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

Project Overview
Rodrigo Castiñeira
Project Coordinator

Lisbon, October 10th
“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: 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.
A European strategy on Cooperative Intelligent Transport Systems

Why AUTOCITS?

UNECE paves the way for autonomous driving by updating the Vienna Convention

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.

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

I want to see connected cars on European roads by 2019. Today’s C-ITS report is an important milestone #realTS bit.ly/1T7Y4lh
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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 €
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

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

Provide recommendations for regulations and large scale C-ITS deployments
AUTOCITS - Objectives

- 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.
- Cooperate with other current initiatives during the study: C-Roads, etc.
- Provide recommendations for regulations and large scale C-ITS deployments.
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

<table>
<thead>
<tr>
<th>Elements</th>
<th>Spain</th>
<th>Paris</th>
<th>Portugal</th>
<th>UK</th>
<th>Germany</th>
<th>Sweden</th>
<th>The Netherlands</th>
<th>Italy</th>
<th>Denmark</th>
</tr>
</thead>
<tbody>
<tr>
<td>Linked to Vienna Convention</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Testing Procedures</td>
<td>Yes. Autonomous driving is allowed, regulation in November 2015</td>
<td>Yes. Autonomous driving is allowed for testing purposes</td>
<td>Agreement between road administrations and concessionaires</td>
<td>Yes. Autonomous driving is allowed for testing purposes.</td>
<td>Yes. Autonomous driving is allowed for testing purposes</td>
<td>Yes. Autonomous driving is allowed for testing purposes</td>
<td>Generally are not allowed on public roads for safety reasons</td>
<td>Yes. Autonomous driving is allowed for testing purposes</td>
<td></td>
</tr>
<tr>
<td>Certification Procedures</td>
<td>Vehicle manufacturer shall provide certification</td>
<td>Authorities shall provide a certification</td>
<td>No certification / procedures</td>
<td>No certification / procedures</td>
<td>No certification / procedures</td>
<td>Yes</td>
<td>Companies must first that the tests will be conducted safely</td>
<td>-</td>
<td>Permission to the Transport, Construction and Housing Ministry</td>
</tr>
</tbody>
</table>
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Study on autonomous driving regulation framework

Report on regulation for autonomous driving

www.autocits.eu
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AUTOCITS - Objetives
AUTOCITS Pilots

**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

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**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

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**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
AUTOCITS Pilots - Approach

Traffic Control Centre

Weather service provider

Autonomous Vehicle

Connected Vehicle

Repeater RSU

Roadside

Autocits CC

ITS CENTER (C-ITS)

C-ITS 2: Weather information service

infocar.dgt.es/datex2/dgt/SituationPublication/all/content.xml
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**Madrid Pilot**

**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

**Participation of 3rd Parties**
- **Vehicle provider**: None
- **Weather data provider**: None
- **Communication hardware provider**: Cohda Wireless
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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AUTOCITS - Initial Tests & Deployments
AUTOCITS - Objetives

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Collaboration with C-ROADS Platform

WG3 Evaluation Methodology
- Definition of Evaluation Strategy (March 18)
- Three levels: impact, user and technical

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