



How Telematics Will Improve Driver Experience and Deliver Greater Business Value

Rapidly accelerating advances in telematics and human-machine interface design promise to deliver not only superior driving experiences but also benefits across the automotive ecosystem and beyond.

Executive Summary

"The car is the ultimate mobile device."

- Jeff Williams, Senior Vice-President,
Apple Computer, Inc.!

Buckle up for telematics, the coming revolution in how we will drive. In the near future, four forces will change the experience of everyone touched by the automotive industry: the transmission and interchange of global positioning data, communications between road systems and automotive instruments and sensors, instructions from voice commands, and a range of data feeds from mobile devices, social media and local businesses.

Enabled by cloud-based telecommunications, telematics will mature from "simple" locational data to cars that drive themselves, providing a safer and more enjoyable, productive and reliable experience for everyone. But telematics doesn't only benefit the consumer side of the automotive

market; it also provides significant advantages to those that supply and support the automotive industry.

Automakers that fully embrace telematics will be able to streamline operations, improve product quality and strengthen the customer connection to their brand - converting one-time product sales into long-term service-centered relationships. This is the road ahead to greater profitability and competitive advantage for manufacturers, OEMs and other stakeholders in the massive global automotive ecosystem.

This white paper provides a quick glimpse into the win-win world of next-generation telematics and the transportation ecosystem it will support.

The World Around the Corner

Imagine yourself in the driver's seat, trapped in traffic on the long trip home. Your car alerts you with an audio and in-dash newsflash display: an accident blocking all lanes is five miles ahead.



You know all the alternative routes. You know you're pretty much stuck.

So does the vehicle. It has already reviewed alternative routes and travel times - and rejected them. Your on-board concierge app asks if you'd like a dinner break while traffic clears. It opens an app to find a nearby restaurant that meets your preferences, and the address is sent to your on-board GPS. While the car switches lanes for you, you dictate a text message to your spouse to say you're tied up in traffic and are going to stop for dinner until it clears.

Back on the road an hour later the route home is clear. As your car drives, you ask the in-dash concierge to record an idea that came to you at dinner and e-mail it to you. By the time you get home, you are relaxed, content, even invigorated.

A week later, your car detects an anomaly in its idling revs. It's an early indication of a problem that could wind up leaving you stranded if it's not addressed. The on-board telematics-enabled predictive diagnostics system identifies service centers nearby that have the parts and tools required to make the adjustment for your make and model.

You select the one you prefer, and instruct the car to pull over at the next exit. The service center dispatches a technician, and your car is repaired while you answer e-mail on your smartphone. Best of all? It's covered under the warranty - the information for which is automatically sent to the service tech and your insurer.

Digital Dynamics: Information Drives Value

Through telematics, vehicles can convey data about themselves, such as component status, speed, mileage and fuel economy. Telematics systems can also capture car-related purchases and patterns, including location, routes and travel times, as well as log fuel consumption, service needs and even the insurance provider and costs.

Feature-rich telematics systems can also capture driver preferences from smartphones, wearables and social media profiles, and optimize performance using geo-spatial data from the operating environment, such as weather, road conditions, route, grade of the road and altitude. (For more insight, please view our [video](#).)

In addition to optimizing the experience for both the driver and passengers, these data points can

form a robust foundation for sophisticated data modeling, which companies can use to develop meaningful and predictive insights. These insights represent a massive opportunity for car makers to monetize telematics across the customer lifecycle.

As a corollary, telematics-enabled vehicles can command a pricing premium, create opportunities for ongoing revenue streams through personalized subscription service offerings, improve product innovation and quality over time, and offer a superior traveling experience that builds brand loyalty for future purchases.

Telematics can also help address carmakers' concerns that tomorrow's buyers could have very different needs and expectations for their vehicles, including how much they want to own one.

Benefits throughout the Ecosystem

The benefits of telematics extend to stakeholders throughout the automotive ecosystem.

Manufacturer Benefits

Through telematics, manufacturers can reduce costs and cycle times for new models. Just a few years ago, it could take five years or more to get a new car model from concept to showroom. Today, car manufacturers can potentially shorten design timeframes and speed launches by analyzing the real-time performance data of key components (such as the engine) from millions of vehicles fitted with telematics units.

Manufacturers can also realize additional savings by using telematics systems to understand which parts are failing and why, significantly reducing recalls. Instead of responding to statistical reports in retrospect, manufacturers can evaluate parts and suppliers on a daily or hourly basis - even in real time. They can also gain visibility into how components operate under different conditions, and hold vendors accountable for agreed-on specifications and performance levels.

Telematics can also help address carmakers' concerns that tomorrow's buyers could have very different needs and expectations for their vehicles, including how much they want to own one. Call it Uber-ization or simply convenience, but the current generation and those to follow might simply order transportation on-demand from their mobile device.

Pilots already exist for car-sharing - using a "social-circle" model, such as through [Audi Unite](#)³ in Sweden - and to increase convenience and choice, such as with [Audi at Home](#).⁴ Just as today's travelers might choose a rental car before a business trip, tomorrow's traveler's might order a self-driving vehicle to run errands: an SUV for the weekly run to the grocery store, a truck for the trip to the hardware store, a luxury sedan for that special night out on the town.

By 2020, a new car will likely be equipped with 200 or more sensors and a telecommunications module for transmitting vehicle, driver and geo-spatial data.

Dealer Benefits

Using data about a car's driving history, dealers can develop a more accurate valuation of a pre-owned car, and using driver data, they can generate digital sales leads and customized offers tailored to individual car buyers. Further, they can minimize revenue leakage by directing drivers to dealerships rather than third-party vendors for service, accessories and spare parts after-market.

Commercial Trucking and Equipment Manufacturer Benefits

Commercial trucking and heavy equipment manufacturers, including Caterpillar, John Deere, Cummins, Paccar, Volvo and Navistar, leverage remote monitoring and diagnostics to improve customer service. Using this system of rich, real-time data fueled by predictive analytics, these manufacturers are providing their customers with increased visibility and control over fleet performance, supply chains and logistics.

Benefits Beyond the Auto Industry

Forward-thinking companies outside the automotive industry can also take advantage of the opportunities afforded by connected cars. Early adopters in the insurance industry are using telematics data to set rates based on how far, how fast and under what conditions a person drives. (For historical context, read our white paper "[The New Auto Insurance Ecosystem: Telematics, Mobility and the Connected Car](#).") Further, restaurants, retailers and entertainment providers can leverage intelligence on driver preferences and locations to distribute content and context-appropriate offers.

Common Sensors? Smarter Connections

An automobile coming off the production line today might have anywhere from 30 to 90 electronic modules controlling diverse systems, from brakes and airbags to seating positions and entertainment. By 2020, a new car will likely be equipped with 200 or more sensors and a telecommunications module for transmitting vehicle, driver and geo-spatial data.

But building a telematics infrastructure will require more than vehicle hardware and electronics. An ecosystem of connected cars and tens of billions of sensors will require telecommunications networks, cloud infrastructure, data storage capacity, integration with third-party applications and vendors, and well-designed human-machine interfaces (HMI) so consumers can comfortably interact with the telematics system. (For more on intelligent road infrastructure, see our *Cognizant* article "[Connected Lives: Where Smart Vehicles Meet the Intelligent Road](#).")

Manufacturers will also need to meet complex physical and digital security challenges, such as preventing unauthorized access to both the vehicle and its on-board digital features and data. Unless and until driverless cars are the norm, it will be paramount for car makers to address driver safety by lessening manual, visual and cognitive distractions.

Market participants must also balance data collection with customer privacy, and identify features that are useful vs. those that are intrusive. They will need to give consumers clarity on whether and when to share data and the benefits of doing so.

Intelligence ... Autonomy ... Start Your Engines

Telematics opens the road to intelligent transportation. Fully autonomous vehicles will turn cars into mobile extensions of our homes and offices, completely changing the driving experience. Now is the time to capitalize on the promise of a future of connected cars, and establish a solid foundation for the future digital innovations that are sure to come.

Telematics will introduce a convergence of multiple connected processes. Automakers can greatly benefit by not restricting these innovations to the basic capabilities of this technology. By targeting demographic-specific telematics-

based features, applying machine learning techniques to telematics-generated data, and enabling cars to be part of an intelligent transpor-

tation network, automakers will be able to more effectively monetize their investments.

Footnotes

- ¹ Ina Fried, "Apple's Jeff Williams: The Car Is the Ultimate Mobile Device," Recode, May 27, 2015, <http://www.recode.net/2015/5/27/11563008/apples-jeff-williams-the-car-is-the-ultimate-mobile-device>.
- ² "Connected Cars: Win in the Digital Automotive World," Cognizant Technology Solutions, April 15, 2016, https://www.youtube.com/watch?feature=player_embedded&v=QJYHmOY3pyl.
- ³ Audi Unite website, https://www.audiunite.com/se/service/en_unite.html.
- ⁴ Audi at Home website, https://www.audiathome.com/us/service/en_athome.html.

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