



Magneti Marelli

Véhicule intelligent/communicant 1-4 December

December 2015

Index

- Company Overview
- Electronics Systems Business
- Connected Vehicle & Innovation



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Magneti Marelli is an international company committed to the design and production of hi-tech systems and components for the automotive sector.

AUTOMOTIVE LIGHTING



EXHAUST SYSTEMS

POWERTRAIN



PLASTIC COMPONENTS AND MODULES

ELECTRONIC SYSTEMS

(Instrument clusters, Infotainment & Telematics, Lighting & Body Electronics)



AFTERMARKET PARTS & SERVICES

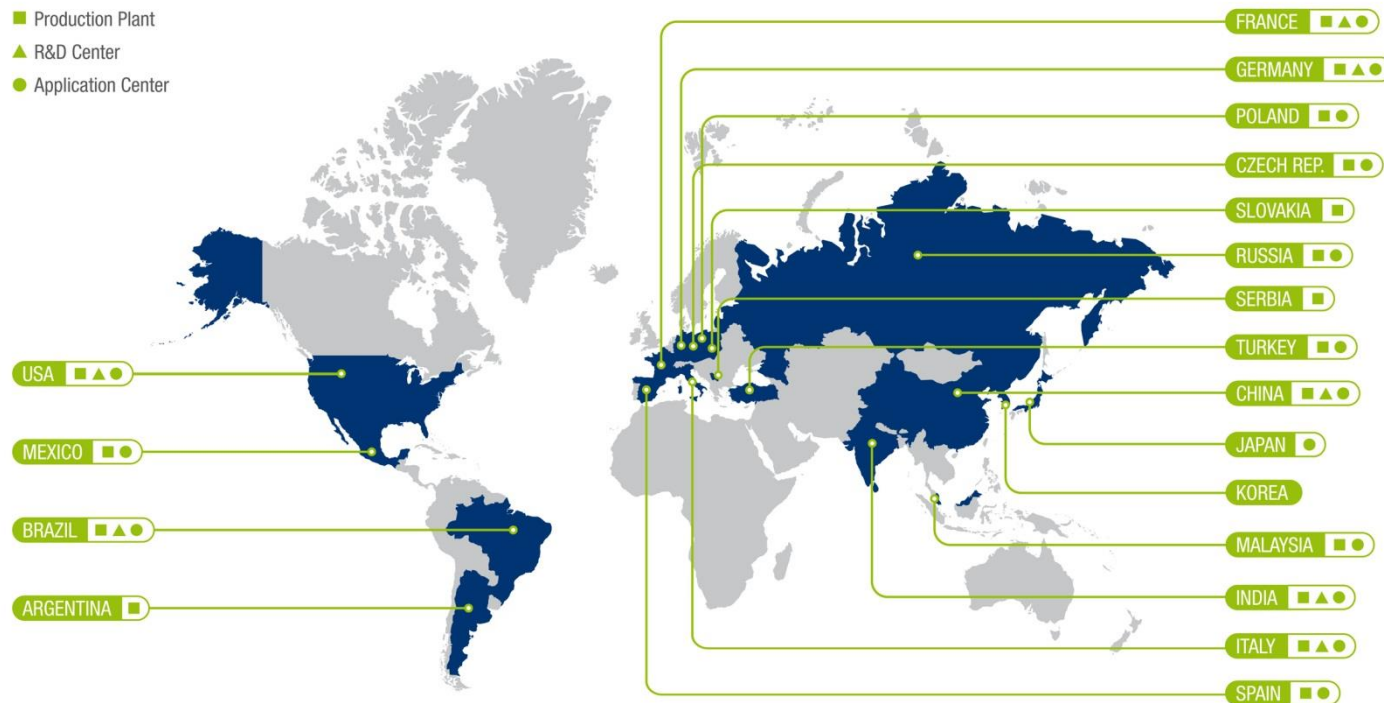
SUSPENSION SYSTEMS

(Suspension Systems, Shock Absorbers, Dynamic Systems)



MOTORSPORT

Magneti Marelli Worldwide Presence



Sales 2013	6 billion €	Production units	85
R&D Centers	12	Application Centers	26
R&D (of sales)	6%	Investments (of sales)	5.4%
Employees worldwide		~ 38,000	

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Worldwide Presence



Sales	935 mio €
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R&D (of sales)	15.4 %
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Investments (of sales)	5.3 %
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Act 2013

Main products & technologies



Instrument Clusters & Displays

- ▶ Instrument Clusters
- ▶ Display Technology
- ▶ LCD
- ▶ TFT



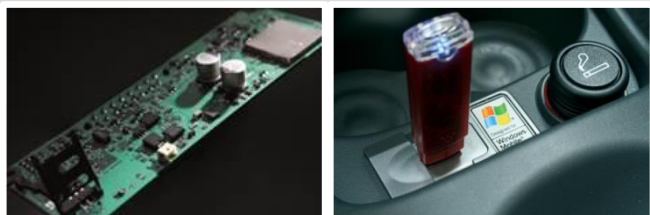
Lighting & Body Electronics

- ▶ Body Computers / Gateways
- ▶ Climate Control modules
- ▶ Other Modules (Door, Trunk, RKE, ...)
- ▶ Lighting HID & AFS ECUs
- ▶ LED PCBAs & ECUs



Infotainment & Navigation

- ▶ Multimedia & Navigation
- ▶ HMI Technology
- ▶ Low-cost Radio-Nav
- ▶ ADAS systems



Telematics

- ▶ Connectivity Gateway
- ▶ Telematic Box (OE & AM)
- ▶ e-Call
- ▶ e-Toll
- ▶ Infomobility



Displays

- Important TFT demand
- Digital dashboard display diffusion



Navigation

- Consolidation in middle high Segment (30% in 2015)
- New trend for the Low End OEM Navigation (PND, smartphones)



Connectivity

- Interoperability with nomadic devices
- High speed connection for internet applications



HMI

- HMI as key for User Friendly Vehicles
- Enhanced graphic (3D)
- Voice
- Touchscreen

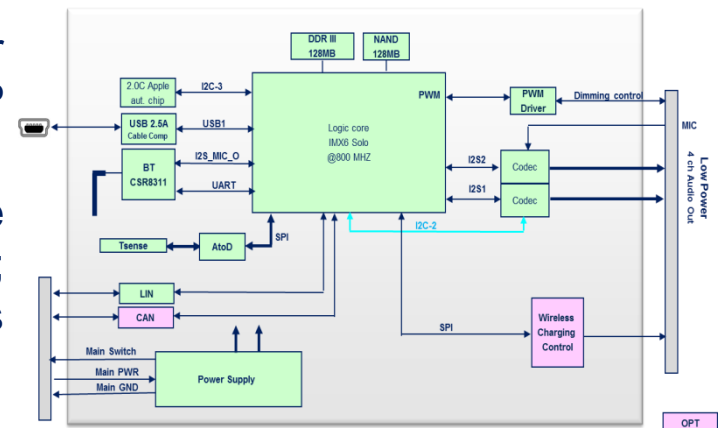


Telematics & Services

- Legislation (eCall)
- Green Telematics
- Location Based Services (i.e. Stolen Vehicle Tracking)
- Application Store
- Infomobility Services (traffic, parking, Restricted areas..)
- High speed connection for internet applications

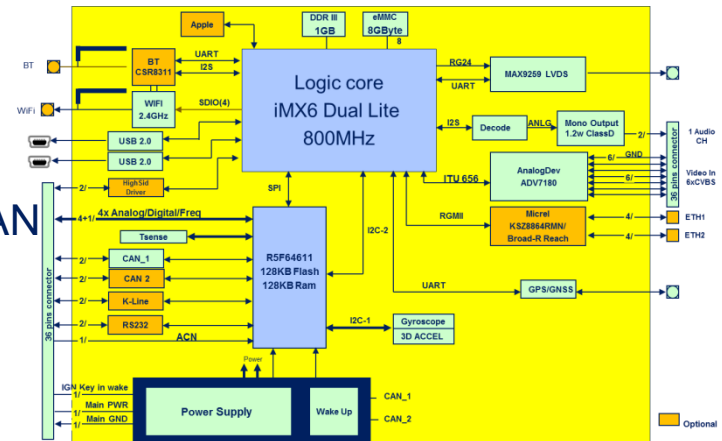
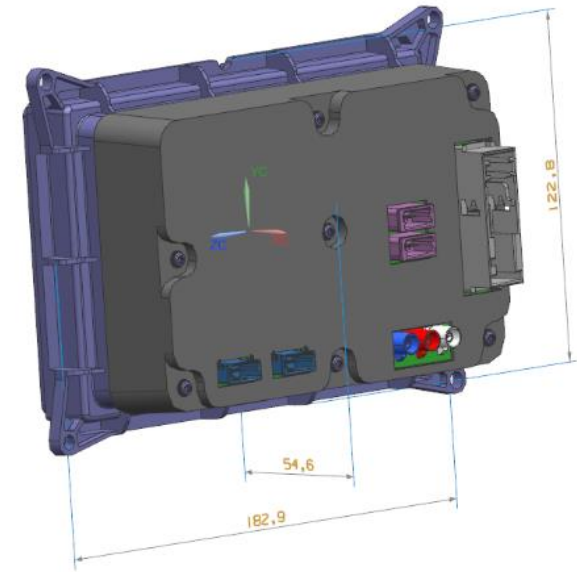
Main Features:

- ❑ BT 3.0 for HFP and Audio Streaming
- ❑ USB 2.0 for Media content management (audio only) including Android and Apple devices
- ❑ Connection to an external Radio unit (analog 4x channel output)
- ❑ Connection to vehicle network (LIN and CAN)
- ❑ Optional NFC and wireless charging for nomadic devices
- ❑ The BT connection will also be used to interface the nomadic devices
- ❑ The nomadic device will implement the HMI for Smart Docking station (connection via BT SPP profile)
- ❑ The nomadic device will provide the complement to the IVI system (Navigation; Video Player; Web browsing; Web Radio) as well as the applications framework



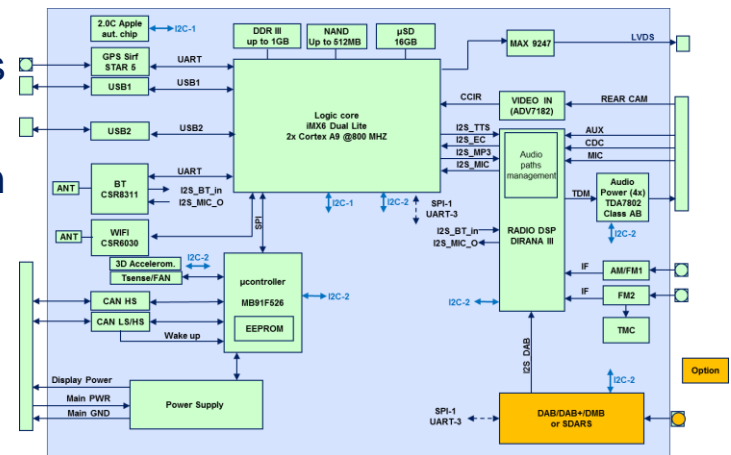
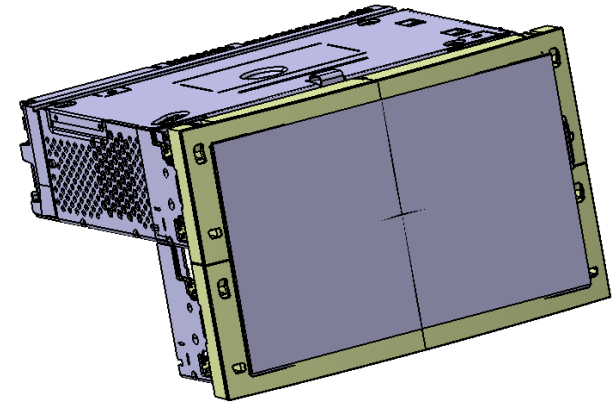
Main Features:

- ❑ 7" display with capacitive or resistive touch panel
- ❑ WiFi connectivity
- ❑ Optional BT for connectivity and audio streaming
- ❑ 2 USB 2.0 for connectivity with Telematics Box and full Multimedia contents management (including HD video streaming)
- ❑ Smart integration of nomadic devices (MirrorLink 1.2 + Miracast; CarPlay)
- ❑ GPS/Glonass for Navigation and localization based services
- ❑ Optional Gyroscope or 3D accelerometer
- ❑ Up to 5 camera inputs
- ❑ Optional 2x Ethernet
- ❑ Complete range of vehicle connectivity (2 x CAN K-Line; RS232)
- ❑ HTML5 based applications framework



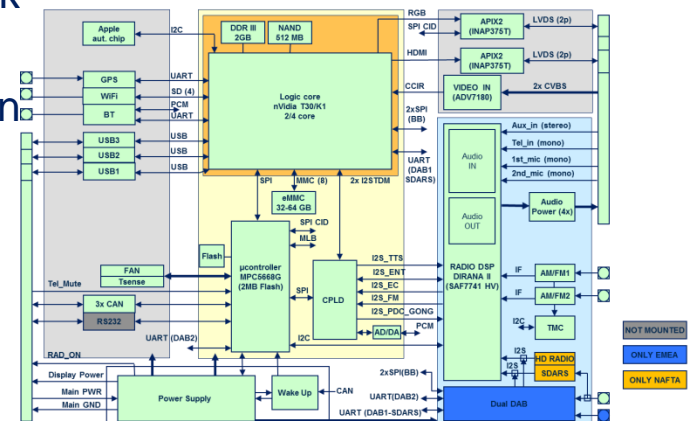
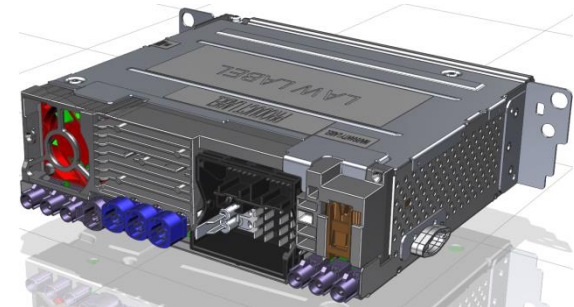
Main Features:

- ❑ 7" display with capacitive or resistive touch panel
- ❑ AM/FM radio (up to 3 tuners) and audio DSP
- ❑ Optional DAB and SDARS module
- ❑ WiFi connectivity
- ❑ BT 3.0 for HFP, connectivity and audio streaming and tethering
- ❑ 2 USB 2.0 for connectivity with Telematics Box and full Multimedia contents management (including HD video streaming)
- ❑ Smart integration of nomadic devices (MirrorLink 1.2 + Miracast; CarPlay)
- ❑ GPS/Glonass for Navigation and localization based services
- ❑ Up to 2 camera inputs
- ❑ Vehicle connectivity (2 x CAN)
- ❑ HTML5 based applications framework



Main Features:

- ❑ HD display with capacitive or resistive touch panel
- ❑ AM/FM radio (up to 3 tuners) and audio DSP
- ❑ Optional dual tuner DAB; HD and SDARS module
- ❑ WiFi connectivity
- ❑ BT 3.0 for HFP, connectivity and audio streaming and tethering
- ❑ Up to 3 USB 2.0 for connectivity with Telematics Box and full Multimedia contents management (including HD video streaming)
- ❑ Smart integration of nomadic devices (MirrorLink 1.2 + Miracast; CarPlay)
- ❑ GPS/Glonass for Navigation and localization based services
- ❑ 2x camera inputs
- ❑ Vehicle connectivity (3 x CAN; RS232)
- ❑ HTML5 based HMI framework





TBOX Hi-End for Trucks



TBOX for insurance & fleet



eToll device



eCall Box



TCU for Regulation and Services



WiFi TBOX



Self Installed TBOX



OBD DONGLE



TBOX for electric vehicle



In production in more than 60 vehicle models from A to F segment



Blue&Me
platform for
FGA & Iveco

Radionav for
FGA & Iveco



RT5
RT6
RNEG
SMEG
for PSA & DPCA



Entry Nav
for BMW



SmartNav
Paccar



Radionav
for SAIC on
Roewe & MG



ATB Ecall System
For PSA



CrewChief Fleet mng
Telematic Box for Ford



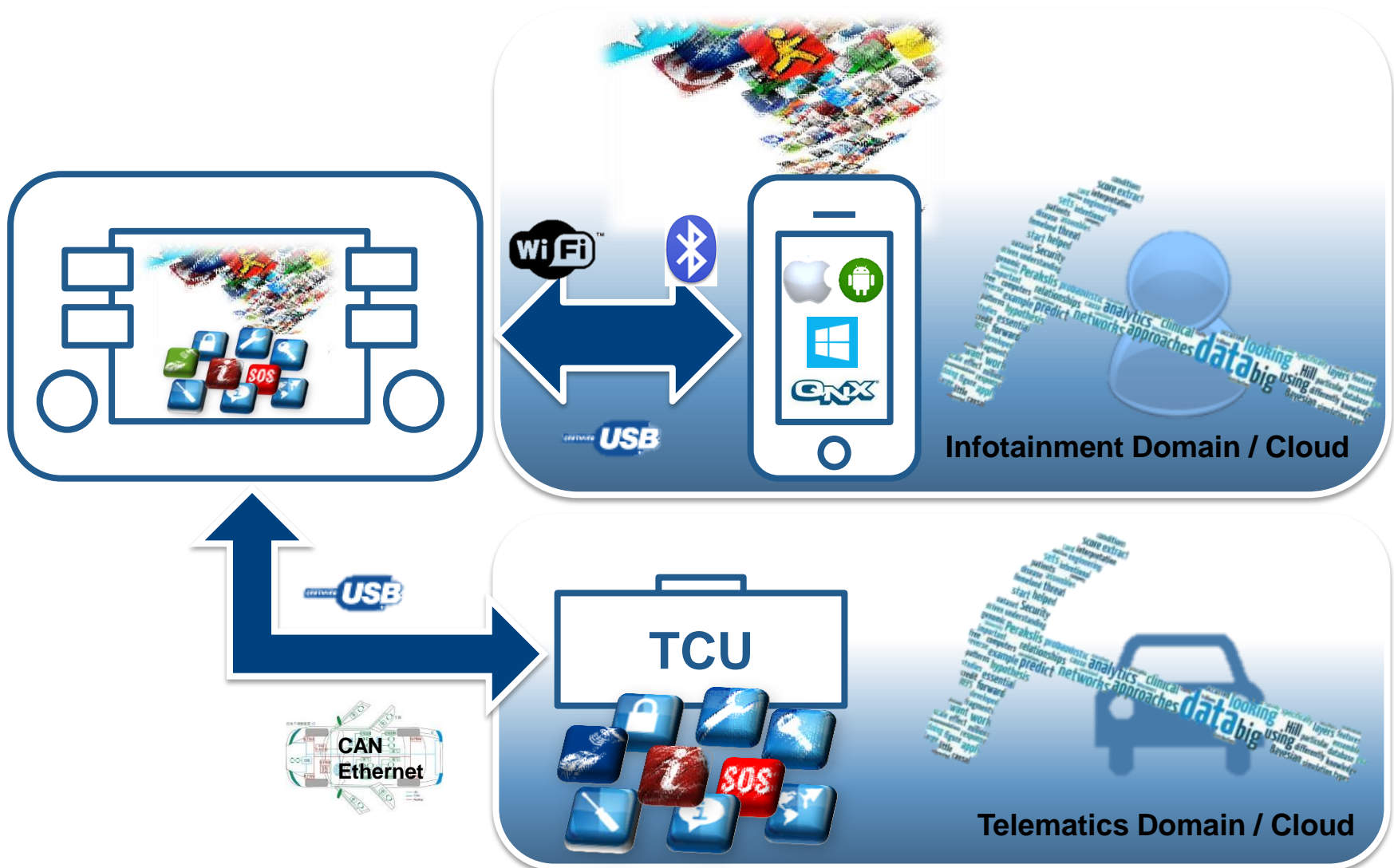
ATB2 China DS
connect for CAPSA
and DPCA

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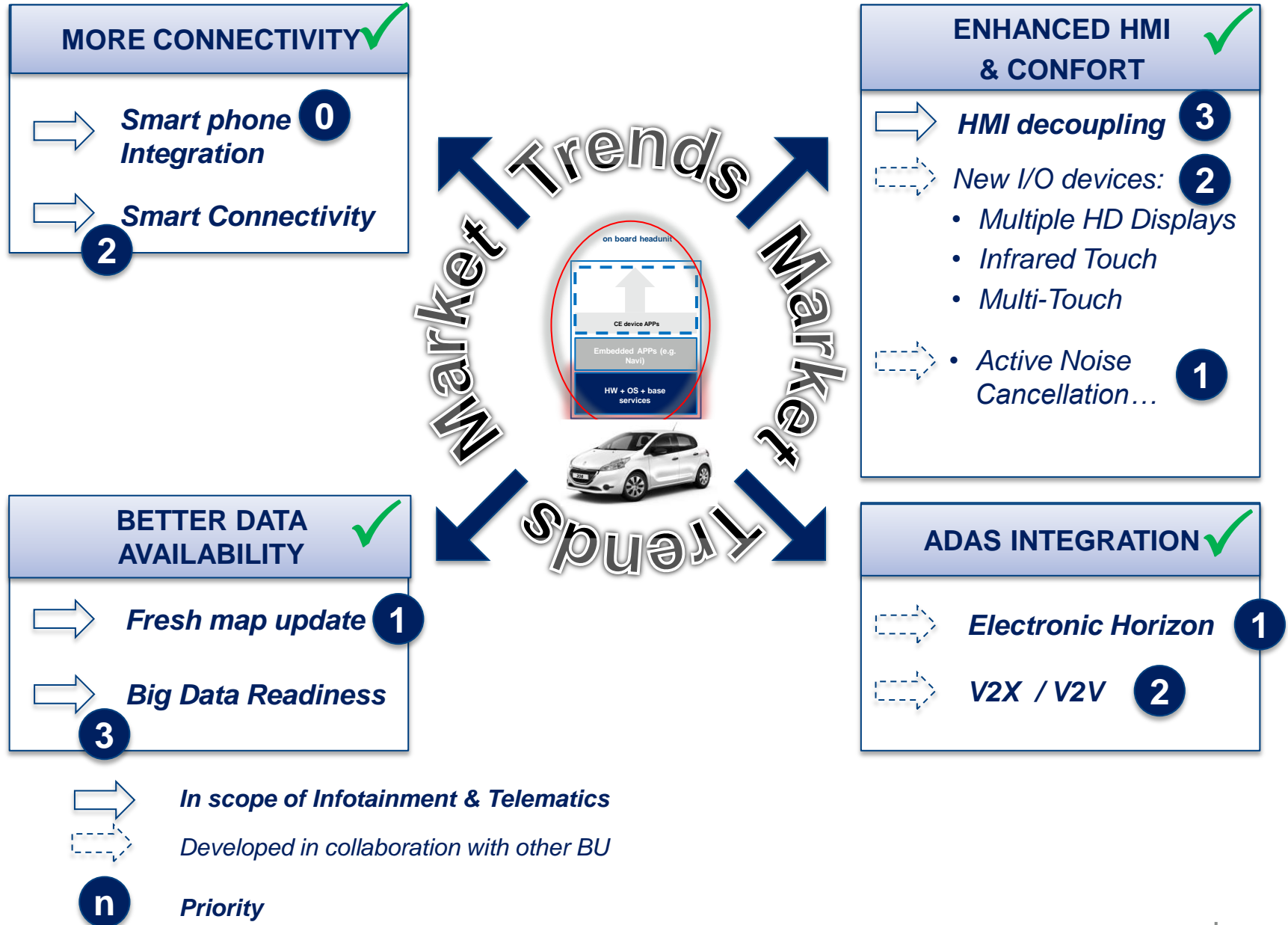
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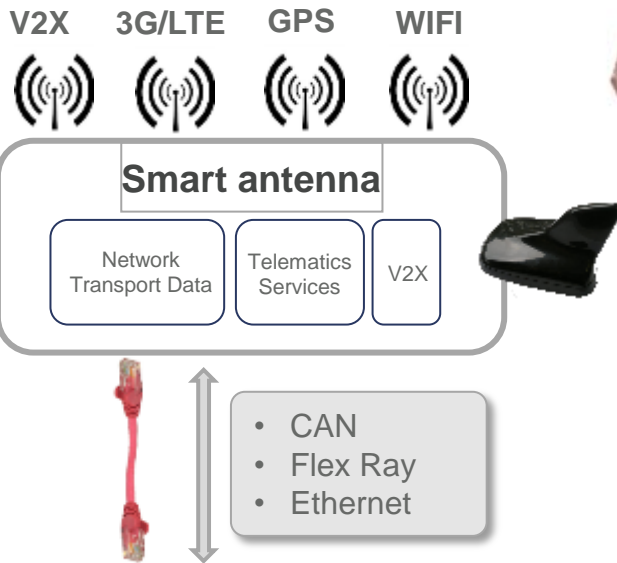
Multimodal connection for vehicle



Market Trends and Innovation Programs



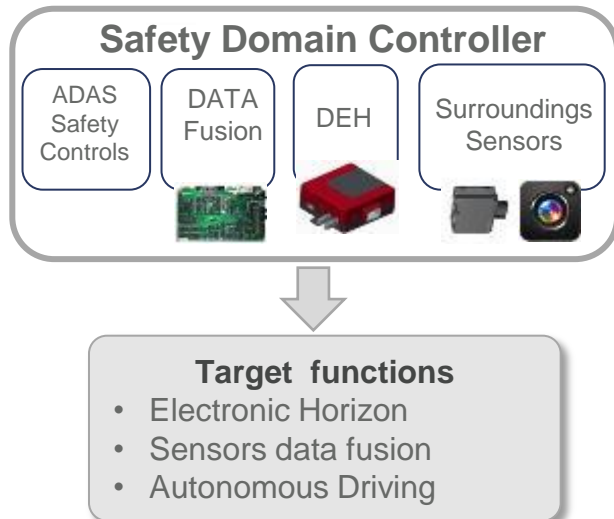
Only one cable with CAN, FlexRay or Ethernet



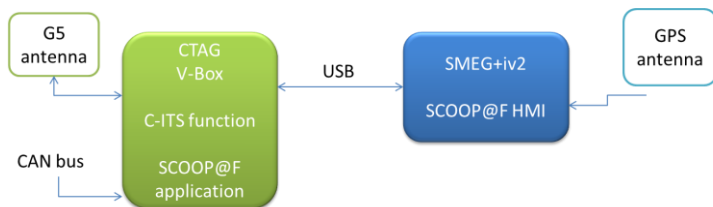
... instead of multiple coax



- Antennas Integration
- V2X , V2I Communication based on IEEE802.11p
- Extended WIFI
- Security SW mode
- Data Compression and caching for both external and internal communication protocols
- Ethernet in the car



DESCRIPTION



SCOOP Project:

- European project, launched in July 2014
- Purpose: prepare the CarToX deployment in France by connecting 3000 costumers vehicles with 2000 Km of road and street

SCOOP objectives:

- *Improve driving safety*
- *Optimize traffic and traffic info efficiencies*
- *Optimize management cost of the road infrastructure dans create new services*

PROJECT DEFINITION STATUS

- Adaptation and delivery of a SMEG+iv2 AEE2010 able to interact with an external V2I / V2V unit (V-box)
- Car maker will equip and provide for SCOOP about 1000 cars equipped with the modified SMEG+iv2

FUNDING AND DEVELOPMENT

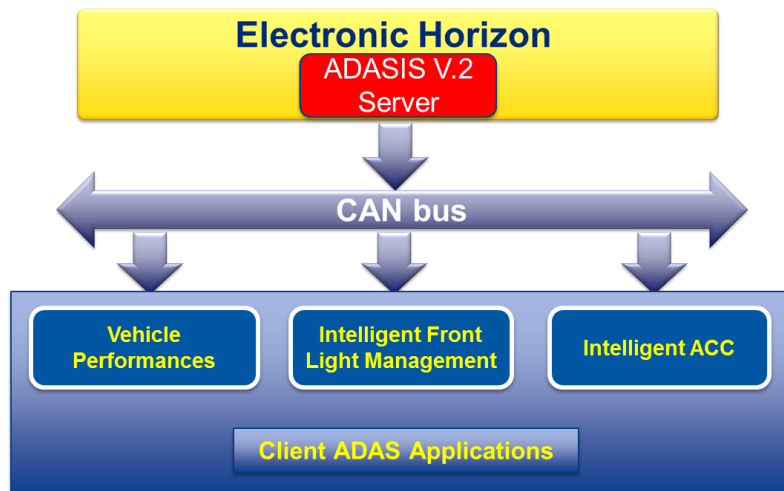
Funding

- MM is acting as a sub-contractor of a car maker for the project SCOOP

Development

- Activity has been launched and first delivery in Q3-Q4 2015

DESCRIPTION



- MM has developed his own Electronic Horizon engine and has experimented it with road tests proving a significant fuel consumption reduction
- MM is currently working on two axis:
 - Integrate the EH engine in the IVI unit taking advantages of the map availability and CPU power
 - Interfacing EH engine to other vehicle units to improve performances and comfort

PROJECT DEFINITION STATUS

- MM is porting his own EH engine on the IVI Linux platform and reviewing the EH architecture in order to have the possibility to interface multiple clients
- MM can make available to PSA his EH engine to interface via CAN several units that can take advantages of EH (Front Light unit; Intelligent ACC; Chassis and Engine management control unit; ...)

FUNDING AND DEVELOPMENT

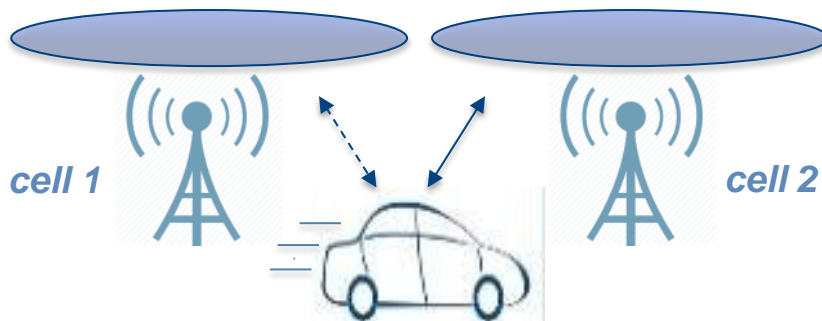
Funding

- Self development

Development

- First prototype availability to provide EH data via CAN by Q4 2015

DESCRIPTION



- Connectivity in “mobile” mobility, that is while moving, suffers from the cell based nature of the network and from imperfect coverage
- With “Smart Connectivity” we mean a technology layer inside the communication device (TCU / Connected Headunit) that is able to optimize the user experience in a cell based network
- The technology is based on data caching and on minimizing the reconnection time during the handover

Note: Autonet has already developed some technology in this direction and has an agreement with Chrysler for an AM product

PROJECT DEFINITION STATUS

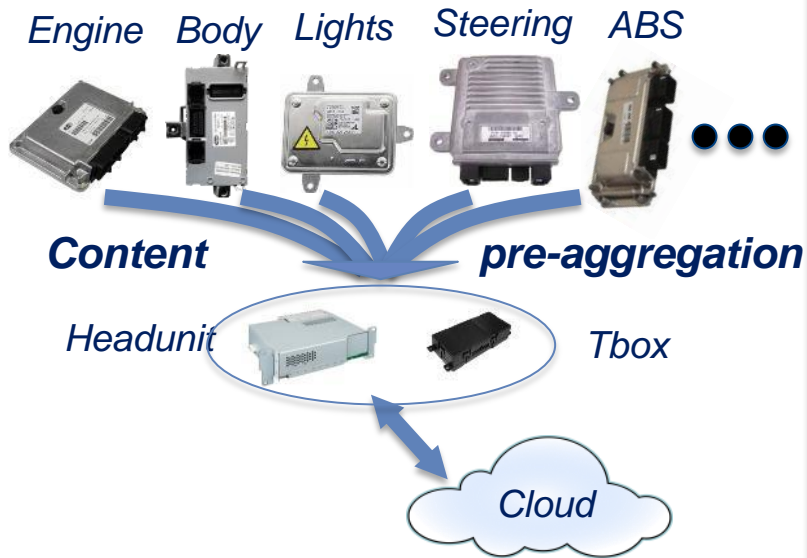
- Preliminary discussion held with external companies to verify the possibility and to understand the technical scope
- SOW to be defined

FUNDING AND DEVELOPMENT

Funding

Development

DESCRIPTION



- Data content from the different ECUs in the vehicle is pre-aggregated, integrated and stored in the headunit or in the tbox and made available to the outside as “Big Data”
- The level of aggregation and the frequency of availability have to be tuned to the market request (know-how required)
- Data are stored on-board in a “content aggregation DB”

PROJECT DEFINITION STATUS

- SOW to be defined

FUNDING AND DEVELOPMENT

Funding

Development