



Telematics 2016 Big Data goes mobile

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Images by David Massarik/ML1 Media

New technology emerges rapidly — and the way that technology is used is evolving equally fast. Collection of vehicle information is not new, but the volumes and speed at which the data has become available—not just in-car, but remotely via wireless links has captured Big Data as well as Big Tech companies' attentions. Data from a car, or rather cars --- surrounding vehicles have the potential of communication with one another, is already being uploaded to data warehouse systems. That information can be pooled, sorted, and analyzed all in real-time. For the moment, practically speaking, that link is one-way---data is transmitted up. In testing however, it is two-way real time transmission of data. The level of value to automakers, tech partners, suppliers, and ultimately, one must consider, government, advertisers/social media companies, even insurance companies is immeasurable.

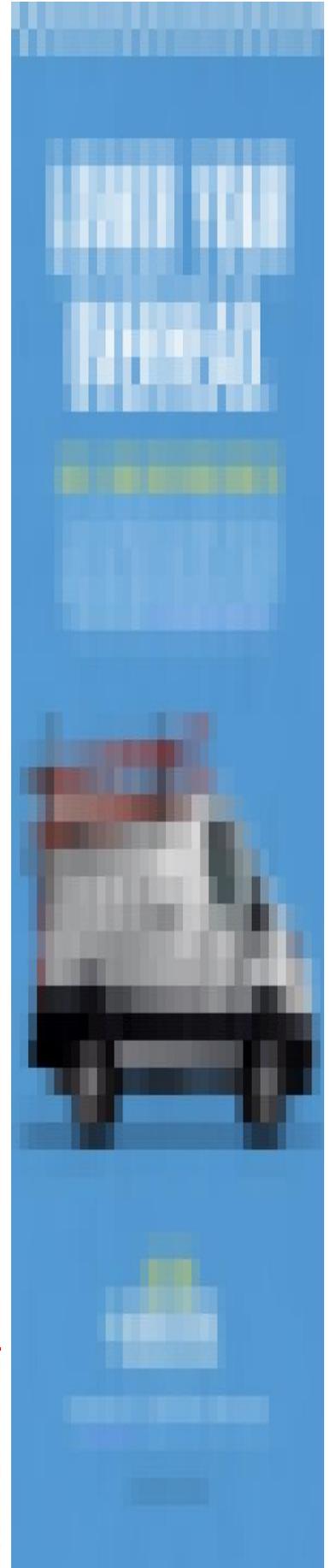
A tremendous amount of vehicle data is generated every second. In-car systems are still in their infancy, but taking giant steps every month—perhaps even every week. From partnerships like Ford/Microsoft Sync to homegrown systems such as GM's OnStar or BMW's Assist, to 3rd party solutions such as Apple's Car play, the stakes are huge.

OEM/homegrown systems have the advantage of integration and nearly every OEM that doesn't have a tech partnership either has or is expected to offer vehicles with them installed. But OEM systems have been found to be expensive, have difficulty communicating with other OEM and 3rd party systems and are typically much slower in updating and evolving.

In early 2015, the major smartphone Operating system players – Apple and Android saw the opportunity that in-car systems offered in terms of data and control and made plays to become dominant players in telematics. Telematics have become highly integrated with tablets and smartphones. With location tracking, environmental factors, vehicle diagnostics, even video feeds, all available thru mobile devices, the value of that data in real-time is the golden egg that big data companies are chasing.

There is, naturally, a dark side. The ability to save (and analyze) in-vehicle infotainment preferences, favorite/repeated navigation routes, and wealth of, 'in-motion' data such as vehicle speed, braking, transmission control, tire pressure and even windshield wiper usage quickly evokes privacy concerns. Some plug-in hybrid vehicles are already generating and saving several gigabytes of data in the first 10 minutes after startup.

The biggest key (to date) to the mobile data/telematics puzzle is wireless network technology. 2G cellular networks are all but dead and 3G are already yesterday's technology. It was the rapid deployment of 4G/LTE wireless networks (and now, field testing of 5th generation (5G) networks) which provided the bandwidth to perform high speed AND high volume two-way data transfers to mobile devices, enabling the collection and real-time use of telematics data. Special attention should be paid to the term mobile devices, as well. The ability of mobile devices to seamlessly communicate with one another or via intermediate link expands the amount of data captured exponentially. Cars, trucks, trains—anything



imaginable can and do function as WiFi hotspots. Android and Apple devices have the upper hand over OEM/proprietary systems when it comes to linking to various networks.

Android and Apple mobile device also offer one additional possibility that built-in/OEM systems presently can't: portability. Taking a phone or tablet from one vehicle to another offers the option of taking one's personal data: personal preferences, music, video, routing, maps, etc. to any other vehicle.

While OEM systems and big tech (Microsoft and Apple) interfaces are the high profile players in the automotive data collection and analysis areas, it may be Android and a "back door" that captures the market. That back door is the universally ever-present car stereo. As car entertainment systems real estate has grown to the common place 2din/double height device (such as the one pictured below), a subtle yet distinct shift occurred at the end of 2015 and has caught fire in 2016. The device still looks like the familiar car stereo, but the similarities end there. The devices currently flooding the secondary market are pure Android tablets masquerading as car stereos, complete with AM-FM tuners and DVD players. These touchscreen enabled quad-core tablet-stereos add everything you might find on the latest Android (5.1) smartphone: GPS, high def video players, 3G, 4G and WiFi support, Bluetooth and mirror link, support for every Android app, and critically, input

and cost, driving time, emissions info, and various car sensor data can be displayed or used to feed other applications. Commercial business and fleet vehicle operators have been using proprietary methods for capturing and analyzing this data for years. The Android interface provides a common, consistent platform for gathering and analyzing the OBD data and can feed that info into other applications such as GPS or

data.

Ironically, many automakers publically claim to be conflicted regarding connecting cars. Some are claiming that their primary interest is privacy protection for their customers and for themselves. In 2014 former (and now disgraced) VW CEO Martin Winterkorn warned that the car was "becoming a data



(Bluetooth) for OBD data. Numerous OBD (On-Board Diagnostics) apps, such as the Torque Pro we tested (pictured right) allow the car's operator/occupants to see what your car is doing in real time. All the OBD2 data, including OBD fault codes, mileage, fuel consumption

safety systems. With access to the OBD system however, comes security issues. Researchers have examined the security around OBD, and found that they were able to gain control over many vehicle systems via the interface. Combined with a WiFi or Bluetooth enabled system (or potentially, a compromised cellular connection), the risks of hijacking the systems, stealing data, and/or taking control of a vehicle have been demonstrated to be genuine.

Connected vehicles present a significant opportunity for automakers to enhance their products. Telematics provide a platform for automakers to bring data such as driver profile, preferences, journey information, together with vehicle

octopus and that VW was committed to protecting the privacy of its customers." At the same time, they recognize the value of that data and realize the more they collect and analyze, the higher the potential revenue.

The real conflict automakers are anguishing over is not privacy, but liability—theirs. Data collection can and has been used against the car makers by law enforcement, marketers, insurance companies, even the consumer. In view of the record-breaking number of safety recalls in the last two years, car makers are wrestling with how much data they want to collect versus the liability of having that data used against them. And their revenue streams.

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