The ESCAPE project is funded by the European GNSS Agency under the European Union’s Fundamental Elements research and innovation programme under grant agreement No. GSA/GRANT/02/2015.

2nd EU-Japan Satellite Positioning Public-Private Roundtable

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Tokyo | 8th March 2017
Group Highlights

Automotive Tier 1
Established in 1949 in Barcelona
Global partners with Panasonic
Selling since decades to all major OEMs
Global company
Strong R&D component: >6.5% of sales invested in R&D

€ 1,1b sales
9,350 employees
In 17 countries

€ 36m
€ 195m
€ 593m
€ 1,1b

1949 – 1986
Local player
1987 – 1995
European market
1996 – 2001
Global market
2002 – Today
Global organization

Source: FY-15 consolidated data
Customer Diversification

- Ficosa has a diversified customer base, as a partner to all the major global OEMs, not being dependent to a single customer or market.

Ficosa Sales by Region:
- Europe: 60%
- North America: 25%
- Asia: 13%
- South America: 2%

Source: FY15 consolidated data.
Ficosa sets the innovation division to diversify its traditional business

Acquisition of the electronics manufacturing and engineering assets of Sony Spain

Successful development and production launch of latest technology generation electronics programs

Pillars: Safety [Vision System], Efficiency and Connectivity

Business alliance with Panasonic

The car of the future
R & D

Talent: 942 engineers

Commitment: 6.5% sales invested in R&D

Global: 14 Development Centers

647 Patents Filed

World class labs & testing facilities

Robust methodology & development process
European Safety Critical Applications Positioning Engine

The main objective of the project is the first development of a positioning engine for safety critical applications integrating E-GNSS (Galileo), On-board Sensors, Camera and Maps.

http://www.gnss-escape.eu/
Road Transportation Needs

Safety Critical Applications
Connected Vehicles & Autonomous Driving possess potential for causing harm and damage.

Accurate & Reliable Information
Emerging for SCA. Common approach is using multiple sources of data: rather expensive and non targeted for automotive.

Galileo deployment
Services starting at 2016 providing more precise, reliable and robust GNSS. Authentication feature benefiting safety/security applications.
ESCAPE Objectives

Development of a positioning engine for safety critical applications

Exploitation of European GNSS differentiators

Autonomous driving is the targeted application

Provision of integrity as the most relevant performance feature
Innovation

- GNSS/Galileo multi-constellation multi-frequency chipset for road applications
- Hybridization of cameras, maps, vehicle sensors, and GNSS integrated in a tight coupling filter
- Exploitation of PPP (also compatible with Galileo E6 service)
- Provision of an integrity layer to the exploited technologies
- Integration of ESCAPE technologies in an engine close to commercialization
Project

Kick-off: October 1, 2016
Duration: 3 years
Closure: September 30, 2019

Project is funded by the European GNSS Agency (GSA) under the European Union’s Fundamental Elements research and development program under grant agreement.
Total estimated eligible costs: 5,475,209,80 € // Total requested GSA grant: 3,285,125,88 €

- In-vehicle demonstration in real HAD representative scenarios at Renault’s facilities.
- Demonstration of isolated engine RF aspects in the European Microwave Signature Laboratory (EMSL) of the European Commission’s Joint Research Centre (JRC).
ESCAPE Consortium

**SPAIN**
Project Management
- Contractual and administrative issues
- HW Engine Development
- Business Plan

**IITALY**
E-GNSS Chipset Provision
- Development and validation

**IITALY**
Dissemination
- Communication and Dissemination activities

**FRANCE**
Technical Management
- Coordination of technical activities
- Core Technology + SW Engine Development
- Safety Analysis

**FRANCE**
Overall Architecture
- Connected Autonomous Vehicle provider
- Performance Assessment

**FRANCE**
Standardization
- Contribution to standardization process and initiation of certification
Technologies: Pre-existing Knowledge

**Autonomous vehicle**
Prototype based on low cost technology developed and demonstrated by **Renault**.

**GNSS processing**
**GMV** technologies cover advanced techniques such as PPP and position integrity based on IBPL and KIPL.

**Multi-constellation receiver**
**ST Microelectronics** developments already support GPS, GLONASS and Galileo.

**Advanced Telematic Units**
**Ficosa** products already installed in OEM’s like **Renault** provide experience in project development.
ESCAPE Solution Maturity (target)

System prototype demonstration in operational environment [September 2019]
Benefit as more units are manufactured by the Tier 1
Automotive Sector Trends

A lot of benefits for consumers

ESCAPE will enable and improve the functionalities required for current automotive trends.

- Reduction of accidents
- Reduced congestion
- Higher fuel efficiency
- Democratization of mobility
- Gain in productivity (reduction time in transit)
The connected car is an interim step on the way to the truly autonomous vehicle. By 2022, autonomous packages will have the largest incremental impact on new car sales.
The market for connected car packages in 2017 will continue to center on premium vehicles. By 2022, the value to be found in the volume market will catch up to 50 percent of the total.
Autonomous Driving - Market Forecast

75M ESCAPE units
Potential number that would reach in 2035, considering a global European fleet of 300 Million vehicles

Estimated market penetration of partially and fully autonomous vehicles by 2035

Source: Boston Consulting Group, 2015
IHS Forecast (June 2016)

- “Between now and 2035, IHS estimates that nearly 76 million vehicles with some level of autonomy will be sold globally”.
- “Global sales of autonomous vehicles will reach nearly 600,000 units in 2025,”
- New forecast reflects a 43 percent compound annual growth rate between 2025 and 2035
GNSS - Market Forecast

GNSS downstream market forecast to increase annually between 2013 and 2019

Source: GSA
Conclusions

ESCAPE will overcome multiple challenges…

**GSA** funded projects aim to increase **Galileo adoption** in emerging segments.

Innovation is accelerating for vehicles. **GNSS is a key technology.**

The **consortium covers all** the areas of innovation for the project, integrating all the automotive supply chain.
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Thank you