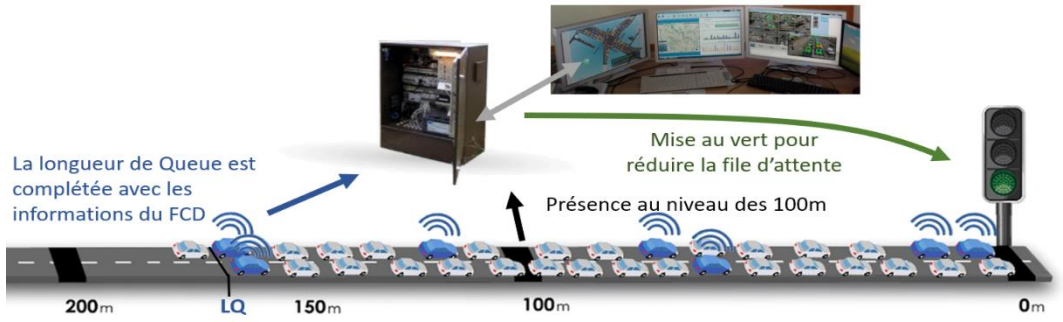
The ‘Probe Vehicle Data (PVD)’ and ‘Floating Car Data (FCD)’ services provide solutions for congestion reduction with data exploitation in both off-line and real-time to :

- improve traffic studies for congestion reduction
- complete knowledge of traffic state for road operator

Gertrude SAEM has experienced using data from tracer vehicle or drivers equipped with GPS (‘Floating Car Data’)

It is convinced that it is indeed possible to use FCD as a complement, or partially as a replacement for a conventional sensor, in order to regulate real-time traffic lights intersections.





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Assessment

When passing the signalised intersection, baseline mode allows to compare the behaviour of the drivers who benefit of a specific advice or alert with those who are not informed.

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The two parts of the method:

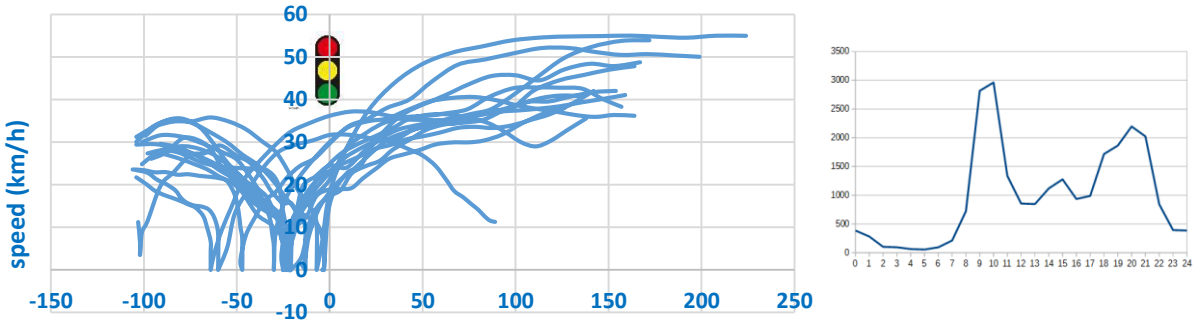
- A deterministic component:

measurement of the efficiency and benefits of different services, based on all the data collected

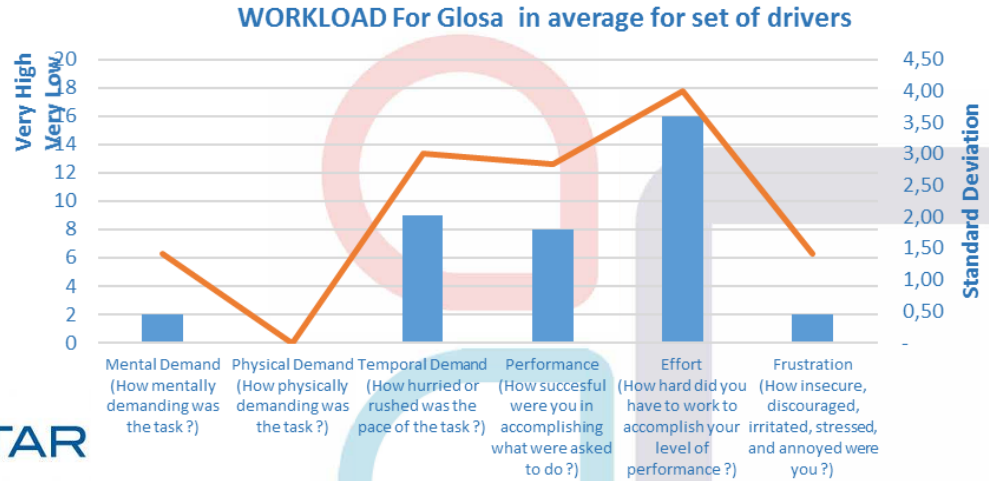
- A subjective component:

Collection of users' opinions

Vehicle speed vs distance 2407 - 02



The curve represents stops (<2km per hour) before traffic light -100m (intersection Nr. 2407), and each vehicle restarts after change of signal phase. On the basis of these data, consumption and emissions are being estimated.



A community of regular pilot users

Data mining and analysis in the first half of 2018

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Cerema

IFSTTAR

City Twinning Program

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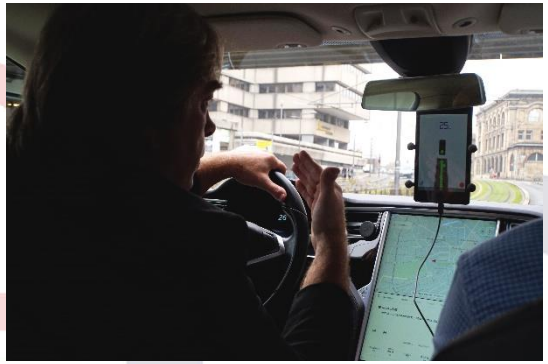
- Objective: Foster knowledge sharing and C-ITS pilot best practices exchange to have a better need identification from road operators and accelerate the replicability of C-ITS
- Targeted audience: Priority is given to representatives of city and region in charge of transport & mobility innovation, road and traffic management
- Proposed activities:
  - Workshops including demonstrations
    - Helmond le 26 octobre 2017
    - Bordeaux le 21&22 novembre 2017
  - **Final workshop on 5th & 6th June 2018 in Bordeaux**
  - Exchange of information with C-ITS pilot city and region representatives



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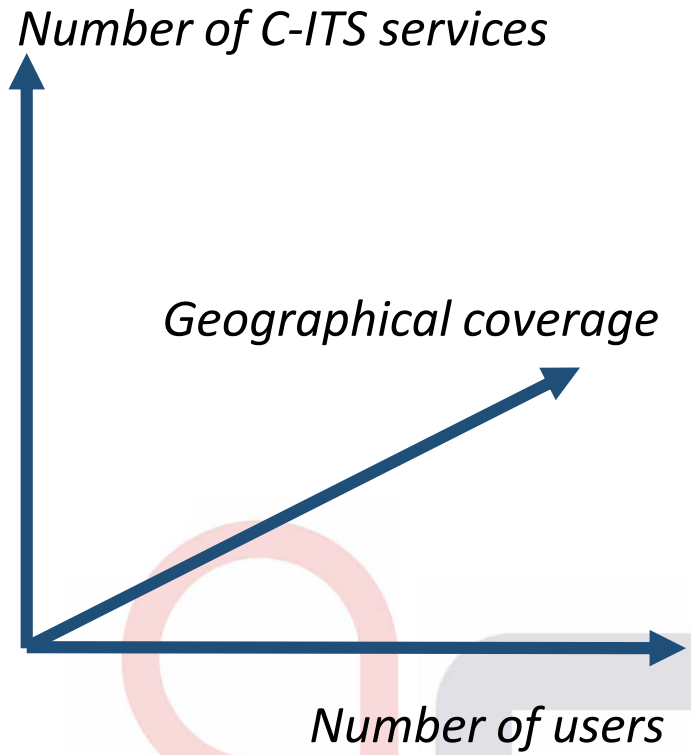
Scaling-up approach

- Each city has to identify and implement its own deployment path
- Standardisation is a must to secure open market and not anymore vendor locking solutions
- Ensure interoperability for continuity and quality of services to end-users on all networks (urban, peri-urban, interurban)
- Consider hybrid communication solutions (ITS G5, 3G/4G) between infrastructure and vehicle (I2V, V2I) according to the needs of the services to be operated



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Or visit our website
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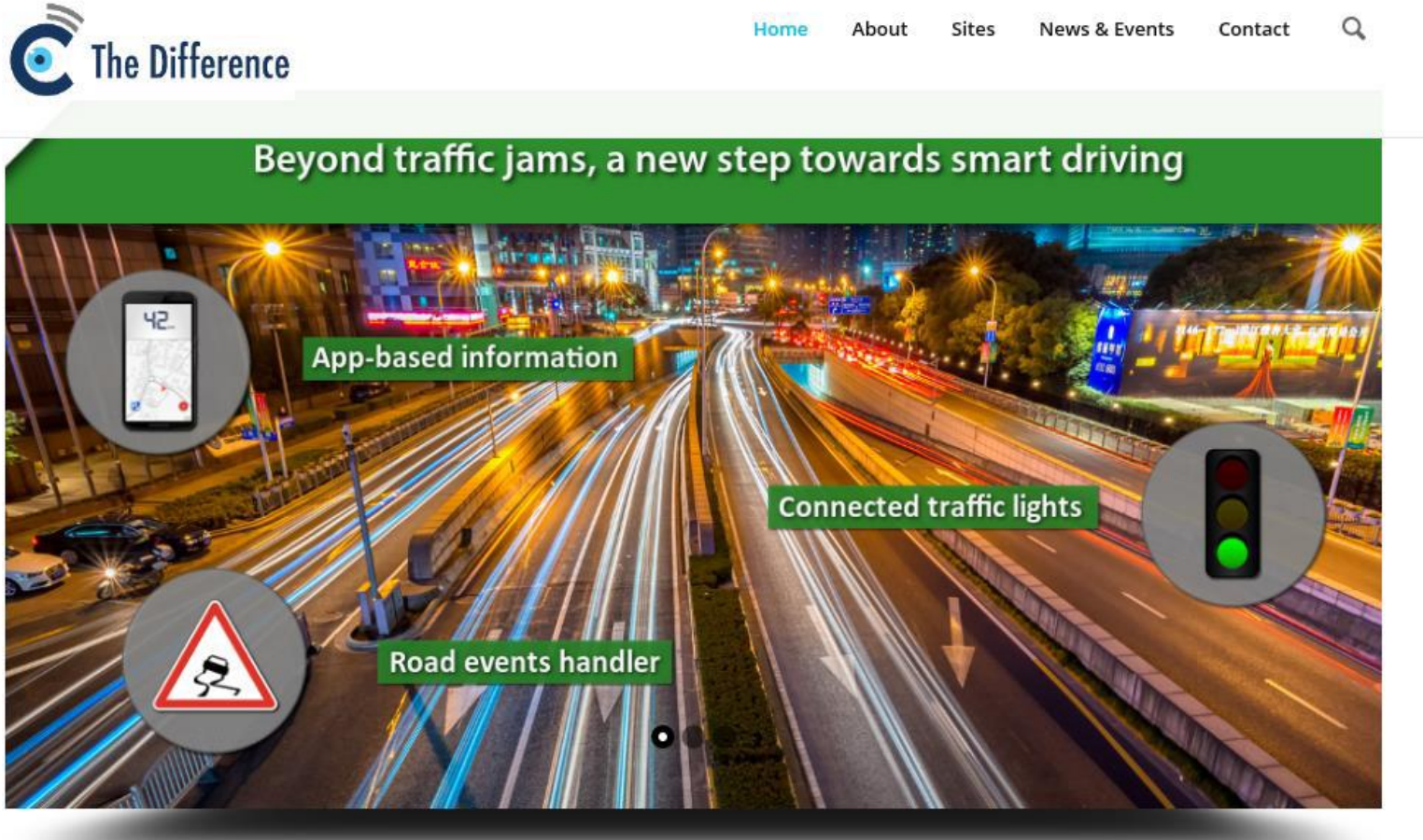

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Questions / answers

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SCOOP XTESTs

Jose FERNÁNDEZ
CTAG C2X area
responsible Spain

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Summary

- Why Xtests in SCOOP?
- Goal and main tasks
- Work flow
- Desk work
- On lab Xtests
- On road Xtests
- First conclusions and next steps

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Why Xtests in SCOOP?

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What is **C-ITS**?

C-ITS is a **process of communication and data sharing** between components of transport systems - such as vehicles, infrastructure and pedestrians - which can be used to avoid collisions, reduce vehicle emissions and enable traffic to operate more efficiently.

What does **interoperability** mean in C-ITS context?

The ability to provide data to and accept data from other systems and **to use the data exchanged to enable them (systems) to operate effectively together**.

What does EC says on all this?

EU standardisation mandate M/453

Invitation to European Standardisation Organisations (ETSI, CEN, CENELEC) to prepare a coherent set of standards, specifications and guidelines to support European Community wide implementation and deployment of C-ITS as **it is necessary to ensure interoperability among the different systems to take full advantage of the benefits that C-ITS based systems and applications can bring to the transport sector.**

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Goal and main tasks

- Check how interoperable is SCOOP@F system with other existing C-ITS implementations (Austria, Spain, Portugal).
  - Comparison of specifications.
  - Selection of common services to be cross-tested.
  - Organization and execution of Xtests.
  - Report on results and conclusions.

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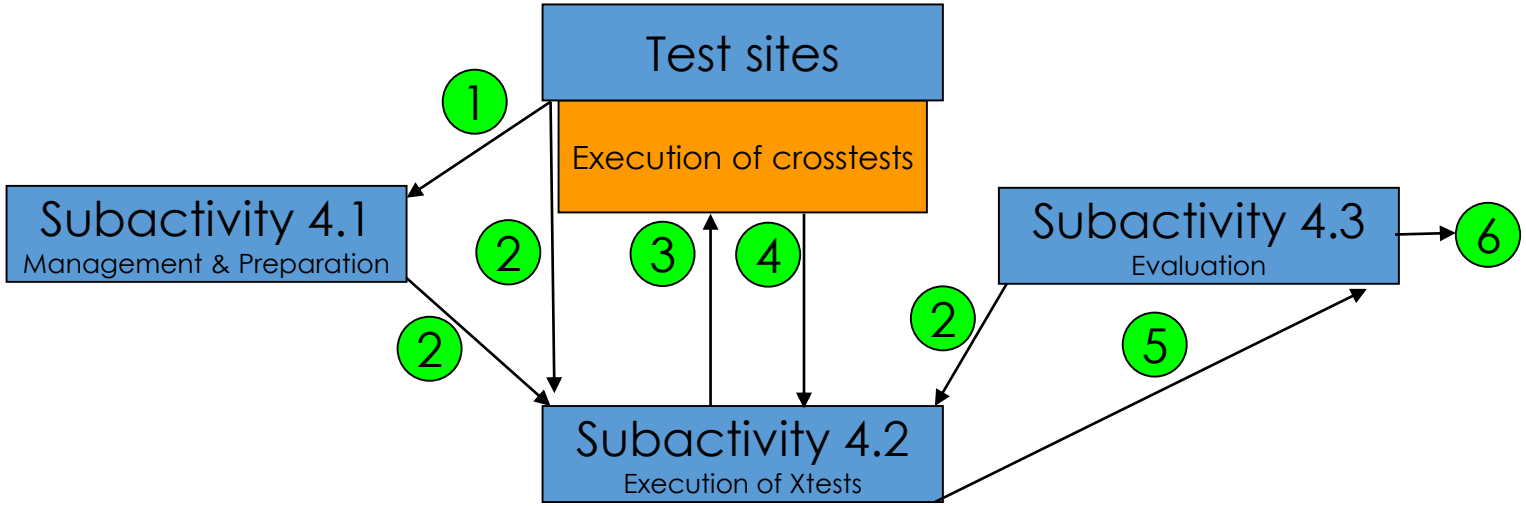
Work flow



1	• **Information on standards and use cases deployed at every test site.**
2	• **Conclusions from analysis on standards, uses cases and functional aspects to proceed with crosstesting (from S 4.1).** • **Needs for crosstesting evalution purposes (from S 4.3).** • **Feedback on needs and limitations (from Test Sites).**
3	• **Guidelines for execution of crosstesting at different levels (lab, on road).**
4	• **Functional results from execution of crosstesting.**
5	• **Reports from analysis on functional results from execution of crosstesting.**
6	• **Evaluation of cross-test based on provided reports.**

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Desk work (I)

- **Comparison of specifications**

- Objective: to assure that no major constrains would be encountered during the test phase in terms of standards used for implementation.

- ETSI TR 101 607 taken as reference.
  - Access Layer: ETSI ITS G5 (802.11p profile).
  - Networking Layer: EN 302 634-4-1 (Geo Networking).
  - Facility Layer: ETSI EN 302 637-2 (CAM), ETSI EN 302 637-3(DENM).

- **Specific 'task force' to deal wih security aspects** ('core' standard ETSI TS 103 097 (Security Header and Certificate Formats).

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Desk work (II)

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- **Selection of use cases**

- CAM aggregation (FR, AT, ES)
- Planned road works 3/0 and 3/3 (FR, AT, ES, PT)
- Animal on the road 11/0 (FR, AT, PT)
- People on the road 12/0 (FR, AT, PT)
- Obstacle on the road 10/0 (FR, ES, PT)
- Accident 2/0 (FR, AT, ES, PT) and 2/XX (FR, AT, PT)
- Fog 18/1 (FR, AT, ES, PT)
- Emergency brake 99/1 (FR, AT, ES, PT)

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On lab Xtests (I)

- Objective: to assure that basic data communication between road-side units and on-board equipment works correctly.
- Conformance test 'spirit': to check that all partners share a common understanding of the ETSI standards followed for implementations.
- Procedures: Analysis of logs exchange (remote method), participation at ETSI Plugtests.
- Interoperability validated at Networking / Facilities /Application layer levels in terms of message format and also possible to detect and solve 'primary' issues at message content level (e.g. DENM code and cause codes).

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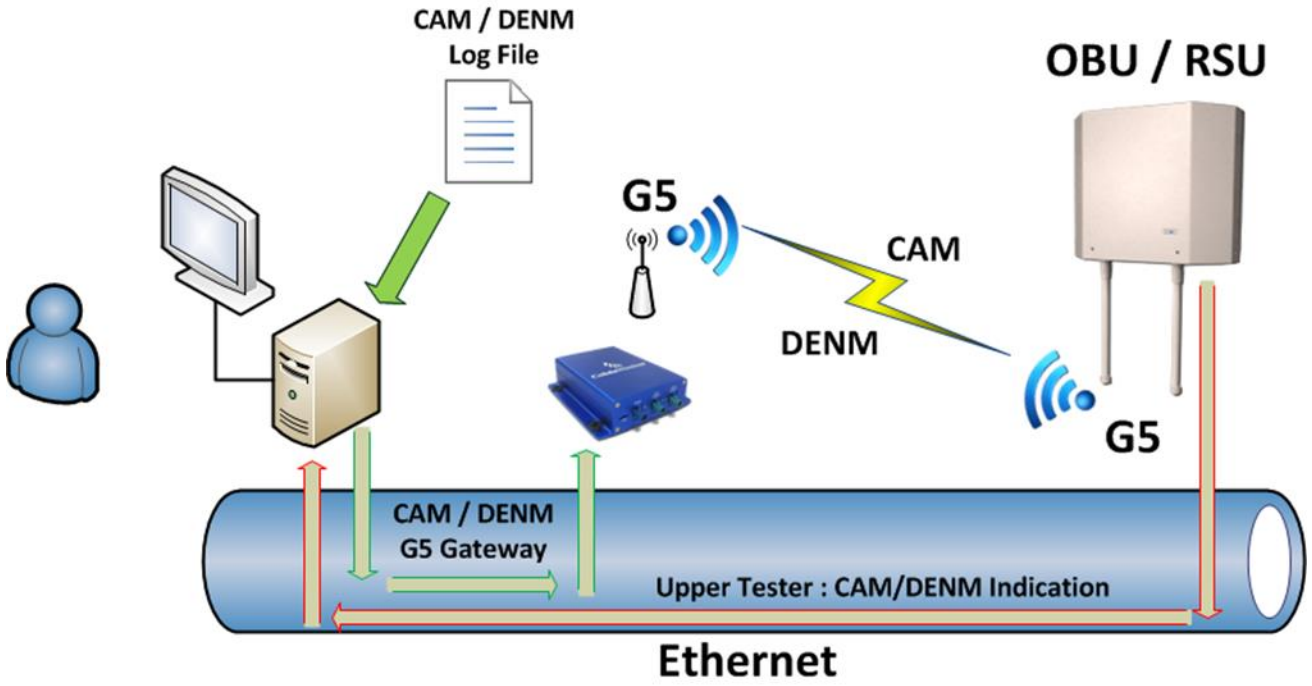
On lab Xtests (II)



Architecture followed for On Lab Xtests

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On road Xtests (I)

- Objective: Check functional end-to-end interoperability between relevant participants in real environments.
- Monitoring of conformance parameters to detect interoperable but not functional cases.
- Procedures : Execution of Xtest scenarios (controlled and naturalistic)->Analysis of HMI results (analysis of content of conformance parameters in case of discrepancies).
- Two steps approach:
  - Xtest session without security layer (Vigo, North Portugal; December '17)
  - Xtest session with security layer (Reims, April '18; Viena, summer'18)

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On road Xtests already done…

- Location: CTAG test track / SISCOGA corridor (Galicia, Spain) - init of Northern Portugal A3.
- Participants: France (PSA, URCA), Portugal (Brisa A-to-Be, IP), Spain (CTAG).
- V2I and V2V scenarios including whole list of 'shared' use cases depicting different event configurations (e.g. upstream/all traffic direction; with/without trace and/or event history,…).
- End-to-end interoperability (without security) validated and also possible to detect and solve issues at access layer level in some equipements (not tested in previous steps) or interoperable but not functional message configuration for specific use cases(e.g. event distance radius).

Location and V2I scenario of Xtest Session

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First conclusions and next steps

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- Agreed Xtesting framework solid enough to validate end-to-end interoperability.

- Apply similar methodology for SCOOP W2 (forecast: more extensive 'desk work').

- A trust relationship between security X-Tests partners PKIs has been established at RCAs' level in order to create a (project specific) global trust domain.

- Needed to go further: an European global trust domain (C-ROADS).

- Dealing with interoperability issues at international level is necessary for a successful and optimal C-ITS deployment.

- Activities like Xtests in SCOOP deriving into whole projects (Intercor, C-ROADS,…).

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- Thanks for your attention
- Merci pour votre attention
- Gracias por la atención

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C-Roads Platform

Eric OLLINGER - DGITM

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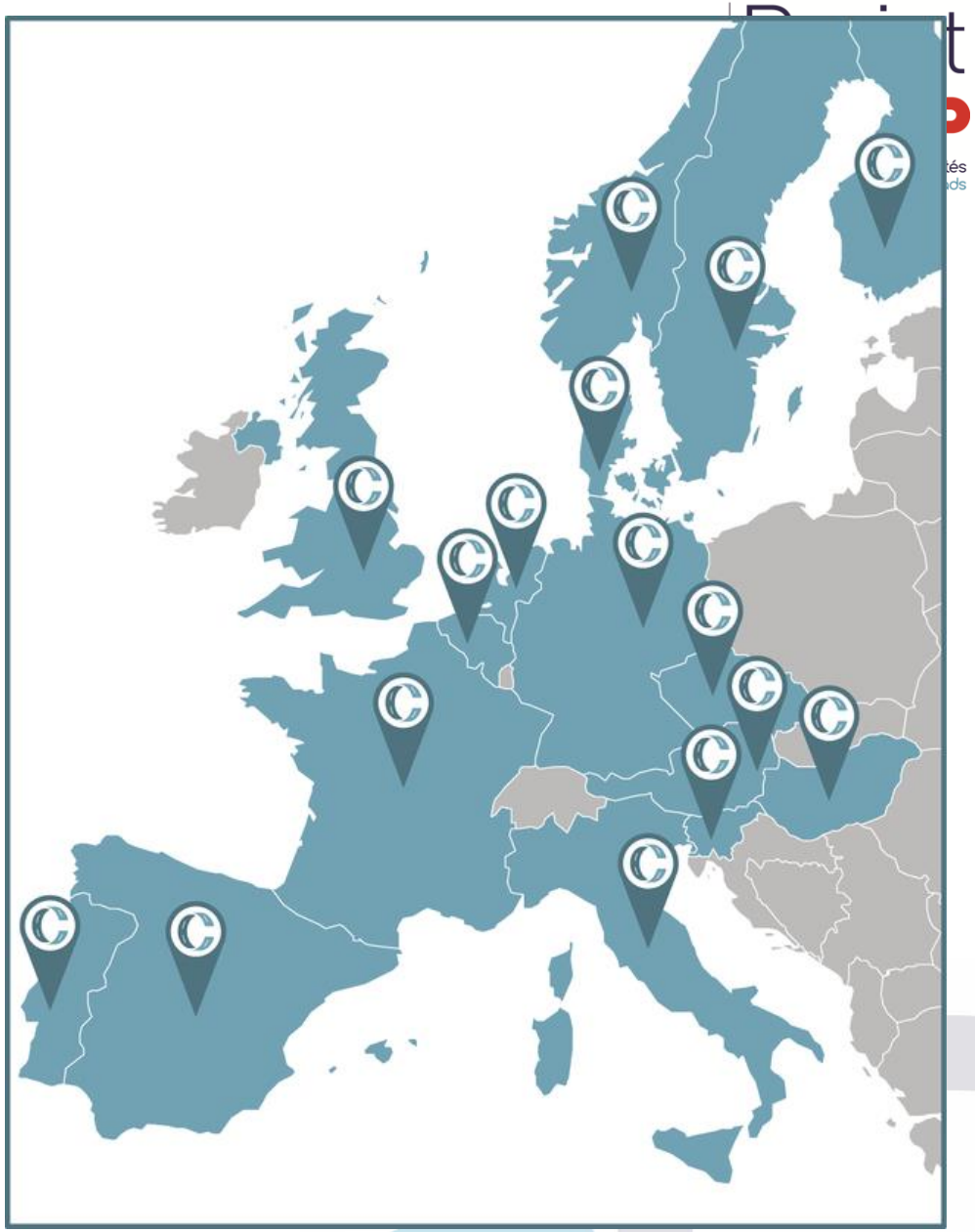
A platform of 16 Member States

- Launched end of 2016
- Initial members : France, Germany, the UK, the Netherlands, Belgium/Flanders, Austria, Slovenia, Czech Republic
- Joined end of 2017 by Italy, Spain, Portugal, Belgium/Wallonia, Denmark, Sweden, Norway, Finland, Hungary



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Deploying C-ITS

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Through pilot deployment projects funded by the Connecting Europe Facility

C-Roads France and InterCor are part of it, SCOOP is associated

The Member States (National Road Authorities) are representing the projects

By 2019:

- 6000 km covered with ITS G5
- 100 000 km covered with cellular communications

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A focus on Day 1 services

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Working together

- A Steering Committee, chaired by France
- WG1 : Organisational aspects, chaired by the Czech Republic
- WG2 : Technical aspects, chaired by France
  - TF1 : Security, chaired by Germany
  - TF2 : Functional specs, chaired by the Netherlands
  - TF3 : Technical specs, chaired by Austria
- WG3 : Evaluation, chaired by Italy

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Doing cross-site testing

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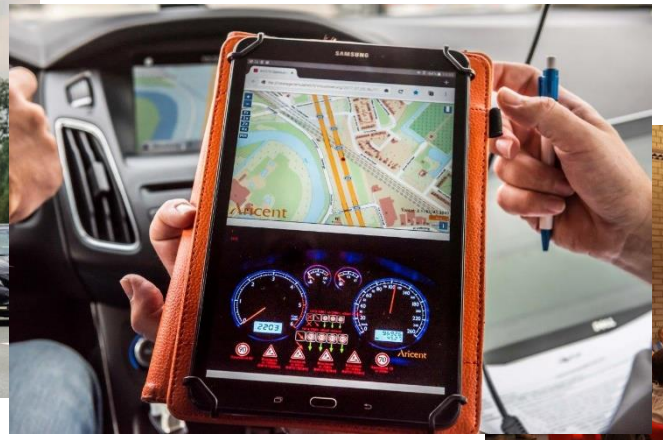
- Ex. InterCor TESTFEST in Dordrecht (NL), July 2017



- Second TESTFEST in Reims, 23-26 April 2018. Focus: security

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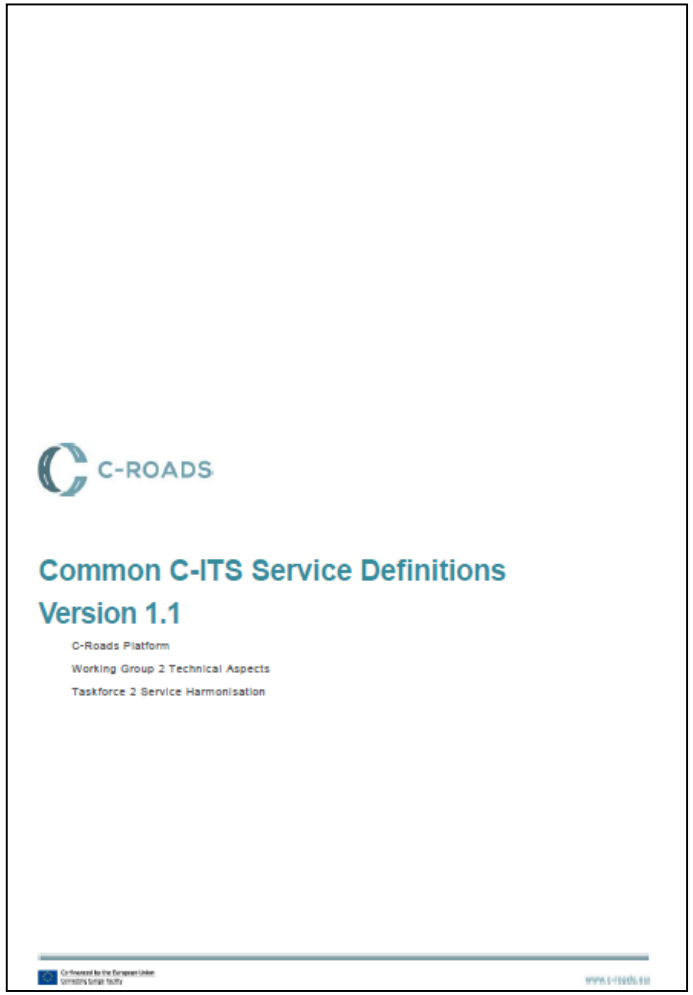
Harmonizing specs



4.2 RWW: Use Cases

4.2.1 RWW: Lane closure (and other restrictions) (RWW – LC)

RWW – LC: Lane Closure and other restrictions	
Type of road network	All
Type of vehicle	All
Use case introduction	
Summary	• The road user receives information about the closure of part of a lane, whole lane or several lanes (including hard shoulder), but without the road closure. • The closure is due to a static road works site. • In this use case, alternate mode and road closure are excluded.
Background / added values	Currently, many road users enter the road works sites or strike the protection equipment of the site, sometimes causing victims. Information sufficiently in advance would prevent this type of situation by adapting the behaviour of the road user.
Objective	• The objective is to allow road users to anticipate the closure of lanes due to a road works site on the road ahead and to adapt their speed and lane on the road. • The objective is not to signal a road closure and therefore no alternative route will be transmitted, even if a warning message could be sent. It is also not the objective to signal to the user that he/she is likely to have to stop, as in the case of an alternate mode.
Desired behaviour	• Increased vigilance • Adaptation of the speed • Change of lanes (if needed)
Expected benefits	• Reduce the risk and number of accidents and dangerous situations for road users and workers. • Informing the road user about a risk of discomfort on the road (slowing down, manoeuvring) • Improved traffic management due to less traffic relevant events on the road
Use case description	
Situation	• Roadworks equipped with warning beacons / temporary road signs / illuminated lights arrows,, on a road with separate carriageways or on a dual carriageway. • Carriageway crossover (in a divided highway. situation where vehicles need to use the contraflow carriageway because their own carriageway is closed) • Lane closure by sign gantries (line control system) • Lane closure by warning trailer equipped with RSU (short term roadworks)
Logic of transmission	I2V Broadcast
	• The Road operator is the origin of the information of the message. It can be the Traffic Operations Center, or a road operator vehicle if no connection to the central station

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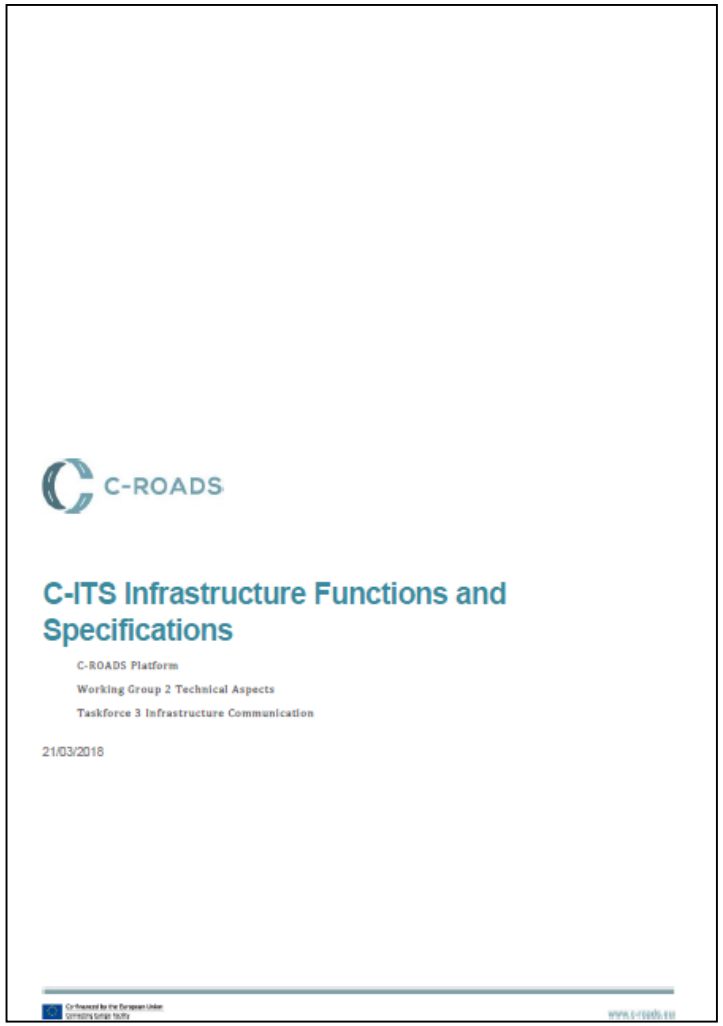
C-ROADS

C-ITS Infrastructure Functions and Specifications

C-ROADS Platform

Working Group 2 Technical Aspects

Taskforce 3 Infrastructure Communication

21/03/2018

www.c-roads.eu

3.1.2 Infrastructure to Vehicle Information (IVI) Service

"IVI service is one instantiation of the infrastructure services to manage the generation, transmission and reception of the IVIM messages. An IVIM supports mandatory and advisory road signage such as contextual speeds and road works warnings. IVIM either provides information of physical road signs such as static or variable road signs, virtual signs or road works" (ETSI 103 301) [17].

The I-VI service instantiated in an ITS-Station shall provide either the transmission or the reception service.

Four types of IVIMs are generated by the IVI services:

- **new** IVIM
- **update** IVIM
- **cancellation** IVIM and
- **negation** IVIM.

"The type of the IVI to be generated upon an application request" (ETSI 103 301) [17].

The header of IVIM shall be as specified in the data dictionary ETSI TS 102 894-2 [15].

The data elements of the IVIM message payload are defined in CEN ISO/TS 19321 [18].

Data elements, data frames and service parameters shall be used according to the definitions in tables Table 9 and Table 10.

Table 9 IVIM elements in general

Name	Type	Mult i.	Common Usage	Specific Usage
IVI ManagementContainer		1		
serviceProviderId	DE	1	It identifies the organisation that provided the IVI, containing a country code according to ISO 3166-1 and ISO 14816 and a provider identifier.	
iviIdentificationNumber	DE	1	This DE is the identifier of the IVI Structure, as assigned by the Service Provider. This component serves as the ID of the message per serviceProvider and can be used by other related messages as a reference.	
timestamp	DE	1 [0..1]	This DE is the timestamp representing the time at which the IVI message is generated or when the last content change of the messages had occurred.	
validFrom	DE	1 [0..1]	This component may hold the start time of the validity period of the message. If start time is unknown to the system, validFrom is not present or equal to timestamp.	
validTo	DE	1	End time of the validity period of the message	

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Committed

- To use the harmonized specs in their pilot deployment projects
- To achieve a series of milestones towards harmonized deployment of C-ITS in Europe

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C-ROADS Overview Milestone List

#	Name	Date
1	Signature of C-Roads Platform Agreement	Q4/2016
2	Launch of a web service giving access to the “common standard repository” as well as the interface description to data and services within the pilot sites.	Q4/2016
3	Dissemination Plan	Q4/2016
4	Steering Committee meeting	Q4/2016
5	Annual pilot overview report 2016	Q1/2017
6	Detailed pilot description and demonstration plan available (platform)	Q2/2017
7	Detailed pilot partner and structures description available (platform)	Q2/2017
8	Harmonised communication profile for C-ITS pilot services across Europe - ITS-G5	Q2/2017
9	Steering Committee meeting	Q2/2017
10	Test infrastructure operational	Q3/2017
11	Draft report on European security mechanism	Q4/2017
12	First test vehicles equipped and operational	Q4/2017
13	Steering Committee meeting	Q4/2017
14	Annual pilot overview report 2017	Q1/2018
15	Evaluation and Assessment Plan (platform)	Q1/2018
16	Harmonised communication profile for C-ITS pilot services across Europe - Hybrid	Q2/2018
17	Final report on European security mechanism	Q2/2018

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18	Report on legal structures for C- ITS operation	Q2/2018
19	Recommendation on driver information through C-ITS services	Q2/2018
20	Steering Committee meeting	Q2/2018
21	Steering Committee meeting	Q4/2018
22	Annual pilot overview report 2018	Q1/2019
23	Recommendation on harmonisation of future C-ITS services (Day 1.5 and later)	Q2/2019
24	EU-C-ITS Interoperability Report	Q2/2019
25	Steering Committee meeting	Q2/2019
26	Integrated report about cross-test results of single partners in different pilot sites	Q4/2019
27	All pilots installations finalized and start of regular cross border pilot drives	Q4/2019
28	Steering Committee meeting	Q4/2019
29	Annual pilot overview report 2019	Q1/2020
30	C-ITS Road show	Q2/2020
31	Steering Committee meeting	Q2/2020
32	Detailed evaluation report (platform)	Q4/2020
33	Steering Committee meeting	Q4/2020

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Cooperating

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- Associate Members : Switzerland, Ireland, Australia
- MoU with the Car2Car Communication Consortium to harmonize specs
- MoU with ASECAP to work on coexistence with tolling DSRC

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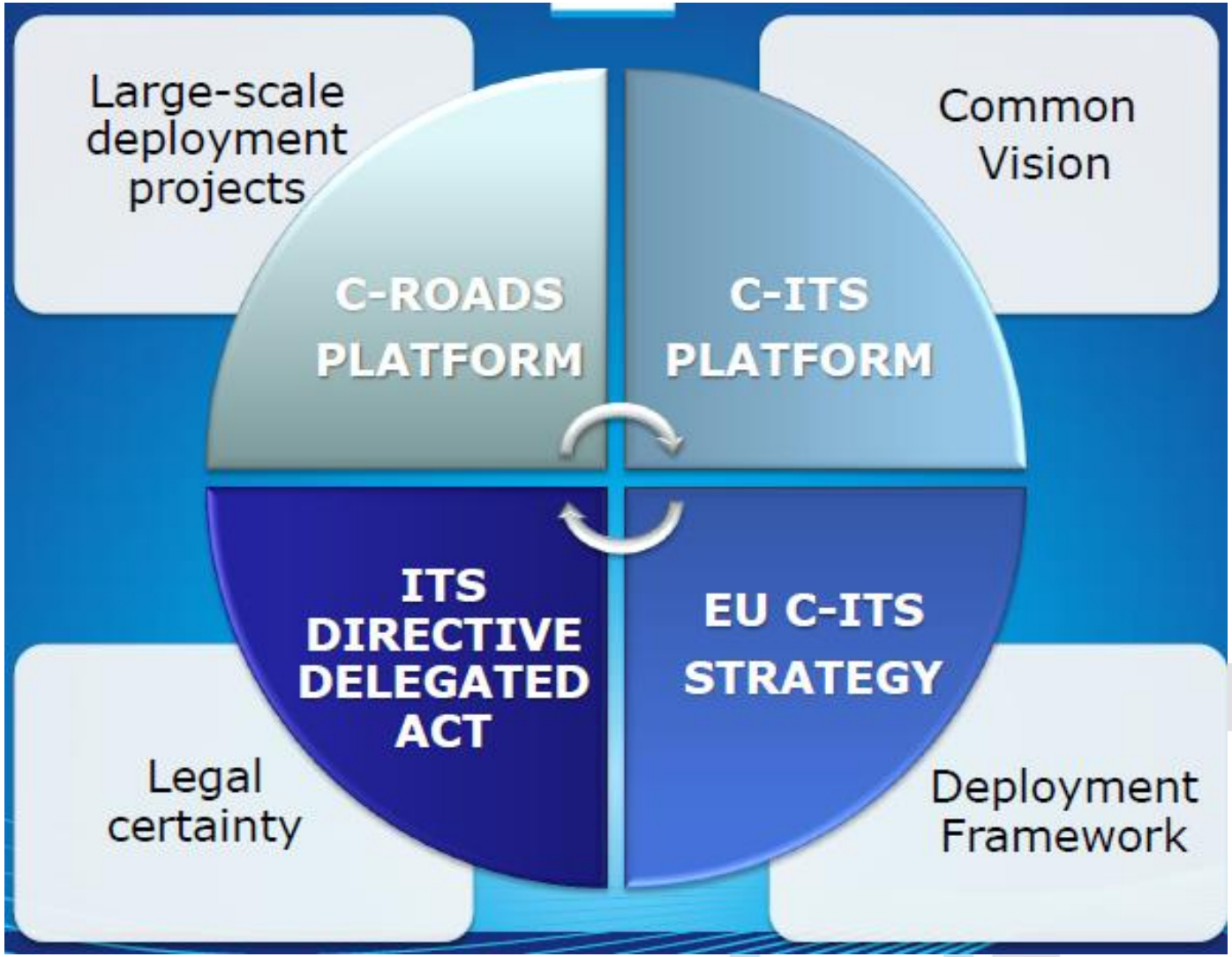
Contributing

- To the strategy of the European Commission



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Questions / answers

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ROUND TABLE
Deployment strategies, link with automation

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DEPLOYMENT STRATEGIES, LINK WITH AUTOMATION

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- **Vincent ABADIE** – PSA
- **Christian ROUSSEAU** - Renault
- **Paul BEAUVALLET** - Région Ile-de-France
- **Guus VAN DE SCHOUW** - Commission européenne

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CONCLUSION

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Élisabeth BORNE

French Transport Minister

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François POUPARD

DGITM

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