Report on the Fully Networked Car Workshop - 6 March 2013
http://www.worldstandardscooperation.org/fnc2013.html

The Eighth Fully Networked Car workshop, organized jointly by ITU, ISO, and the IEC, was held 6 March 2013, in association with Geneva's 83rd International Motor Show and Accessories.

The event attracted nearly 100 experts from around the world, and covered a series of interactive discussions revolving around the need for standardization for the networked vehicle, an examination of recent changes and challenges in technology and applications facing the auto industry, as well as some predictions for the future of the 'fully networked' car.

Richard Parry-Jones, former Vice President of Global Product Development and Chief Technical Officer at Ford Motor Company, served as the program moderator for the second consecutive year, and through the contribution and expertise provided by the panelists and the audience, the workshop re-affirmed many of the outcomes from the 2012 workshop, and offered some paths for standardization in the immediate future.

SUMMARY OF INTRODUCTION BY HOSTS AND MODERATOR:

- Although sales of cars may be in decline, they continue to meet global needs.
- Despite a lack of ready global standards for the connected vehicle, there is a lot of continued work focused on driver distraction, situational awareness, vehicle intelligence, collaboration on ITS communications, electrification, batteries, charging, active safety, mobility and connectivity, and more.
- The fully networked car now fully involves telecom, energy, and other areas besides the innovations in vehicle engines and safety.
- The key to success for the industry is to adapt to greater complexity of vehicle designs, mobility services, connectivity and financial services. OEMs now must enter into multiple areas of business or become a niche supplier.
- The Standards Partners - ISO, ITU, and IEC - want to hear what the audience thinks, so that we all can follow up with concrete action. Global collaboration is imperative.
- Based on last year's program, we need to continue working to understand were the automotive and IT spaces intersect, and to determine what the most valuable opportunities are, and what regulators need, while addressing any barriers.
- We need to continue working to reconcile the life cycle of a car versus that of a mobile device. Increasing functionality while minimizing hazard to drivers is also a high priority.
- Applications and technology must be agnostic....and faster.
- The highest priorities for standardization over the last year were charging, safety, managing nomadic devices, communication protocols, and getting the right timing for the right kinds of standards. Are these still the same priorities for the coming year?

Panel 1: Recent Industry Changes and Current Needs for Standardization

Egbert Fritzsche, VDA
Jack Pokrzywa, SAE International
Russ Shields, Ygomi
Roger Lanctot, Strategy Analytics
Joakim Pauli, Volvo Group Trucks Technology

The first panel outlined a number of issues facing the industry toward the connected vehicle, and highlighted a number of areas that provoked additional discussion. In particular:

- How can we support the driver to avoid traffic congestion, given the increase in migration to urban areas? How can standardizers provide support and connection in real-time to help drivers?
- The current mobility model is unsustainable and will be changing in the next decade - while road infrastructure costs are rising, so too are the maintenance costs for a vehicle. More people are wasting more time and spending longer hours in their vehicle. In addition, needs for perpetual connectivity are becoming an increasing cause of vehicle accidents. In the next 10-20 years, the existing patterns for vehicle usage will be changing drastically along with rapidly developing technology, so standardization will be very important to have.
- Connectivity in the vehicle will continue to develop, but it is most important to note that vehicle communications can't be done without regulatory and government support.
- We know car makers want safety, privacy, user interfaces, and traffic management. While we don't want to impair creativity or terminate differentiation among makers, we do need to continue work on incorporating things like next generation communications, smartphone technology, traffic information and other areas into standards...if standards bodies can keep up with the speed of changes.
- It is becoming more evident that onboard data issues need to be standardized. Car information hacking is becoming a greater and greater problem, as it can affect an automaker's bottom line. Further, there is so much data found in a vehicle that there needs to be a harmonized way to harness it.
- Standards are already in place on probe data, but perhaps data in support of maintenance of vehicles will not be subject to standards - each manufacturer will continue to do its own. Further, it was noted that European legislation exists such that any communications capability has to provide information to government authorities under requests for terrorist activity, security, etc. - these standards remain to be done. Unfortunately, security agencies have not been involved in standards efforts in the past, but that is changing.
- While data collection is a big concern in terms of how it's collected, it will be important to engage security agencies to get involved in standardization efforts.

AUDIENCE SUGGESTIONS - Panel 1: Recent Industry Changes and Current Needs for Standardization

- Harmonization of standards and regulations is necessary
- Need for additional cooperation among OEMs, network providers, and device makers
- Data collection
- Information security, software updates, connection protocols
- Active safety
- Over the Air performance
- On-board diagnostics

Panel 2: Challenges in Technology and Applications for the Networked Car

Matthias Klauda, Bosch
Hakan Kostepen, Panasonic Automotive Systems
Julien Masson, Parrot
Peter Dutrieux, Dekra
Danny Shapiro, NVIDIA Corporation

- The new LTE communications standard is an example of the pace of change we are seeing in technology, and something our industry has to learn to deal with. However, progress is being made, for example with cars having the computing power now of a consumer device and greater adaptability. There are many opportunities like this out there.
- In some areas such as communication hardware, harmonization exists - 802.11p, ETSI ITS standards. The car industry should not focus on differentiation with security issues; they should come to an understanding just as was done with functional safety.
- The industry should be able to ensure a minimum quality of communication to have V2V communication.
- There is too much information such that we don't know what to do with all of it. The car is now the ultimate mobile device.
- Consumers and drivers are driven by the connected experience, and they expect the same level of capabilities and experience in the car that they have outside the car. Are Android solutions the answer, or are additional operating systems needed? The initial conclusion is that there will be multiple OS's out there.
- Issue of different levels of connectivity based on the type or model of car.
- There is still work to be done to bridge the gap between consumer electronics and in-vehicle electronics.
- Call quality now seems to be secondary to functionality and data. Does this need to be considered for the vehicle as well, even though you are more dependent on the voice while in the car? Should more work be done on speech recognition in the vehicle? Does the auto sector need to create its own standards, or can we piggy-back to help exploit the automotive space?
- For vehicle screens, how do we get the IT mentality adapted properly to get TV screens to work without having to get Windows updates so often?
- It is not wrong to differentiate the auto environment from the outside. We can't just use standard consumer electronics in autos. Some consumer functionalities need to be enhanced to play right in a car. For example, you need voice recognition, but you don't want small touchscreen keys.
- Upgradeability will also be looked at and will improve the business model in the next few years. Hopefully soon it will be easier to upgrade hardware and software in legacy vehicles for a reasonable price, such that vehicles don't become obsolete right away when the technology is even slightly out of date. It would be ideal perhaps to offer a base software level that can be used even amongst competitors.
- There are three innovation cycles - 10 years for the life of the car, 1 year for the hardware innovation cycle, and just a couple months for the software.
- Customers would not tolerate a hard reboot of software in a car. People have more tolerance for this with their phone, but certainly not in their car.

AUDIENCE SUGGESTIONS - Panel 2: Challenges in Technology and Applications for the Networked Car

- Upgradeability for both software and hardware through add-on devices and standard interfaces
- Integration and security
- Lifestyle impact on 'in-car' expectations
- Different lifecycles for automotive vs. consumer electronics, not to mention different requirements for both
- Minimizing driver distraction

Panel 3: Where is the Networked Car Going?

Nicolas Burger, TomTom
Daniel Austin, Paypal
Pascal Pediroda, Atos
Yoram Berholtz, Red Bend Software
Mathias Coinchon, European Broadcasting Union

- Cloud computing should come more and more into the automotive sector, so that the driver and navigation experience can carry over on different devices. Connected navigation systems provide good fast-to-market capabilities with low integration costs, and can allow for more plugs for extra services.
- Even though we need to separate mobile devices from auto devices, many of the challenges are the same for both. For auto devices, more work needs to be done in managing the network.
- The old IP network is not useful for the networked car, espeically with regards to payment systems and transactions.
- There is desire by all makers to increase revenue with the connected car, and they don't want just one company to grab it all. Monetizing the data and the access to the driver is a big change for car makers.
- It is entirely possible that in 5 years, 80 percent of the car will be connected. In 2022, the focus will be more on self-driving cars. In 15 years, perhaps we will see car sharing, such that we will just have tablets with four wheels.
- Bandwidth for the car will surely increase to accommodate maps, other infotainment, and things that require a lot of processing power.
- Broadcast networks should not be underestimated as a network for reaching people.
- Will increased driver distraction prove to be an increased threat to road safety? While there is a large incentive to use technology to reduce accidents with more younger drivers on the road, will this statistic get worse?

AUDIENCE PARTICIPATION - Panel 3: Where is the Networked Car Going?

- More work to come on safety and security, communication, bandwidth, financial services
- Perhaps separation of infotainment systems versus safety relevant systems; distributed processor power
- Harmonizing broadcasting and IP

Panel 4: Update on What Was Discussed Last Year, Progress, Priorities Going Forward

Rob Steele, ISO
Gabriel Barta, IEC
Yushi Naito, ITU

Success has been achieved with recent standardization work completed and underway on:

- electric batteries
- road safety
- vehicle safety
- battery management systems
- hands-free communications
- situational awareness

In addition,

- The WSC partners want continued collaboration on standards work to identify gaps in standardization and to avoid duplication. Partners also noted that they are reducing the barriers to procedures to produce audience-driven standards.
- Partners stress the need for getting developing countries more involved.
- Added participation brings support for standards projects to be launched, which in turn leads to quality balanced documents delivered in a timely manner. The concern is having the right ideas proposed too late, which doesn't serve the market.
- Last year, we talked about hitting the 'sweet spot' - getting standards out there not too early to stifle innovation and not too late either. Perhaps from this workshop there are signs that things are moving faster to market in a positive way thanks to standards.
- It is important to build Liaison relationships with other organizations to use their strengths and expertise, not to compete.
- Partners will continue to ask what the industry wants so that proper standards development strategies can be developed and refined. The Partners also need to DO something to improve the cooperative environment, and then use it to build leverage to bring in more strategic thinking. Maximizing the value of standards is critical.

Workshop Conclusions

- Active safety and improving driver distraction both remain high priorities for the industry and standardizers.
- Data communications security is a great concern that may require more time and attention.
- Upgradeability will be key to bridging the gap between the auto product, consumer electronics, and software lifecycles, which all vary.
- Harmonizing broadcasting and internet protocols should be an active consideration for the future of the networked car.
- The auto industry is getting a handle on offering user-centric solutions in a way that provides economic benefit. The speed of implementing such solutions to enhance the vehicle is rapidly improving.
- Can each stakeholder with its own issues and solution sets collaborate in a way to identify standards needs, set the priorities, and work with standards organizations such as the event organizers to deliver the standards needed in a timely fashion? Answering this will be critical to the success of the vehicle of the future.