AUTOCITS

Regulation Study for Interoperability in the Adoption the Autonomous Driving in European Urban Nodes

Project Overview

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Project Coordinator

Lisbon, October 10th

AUTO
C-ITS

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AUTOCITS - In a nutshell

*"AUTOCITS aims to **contribute to the deployment of C-ITS in Europe** and to boost the role of C-ITS as catalyst for the implementation of autonomous driving"*

C-ITS

C-ITS: Intelligent Transport Systems (ITS) where ITS stations (vehicles, roadside equipment, traffic control centers and personal devices) communicate and share information

CAD – In Connected & Autonomous Driving take advantage of a variety of techniques to detect their surroundings and advanced control systems to interpret sensory information to identify appropriate navigation paths, as well as obstacles and relevant signage

CAD

Why AUTOCITS?

A European strategy on Cooperative Intelligent Transport Systems

Anthony Foxx @SecretaryFoxx · 20 sept.
Automated vehicles have the potential to save thousands of lives and improve the quality of life for so many Americans. #AVpolicy
👤 NHTSA, MADD, UC San Francisco y 2 más

UNECE paves the way for autonomous driving by updating the Vienna Convention
Mar 23, 2016 · 319 views · 👍 50 Likes · 💬 5 Comments

United Nations Economic Commission for Europe(UNECE) has made amendments to the 1968 Vienna Convention on Road Traffic, which will allow autonomous driving. The automated driving will be explicitly allowed in traffic

Violeta Bulc @Bulc_EU
#EU Ministers support Amsterdam declaration and call for #EU strategy on connected + automated driving. @EU2016NL #smartmobility

Violeta Bulc @Bulc_EU
I want to see connected cars on European roads by 2019. Today's C-ITS report is an important milestone #realITS bit.ly/1T7Y4lh
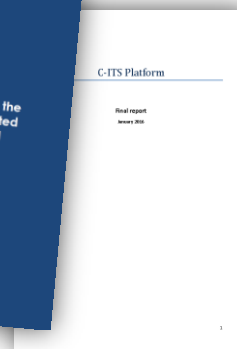
AUTOCITS: Partners & Figures

- **Programme**: Connected Europe Facility (CEF)
- **Call**: CEF- Transporte 2015
- **Starting date**: 1-11-2016
- **Ending date**: 31-12-2018
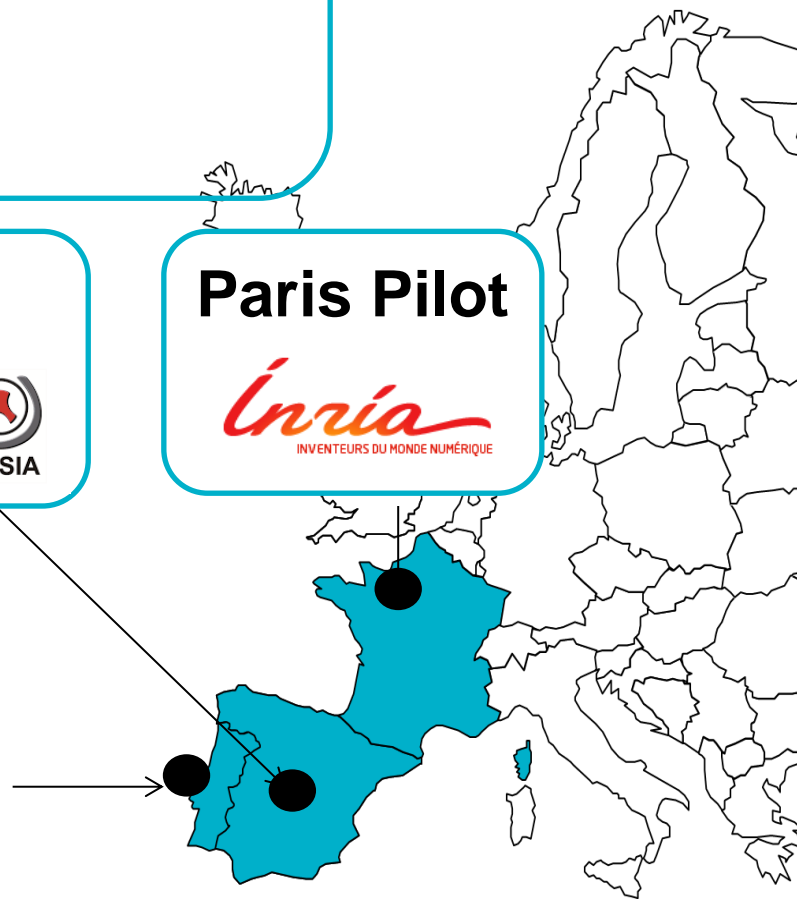- **Duration**: 26 months
- **Budget** : 2,606,550 €

Madrid Pilot

Paris Pilot

Lisbon Pilot

AUTOCITS - Objetives

Study on the current National, European and International legal framework for autonomous driving

Pilot C-ITS services for autonomous vehicles (AVs) under the applicable traffic regulation

AUTOCITS

Cooperate with other current initiatives during the study: C-Roads, etc.

Provide recommendations for regulations and large scale C-ITS deployments

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Study on autonomous driving regulation framework

- **Aspects under study** :
  - Alignment with Vienna Convention
  - Normative on driving
  - Testing Legislation
  - Vehicle certification (individual vehicles, mass production)
  - Changes on SAE 3-5 already initiated/foreseen
  - Laws to be modified

Elements	Spain	Paris	Portugal	UK	Germany	Sweden	The Netherlands	Italy	Denmark
Linked to Vienna Convention	No	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes
Current Legislation	Code for Vehicles and Traffic Law and Code for Traffic Rules	Code for Vehicles and Traffic Law	Portuguese Road Code	The Highway Code, road safety and vehicle rules	German Highway Code	Code for Vehicles and Traffic Law	Reglement verkeersregels en verkeerstekens	Codice della Strada and Regolamento di Attuazione	Code for Vehicles and Traffic Law
Testing Procedures	Yes. Autonomous driving is allowed, regulation in November 2015	Yes. Autonomous driving is allowed for testing purposes	Agreement between road administrations and concessionaires	Yes. Autonomous driving is allowed for testing purposes.	Yes. A section of the A9 autobahn is to be set up	Yes. Autonomous driving is allowed for testing purposes	Yes. Autonomous driving is allowed for testing purposes	Generally are not allowed on public roads for safety reasons	Yes. Autonomous driving is allowed for testing purposes
Certification Procedures	Vehicle manufacturer shall provide certification	Authorities shall provide a certification	No certification / procedures	No certification / procedures	No certification / procedures	Yes	Companies must first that the tests will be conducted safely	-	Permission to the Transport, Construction and Housing Ministry

Study on autonomous driving regulation framework

Report on regulation for autonomous driving

www.autocits.eu

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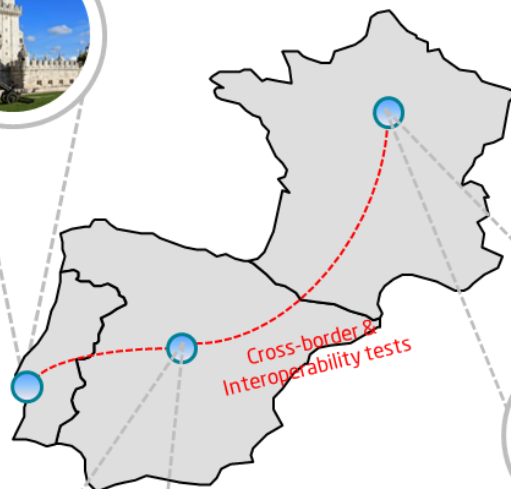
Lisbon

Location:
The highway A9 – CREL. between the beginning, near of National Stadium and exit number 2C, intersection with A16

C-ITS Services:
•Slow or stationary vehicle & traffic ahead warning
•Weather conditions
•Other hazardous notifications

Test vehicles
1 autonomous vehicle
1 instrumented vehicle
2 autonomous shuttles

Paris

Location:
The A4 motorway between Villiers sur Marne and Logne

C-ITS Service:
•Slow or stationary vehicle & traffic ahead warning
•Weather conditions
•Other Hazardous notifications

Test vehicles
4 instrumented & connected veh
1 autonomous vehicle
Other external vehicles

Madrid

Location:
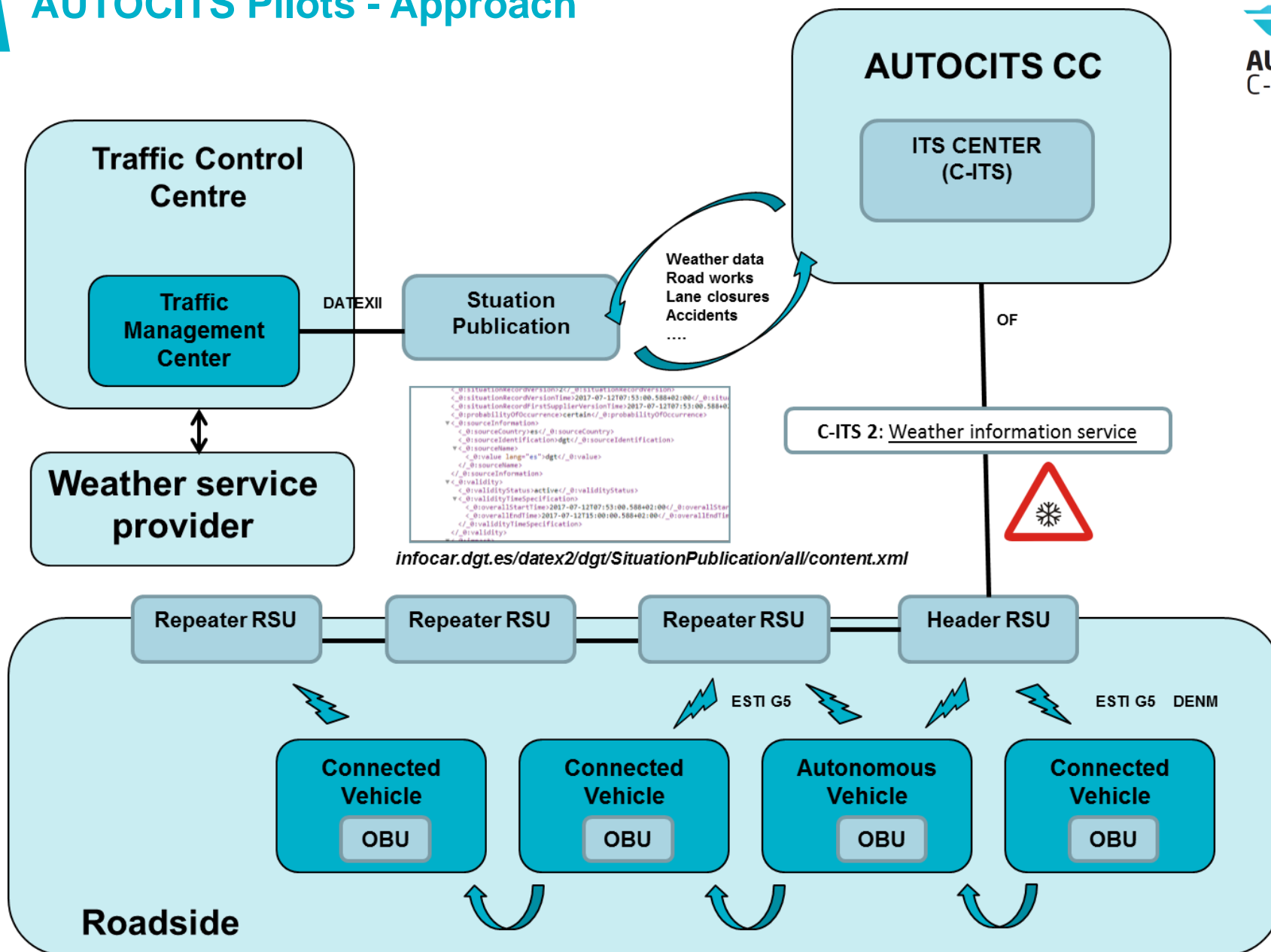The HOV Lane located between the M30 and M40

C-ITS Services:
•Slow or stationary vehicle & traffic ahead warning
•Road works warning
•Weather conditions

Test vehicles
4 instrumented and connected vehicles
2 autonomous vehicles

Cross-border & Interoperability tests

AUTOCITS CC

ITS CENTER
(C-ITS)

Traffic Control
Centre

Traffic
Management
Center

DATEXII

Stuation
Publication

Weather data
Road works
Lane closures
Accidents
....

OF

C-ITS 2: Weather information service

Weather service
provider

infocar.dgt.es/datex2/dgt/SituationPublication/all/content.xml

Repeater RSU — Repeater RSU — Repeater RSU — Header RSU

ESTI G5   ESTI G5   DENM

Connected
Vehicle
OBU

Connected
Vehicle
OBU

Autonomous
Vehicle
OBU

Connected
Vehicle
OBU

Roadside

Location

- **Road:** Madrid Highway between M30 and M40 - Reversible high occupancy lane
- **Length:** 10 kms , 12 RSUs will be installed
- **Road authority:** Minister of Public Works and Transport
- **Traffic condition:** two different conditions:
  Close to traffic: only project vehicles will drive through the road
  Open to traffic: private vehicles and public collective transport (bus), more than 20.000 vehicles/day

C-ITS services

- **Service 1:** Road Works information service
- **Service 2:** Weather information service
- **Service 3:** Traffic ahead service

Vehicles involved

- **Autonomous vehicles**: 2 vehicles INSIA
- **Connected vehicles:** 1 vehicles
- **Other vehicles:** None

Autonomous vehicles

Participation of 3rd Parties

- **Vehicle provider:** None
- **Weather data provider:** None
- **Communication hardware provider:** Cohda Wireless

Connected vehicles

Paris Pilot

Location
- **Road:** Peri-Urban entrance to Paris - A4 Motorway
- **Length:** 400 kms already 10 RSUs installed from SCOOP@F
- **Road authority:** SANEF
- **Traffic condition:** urban and peri-urban traffic

C-ITS services
- **Service 1:** hazardous location notification
- **Service 2:** contextual speed adapting
- **Service 3:** traffic scheduling assist

Vehicles involved
- **Autonomous vehicles**: Inría's electric C1 Evie
- **Connected vehicles**: 4 C3 vehicles
- **Other vehicles:** AKKA vehicles

Participation of 3rd Parties
- **Vehicle provider:** None
- **Concessionaire:** SANEF
- **Communication hardware provider:** Yogoko

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Collaboration with C-ROADS Platform

WG3 Evaluation Methodology
- **Definition of Evaluation Strategy (March18)**
- **Three levels: impact, user and technical**

WG2 Technical Aspects
- **Definition of Services**
- **Preserve the ETSI-5G band**

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International Cooperation Group

Represents the **group of experts** interested in project results, formed by transportation authorities, concessionaires, automotive manufacturers and their suppliers, insurance companies, business consultants, etc

1st AUTOCITS WORKSHOP
MADRID, Nov 23rd 2017

2nd AUTOCITS WORKSHOP
PARIS, May 10th 2017

3rd AUTOCITS WORKSHOP
Lisbon, October 10th 2017

1st INTERNATIONAL WORKSHOP
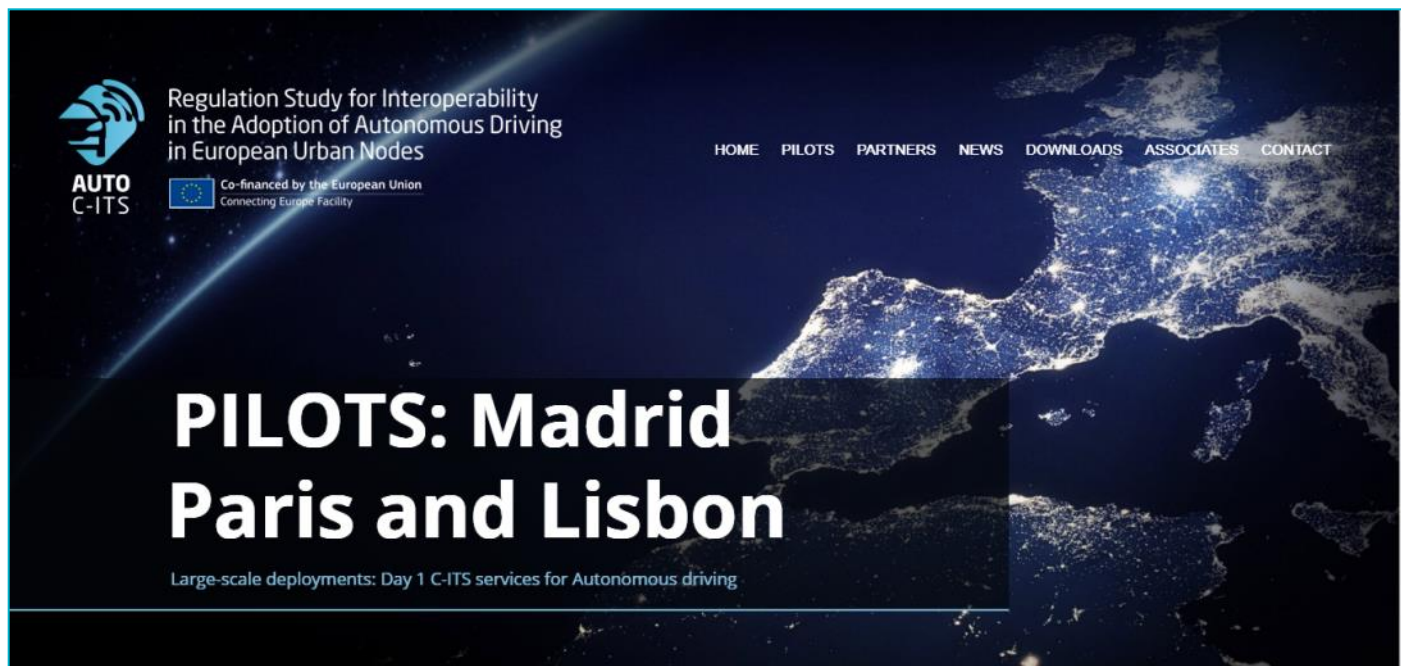Cologne, 5th July 2017

2nd INTERNATIONAL WORKSHOP
Vienna, April 2018

4th AUTOCITS WORKSHOP
Madrid February 2018

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International Cooperation Group

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Be part of the ICG

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AUTOCITS: Next Steps

- **Study on autonomous driving regulation framework**
  - Monitor the regulation framework
  - Provide guidelines for regulatory frameworks to facilitate the up-take and deployment of CAD

- **Deployment of C-ITS Services**
  - Continue the deployment of the C-ITS Services
  - Perform tests with connected and autonomous vehicles
  - Perform interoperability tests with C-ITS services

- **Cooperate with other initiatives**
  - Collaboration with CEF Projects: C-ROADS Spain, Portugal, etc
  - Collaboration with other related projects: CODECS, etc
  - Contribute to the C-Roads Platform
  - Continue the organisation of workshops

Thank you!

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Project **AutoC-ITS** is co-financed by the European Union's Connecting Europe Facility (CEF)

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Connecting Europe Facility