Connected Cars: Connected Vision

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<u>A lot can happen in a Century. --</u>

As Ford celebrates 100 years of automotive manufacturing at the legendary River Rouge plant, we can take a collective breath and look back at the innovations produced by the automotive industry.

Far removed from the day that Henry Ford was quoted as saying, "You can have any color you want, so long as it's black," today's consumer not only is presented with a plethora of options, but expects them. As the industry has shifted from pure utility as a transportation medium, to a power and speed focused vehicle to a safety and fuel efficient-oriented mode of transportation, we have been morphing into the era of connected products.

<u>The Market for Autonomous Vehicles by 2040</u>

IHS Markit predicts that more than 33 million autonomous vehicles will be sold globally in 2040. It further estimates that global revenue from automotive telematics systems will grow at a CAGR of nearly 17 percent to more than $6.8 billion by the end of 2023. The term telematics was coined from a combination of telecommunications and informatics. Telematics monitor vehicular data and leverage on-board diagnostics to constantly track information about the vehicle.

Adapting to Change in Transportation

Connected cars and mobility services – along with the millennial generation's different perspective on car ownership – have introduced a significant and potentially disruptive alteration to the OEM / dealership ecosystem. Some analysts conclude automobile ownership may dwindle as consumers opt for transportation on an occasional as-needed basis. The question becomes how we will adapt as an industry to accommodate the needs of the user, the experience they expect and, somehow along the way, monetize elements of the transformation where applicable.

OEMs and the Tier 1 and Tier 2 vendor community remain focused on emerging technologies and the advantages they will produce for the manufacturer, the vendors, dealers and, perhaps most importantly, the consumers.

General Motors was the pioneering OEM to bring connected car functionality to the marketplace in 1996 with its revolutionary OnStar service offering. It enabled emergency services to arrive quickly after an accident and focused on providing potentially life-saving information with a remote emergency center.

Data collection and sharing is what enabled this early innovation and is fueling future product strategies.

Connected Cars Today

Today's and tomorrow's connected cars do more than merely send data to a clearinghouse to be acted upon if some assistance is required. It also is much more than helping to manage email, music playlists or GPS-enabled mapping services.

Connected cars are just that – connected. They can share information with other vehicles in real time through the internet and wireless networks. The potential for convenience, improved consumer experience, safety and a more responsive supply chain is immense.

The day is here where a car is communicating with the OEM and dealership as it monitors the thousands of components which make up today's vehicles – and anticipates when they need maintenance *before* the system fails. Many drivers of recent models get vehicle health reports on oil levels, tire pressure and other available data. This will only expand to an even more robust program which will include a great deal more information and include other systems within the vehicle.

Connected car communications will inform the OEM and dealership that a collision has occurred and aid in identifying the replacement parts required to get the vehicle back on the road. This will speed the time necessary to repair vehicles and get them back on the road.

Telematics is already being leveraged to assess driver behaviors and help determine more accurate insurance premiums, such as in the case of usage-based insurance (UBI).

The era has arrived when vehicles share information through a vehicle-to-vehicle (V2V) and vehicle-to-anything (V2X) protocol and provide warnings about traffic obstructions or calamities to avoid. These new protocols help drivers avoid accidents, ease traffic congestion and conserve energy. Vehicle-to-infrastructure (V2I) technology will become more prevalent, allowing vehicles to be aware of traffic lights, construction updates and other infrastructure data.

The Involvement of City Transportation Management

As cars get connected and smarter, so do cities. Internet connectivity will become even more pervasive. Many experts predict that 90 percent of news cars sold in 2020 will be connected to the internet. Communications between vehicles and city infrastructure will reduce congestion and save time and energy.

New Innovation Creating Options

We've come a long way since Henry Ford's Model Ts came only in black. The integration of data sharing, artificial intelligence, analytics and internet access has created transportation options that would have been considered science fiction only a few short years ago.

It's impossible to accurately predict all of the innovations that will be commonplace in the coming years. One thing we can confidently predict is that constantly evolving technology will be embraced by the automotive industry and provide a beacon to other manufacturers.

Ultimately the consumers will be the key beneficiaries of the connected car by having access to a safer, more comfortable and efficient mode of transportation.

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Percy brings 30+ years of experience in manufacturing/operations, management and optimization around the transportation and manufacturing sectors. Over the past 12 years, he worked with global OEMs and Tier 1s seeking to reinvent themselves to respond to evolving consumer demands and to gain insight into operations. Percy led the efforts to build and scale an OEM/Supplier vehicle launch collaboration platform.