Strategic Analysis of Integration of ADAS with Telematics
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Certification

We hereby certify that the views expressed in this research service accurately reflect our views based on primary and secondary research with industry participants, industry experts, end users, regulatory organisations, financial and investment community and other related sources.

In addition to the above, our robust in-house forecast and benchmarking models along with the Frost & Sullivan Decision Support Databases have been instrumental in the completion and publishing of this research service.

We also certify that no part of our analyst compensation was, is or will be, directly or indirectly, related to the specific recommendations or view expressed in this research service.
Objective and Methodology

Objective:
To study the potential for Integration of ADAS with Telematics

The key focus of this research is to analyse:
- Market overview and trends
- Market drivers, restraints and industry challenges
- Product analysis
- Scenario Analysis
- Market size and forecast assessment
- Analysis of the competitive environment
- Strategic Recommendations

Research Methodology
Frost & Sullivan’s research study is based on secondary and primary research data.

Secondary Research: Extraction of information from existing reports and project material within the F&S database. The research also includes data and information gathered form technical papers, specialized magazines, seminars and Internet research

Primary Research: Over 15 interviews have been conducted over the phone by senior consultants/industry analysts with Original Equipment Suppliers, regulation authorities and Distributors. Primary research has accounted for 80 per cent of the total research.
Frost & Sullivan Market Forecasting Methodology

- Forecasting is the result of information pertaining to growth rates and penetration rates gathered from industry participants through primary research. A comprehensive bottom-up approach is adopted with breakdown by VM and vehicle segment allowing for a detailed market analysis and forecast.

- The forecasts are based on sales figures for the European market obtained from JD Power. The vehicle segmentation is also according to that provided by JD Power.

Contribution from Primary Research:

- The penetration rates and forecast figures are a combination of those obtained during discussion with market participants and those deduced during the analysis of the gathered information.

- All figures are rounded and the base year considered is 2007. The Source for all Charts and Figures in the research service is Frost & Sullivan unless mentioned otherwise.

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Source: JD Power
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         2. Detailed Revenue Forecasts
      3. Detailed Pricing Analysis
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         1. Detailed Unit Shipments Forecasts
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   5. Hella

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   2. Daimler
   3. Volkswagen
   4. Ford
   5. Nissan
   6. General Motors
   7. Toyota
   8. Honda
CHAPTER - 1

Executive Summary
1. Executive Summary

1.1 Introduction
   1.1.1 Top Level Strategic Fact Sheet
   1.1.2 Market Drivers and Restraints
   1.1.3 Major Industry Challenges
   1.1.4 Legislative Trends
   1.1.5 Road Map

1.2 Key Research Findings
   1.2.1 Total Market
   1.2.2 Competitive Analysis
   1.2.3 Strategic Recommendations and Conclusions
Curve warning systems to contribute 27 per cent of total unit shipment in this market.

Map-supported ACC to play a very important role by contributing toward 17 per cent of total unit shipment in 2015.

Fuel economy systems are expected to contribute about 5 per cent of total unit shipment because of its introduction in 2013.

**Note:** All figures are rounded; the base year is 2008. Source: Frost & Sullivan
**Total Market Drivers and Restraints**

**ADAS with Telematics Market: Market Drivers and Restraints (Europe), 2008-2015**

**Market Drivers**
- Enhanced safety performance due to the ability to look ahead
- Vehicle manufacturers want to differentiate their vehicles
- Improvement in mobility and reduced social cost and environmental benefits

**Market Restraints**
- Inaccurate map data information
- Defining and standardizing information exchange interface
- Product liability risks
- High cost of the system

**Key:** As Rated by Industry Participants

**Source:** Frost & Sullivan
Market Challenges

ADAS with Telematics Market: Market Challenges (Europe), 2008-2015

- Information overload on drivers
- Complex business model involving many stakeholders
- Difficulty in developing tariff model for different client segments
- Maintenance and update of accurate map information
- High costs of updates and long lead time to produce and introduce new safety attributes

Source: Frost & Sullivan
**Legislative Trends**

ADAS with Telematics Market: Legislative Trends (Europe), 2010-2020

- **Mandatory fitment of Tire Pressure Monitoring Systems (TPMS)** on all new car types from 2012 and existing ones from 2014

  - TPMS
  - Cost Increase per Vehicle: €50

- **Mandatory fitment of Brake Assist System (BAS)** on all new car types from 2009

  - Brake Assist System
  - Cost Increase per Vehicle: €70
  - Reduced Braking Distance: 7.6 m at 100 km/hr

- **Mandatory fitment of Advanced Emergency Braking (AEB)** employing Laser or Radar with automatic braking capabilities if necessary

  - AEB and LDW
  - Cost Increase per Vehicle:
    - AEB: €1000
    - LDW: €600

- **Mandatory Fitment of Electronic Stability Control (ESC)** on all car series and commercial vehicles to be phased out from in 2012 and with all new cars to be fitted with ESC as a standard from 2014

  - ESC
  - Cost Increase per Vehicle:
    - Cars: €250
    - Heavy Vehicles: €400 - 1500

- **Lane Departure Warning (LDW)** on new heavy duty vehicles from 2013, existing ones from 2015.

- **Optional equipment on light duty vehicles**

**Source:** Frost & Sullivan
Application Evolution Roadmap-2010-2020

ADAS with Telematics Market: Roadmap (Europe), 2010-2020

Fuel economy
- Eco-Driving
- Hybrid powertrain management
- Fuel consumption optimization
- Route optimization

Map based DAS
- Adaptive Light control
- Map enabled collision warning & avoidance
- Merging assistant
- Map enabled ACC stop & go
- Map enabled ACC
- Lane Keeping System
- Merging assistant

PIA
- Curve Warning
- Curve Speed Control
- Curve Control + ACC
- Special speed application
- Speed Limit through SRC *
- Intelligent Speed Adaptation
- Accident Hot Spot Warning

2010 2015 2020

SRC *-Dedicated Short Range Communication

Source: Frost & Sullivan
• Revenues for map-supported ACC is expected to grow at a CAGR of 128 per cent to 61 million Euros in 2015
• The total market revenues for map-supported ADAS systems are expected to reach 143 million Euros by 2015
• Revenues for map-based AFL is expected to grow at a CAGR of 65.2 per cent to 34 million Euros in 2015
• Revenues for map-based LDW is expected to grow at a CAGR of 56.5 per cent
• Total unit shipment of PIA applications is expected to be about 700,000 units in 2015
• Speed alert system is expected to have a market volume of 325,000 units in 2015, followed by curve warning systems at 310,000 units by 2015
• The fuel economy systems based on on-board navigation systems are expected to be in the market in 2013 in select models

Note: All figures are rounded; the base year is 2009 Source: Frost & Sullivan
# Vehicle Manufacturers - Competitive Analysis

## ADAS with Telematics Market: Comparative Analysis of VMs (Europe), 2010-2020

### Scenario in 2009

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<th>Map-supported AFL</th>
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### Scenario in 2015

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### Source: Frost & Sullivan
Many VMs are considering lowering entry prices for navigation systems to reverse the current trend.

Data availability and up-to-datedness are key factors for many vehicle makers.

There is no “one-technology –fits-all.” Every VM has unique and distinct preferences.

VMs investigating the possibility of having a black box for map-based ADAS, independent of vehicle navigation systems.

Speed alert, AFL and fuel economy systems are of high interest among VMs.

Source: Frost & Sullivan
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Email: anil.valsan@frost.com