Big Data - An Automotive Outlook

Graeme Banister, Frost & Sullivan

The Hague

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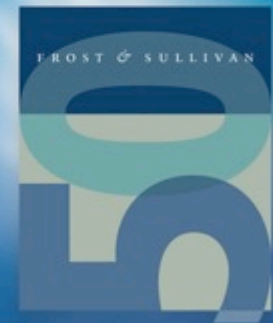
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Frost & Sullivan Overview

Our Industry Coverage

Aerospace & Defense

Measurement & Instrumentation

Consumer Technologies

Information & Communication Technologies

Automotive & Transportation

Energy & Power Systems

Environment & Building Technologies
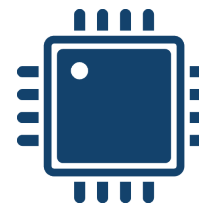
Healthcare

Minerals & Mining

Chemicals, Materials & Food

Electronics & Security

Industrial Automation & Process Control

Our Automotive & Transportation Practice

Mobility
- Urbanisation
- Car Sharing
- Mobility Integrator
- New Mobility
- Inter-modality
- IT Mobility
- Urban Mobility & a mix of relevant studies from other areas

Automotive
- Connectivity
- Powertrain
- Chassis
- Safety & ADAS
- Electric Vehicles
- Aftermarket & Distribution
- Vehicle Interior systems for passenger, commercial & off-road vehicles

Rail & Public Transport
- Rolling Stock (Light Rail, Metro, MainLine, High Speed Rail)
- Infrastructure (signalling, track, station)
- Bus & BRT
- Vehicle Technology (Powertrain, Interior, PI, AFS)
- Maintenance

Logistics & Supply Chain
- Urban Logistics
- Intermodal
- New Business Models
- High Speed Logistics
- Courier, Express and Parcel
- 3PL & 4PL
- IT Logistics

Infrastructure
- Intelligent Transport System (V2X, traffic mgt, congestion charging, tolling, parking, etc.)
- IT Integration
- Rail Infrastructure
- Road Infrastructure
- Sea Ports

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Big Data Basics

Big Data Characteristics

What is It?

- Unstructured data

- Sophisticated Analytics required to handle

The 3 V's

- Volume

- Variety

- Velocity

Business Questions

- What to Keep?

- Where's the Value?

Big Data – A Big Deal?

80 Billion Connected Devices By 2020

10 Connected Devices for Every Household by 2020

5 connected devices for every user by 2020

5 billion internet users by 2020

500 devices with unique digital IDs (Internet of things) per square kilometre by 2020

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Big Data & The Automotive Ecosystem

Digital Retailing

60% leads for car sales are digital leads ;
offline auto data for digital ad targeting

Warranty and recall costs

2 – 3 % reduction in a 2-3 billion dollar warranty bill

City infrastructure optimization and development

Decreasing potholes in city's by 30-40 % using apps, improving public sector infrastructure facilities

Retail inventory management

Inventory planning based on cars driven by people living around retail outlets

Traffic management and implementation

Smarter approach in reducing city's traffic congestion using ITS

Diagnostic and repair time management

Reduction in diagnostic time by ~70% and average repair time by ~ 25%

Key Challenges for Big Data Implementation
Harnessing relevant and prioritized vehicle and user data are key answers to industry challenges

Big Data: Relevant & prioritized information- What data you process and what data you don't

Understanding the customer from the web (car vs. lifestyle preferences) – Customer Analytics and CRM

Shortage of skill set for data analytics and data governance – Data Scientists

The need for better data quality - high data transfer cost per vehicle for downloading information
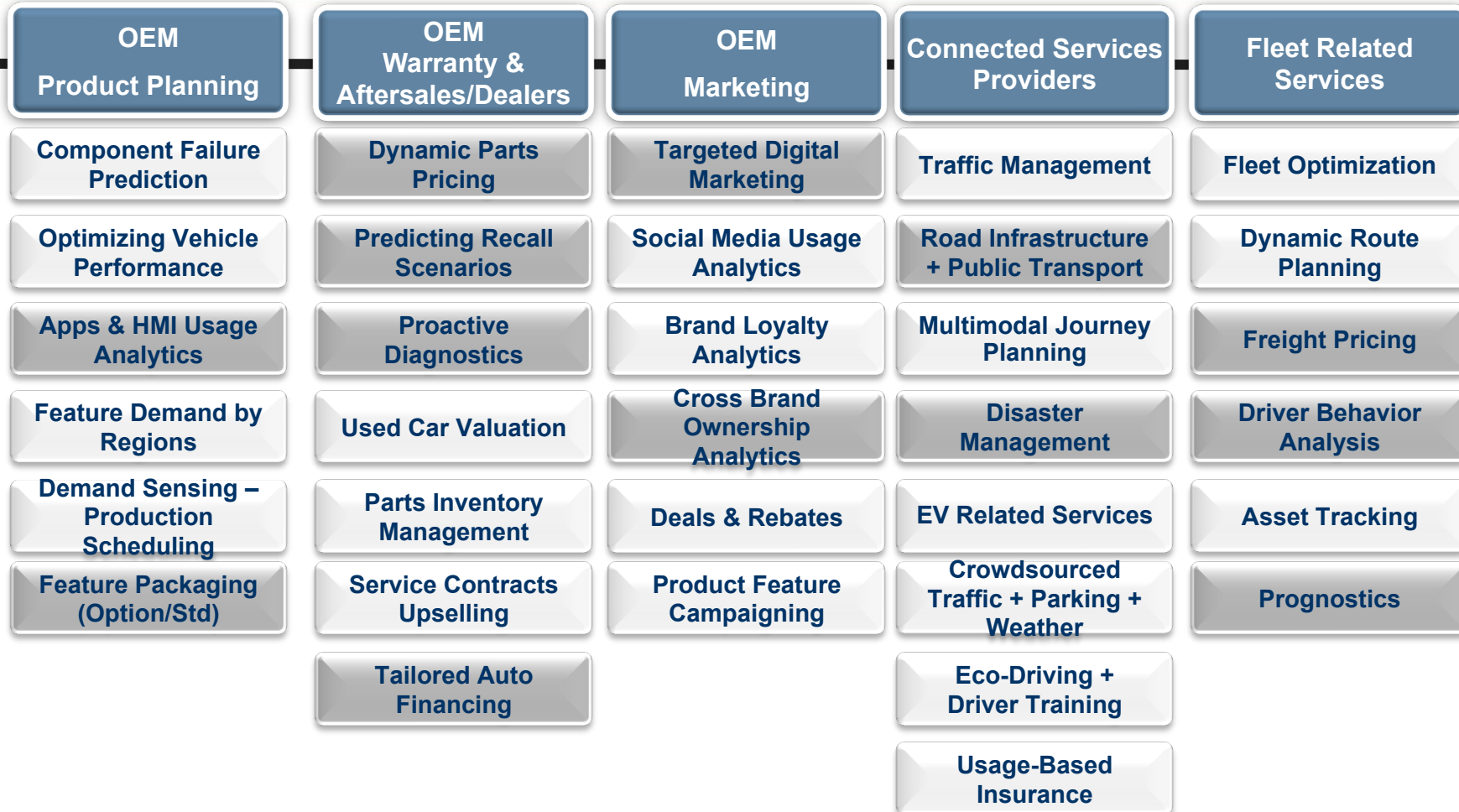
Data privacy issues on the type of data being shared – government limitations and driver concerns

Whose benefitting from the ecosystem – How to monetize data and share value

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Examples of Big-Data Features and Services

Automotive companies are working on big data in siloes, need is to get a centralized big data strategy to push more innovation in this space

OEM Product Planning	OEM Warranty & Aftersales/Dealers	OEM Marketing	Connected Services Providers	Fleet Related Services
Component Failure Prediction	Dynamic Parts Pricing	Targeted Digital Marketing	Traffic Management	Fleet Optimization
Optimizing Vehicle Performance	Predicting Recall Scenarios	Social Media Usage Analytics	Road Infrastructure + Public Transport	Dynamic Route Planning
Apps & HMI Usage Analytics	Proactive Diagnostics	Brand Loyalty Analytics	Multimodal Journey Planning	Freight Pricing
Feature Demand by Regions	Used Car Valuation	Cross Brand Ownership Analytics	Disaster Management	Driver Behavior Analysis
Demand Sensing – Production Scheduling	Parts Inventory Management	Deals & Rebates	EV Related Services	Asset Tracking
Feature Packaging (Option/Std)	Service Contracts Upselling	Product Feature Campaigning	Crowdsourced Traffic + Parking + Weather	Prognostics
	Tailored Auto Financing		Eco-Driving + Driver Training	
			Usage-Based Insurance	

Forward Looking Innovative Services

Current Services which will benefit from Big Data

Big Data Implications for FIA Member Clubs

Key Opportunities for FIA Member Clubs

1 Proactive Diagnostics

2 Customer Retention / Brand Loyalty

3 Driver Safety

Three Key Areas of Opportunity to exploit by harnessing Big Data

Volvo Cars Case Study

Market Challenge

To understand mechanical performances of Volvo's vehicles under actual driving conditions . Legacy data warehouse systems could not integrate diagnostic readout data with design and warranty information

Solution

➢ Teradata's system increased raw data availability from **364 GB to 1.7 TB** for Volvo's analysts with access **to performance exhaustive analytics**

➢ Teradata fused product design, warranty and diagnostic readout data onto a data warehouse

➢ Volvo can now **access a single data set for** product design, manufacturing, quality assurance, and warranty - **reducing response time and faster decision making**

Impact

➢ Created an immediate cost reduction impact analysis showed returns on initial project costs of **135 percent**

➢ Increased precision in **warranty reimbursement** , compared **mechanical failures** with geography based conditions and driving patterns

➢ Increased capability to diagnose, design and manufacturing problems within **current production run**

Frost & Sullivan anticipates significant cost savings will be generated by companies creating Big Data partnerships to transform warranty / breakdown service

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Hertz Case Study

Market Challenge

To improve customer service and brand loyalty by better understanding and responding to information returned via customer communication channels (internet, mobile, social, SMS)

Solution

➢ Hertz collated and understood customer sentiment surveys by centralizing data collection process

➢ The partnership with IBM has enabled Hertz to understand and analyze unstructured feedback data from their "Premium" members

➢ Hertz's analysis and response time was halved enabling them to provide real time feedback increasing customer satisfaction

Impact

➢ Data processing has become centralized , previously customer satisfaction surveys were looked into distinctly at Hertz's 8600 locations

➢ Radically reduced response time now allows Hertz to gauge and understand insights that was previously not available.

➢ **Example:** Hertz identified delays at specific times of day in Philadelphia & so adjusted staffing levels to negate the issue
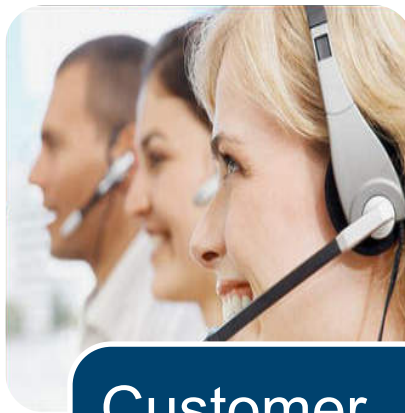
Frost & Sullivan forecasts significant investment by automotive businesses into Big Data partnerships to identify customer preferences, enhance service and improve brand loyalty

Current Roadside Assistance Experience

Vehicle Breakdown

- At Home
- On Road

Customer Contact

- Verify Issue
- Initiate Service

Customer Satisfaction

- Variable based on ability to locate & fix

Future Roadside Assistance Experience

Vehicle Breakdown

- Early Warning
- Solution Processing

Customer Contact

- Initiate and Guide Service Delivery

Customer Satisfaction

- Tailored Service

Thank You!

Graeme Banister

Consulting Director , Automotive & Transportation

Direct: +44 207 915 7807

Mobile: +44 7889 029279

Email: graeme.banister@frost.com