Big Data - An Automotive Outlook

Graeme Banister, Frost & Sullivan

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Our Automotive & Transportation Practice

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

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

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

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

- Intelligent Transport System (V2X, traffic mgt, congestion charging, tolling, parking, etc.)
- IT Integration
- Rail Infrastructure
- Road Infrastructure
- Sea Ports
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
Big Data & The Automotive Ecosystem
Big Data Business Cases - Big data to help tap synergies between multiple eco system partners aiding new business use cases

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%

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### Key Challenges for Big Data Implementation

**Harnessing relevant and prioritized vehicle and user data are key answers to industry challenges**

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<td><strong>Big Data: Relevant &amp; prioritized information</strong></td>
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<td>- What data you process and what data you don’t</td>
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<td><strong>Understanding the customer from the web (car vs. lifestyle preferences)</strong></td>
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<td>- Customer Analytics and CRM</td>
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<td><strong>Shortage of skill set for data analytics and data governance</strong></td>
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<td>- Data Scientists</td>
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<td><strong>The need for better data quality</strong></td>
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<td>- High data transfer cost per vehicle for downloading information</td>
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<td><strong>Data privacy issues on the type of data being shared</strong></td>
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<td>- Government limitations and driver concerns</td>
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<td><strong>Whose benefitting from the ecosystem</strong></td>
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<td>- How to monetize data and share value</td>
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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.

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*Examples of Big-Data Features and Services*

*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.
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