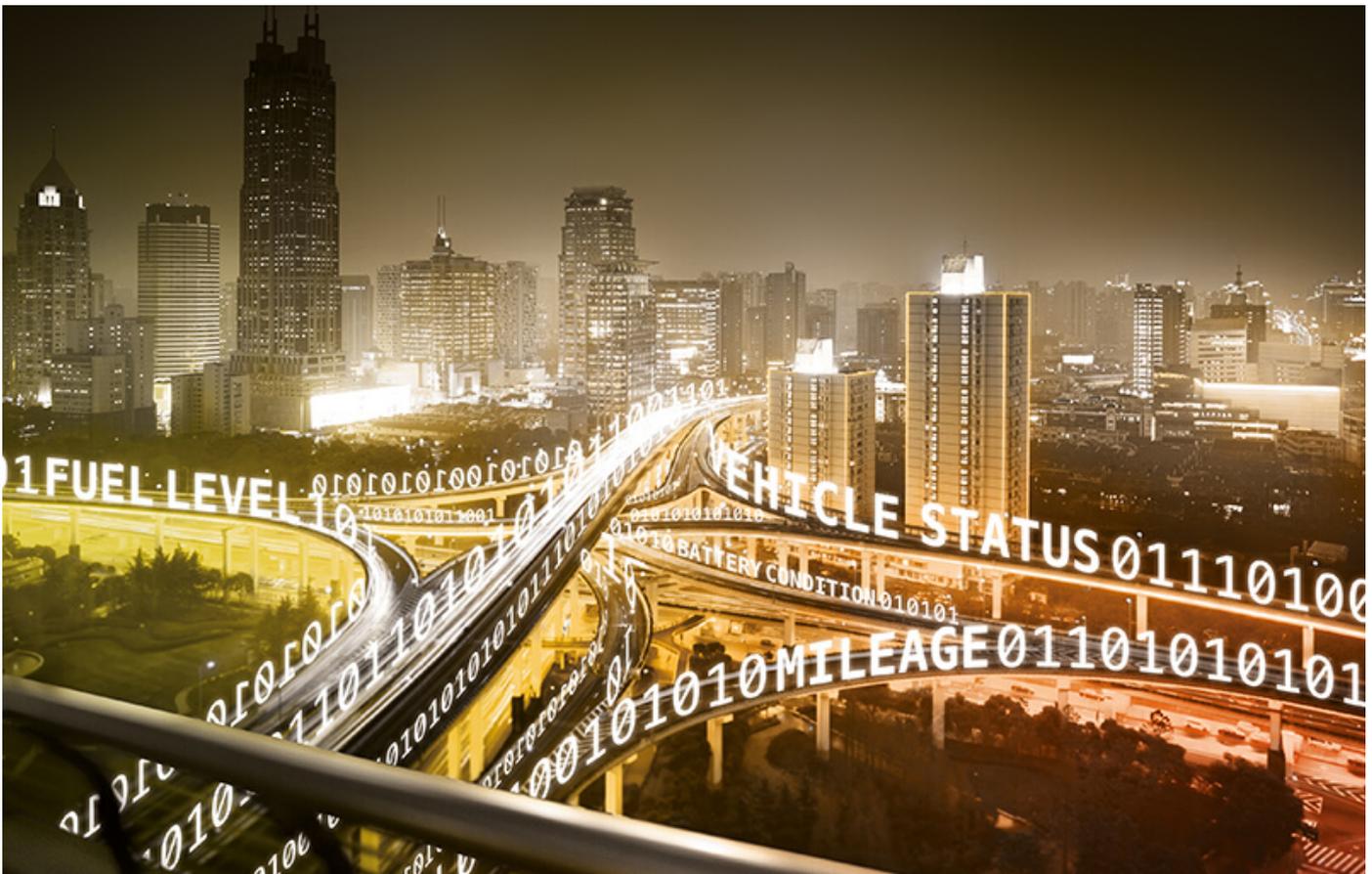




Connecting the dots with telematics in the finished vehicle supply chain



As in-car technology increases in sophistication, the use of telematics could provide better visibility of faults in the finished vehicle supply chain. By Malcolm Wheatley.

Buy a new BMW, and it's no surprise to find it stuffed with hi-tech telematics. But, the contrast between the hi-tech environment inside the vehicle and the more low-tech world outside it is stark.

Paper-based processes still dominate the finished vehicle supply chain to end customers. The



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barcode – invented in 1952 – is still the industry’s lingua franca, with the use of RFID lagging far behind. So would it be possible to use the modern vehicle’s hi-tech onboard telematics systems to achieve something better?

Today’s cars know exactly where they are and their condition, with sensors that send that information to third parties in near-real time. There are obvious operational advantages. Real-time location could transform how the finished vehicle logistics industry carries out scheduling.

Status information can provide warnings of windows left open in transit, flat batteries or defective tyres. “There’s a huge potential gain in efficiency,” says Wolfgang Göbel, president of the Association of European Vehicle Logistics (ECG).

“As an industry, we can be faster at what we do, and achieve higher levels of quality: if a vehicle has a quality issue, that information is known immediately. Everybody sees these benefits, which is why so much effort is being put into trying to achieve them.”

Ford, Volkswagen, the Renault-Nissan-Mitsubishi Alliance and Fiat Chrysler are working towards this. And at premium brands Jaguar Land Rover and BMW, leveraging onboard telematics is already happening. BMW’s onboard telematics capability, moved into an operational mode in March 2018. Badged as the ‘Connected Distribution’ initiative, BMW’s work in the area began back in 2015, says project leader Juliane Gottmann.



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“We were looking for a way to react better to vehicle movements, and to be able to know with more accuracy exactly where a vehicle is. Barcode technology is slow: we are reliant on third parties to carry out the scanning and report the data – which can take minutes but can also take days. It takes time to unload an entire ship, for instance. So there’s a disconnect between where a vehicle should be, and where the systems tell us the vehicle is in reality.” she says.

Telematics that sends granular data about a vehicle’s location can also provides data on progress through the finished vehicle supply chain. BMW cars send data ‘packages’, containing current GPS position, VIN number and status information, on every engine shutdown between the end of assembly line and arrival at the dealership.

“There’s a huge potential gain in efficiency [from using vehicles’ onboard telematics data]. As an industry, we can be faster at what we do, more efficient at what we do, and achieve higher levels of quality” – Wolfgang Göbel, ECG

As Gottmann stresses, this aspect of onboard telematics-enabled vehicle tracking is still a work in progress. While there is an acknowledged big data aspect to BMW’s Connected Distribution initiative, it is not yet fully-developed.



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“Right now, we can see where the vehicles are. In the future, we will measure and watch entire flows of vehicles. We’ll be able to see trends and make predictions, optimise flows and reduce lead times. It’s about looking at dwell times and combining GPS-sourced data with other vehicle-specific data.”

Track and react It's here, says Hartmut Haubrich, director of vehicle information systems at logistics software provider Inform, that the real benefits of location data sourced from onboard telematics lie.

“‘Track-and-trace’ is very nice, but it’s looking at the past,” he argues. “Instead, what manufacturers want is ‘track and react’ – compare in real time where a vehicle is with where it should be, right down to individual zones within car plants, ports, or compounds. They want to see ‘this vehicle is at the Ford Köln plant’s truck loading zone’, or ‘this vehicle is at the Zeebrugge ICO Terminal.’” he says.

Telematics challenges

There are some challenges to using telematics, from a finished vehicle logistics point of view. Telematics may not be capable of providing a solution throughout the entire supply chain – for example, in the close confines of vehicle compounds.



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While a vehicle can send its location, it's limited to GPS accuracy levels, says Paul Nurse, chief executive of ProAct International, a supply chain visibility solution provider.

“The goal has to be to be able to stand in front of a group of vehicles and know exactly which is the one you’re looking for, to move or process it,” he says. “At a compound gate, or in a parking zone, it’s important to be able to answer the ‘who are you?’ question. And with today’s technology, that can’t yet be done. The missing piece is the link between the vehicle’s location and being able to tell which exact vehicle is the one in front of you. Onboard telematics is a solution, but it’s not the solution to everyone’s needs.” he says.

A further problem is the difficulty of receiving signals from some locations, for example, from vehicles inside ships. As Inform’s Haubrich points out, at occasional points in the supply chain, OEMs have to make guesses about a vehicle’s ‘presence’ in a location.

“It’s known that Jaguar Land Rover has agreed with ports that, if a vehicle has passed a certain point, it’s logged as loaded and awaiting departure. Likewise, the arrival of the ship serves as



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All the required bits of hardware are already present in the vehicle and integrated with each other. The extra investment is in writing software to repurpose the hardware while vehicles are in the supply chain.

When I'm calling EU

The EU's emergency eCall initiative can help ensure that all vehicles feature the necessary hardware. It offers the prospect of a standard solution on all new vehicles sold in regions requiring eCall capabilities.

"It's about re-using the eCall telematics that are already in place on the vehicle," says BMW's Julianne Gottmann. "The telematics are already present, so we didn't need to invent something new or add cost to it. More than that, it costs money to apply barcodes and, in particular, money to remove them."

"Barcode technology can be error-prone, with missed or misread scans. The level of errors might not be high, but they still introduce an unwelcome element of deviation. So the appeal of telematics was obvious." she says.



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Barcodes and RFID technology carry only static information, encoded at a single moment – a VIN number, say. Telematics provides a connection to the condition of the vehicle, and makes that information available to the finished vehicle supply chain. Barcodes and RFID tags not only do not ‘know’ this information, they are constrained in their ability to encode it.

A longer version of this article appears in Automotive Logistics

Join supply chain and automotive IT experts from BMW, Daimler, GM, Magna, NIO, Pirelli, Samsung and many more at The Supply Chain Conference, as they strategize and outline practical steps for future automotive supply chains, on 19-21 March 2019 in Atlanta.