THE DISPATCHER

IN THIS ISSUE

4th Annual Princeton SmartDrivingCar Summit

Evening May 19 through May 21, 2020

Postponed – New Date to be Proposed

This conference brings together the buyers, sellers and facilitators of SmartDrivingCars, trucks and buses. It is time to move past the hype and accelerate the commercialization and deployment of SmartDriving technology so that society can begin to capture its benefits. We will have four focus areas:

- *Near-term safety benefits of safe-driving cars*
- *Near-term regulatory challenges*
- *Near-term mobility and community service benefits*
- *The current state-of-the art in DeepDriving*

https://www.drop-box.com/s/p7t7fwkm1wu9n3g/ProgramDraft1_4thAnnualPrincetonSDC_Summit.pdf?dl=0

and

**The Symposium on the
Future Networked Car 2020
Geneva, Switzerland
Was held on the 5th of March 2020 with
both live and remote participation**

https://www.itu.int/en/fnc/2020/Pages/default.aspx

In one of the Symposium's sessions, the moderator and three of the panel's eight members are joined on the left screen by panel members who are participating in the session remotely. The hybrid approach, a matter of necessity, worked exceedingly well.

THE DISPATCHER

Symposium on the Future Networked Car: FNC2020

FNC2020 keynote speakers, moderators and organizers included:

Houlin Zhao, *Secretary-General ITU*

Olga Algayerova, *Executive Secretary, UNECE*

Jean Todt, *President of FIA and UN Secretary General's Special Envoy for Road Safety*

Bilel Jamoussi, *Chief, ITU-T Study Groups Department, ITU*

Chaesub Lee, *Director, TSB, ITU*

Walter Nissler, *Chief of the Vehicle Regulations and Transport Innovations Section, Transport Division UNECE*

Francois Guichard, *WP.29/GRVA Secretary, UNECE*

T. Russell Shields, *President and CEO, RoadDB*

Roger C. Lanctot, *Associate Director, Global Automotive Practice, Strategy Analytics*

Michael L. Sena, *Editor, The Dispatcher*

Ian Yarnold, *Head, International Vehicle Standards Division, U.K. Department for Transport*

Stefano Polidori, *Principal Organizer for FNC2020, Advisor at the ITU responsible for the technical secretariat of ITU-T Study Group 9 "Broadband cable and TV".*

The symposium was followed by a meeting of the [Collaboration on Intelligent Transport System (ITS) Communication Standards](#) at ITU Headquarters on 6 March 2020, an open platform to advance the development of globally harmonized ITS communication standards.

THE ITU AND UNECE **Symposium on the Future Networked Car** is special for several reasons. It is arranged and held by organizations that are in the standards and policy support business, not in the conference business. That means there are no exhibitions where large sums of money are paid for the privilege of occupying a booth. It also means that there are no attendee fees.

The **Symposium** comprises four panel discussions and two information presentations about the organizers' activities in the area of vehicle connectivity. Panelists are subject experts in the topic addressed by the panel and there are no company pitches. There are no parallel sessions or breakout sessions, so everyone hears everything. The two coffee breaks, the lunch and the Symposium-ending reception (this year sponsored by **DEKRA, QUALCOMM and ROAD DB**) offer plenty of opportunity for old friends to meet and new friendships and business contacts to be made. As a bonus, it's held on the first public day of the GENEVA INTERNATIONAL MOTOR SHOW, or GIMS as it is referred to, and admission to the **Symposium** also provides access to the SHOW at the *Palexpo* for the day.

And so it has been every year since the **FNC Symposium** began in 2005—except for this year. This year, the GENEVA INTERNATIONAL MOTOR SHOW was cancelled (not postponed) six days before the day of the **Symposium** due to the Coronavirus outbreak which started in China and December and spread throughout the world. This was the statement made by the organizers of GIMS:

> *"The 90th edition of the GIMS, which was supposed to welcome the media from next Monday and the general public from 5 to 15 March 2020, will now finally not take place. This is an injunction decision of the Federal Council of 28 February 2020 that no events with more than 1,000 people are allowed to take place until 15 March 2020. The decision falls 3 days before the opening of the exhibition to the media."*

Decision made to proceed with FNC2020

Plan B for **FNC2020** started being discussed a week before GIMS was cancelled. It was decided that it would be moved from the **Palexpo** to ITU headquarters in central Geneva if the Motor Show was cancelled. Participation would be provided remotely on a webinar for those who could not travel to Geneva. When word went out from GIMS that it would not be held, the organizers communicated with the moderators to determine if they would

make the trip to Geneva, and we all responded in the affirmative. Panelists were asked the same question, and each of them made their decision on the basis of their personal situations. In the end, about one-half of the panelists took part in person and the rest were included in the panel remotely. The final tally for delegates on-site was 81, as opposed to the usual 120-150. In spite of some doubts about a local/remote panel discussion, it worked very well.

The ITU conference hall provided everything we needed for both those who were present and for those who joined remotely. There were enough participants in the hall to give it the feel of a real, live event, while the remote panelists where shown on the multiple screens.

Opening Remarks

Co-chairs, Bilel Jamoussi and Walter Nissler welcomed all of the participants. Houlin Zhao reminded us that this was the 15th FNC and that he has attended from the start. He welcomed new members of ITU, including VW, Hyundai, Continental, Bosch, Mitsubishi Electric and several others. Olga Algayerova gave her usual upbeat speech. She had been in Stockholm at the 3rd Global Ministerial Conference on Road Safety held on 19-20 February where representatives from eighty countries gathered to commit to reducing road transport-related accidents and deaths. A photo op of all the attendees shows Olga standing next to Jean Todt, who provided the keynote for this event. Jean was uncharacteristically brief this year with his opening remarks. He focused his comments on road safety, saying that total road transport-related deaths have not decreased during the past twenty years due to the fact that more cars have been sold in developing countries, and accidents in these countries are offsetting the reduction in deaths in the developed countries.[W]

Bilel Jamoussi, Houlin Zhao, Olga Algayerova, Jean Todt and Walter Nissler

W. At the Stockholm event, the Director-General of WHO, Tedros Adhanom Ghebreyesus, reminded the delegates that of the 1.35 million people who die in road traffic accidents each year, approximately 93% of them are from so-called 'developing' countries (now referred to as low and middle income countries), including China, India and Russia. Dr. Naoko Yamamoto, Assistant Director General of WHO, was present and offered her thoughts during opening session.

Session 1: Policy and Regulatory Issues

It was only a few years ago that the battle for space on city streets was between buses and private vehicles. Rapidly evolving technologies, and a stream of novel transport devices and products, have created an extremely complex landscape for regulators to match new developments with public policy. This session was aimed at exploring how authorities who are in charge of the technical regulation and certification of vehicles are working to ensure that automated and connected vehicles provide better mobility for all, including the elderly and disabled, and the potential these solutions have to improve the livability of all places, large and small.

Ian Yarnold gave a general introduction to the session and provided his views on where we are at the moment with technological solutions to road safety and mobility. In his opinion, there is both an evolution and a revolution taking place simultaneously and it's not clear which one will succeed. He turned it over to the panelists, all but one from the public sector, who each gave a presentation of what they are working on back home in their respective markets.

Ellen Berends from The Netherlands reported on research performed by the Dutch Safety Board. It found that the vehicle OEMs have introduced advanced driver assistance systems (ADAS) with little or no regulation or legislation by any of the various governmental agencies and with no requirements to improve safety or to learn from accident data. The focus of regulation being discussed now is on the higher levels of automation, but the lower levels of ADAS will likely continue to be unregulated. It would have been interesting to hear more about whether this is a good or a bad thing, how increased connectivity might encourage OEMs to learn more about the effects of their ADAS functions, but we moved to the next panelist, Jane Doherty from the U.S. NHTSA.

Jane confirmed that safety is the number one goal of NHTSA. (That makes sense because it is, after all, the National Highway Traffic Safety Administration.) All vehicles sold in the U.S. must comply with the Federal Motor Vehicle Safety Standards (FMVSS) that "specify the design, construction, performance and durability requirements for motor vehicles and regulated automobile safety-related components, systems and design features." In order to encourage innovation with connected and automated vehicles, NHTSA says it wants to provide a 'nimble' framework for regulations, one that does not restrict new ideas but ties ideas back to

the basic foundation of safe vehicles in existence today. I think most of us know that the current Department of Transportation, of which NHTSA is part, is taking a less prescriptive approach to guiding the development of self-driving vehicles than the previous administration under President Obama, so there was not much new that we learned here.

Lucca Rocco presented Italy's three 'pillars of autonomous driving', literally as three columns with Ionic capitals.[C] The pillars are technology neutrality, learn by experience and encouragement of wide cooperation. Manuel Marsilio was the non-public sector panelist. He is general manager of an industry association that represents bicycle parts suppliers and bicycle manufacturers. The number of bicycles being sold in Europe is increasing, and the electric bike segment is growing extremely quickly. That's the good news for the bike industry. The not-so-good news is that as the number of people riding bikes has increased, so have the number of deaths and injuries. Some positive things that are happening include EuroNCAP now including bicycle tests in the car safety tests, like blind spot warnings. Bike-to-X is also gaining more attention. Nuria Roma from Spain rounded out the presentations with a call for changing the type approval process to accommodate new types of vehicles.

Once the presentations were out of the way a good discussion followed with interesting questions from the audience. One of them was perfect for the topic of the session: Will regulators allow the mixing of vehicles having different types of self-driving functions, from those older models with no ADAS automated functions to the most advanced self-driving cars? None of the panelists had an answer to how their country would address this issue. It was accepted that there was already a mixing of cars with varying degrees of automated systems and that it would be very difficult to limit cars to particular roads. It is probably going to be a step-by-step process with attempts made to keep the vehicles separate, suggested Ellen Berends. Luca Rocco said that the guiding principal of regulation is to reduce risk, not to increase it.

C. The Ionic order is one of the three canonic orders of classical architecture, the other two being the Doric and the Corinthian. The Ionic order capital is shown here.
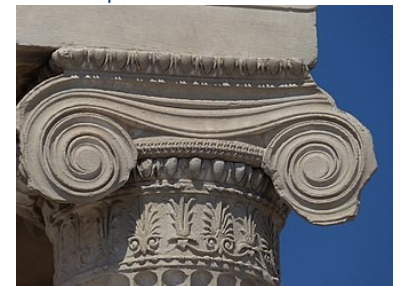
ITU Activities on Intelligent Transport Systems
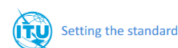
Bilel Jamoussi provided us with an excellent overview of ITU Standards on Intelligent Transport Systems. Click on the link to view the entire presentation. It's full of great information.

ITU - What we do

Allocation of radiofrequency spectrum and satellite orbits

Bridging the digital divide

Establishing international standards

Session 2: Cybersecurity

Fast, reliable, and, above all, secure communications are essential for highly automated driving. Cybersecurity should be designed into the complete life cycle of both the components and the entire vehicle. In-vehicle software will need to be updated to immediately correct problems as they arise. Data used for highly automated driving need to accurately match conditions as they are experienced by drivers. Over-the-air updating must be performed without threat of security breaches. This session will present and discuss how full risk assessment should be performed, how end-to-end testing should be addressed, and how security breaches can be detected to mitigate the damage caused by cybersecurity attacks.

After briefly introducing all of the speakers, I addressed a topical question to each of them according to their specific area of cybersecurity expertise, beginning with Pierre Girard of THALES: Even if a vehicle is designed with state-of-the-art security, and it is maintained with over-the-air updating during its entire operational life, a cyberattack can still occur at any time and be directed at any vehicle. How can a car fleet be monitored, and by whom, to detect those attacks and mitigate their harmful effects. Pierre's answer was simple: Every connected car will need to be monitored 24/7. Initially, the monitoring will be done by humans aided by AI, and eventually it will performed by AI systems with periodic assistance from humans. When one considers how many people Facebook and Instagram have

watching the accounts of their billions of users, having a number of control centers watching several million cars does not seem unrealistic.

To Thomas Thurner of DEKRA I asked the following: We are all aware that driver assistance and self-driving functions are realized with software. The car OEM and various software, hardware and service suppliers have to provide a chain of trust concerning software quality and security based on accepted standards. How can that chain of trust be realized on both the product and process level? There needs to be a process-level management system (PLMS) in place, said Thomas, and this system needs to reflect the certification standards at one end and the operational standards at the other. There should be one accepted PLMS that all the car OEMs adhere to.

Session 2 Panelists
Moderator: Michael L. Sena, *Consulting AB*
Thomas Thurner, *Head of Cybersecurity, DEKRA DIGITAL*
Pierre Girard, *Senior Security Expert, THALES*
Koji Nakao, *Researcher, Study Group 17, ITU*
Rossen Naydenov, *Network and Information Security Expert, ENISA*
Jacques Amselem, *Head of Internet of Things, ALLIANZ*
Markus Tschersich, *Regulation and Standardization Activities Manager, CONTINENTAL*
Johannes Springer, *Program Lead 5G Automotive Program Group Technology & Innovation, DEUTSCHE TELEKOM AG / T-SYSTEMS INTERNATIONAL GMBH*
Latif Ladid, *Professor, University of Luxembourg and President of IPv6 Forum*

One key reference for telecommunications security is ITU-T X.509, which has been defined by the ITU's Standardization Sector (ITU-T) Study Group 17, of which Koji Nakao is a member. It is for electronic authorization over public networks. I asked Koji which vehicular applications X.509 are particularly well-suited for, and is it a good candidate for applications involving vehicle control and safety. There must be a risk assessment performed, said Koji. Once the level of risk is determined, proper action can be taken. X.509 is a very good candidate for infotainment applications, but it may not be possible to extend it to ADAS and self-driving.

When a security breach occurs, something is lost. In addition to possible physical damage to the vehicle, property or harm to persons, our privacy, security or safety can be compromised. The insurance industry is in the business of accepting the risk of loss in return for payment from those at risk. I posed the question to Jacques Amselem, "How is the insurance industry looking at misdirected or stolen data. How will risk be insured?" The insurance industry will cover all the different types of cybersecurity problems in a similar way to how it covers other types of risk. In the end, a victim must be compensated for a loss. That is why insurance coverage is purchased. Both the cause and the effect of the damage must be ascertained. Who is responsible and how much should the victim receive? In order for the root cause analysis to be performed, the insurers must have access to data, and this is where there is still not unanimity on how this data will be provided. The good news is, according to Jacques, that the car OEMs are beginning to work together with the insurance industry and other third party service providers to reach an agreement on this and other matters.

Rossen Naydenov represents the European Union Agency for Cybersecurity with special focus on finance and transport. I asked him if he believes the automotive community is sharing information in a way that improves cybersecurity. He does not believe it is. He does not feel that it is because of competition laws, but there may be problems caused by GDPR compliance. In any case, he feels that 'trusted groups' should be established where feedback can be obtained from risk assessments, business continuity processes and the legal and regulatory process in order to feed this information into better standards and processes for certification.

Two of panelists, Latif Ladid, Johannes Springer, are working with advanced communications technologies. Professor Ladid is the


Your editor, who moderated the Session 2 panel, was taking a question from one of the participants when he was caught by the roaming photographer. I am holding an earphone to my ear. The conference room at ITU is equipped with simultaneous translation facilities, so the speakers are turned down to the lowest volume.

founder of *IPv6 Forum* and Johannes is Director General of *5GAA*. I addressed the question to each of them on whether cybersecurity will be enhanced by the by IPv6 over IPv4 and 5G over 4G, and if so, how. It turned out to be a difficult question to answer directly and with specific examples. IPv6 is already in use by over a billion users, said Latif, including by the U.S. government. *5GAA* is a forum which involves the automotive sector and this provides an opportunity to address the issue of secure communications for vehicle applications.

Given the context of the Symposium, it was appropriate to address the final question to Markus who is a member of the UNECE WP.29 Working Party on cybersecurity and OTA. What will be the impact of the GRVA-proposed regulation on cybersecurity for new car type approval? The main contribution of this work, replied Markus will be to identify that cybersecurity is not just a technical issue. It comprises three main components: production and installation of components; operation of the systems; and management of all the processes. It is in the management of the processes where cybersecurity will succeed or fail.

Following the session, I prepared a diagram that attempts to tie together all of the different components of cybersecurity identified and clarified by the panelists. As it shows, there is no beginning or end to cybersecurity. It is one continuous loop. The good news is that we have come a long way in the past five years since ITU asked me to work with them on a report on the business requirements for over-the-air software updates. I expect that we will see even more progress now that standards have reached the publication stage.

There is no beginning or end to the cybersecurity process
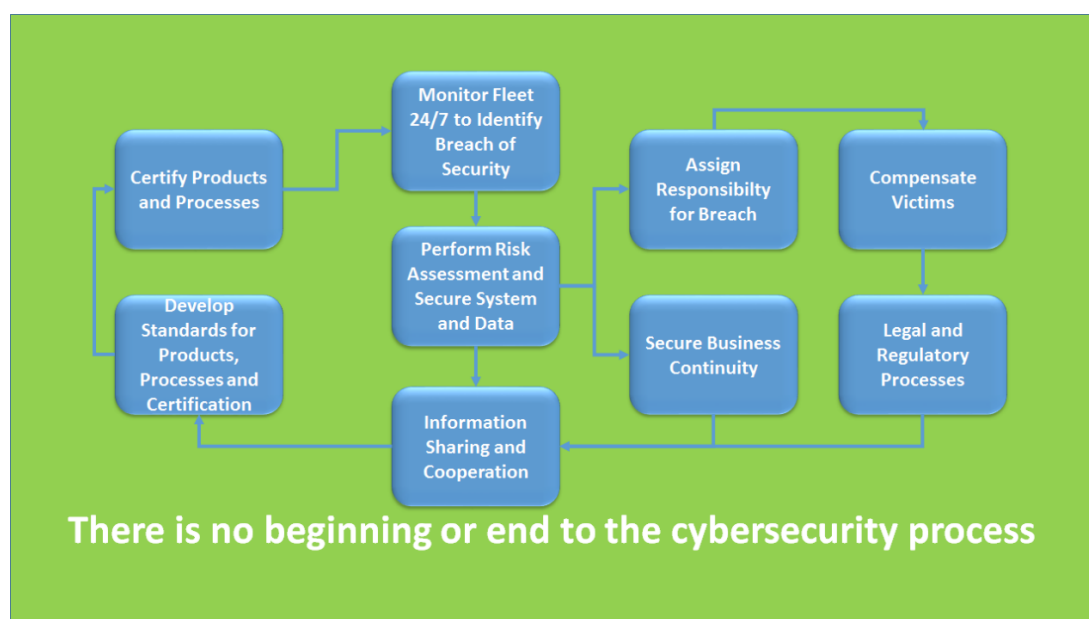
Session 3: AI for Autonomous and Assisted Driving

Driver assistance systems, such as lane keeping, adaptive cruise control, collision warning, and blind spot warning, have gradually moved from optional to standard features on most high-end vehicles. They are now making their way to all vehicle models. As automated systems assume more and more of the driver burden and take over increasing amounts of responsibility for the driving task, they require both more data and more processing power to augment the decisions that human drivers have made on their own. Sensors will take the place of human senses and artificial intelligence, it is thought, will substitute for human intelligence. This session gathered global experts on the subject to discuss their views on the progress and the prospects for vehicles that drive themselves.

Session 3 Panelists
Moderator: Roger Lanctot, *Director, Automotive Connected Mobility,* STRATEGY ANALYTICS
Holger Weiss, *Founder & CEO,* GERMAN AUTOLABS
Nils Lenke, *Senior Director, Innovation Management,* CERENCE INC.
Alain Kornhauser, *Professor,* PRINCETON UNIVERSITY
Bryn Balcombe, *Chief Strategy Officer,* ROBORACE
William Gouse, *Director, Federal Program Development, SAE* INTERNATIONAL
Juan Jose Arriola Ballesteros, *EC DG CNECT*

Roger set ambitious goals for the session, to address the questions of where this transition is today and what progress will need to be made in the coming years in order to deliver on the expectations for driverless vehicles? I have found it difficult to write about this session because it was very free flowing. The panelists were given the floor and they used it to deliver their particular message. Bill Gouse of SAE feels there is a limit to what commercial vehicles without drivers can do since driving is only one of the many tasks that they perform. Those who had skin in the automated automotive game, like Holger Weiss, Nils Lenke and Bryn Balcombe, talked about the incremental progress they were making on getting the vehicles to take over more and more of the driving tasks.

Roger Lanctot and two members of his panel, Nils Lenke and William Gouse, are joined on stage by Bilel Jamoussi sitting on Roger's right.

One of the participants asked the question I normally ask: Why are we even thinking about eliminating drivers? Alain Kornhauser has the best answer to this question and he gave it. Lots of people need to get to places that public transit doesn't go to, and many of them don't own cars because they can't afford to buy them or to run them, or they are too old, too infirm or for some other reason incapable of driving them. The cost of a taxi is prohibitive because you are paying for someone to drive it and these drivers have to make a living wage. In other words, we shouldn't be trying to help Uber finally turn a profit. We should be delivering mobility to people who don't have it. And, returning to the AI topic, if cars are going to drive themselves, they need to be a lot smarter than they are in order to do it well enough to replace humans.

UNECE Activities

François Guichard, Secretary of the WP.29 Working Party on Automated/Autonomous and Connected Vehicles (GRVA), gave a [Status Report](#) on WP.29 activities related to automated and connected vehicles. The key takeaway from François's presentation is that a Framework Agreement was adopted in June 2019 that is guiding the work of the Working Party. According to the Agreement, the level of safety to be ensured by automated vehicles "shall not cause any non-tolerable risk, and automated vehicles, under their Operational Design Domain (ODD), shall not cause any traffic accidents resulting in injury or death that are reasonably foreseeable and preventable."

The next steps for GRVA are to develop functional requirements for automated vehicles, prepare validation methods for automated driving, design a data storage system for automated driving vehicles, and work on cybersecurity and over-the-air software updates. The presentation gave more detail on where the Working Party is today on the requirements for automated vehicles.

Francois Guichard
UNECE

Session 4: Connected and Automated Vehicles

Today, all vehicle manufacturers offer cellular connectivity in their vehicles, either as standard equipment or as an option. Safety applications for vehicles, such as emergency call, are appearing, as is the ability to connect to Internet information and entertainment. Communication between vehicles, to and from roadside infrastructure, is also appearing. What will be future evolution of transport as 5G is rolled out?

Connected functionality and automated capability for vehicles are gradually growing together, but they still remain separate and distinct. These two terms are also grouped together in EU-speak with 'cooperative' driving. This session on connected and automated vehicles would, under normal circumstances, have gathered on stage seven or eight experts in all of these areas for a real, live—and often heated—discussion about the different approaches to delivering on the promises that have been made for the past thirty-or-so years. The session's moderator, Russ Shields, has been there from the start and remains on top of the business, policy and technical components while taking part in the standards work needed to ensure that solutions can be implemented on a global scale.

Session 4 Panelists
Moderator: T. Russell Shields, RoadDB LLC.
David Wong, Senior Technology and Innovation Manager, SMMT
Remi Bastien, RENAULT.
Martin Böhm, Head of Unit "Mobility Systems and ITS Deployment, AUSTRIA TECH
Niels Peter Skov Andersen, ETSI TC ITS Chair
Eduardo Valencia, Director of #Vehicles7yfn Think Tank, AMETIC,

David Wong said that the main focus among the UK's automotive industry is on the increasing availability of ADAS features in vehicles. The concern among SMMT's more than 800 members is the media coverage driving automation is receiving. They do not expect to see any fully driverless vehicles for a few decades. Concerning connectivity, the automotive industry in the UK is solidly behind the cellular option. Renault's Remi Bastien gave us a view of Renault's vision for its connected and automated vehicles. In his view, 5G provides the main components that are necessary for remote driving with low latency and high reliability.

Then the topic shifted to one that we probably all hope one day will be put to rest once and for all: V2X communications. Martin Böhm from the newly renamed AUSTRIAN FEDERAL INSTITUTE OF CLIMATE ACTION, ENVIRONMENT, ENERGY, MOBILITY, INNOVATION AND TECHNOLOGY, formerly known as the *Austrian Ministry of Transport*, stated simply that Austria and all the other sixteen national road authority members of C-ROADS are committed to rolling out C-ITS.[C] He said that in spite of the fact that the European Parliament had rejected the European Commission's proposal on the *Delegated Act on C-ITS*, which specified ITS-G5 as the designated solution for the EU's V2X solution, stating that "cooperative intelligent transport systems ecosystem should neither be limited by technology nor place Europe and mobile and automotive companies at a clear disadvantage to other regions of the world", C-ROADS members were pushing ahead with their proposed ITS-G5 solutions.

Discussions about communications between a vehicle and other vehicles (V2V) and between a vehicle and information sources (V2X) most often focuses on technology. Is it cellular-based or is it 802.11p/Wi-Fi-based? We seem to feel more comfortable with taking sides when we can identify with something concrete, like *PC* versus *Macintosh* or *Android* versus *iOS*. Nils said that ETSI in its standardization for V2X has made the access layer technology-agnostic (*ETSI EN 302 663 V1.2.0 – 2012-11*). The access layer comprises the bottom two layers—physical and data link—in the protocol stack for supporting the V2V communications in an ad hoc network used at the 5.9 GHz frequency band allocated in Europe. However, since the physical layer has dependency on the frequency band, it is not technology neutral.

Technology talk misses the point. When we sift out all of the secondary and tertiary issues related to vehicle communications, we

C. C-ROADS is a group established in 2016 by the European Commission comprised of national road authorities with the objective of deploying interoperable C-ITS services across the EU.

C-ITS (Cooperative Intelligent Transport Systems) refers to transport systems, where the cooperation between two or more ITS sub-systems (personal, vehicle, roadside and central) enables and provides an ITS service that offers better quality and an enhanced service level, compared to the same ITS service provided by only one of the ITS sub-systems. C-ITS deployment plans on cooperative V2X (C-V2X) short-range communications that performs everywhere at any time via local ad-hoc networks in the 5.9 GHz band. Cooperative V2X (C-V2X) uses the European standard ETSI ITS-G5 which is based on the US market IEEE 802.11p WLAN standard designed for automotive applications.

are left with one important question that impacts all other considerations: <u>Shall governments be in the position of directly receiving data from and sending data to vehicles, or should that role be taken by the private sector?</u>

If you believe it is the government's role to be the communicator and the receptor, you look for technical solutions that reinforce that position. The European eCall in-band modem, 112 phone call solution was a result of the European Commission setting requirements that an eCall had to go directly to the public safety answering points and it had to be free. ITS-G5 in Europe and WAVE in the U.S. provide the 'free' communications between vehicles and with roadside units. While the airtime may be free, the governments will have to pay to install and connect the roadside units to their traffic management centers so that they can control the messaging.

This is not how the private sector sees it, and it is not how all the governments view the situation. The U.S. has said it will not be paying to have installed roadside unit technology. In-road loops for measuring traffic flow were outdated as soon as floating car data began to be collected via cellular telecommunications, and WAZE is now a data source for many government agencies.

It can be frustrating to listen to discussions about ITS-G5 versus C-V2X if you understand the technology limitations of the Wi-Fi-based solution and appreciate how C-V2X can be implemented now with all of the advantages of both short-range and wide-range communication and a path to 5G. Russ said that he was an early supporter of the 802.11p approach, but at one point he understood that it was a technical dead end. One might wonder how an engineer can refuse to accept the facts and hold on to an outdated technology? He can if he works for a government authority that wants to be in the data receiving and sending business. That engineer and his employer has different motives than those of an engineer who works for a telecommunications company or a car company. With the European Commission promoting the case of the governments that want to be the controllers, it is difficult to see how Europe will avoid having parallel systems. Maybe we should just accept that and move on.
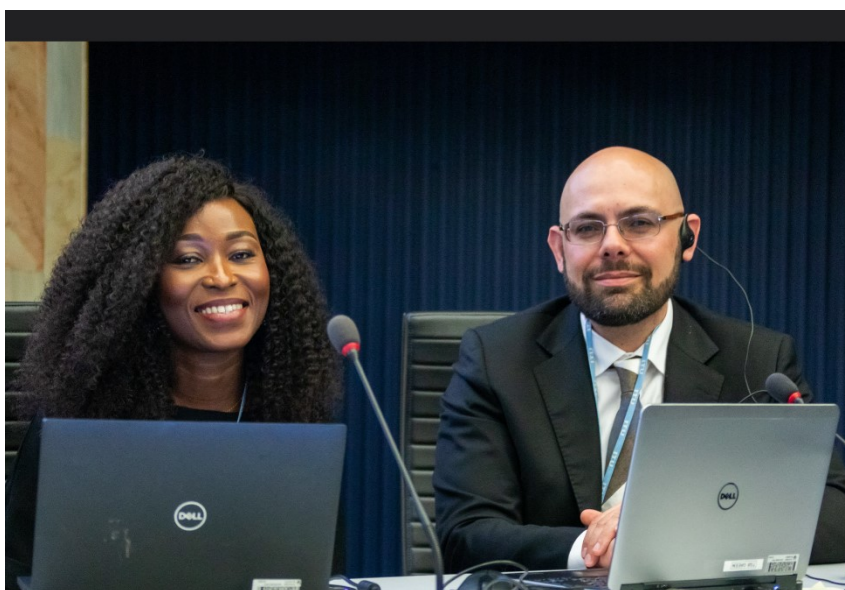
Next year I believe we will be ready to hear more about what the different communications channels are carrying and how vehicles talking to each other and to other road users is improving life on the road for everyone.

Closing Remarks

Ten days after the Symposium was held, countries began closing their borders, planes stopped flying, country leaders were warning their citizens to avoid all types of gatherings, schools, stores and restaurants were being closed. Officials were telling everyone to stay off public transit and to basically put themselves into self quarantine until the danger of spreading the virus passes. FNC2020 made it just under the wire. Ten days later and we all would have been taking part remotely.

If you didn't make it to Geneva this year for FNC2020, or if you did not listen in on the webinar, I recommend that you plan on taking part in FNC2021. Hopefully, there will not be any reasons why travel will be restricted as it was this year. It's more fun and much more productive to be there in person so that you can interact with the other participants and take an active part in the discussions as well as the socializing events. Tuning in to the webinar is still a good alternative if, for any number of reasons, you cannot make the trip to Geneva.

Whether FNC2021 is held in conjunction with the Geneva International Motor Show next year is an open question.[G] Holding it at the same time as the WP.29 meetings at ITU seems to be more important than having it co-located with GIMS, even though it's a real treat to walk the halls and see the new models. Virtual motor shows, like virtual conferences, are not my first choice. We shall just have to see what the future holds for us.

✠

G. What happens with GIMS and all of the other motor shows is any one's guess. (See my thoughts on this in the November 2019 issue of *THE DISPATCHER*.)


Gifty Amoah, ITU TSB Events Team, and Stefano Polidori, ITU Adviser in charge of the Future Networked Car symposiums, managed to pull it all together again and provide us with a great opportunity to meet and learn from each other.

About Michael L. Sena

Michael Sena, through his writing, speaking and client work, attempts to bring clarity to an often opaque world of vehicle telematics. He has not just studied the technologies and analyzed the services, he has developed and implemented them. He has shaped visions and followed through to delivering them. What drives him—why he does what he does—is his desire to move the industry forward: to see accident statistics fall because of safety improvements related to advanced driver assistance systems; to see congestion on all roads reduced because of better traffic information and improved route selection; to see global emissions from transport eliminated because of designing the most fuel efficient vehicles.

This newsletter touches on the principal themes of the industry, highlighting what, how and why developments are occurring so that you can develop your own strategies for the future.
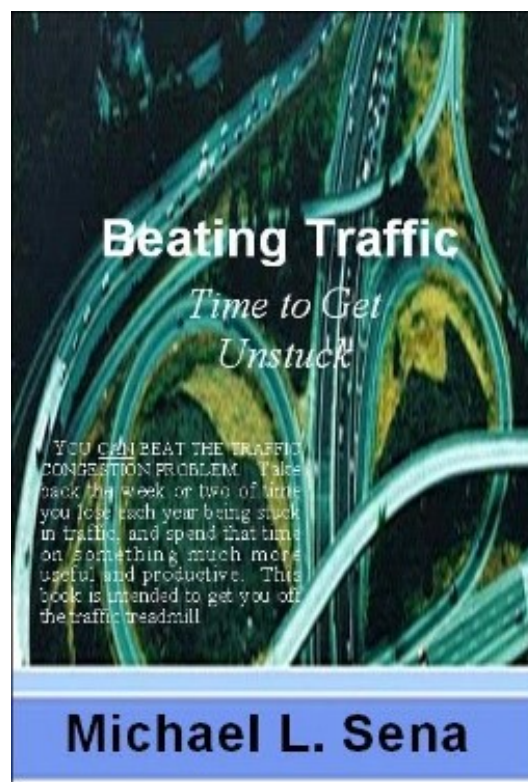
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