Smart Mobility and Automotive Semi-Annual Update

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Automotive Semi-Annual Update: 1H 2018

Autonomous Driving Partnerships, Solid-State LiDAR Sensors, Sensor Data Crowdsourcing, Modular Hardware Architectures, HMI, 802.11p and 3GPP Rel.14 V2X, Bi-Directional V2G, OEM Mobility Explosion, New Mobility Experiences, Multi-Modal Smart Mobility

- **Autonomous Driving**: Level 4/5 targeted for 2022 onward. Public-use trials underway in United States (Uber/Waymo/GM). Intel-Mobileye, NVIDIA, and Baidu gaining significant traction. Samsung launches DRVLINE platform. Simulation becomes a must-have for Audiovisual (AV) development.

- **Sensing**: “Vision first” based architectures have consolidated position. Solid-state Light Detection and Ranging (LiDAR) moving from trials and investment to formal supplier relationships (Innoviz/BMW). Crowdsourcing of datasets to deliver new connected car services (SENSORIS).

- **Architectures**: Adoption of centralized compute platforms and domain controllers to simplify architectures. Modular approaches will help scale and maintain autonomous vehicles (Rinspeed Snap / Toyota ePalette, DRVLINE) as well enable the vehicle to assume multiple use cases (personal transit, delivery, and retail).

- **Vehicle-to-Everything (V2X)**: Both Dedicated Short-Range Communications (DSRC) and Cellular V2X (C-V2X) continue to gain momentum. Toyota, VW, and Hyundai opt for DSRC, while Ford partners with Qualcomm for C-V2X deployment. Groupe PSA also leaning toward C-V2X.

- **Electric Vehicles (EVs)**: BMW first to implement wireless charging. Internal Combustion Engine (ICE) bans in place for 2030/2040 in multiple countries, increasing focus on Vehicle-to-Grid (V2G). Most Original Equipment Manufacturers (OEMs) will offer EV options on all models by 2030.

- **Smart Mobility**: OEMs go down partnership route (Ford, Toyota ePalette), rideshare investment in other mobility modes (bike sharing).
**Competitor Highlights**

- **Autonomous Driving**
  - Intel-Mobility secures contract to supply 8 million autonomous vehicle platforms to a European OEM
  - NVIDIA Drive Pegasus selected by Bosch and Daimler for robo-taxi implementations
  - NVIDIA launches Constellation simulation solution
  - Audi partners with Cognata for AV simulation
  - Samsung announces DRVLINE autonomous platform

- **Autonomous Sensing**
  - Innoviz secures contract to supply BMW from 2021 onward in association with Tier One Magna
  - FLIR open-source thermal image annotated datasets to catalyze Artificial Intelligence (AI) development
  - ERTICO publishes first SENSORIS standard for sensor data sharing

- **Automotive Architectures**
  - Toyota ePalette demonstrates modular Hardware (HW) for use case differentiation
  - Rinspeed Snap demonstrates modular HW for use case differentiation
  - Valens launches chipset to support long-range Peripheral Component Interconnect Express (PCIe) connectivity
  - NVIDIA, VW, Aquantia among founding members of NAV Alliance for next-gen in-vehicle Ethernet

- **V2X**
  - Toyota and Lexus to launch DSRC in United States
  - Hyundai invests in DSRC developer Autotalks
  - Ford partners with Qualcomm to deploy C-V2X

- **EVs**
  - BMW selects WiTricity for wireless charging
  - BP acquires Chargemaster (United Kingdom)

- **Smart Mobility**
  - HERE launches HERE Mobility
  - Uber launches Jump bike share initiative
  - Lyft acquires Motivate, launches Lyft Bikes

**Suggested Additional Reading**

- Transformative Connected Car Services Built on Data Crowdsourcing (AN-2605)
- Smart Mobility Maintenance: Modular Hardware, OTA Updates, and Prognostics (AN-2601)
- Global Ridesharing Vendors Competitive Assessment (CA-1238)
- Hot Tech Innovators: Automotive Electrification (PT-1877)
- Biometrics in Automotive (PT-1789)
- Webinar: Smart Mobility, Smart Cities, and Smart Home: the Holy Trinity for Automated Living? (PT-2144)
- Vehicle and Mobility Market Data (MD-MOBI-102)
- Connected Car Market Data (MD-CCAR-102)
- Advanced Driver Assistance Systems Market Data (MD-ADAS-112)