IN-VEHICLE TELEMATICS PLATFORM

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AGENDA

➢ CLEPA RESEARCH & INNOVATION

➢ CURRENT SITUATION

➢ OPEN TELEMATICS PLATFORM

➢ CHALLENGES

➢ ARCHITECTURE
Mission

“CLEPA and its members play a key role in innovating and adapting the automotive industry to meet global societal challenges while strengthening competitiveness through technological development, research and innovation.”

- Contact point to the EC and to other European research associations such as EUCAR, EARPA, ERTICO, etc.

- Represent CLEPA in European Technology Platforms (ETP) such as ERTRAC, iMobility Forum, etc.
CLEPA RESEARCH PRIORITIES

SAFETY

DECARBONISATION

INTELLIGENT TRANSPORT SYSTEM

LIGHTWEIGHT MATERIALS AND DESIGN

MANUFACTURING AND COMPETITIVENESS
CURRENT SITUATION

• Market uptake for communicating vehicles is slow;

• Rolling out new infrastructure is expensive, slow, and incomplete in coverage;

• Regional differences may hinder interoperability;

• Accompanying measures to **bridge the communication gap** towards increased penetration of systems is required;
OBJECTIVES

• Increase market penetration with interoperable communication (DSRC and 4G-LTE) units;
• Ensure safety, reliability, privacy and security;
• Enable realtime ITS service provision;
• Enable a vivid ecosystem of ITS services by third parties;
• Enable early deployment recognizing customer interest;
• Focus on functionalities build on solid business cases;
• Enable access to sensor data by appointed authorities.

Increase market share of connected and communicating vehicles

Open in-vehicle platform architecture
Objective

Demonstrate advanced in-vehicle platform architecture

- including cloud connectivity,
- combining benefits of DSRC and 4G-LTE,
- providing a standardised open vehicle interface,
- suitable for future requirements and ITS applications.
Develop
• an advanced secure in-vehicle platform architecture for real-time ITS services and mechanisms to provide seamless connectivity and interoperability

Combine
• communication technologies for digital short range (ITS G5) with 4th generation mobile communication technologies (LTE).
OPEN TELEMATICS PLATTFORM

Support
• innovative solutions for cooperative network management, multimodal transport services, safety applications and hazard warnings.

Demonstrate
• tailor-made solutions for heavy duty vehicles, integrating as much as possible tachograph, tolling, inspection and (dynamic) route guidance functions, etc.
Provide
• SDK and Open API enabling third party development of applications and vivid ecosystem of cooperative use cases

Certify
• Testing and certification of all apps to ensure high quality by an independent entity
CHALLENGES

Flexibility
- Convergence communication standards
- Open Application layer

Scalability
- Shared resources
- Upgradability
- Updateability

Real-time data provision
- Real-time data access
- Latency for safety applications

Security
- Certification
- Encryption
- Harmonisation
- Privacy
- Modular approach?
ARCHITECTURE
ARCHITECTURE (CLOUD)
ARCHITECTURE (BOXED)
ARCHITECTURE (ON-BOARD)

Vehicle

- DSRC
- 4G/LTE
- Other Comms

On-board OS and application level (TRUST)

GATEKEEPER
Standardised Open Vehicle Interface (API)

GATEWAY

Others (Data Engine)

- ECU 1
- ECU 2
- ECU 3

ISO 14229 UDS

ECU 4

ECU 5

ECU 6

MOST

HS-CAN

Other Vehicle

RSU

Net Provider

Other Vehicle

Eg. TMC, Cloud

Eg. TMC, Cloud

Eg. TMC, Cloud

Others (Data Engine)

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DISCLAIMER

The slides in this presentation are used as a discussion background to illustrate the challenges for C-ITS and different in-vehicle platform architectures with their strengths and weaknesses.

They are not representing an official CLEPA position.