



Connected Car to address the digital customer requirements



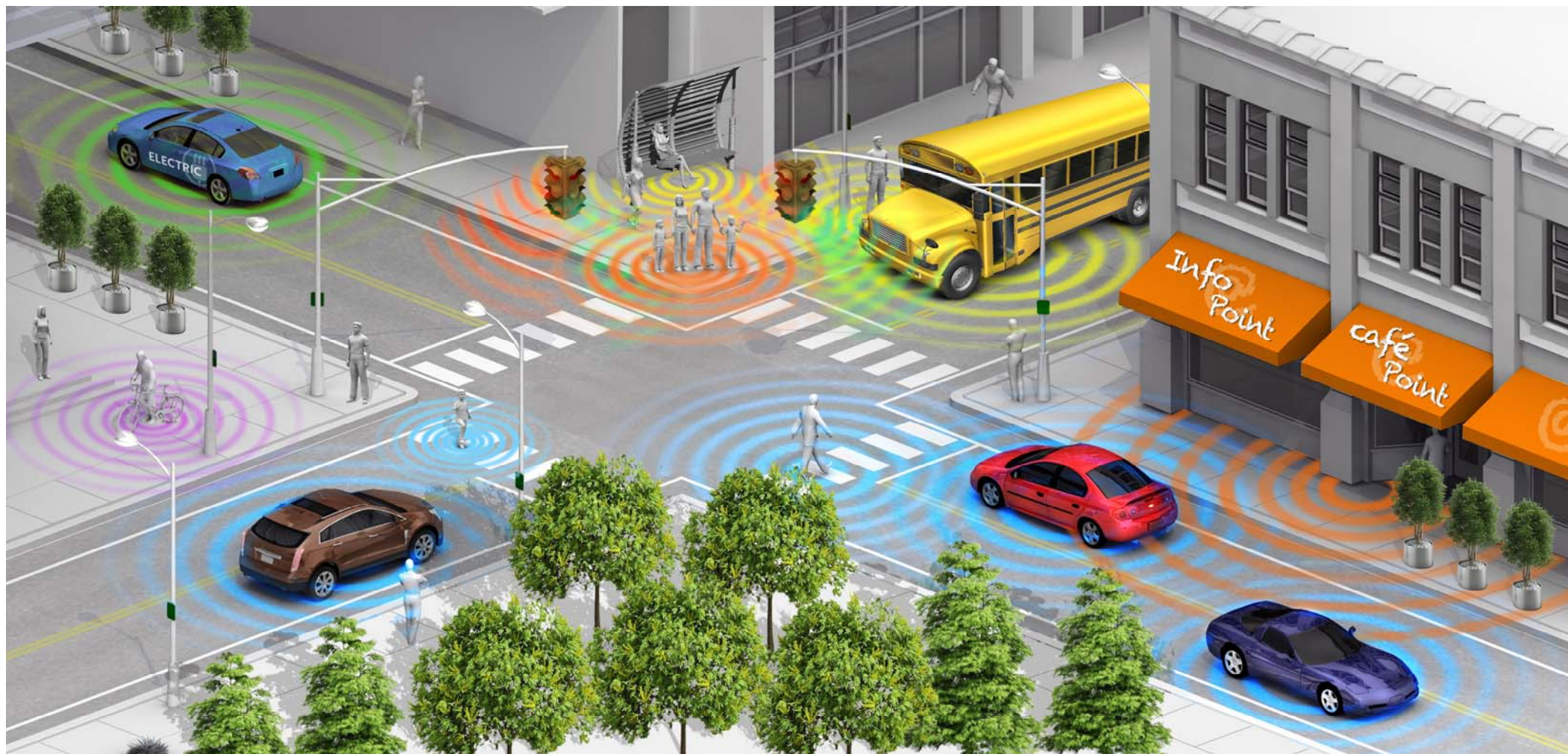
*Smart **Mobility** World*

Turin, September 25th 2013

Vehicle tomorrow



Mobility paradigm



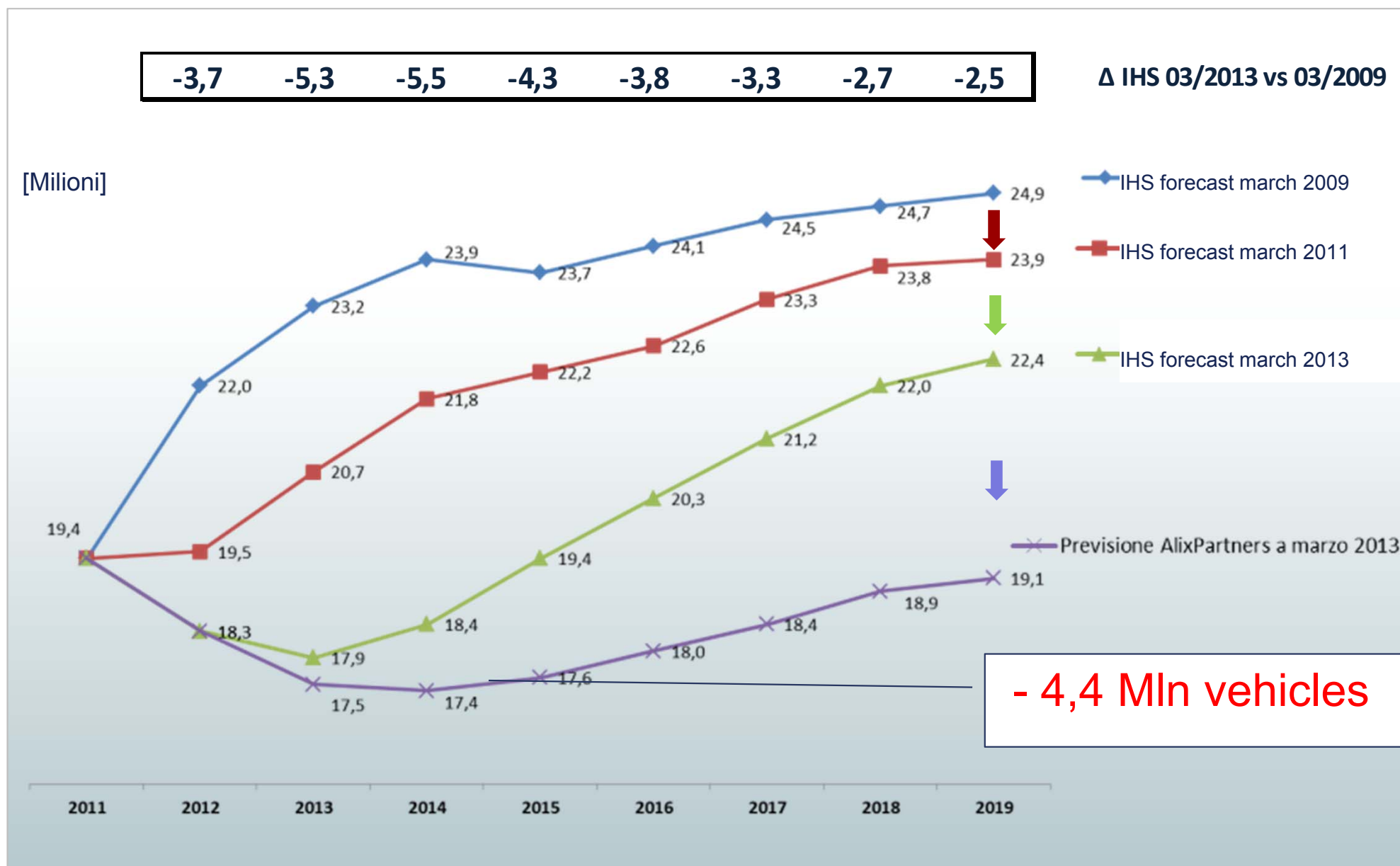
Co-modality



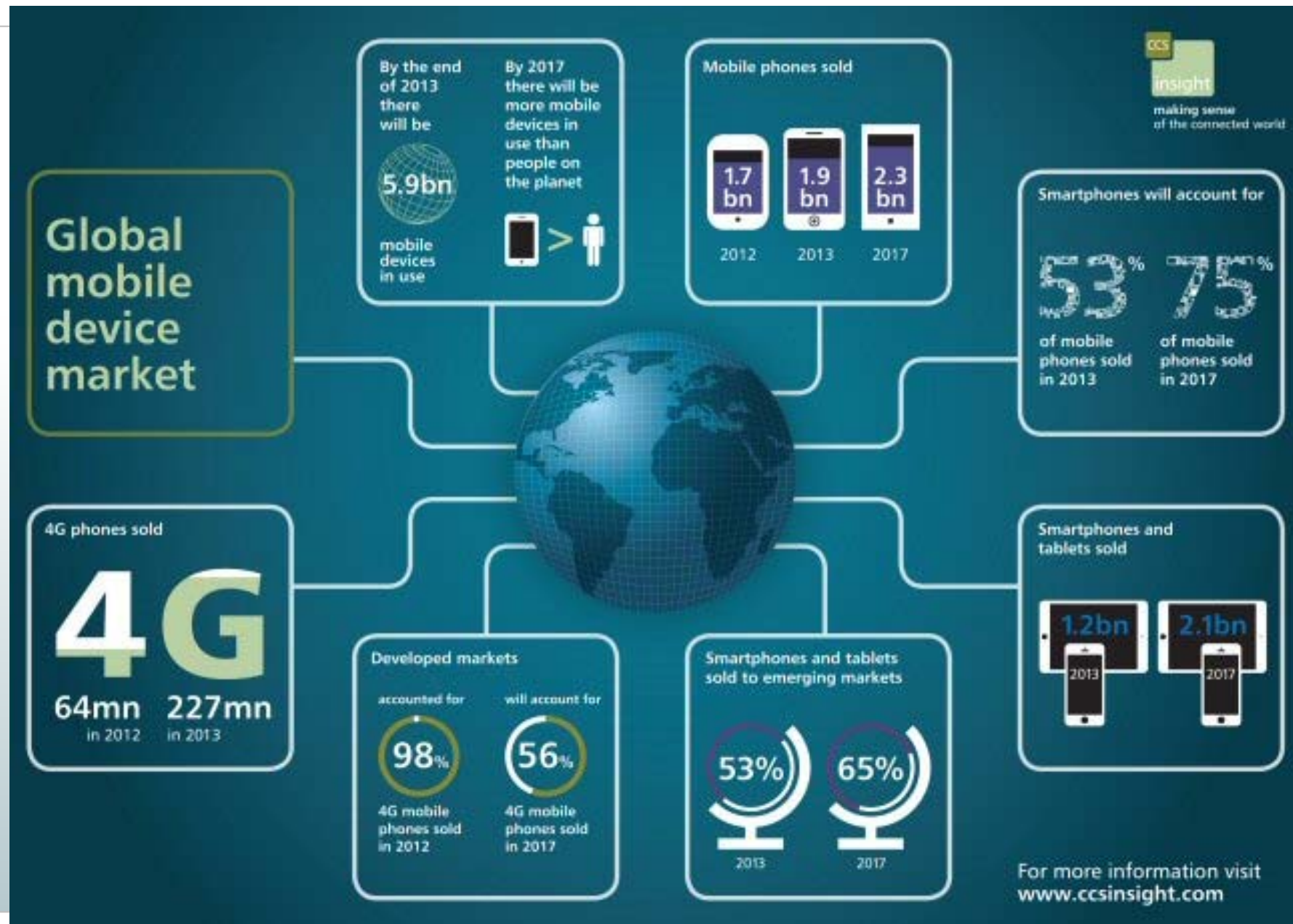
Vehicle as a service



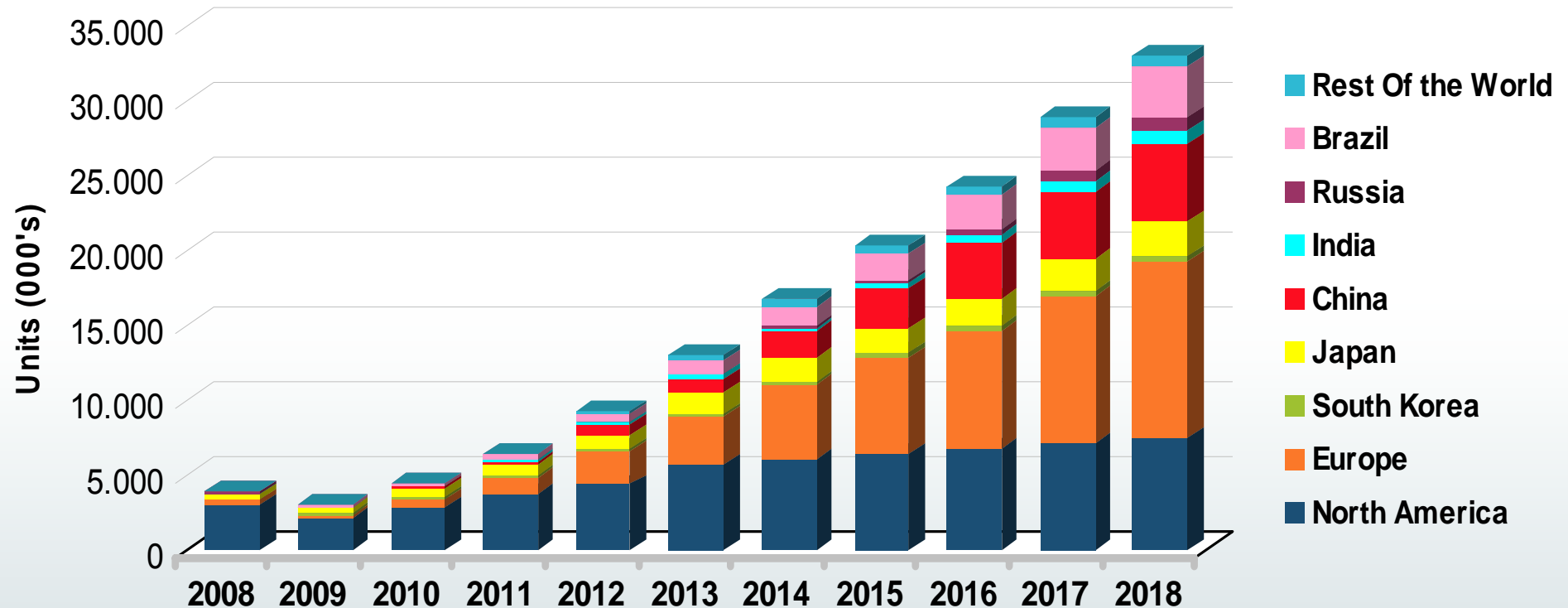
EU Cars and Commercial Vehicles sales forecast



Global Mobile Device Market



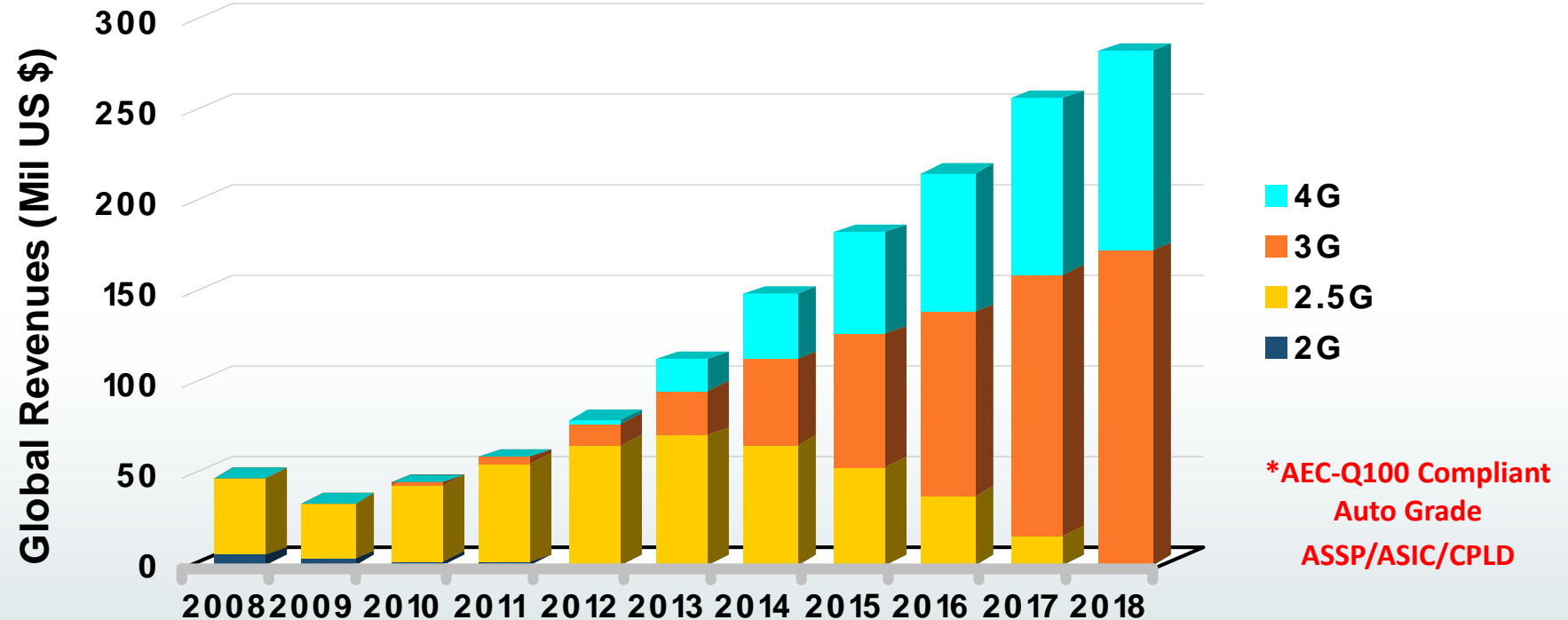
Telematics ECU: OEM Regional Shipment View



- North America: eCall/Telematics highly dependent on car maker strategies
- Europe: eCall telematics highly dependent on regulatory activity and selected OEMs
- Japan: Navigation is still dominant, Toyota is leading telematics roll-out
- China: Forecast to be #3 globally in embedded telematics by 2014
- Brazil: highly dependent on “Rastreador” legislation

Source: Strategy Analytics

Telematics ECU: Sales of cellular modems by type



- Semiconductor opportunity* 2010 vs. 2018 (Overall Market \$44M → \$280M)
 - 2G: \$2M → \$0 ✗
 - 2.5G: \$41M → \$0 ✗
 - 3G: \$1M → \$172M ✓ ✓ ✓ ✓ ✓
 - 4G: \$0 → \$109M ✓ ✓ ✓ ✓

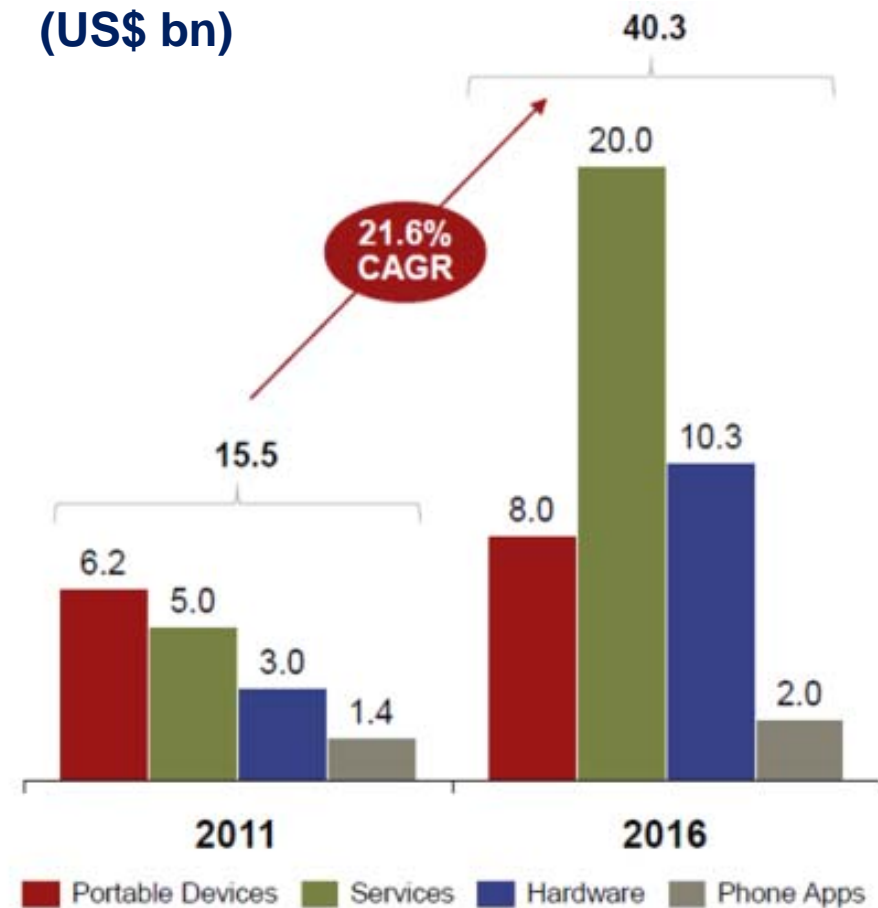
Automotive Telematics Market



Telematics Flavors

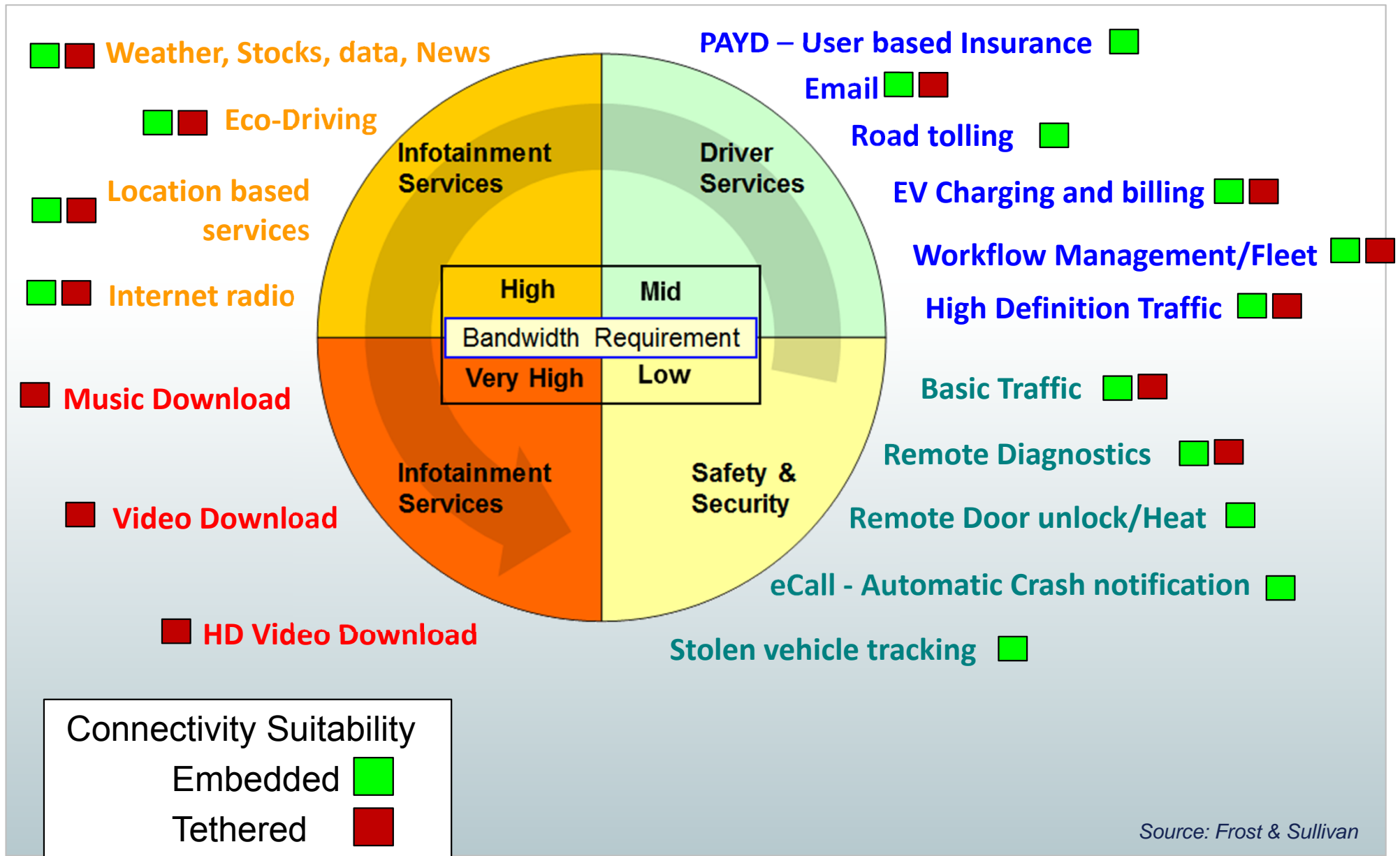
- Embedded ECU
- Smart Phone Head Unit
- Internet Car
- Connected PND
- Black Box
- OBDII module
- V2X (V2I, V2V, V2G)
- Vehicle App Store

(US\$ bn)



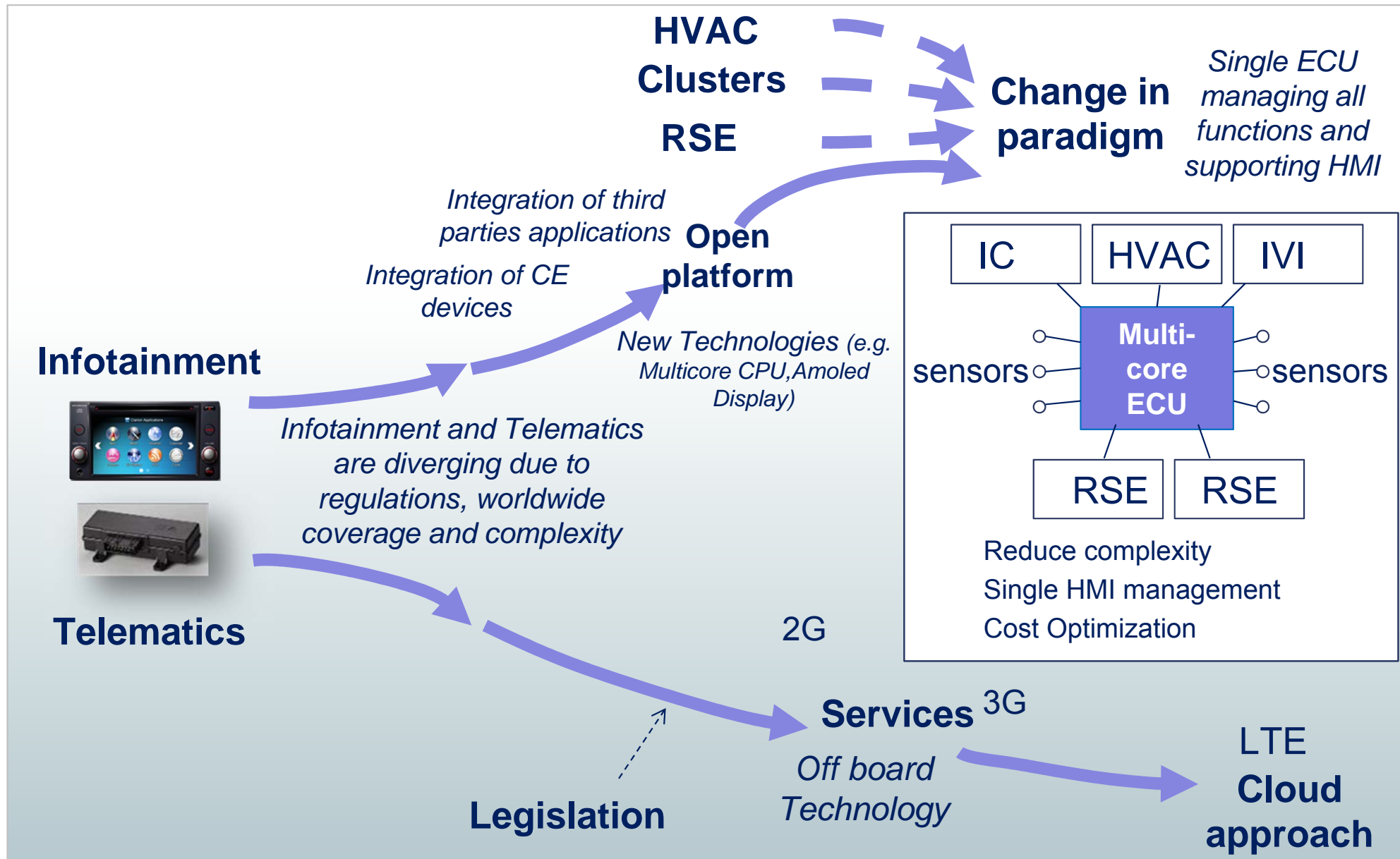
Sources: Telematics Components: Technologies & Global Markets, 2011; A.T. Kearney

Services



Source: Frost & Sullivan

Starting from Key trends for the future





REGULATIONS eCall

13 June 2013 - The Commission adopted:

- A Regulation concerning type-approval requirements for the deployment of the eCall system
- A Decision on the deployment of the interoperable EU-wide eCall – making the public infrastructure fit for eCall.
- Once today's proposals are approved by the Council and Parliament, the Commission is aiming to have a fully functional eCall service in place throughout the EU by 2015.



Scatola Nera: DL Liberalizzazioni

- The Liberalization Decree (Decree Law of 24 January 2012, n. 1) was enacted into law March 24, 2012.
- The standard is not yet operational pending the completion of the implementing decrees.
- The Board of State in the consultative asked the Ministry of Economic Development to clarify whether insurance companies should be required to offer policies with black boxes



REGULATIONS ERA

- Era Glonass Scheduling:
- 01 Oct 2014 – new vehicles of categories M2, M3 i(for passenger transportation) and new vehicle of category N1 (weight > 2.5 tons), new vehicle of categories N2 and N3 (for dangerous cargo transportation)
- 01 Jan 2015 – new vehicles of categories M1, N1, new vehicles of categories N2, N3 not intended for dangerous cargo transportation; new vehicles of categories M2, M3 not intended for passenger transportation



Rastreador: Law 245

“ Mandatory or OPT installation on Passenger car, LCV, Truck and Bus

20% : **31/12/13** or 100% from 30/08/2014

50% : 30/08/2014

100%: 31/12/2014

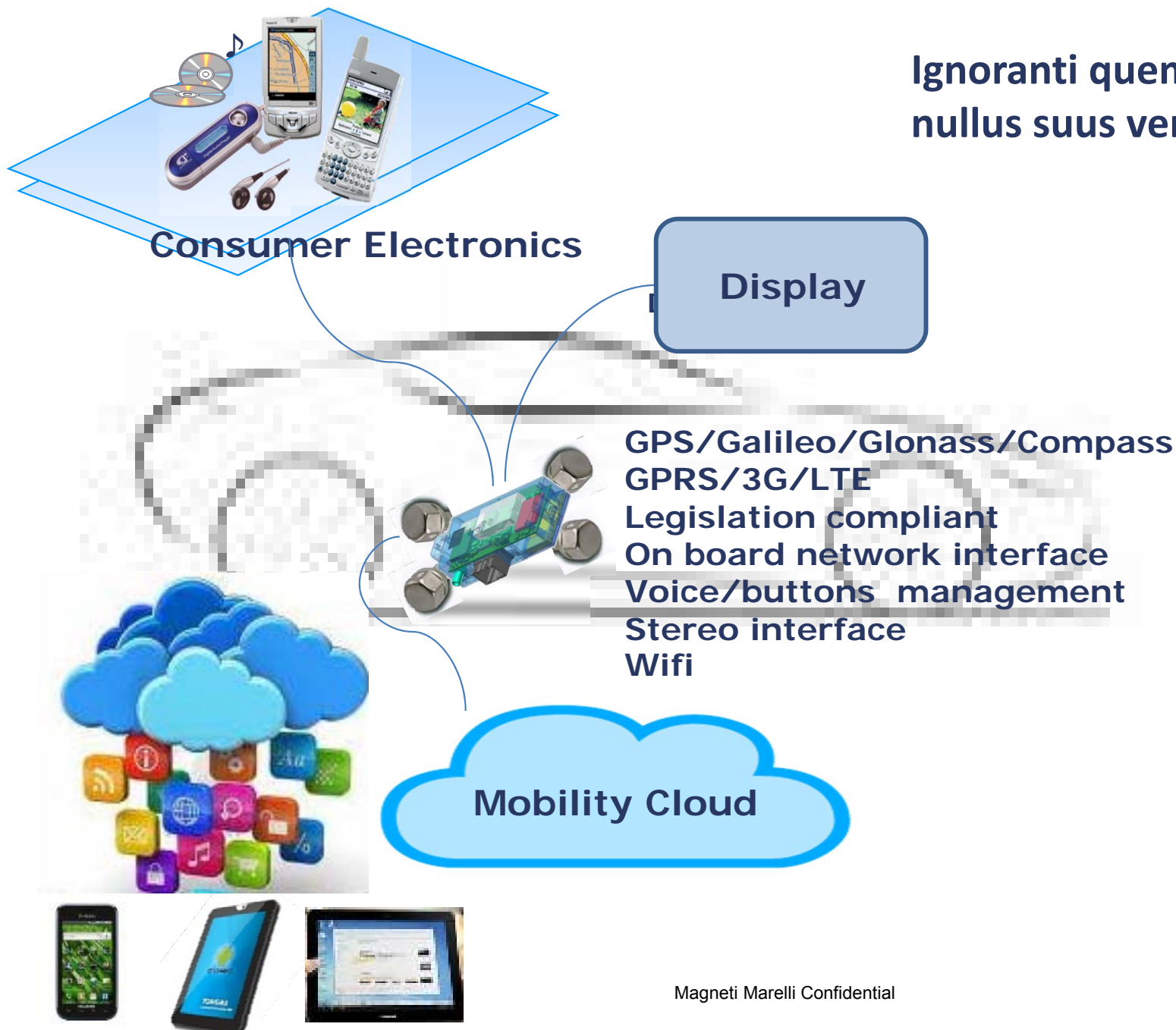
For Trucks & Buses: 100% from 30/06/2014

Challenge: “Smart” Telematics vehicle and consumer services



Ignoranti quem portum petat
nullus suus ventus est.

Seneca

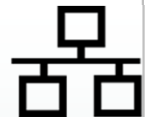


- Business models?
- Vehicles apps?
- Consumer apps?
- Embedded SW?
-

Technologies competencies



- Cellular connectivity : 2G → EDGE → 3G → LTE
MM selected module solutions vs. chipset integration, good choice so far because of cost trends.
Strategy for LTE generation under discussion
- Back Up Battery
Critical for cost and reliability. Strong relations with key suppliers
- GNSS
Mainstream solution for GPS, Glonass, Galileo, Compass
- USB / Ethernet
- Sensors / MEMs (accelerometers, Gyroscope)
- Operating System for premium range
LINUX under development with internal know-how starting from Freescale distribution
- Wireless (WLAN / Bluetooth)
- Antennas GPS/cellular/WLAN/BT
- Security Module



Not only Telematics: ITS technology monitoring

Figure 1. Hype Cycle for Vehicle-Centric Information and Communication Technology (Vehicle ICT), 2012



Source: Gartner (July 2012)

Connect Car example

Magneti Marelli EOBD data collection



(Telediagnosis)
Data available on the HIGH SPEED
CAN bus, NOT on the OBD
CONNECTOR



Can bus interface to OBD connection



Data available on the HIGH SPEED
CAN bus, NOT on the OBD
CONNECTOR



DATA AVAILABLES ON THE OBD CONNECTOR



ODOMETER

RPM



FUEL CONSUMPTION



FUEL LEVEL

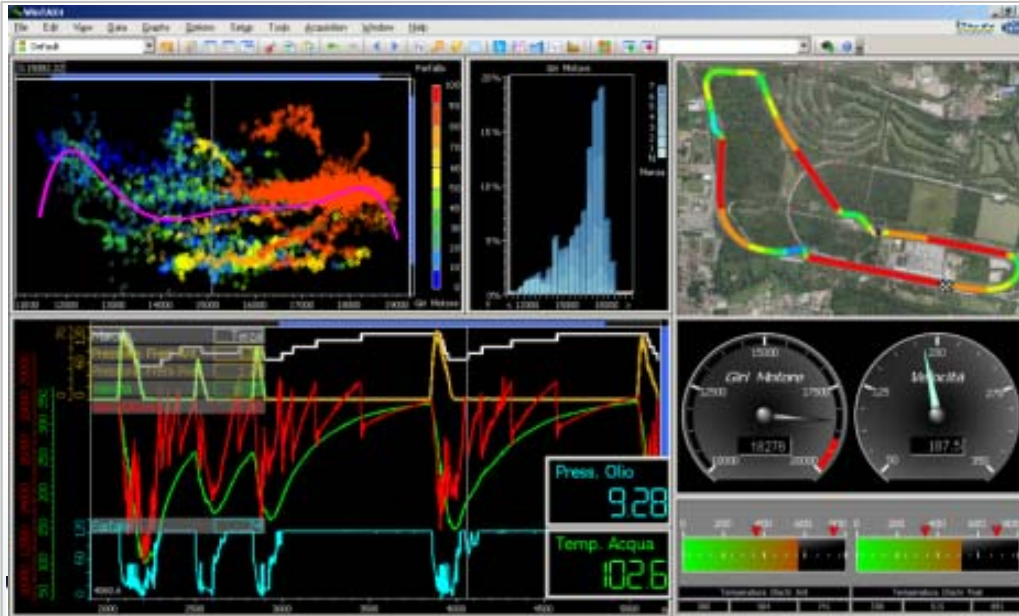
SPEED

Connect Car example

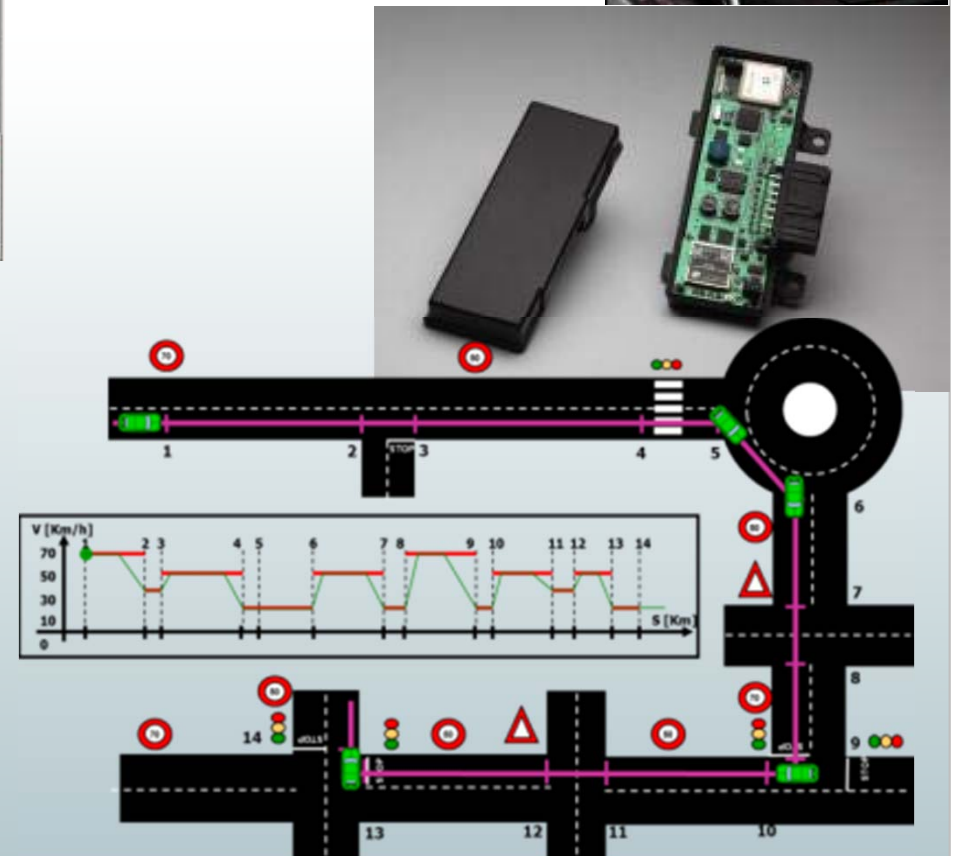
From F1 Telemetry to Connect Car



...to road



From Racing...



Connect Car examples ...through

INSURANCE



BANKS



ROAD OPERATORS



ELECTRIC VEHICLES



TELCOS



FLEETS



CAR SHARING



VEHICLES MAKERS

