# CAR 2 CAR
## COMMUNICATION CONSORTIUM

## In the 16th Issue

## CAR 2 CAR partners setting the course for C-ITS deployment in the European market

*by Sonja Eickmann, CAR 2 CAR Communication Consortium*

*For the CAR 2 CAR Communication Consortium, 2016 will be a very decisive year in setting the course for C-ITS deployment in the European market. The CAR 2 CAR partners express their unabated strong intention to jointly deploy V2X communication systems and services earliest possible. As stated in a press release published by end of 2015 which you will find on page 2 of this newsletter, the Consortium even intensifies the work on open issues which need to be solved until serial production can start. It furthermore tries to take influence on external factors which led to a modification of the original deployment time frame.*

*With the present issue of the CAR 2 CAR Newsletter, we invite you to prospect to the activities the Consortium takes up for meeting these goals. Most prominent, the CAR 2 CAR partners and working groups will develop a Masterplan which clearly addresses open deployment issues, and defines a step-by-step work and time frame for developing corresponding solutions, in discussion with external C-ITS stakeholders. Active contribution from all members of the CAR 2 CAR Communication Consortium is essential for reaching the goals. The CAR 2 CAR working groups pay tribute to the most urgent work steps by itemising their task forces and sub-working groups. A current overview is included in this newsletter. If you're encouraged to provide your expertise to one of the work items, please do not hesitate to contact the Administrators at ITS automotive nord to be included in the working group mailing lists.*

*The professionalised change and release management of the CAR 2 CAR Communication Consortium is an inevitable tool for the development of documents guiding C-ITS deployment for its members. The responsible team at Carmeq uses the current newsletter to inform all members about the state of play in the document release.*

*A very important activity for pushing C-ITS deployment with regard to Compliance Assessment is the first C2C-CC-TestFest which is hosted by IAV GmbH in Gifhorn in April 2016. You will find an announcement of this TestFest on page 9.*

*For easing the explanation of C-ITS use cases and as support for the CAR 2 CAR applications road map, the Consortium has secured a*

power-point tool kit to establish traffic scenarios and visualise the benefits of different C-ITS applications. You will find an explanation of how the tool kit works and how it will be made available to all active CAR 2 CAR members on page 11.

As it is good practice, we additionally use the newsletter to welcome our new CAR 2 CAR members, and to take a look back at our CAR 2 CAR Forum 2015 which took place in the very pleasant atmosphere of the Kurfürstliches Schloss in Mainz, Germany. Moreover, the UK AutoDrive introduces itself, a large consortium which aims at trailing automated vehicle technology, and herewith responds to the UK government's competition for R&D projects to introduce driverless cars to UK roads.

We additionally provide you with latest news of the Amsterdam Group which will host a Special Interest Session at the ITS European Congress in Glasgow. Furthermore, it will organise the second "C-ITS deployment is Underway!" workshop together with the Coordination & Support Action CODECS on 26th April 2016 in Amsterdam. The workshop sets the stage for progress reports by corridor projects and deployment pilots, similar to its first edition in September 2015 in Rosklide.

We wish you a pleasant reading!

## European vehicle manufacturers work towards bringing Vehicle-to-X Communication onto European roads

*by the CAR 2 CAR Communication Consortium*

**The 16 vehicle manufacturers organised in the CAR 2 CAR Communication Consortium adhere to their agreement to jointly bring cooperative Intelligent Transport Systems and Services to the European market. In discussion with international stakeholders, the Consortium addresses open issues for the earliest possible production and deployment of Vehicle-to-X communication systems based on the European and US market standards: ETSI ITS-G5 and IEEE 802.11p (WLANp), respectively. Intelligent Transport Systems and Services will make traffic and transport safer, more sustainable and more comfortable in the near future.**

Wireless communications between vehicles, traffic infrastructure and service providers, summarised by the acronym V2X, is an integral part of future mobility. With the Memorandum of Understanding, signed in 2012, the leading European vehicle manufacturers organised as the CAR 2 CAR Communication Consortium have expressed their intention to jointly bring these Cooperative Intelligent Transport Systems and Services (C-ITS) onto European Roads. While the Consortium working groups have concentrated all efforts on meeting this ambitious goal, external factors have resulted in modifications to the planned framework in order to ensure a timely deployment.

General Manager of the CAR 2 CAR Communication Consortium, Niels Peter Skov Andersen explains "The CAR 2 CAR members have analysed issues that urgently need to be addressed before serial deployment can start". The Consortium members are now heavily engaged in finding solutions for these open issues in order to adhere to the impending C-ITS market introduction. Working under the assumption that the open issues can be resolved with all the required standards in place by 2016, initial deployment of cooperative vehicles could begin as soon as 2019.

The allocation of the 5.9 GHz spectrum for safety-relevant Vehicle-to-Vehicle (V2V) and Vehicle-to-Infrastructure (V2I) communications in 2008, standardised as ITS-G5 communication, has primarily been driven by the CAR 2 CAR Communication Consortium. Following on from this, one of the most significant work streams undertaken by the Consortium members has involved working to guarantee that the introduction of V2X communications within the assigned frequency band will not interfere with road tolling using an adjacent frequency. Another substantial task in this field is studies of proposals for allowing WiFi to share the 5.9 GHz band with V2X communications. Substantial efforts are put in to this study, as stated by Andersen "this might have an influence on future vehicle safety".

Further to the above, the Consortium has identified aspects of the system standardisation that could cause additional issues and delays with the deployment of the technology. Firstly, security and privacy policies that have already been completed in terms of the European Commission Mandate M/453 may need to be modified in order to compensate for the additional requirements of the infrastructure and national stakeholders. Andersen explains that "The spectrum and security issues might influence the current hardware design, which was developed in a harmonised way to cover both the European and US markets". Secondly, some infrastructure related standards, planned to be developed within the Mandate M/453 are still not yet in place.

The CAR 2 CAR Communication Consortium members are in interactive discussions with stakeholders in national initiatives (e.g. BSI, ANSSI, VDA) and on an European level highlighted the open issues in the C-ITS Deployment Platform of the European Commission. Furthermore, international initiatives (e.g. with CAMP) have been initiated in order to develop harmonised solutions. In addition to the continuous support for the Standards Setting Organisations, a significant level of work has been completed concerning compliance assessment and testing of C-ITS to guarantee European-wide interoperability.

### Background: Clear focus on ITS-G5

The CAR 2 CAR Communication Consortium focuses on wireless Vehicle-to-Vehicle (V2V) and Vehicle-to-Infrastructure (V2I) communication based on the ITS-G5 standard. The ITS-G5 communication standards enable vehicles and roadside ITS stations to cooperate and locally share information amongst each other in an ad-hoc network. On this basis, cooperative systems inform the driver about current traffic conditions and provide immediate warnings regarding potential dangers relevant for the individual vehicle and driving route. These so-called Cooperative Intelligent Transport Systems and Services (C-ITS) provide forewarning and therefore contribute to enhanced traffic safety, efficiency and driving comfort. Situations where drivers significantly benefit from this support are, for example, when they approach the end of a traffic jam, if road works block their route or if a vehicle in front of them suddenly undertakes harsh braking.

For these purposes, a low-latency point-to-multi-point broadcast is used to transmit information via standardised message sets to the ITS stations of cooperative vehicles and road infrastructure units present in the vicinity (a communication range of approximately 300 to 500 metres.

As the local broadcast with low latency does not require installed infrastructure, the cooperative ITS-G5 system is well designed for safety-related applications. Compared to point-to-point communication, ITS-G5 provides important features such as locally self-organising ad-hoc networks, free data transmission and infrastructure robustness. For communication processes in a wider area, other types of communication networks may provide other advantages.

The standardisation of ITS-G5 focuses on the transmission and sender side, meaning that message sets and triggering conditions are well defined. However, to stimulate competition, freedom is left to the implementers of C-ITS applications to design innovative and well-functioning applications using the received information, potentially in combination with other inputs (e.g. from on-board sensors). No guidelines are specified on how the information received needs to be used and whether this is complemented by other information.

### About the CAR 2 CAR Communication Consortium

Enhancing road safety and traffic efficiency by means of Cooperative Intelligent Transport Systems and Services (C-ITS) – is the dedicated goal of the CAR 2 CAR Communication Consortium. The industrial driven, non-commercial association was founded in 2002 by vehicle manufacturers affiliated with the idea of cooperative road traffic with Vehicle-to-Vehicle Communications (V2V) supported by Vehicle-to-Infrastructure Communications (V2I). Today, the Consortium comprises 80 members, with 16 vehicle manufacturers, 36 equipment suppliers and 28 research organisations.

Over the years, the CAR 2 CAR Communication Consortium has evolved to be one of the key players in preparing the initial deployment of C-ITS in Europe and the subsequent innovation phases. CAR 2 CAR members focus on wireless V2V communication applications based on ITS-G5 and concentrate all efforts on creating standards to ensure the interoperability of cooperative systems, spanning all vehicle classes across borders and brands. As a key contributor, the CAR 2 CAR Communication Consortium works in close cooperation with the European and international standardisation organisations such as ETSI and CEN.

## New CAR 2 CAR Members

by Sonja Eickmann, CAR 2 CAR Communication Consortium

### KTM AG

**Type of Member:** Partner of the C2C-CC
**Type of Business:** The KTM AG develops and produces READY TO RACE offroad and street motorcycles for the core international markets. The registered office is located in Mattighofen, Austria. The biggest European sportmotorcycle manufacturer uses racing as demanding environment to test and evaluate the latest developments in the field of materials and engineering, and directly incorporates the findings into series production.

### Huawei Technologies Co., Ltd.

**Type of Member:** Associate Member of the C2C-CC
**Type of Business:** Huawei is a leading global information and communications technology (ICT) solutions and services provider. Huawei offers customer-centric innovations for carrier networks, enterprise, consumer, and cloud computing fields. Huawei's telecom network equipment, IT products, solutions and smart devices are deployed in more than 140 countries worldwide.

### Kapsch TrafficCom AG

**Type of Member:** Associate Member of the C2C-CC
**Type of Business:** Kapsch TrafficCom is a provider of intelligent transport systems in the application fields of road user charging, urban access and parking, road safety enforcement, commercial vehicle operations, electronic vehicle registration, traffic management and V2X cooperative systems. Headquartered in Vienna, Austria, the Kapsch TrafficCom Group comprises subsidiaries and representative offices in 33 countries.

## New CAR 2 CAR Members
*by Sonja Eickmann, CAR 2 CAR Communication Consortium*

### PaulsConsultancy BV

**Type of Member:** Associate Member of the C2C-CC
**Type of Business:** PaulsConsultancy BV provides innovation-enabling services. Increased value proposition, technology innovation and bringing technologies and products with focus on Mobile, Car-Entertainment/Safety and Music Entertainment to market. Paul Spaanderman is an active member of the ITS community and member of the European Commission ITS-Platform and Dutch authorities Standardisation Table. He is active in ITS standardisation as Vice Chair at ETSI TC ITS (WG1-WG3), specialist at CEN/ISO and coordinates the spectrum alignment among EU-USA Car stakeholders.

### Savari Inc.

**Type of Member:** Associate Member of the C2C-CC
**Type of Business:** Savari seeks to make the world's roadways smarter and safer by deploying advanced wireless sensor technologies and software for V2X environments to support a growing portfolio of intelligent transportation services. With more than 150 man-years of V2X learning and development and 15 million-plus miles per year of public testing, Savari is a leader in V2X technology. Savari is headquartered in Silicon Valley and has offices in Detroit, South Korea, India and in Europe and China starting from Q1 2016.

## CAR 2 CAR Forum 2015: Scoping out progress towards initial C-ITS deployment and beyond
*by Sonja Eickmann, CAR 2 CAR Communication Consortium*

The alignment of the automotive industry towards near-termed deployment of cooperative systems and services stood as well in the focus of the 9th CAR 2 CAR Forum which took place on 3rd and 4th November 2015 in Mainz, Germany. This plenary meeting of all active and basic CAR 2 CAR members has been hosted by the partner Hyundai in the very pleasant ambience of the Kurfürstliches Schloss, the Electoral Palace being centrally located at the bank of the Rhine.

Again about 200 members of the Consortium have attended the CAR 2 CAR Forum, and also the exhibition has been very popular with 17 members presenting their products, projects and latest developments in the field of V2X-communication to the expert audience. As it is good practice, on the first day of the annual conference, the

Consortium gave the floor to guest speakers from C-ITS pilot projects and authorities to scope out the progress towards initial C-ITS deployment. Beneath them, the work status of the C-ITS deployment platform initialised by the European Commission has as well been presented as the progress of the Amsterdam Group,

Carsten Schaudel welcomed the Forum attendees on behalf of the host Hyundai.

The Kursfürstliches Schloss in Mainz provided the CAR 2 CAR members with a very pleasant atmosphere for the CAR 2 CAR Forum 2015.

and the current developments towards V2X deployment in the United States. On behalf of the ongoing European deployment initiatives, SCOOP@F and the City of Helmond, one of the COMPASS4D pilot sites, gave a report on the experiences in preparing and operating V2X services. With regard to the protection of vulnerable road users through C-ITS, the CAR 2 CAR working group Application has set up a specific sub-working-group on Powered Two-Wheelers (PTW). It is initiated by the motorcycle manufacturers among the CAR 2 CAR partners, being Yamaha, BMW, Honda and KTM, who introduced the new working group and its objectives to the attendees. Furthermore, the C2C-CC working group Deployment expounded how the C2C-CC gears to imminent deployment, and which key focus areas it works on to realise a near-termed C-ITS implementation. The vision for deployment beyond Day One was presented from the perspective of the automotive industry as well as of a road authority, Rijskwaterstaat from the Netherlands, and completed by a specific plenary session focussing on the contribution of C-ITS to cooperative and automated driving.

For the evening reception, the CAR 2 CAR Communication Consortium welcomed the Forum attendees in the historical hall of the Kurfürstliches Schloss, with intensive networking opportunities accompanied by a dinner. The second Forum's Day was dedicated – good practice as well – to the status reports of the CAR 2 CAR working groups. In terms of the most urgent open deployment issues, the chairs and sub-chairs of the working groups Deployment, Security and Compliance Assessment provided the attendees with the activities performed in the year 2015 drawing to a close, and the planning for the oncoming year 2016. The Forum was closed by a prospect to future C-ITS services, namely platooning, connected adaptive cruise control, and the potential of ITS technologies to provide cooperative services protecting vulnerable road users.

All presentations shown during the CAR 2 CAR Forum as well as a picture gallery of the event are provided in the secured area of the CAR 2 CAR Website. The CAR 2 CAR Forum 2016 will be hosted by Jaguar Land Rover and take place in Gaydon, United Kingdom. You will be provided with a SAVE THE DATE via the CAR 2 CAR mailing list as soon as possible.



Again about 200 active and basic members joined the annual meeting of the CAR 2 CAR Communication Consortium, for pursing the status reports of the CAR 2 CAR working groups and the insights into initial C-ITS deployment and beyond provided by guests speakers.



Niels Peter Skov Andersen, General Manager of the CAR 2 CAR Communication Consortium, gave the official introduction into the CAR 2 CAR Forum 2015 and moderated the plenary sessions.



Wolfgang Hoefs from the European Commission DG CONNECT presented the EC's actions to support the transition towards cooperative and automated driving, through policy support as well as research and innovation funding.
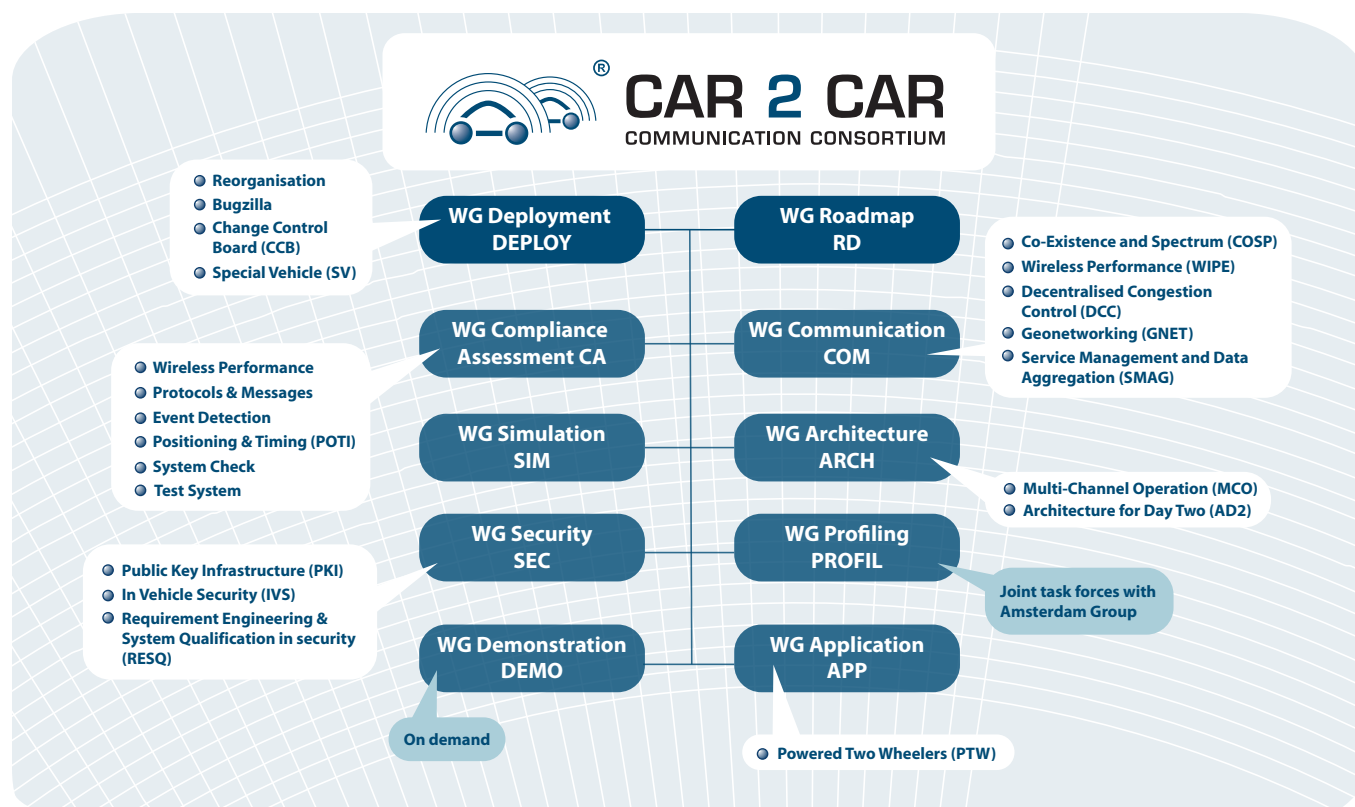


17 CAR 2 CAR members participated in the exhibition related to the CAR 2 CAR Forum, offering to present products, projects and latest developments in the field of V2X-communication.

## CAR 2 CAR working groups itemise to address most urgent deployment issues

*by Sonja Eickmann, CAR 2 CAR Communication Consortium*



The two-track working group architecture of the CAR 2 CAR Communication Consortium is in operation for more than a year now. The working group Deployment and the working group Roadmap are since that point in time placed on top-level of the WG-directory, and all other working groups contribute their expertise to both of them. The Consortium in this way has set-up an organisational structure supporting to work on initial Car2X deployment at Day One (WG DEPLOY) in parallel to defining later innovation phases, guiding research and standardisation and developing corresponding roadmaps (WG RD).

With regard to the most urgent and important open issues to foster Day One deployment, and to prepare innovation phases beyond Day One, the CAR 2 CAR working groups meanwhile have further itemised in sub-working groups and task froces. The above-mentioned graphic provides you with a compact overview on the structure, and visualises that especially the working groups Compliance Assessment, Communication, Security and Architecture have defined several sub-tasks.

For the **working group Compliance Assessment (CA)**, these are:

- Wireless Performance
- Protocols & Messages
- Event Detection
- Positioning & Timing (POTI)
- System Check
- Test System

For the **Working Group Security (SEC)**, still

- the Public Key Infrastructure (PKI)
- In-Vehicle Security (IVS) as well as

- Requirements Engineering & System Qualification on security (RESQ)

are the focused topics.

For the **Working Group Communication (COM)**, these are

- Co-Existence and Spectrum (COSP)
- Wireless Performance (WIPE)
- Decentralised Congestion Control (DCC)
- Geonetworking (GNET)
- Service Management and Data Aggregation (SMAG)

Working **Group Architecture (ARCH)** has set-up the sub-groups

- Multi-Channel Operation (MCO)
- Architecture for Day Two (AD2)

If you would like to contribute your expertise to one of the working groups, sub-working groups or task forces, and if you would like to get in contact to their chairs, please contact the Administrator of the Consortium at ITS automotive nord Karl-Oskar Proskawetz (karl-oskar.proskawetz@its-an.de). You will be provided with contact details, and added to the respective mailing lists.

As already introduced in the editorial, the CAR 2 CAR working groups are requested to provide their work items to the CAR 2 CAR Masterplan developed in 2016, which will guide the progress towards earliest possible deployment of V2X communication systems and services. The working groups therefore take up a more formal process of task definition, time planning and results monitoring by providing work item descriptions.

## Introduction of Document Development process for new documents

### C2C-CC completes the process landscape to manage new documents which will be released in 2016 the first time

*Thomas Biehle (CAR 2 CAR Communication Consortium, Volkswagen AG), Mario Friedrich (Release Management CAR 2 CAR Communication Consortium) and Dr. Marcel Wille (AUTOSAR project leader team, Volkswagen AG)*

CAR 2 CAR has achieved two major things in 2015: the processes for Change- and Release Management (CM, RM) have been established and the release has been done in time.

This has the effect that the work is focused on the release relevant documents strongly oriented on the release schedule. Furthermore, the specification development has become transparent to all CAR 2 CAR partners.

Therefore, the Change Management was the appropriate tool to achieve the targets of 2015. To enable the targets of 2016 the process landscape shall be enriched by the new document development process (see below for an introduction).

### The targets of 2016:

- The next release shall include additional new documents which are in line with the CAR 2 CAR CC release targets.
- Quality improvements for existing documents by introducing different requirement levels as well as a differentiation of requirement types e.g. hardware, system, software and parameters
- The new content shall be in sync with the already released documents as well as the new developed AUTOSAR specifications (based on the BSP).
- Specifications and test specifications are managed to keep them synchronous. This is a first step towards test coverage analysis.

This leads to a more sophisticated release planning (see figure 1). This planning has to take into account that there are three related products:

- The CAR 2 CAR specifications release 1.2.0 which consists of the BSP, Triggering Conditions plus the new documents, that will be released end of June 2016 (as a beta release) and end of November 2016 in a final version.
- The test specification release 1.0.0 which will correspond to the specification release 1.1.0 (of last Dec.). Release is planned for end of 2016.
- The AUTOSAR Classic Platform release 4.3.0 end of October 2016 which introduces a support for CAR 2 CAR communication in AUTOSAR-based ECUs and that aims to close the gap towards a complete Software specification

To meet the 2016 targets it is necessary to meet the important milestones, such as:

- "No new RfCs" (end of March and end of Sept. 2016): all RfCs which are stated after this date are not handled in the current release, but are automatically assigned to the next release.
- "Implementation done" (End of May and mid of Nov. 2016): All ITs are implemented and the documents can be finalized. Final formal corrections and the approval by the partners are following now.

These milestones are the basis for the management of the CM process towards the release. Now we would like to explain the new process and its phases which are founded on a quality maturity approach. ►next page
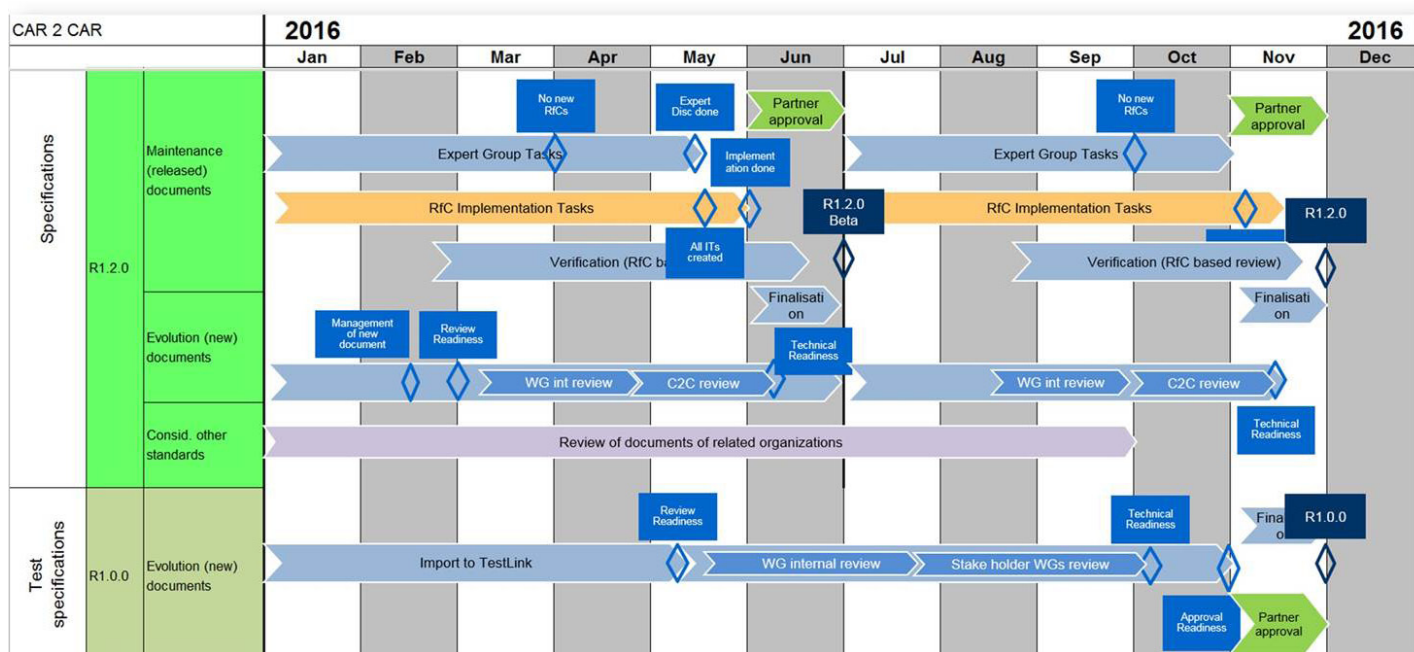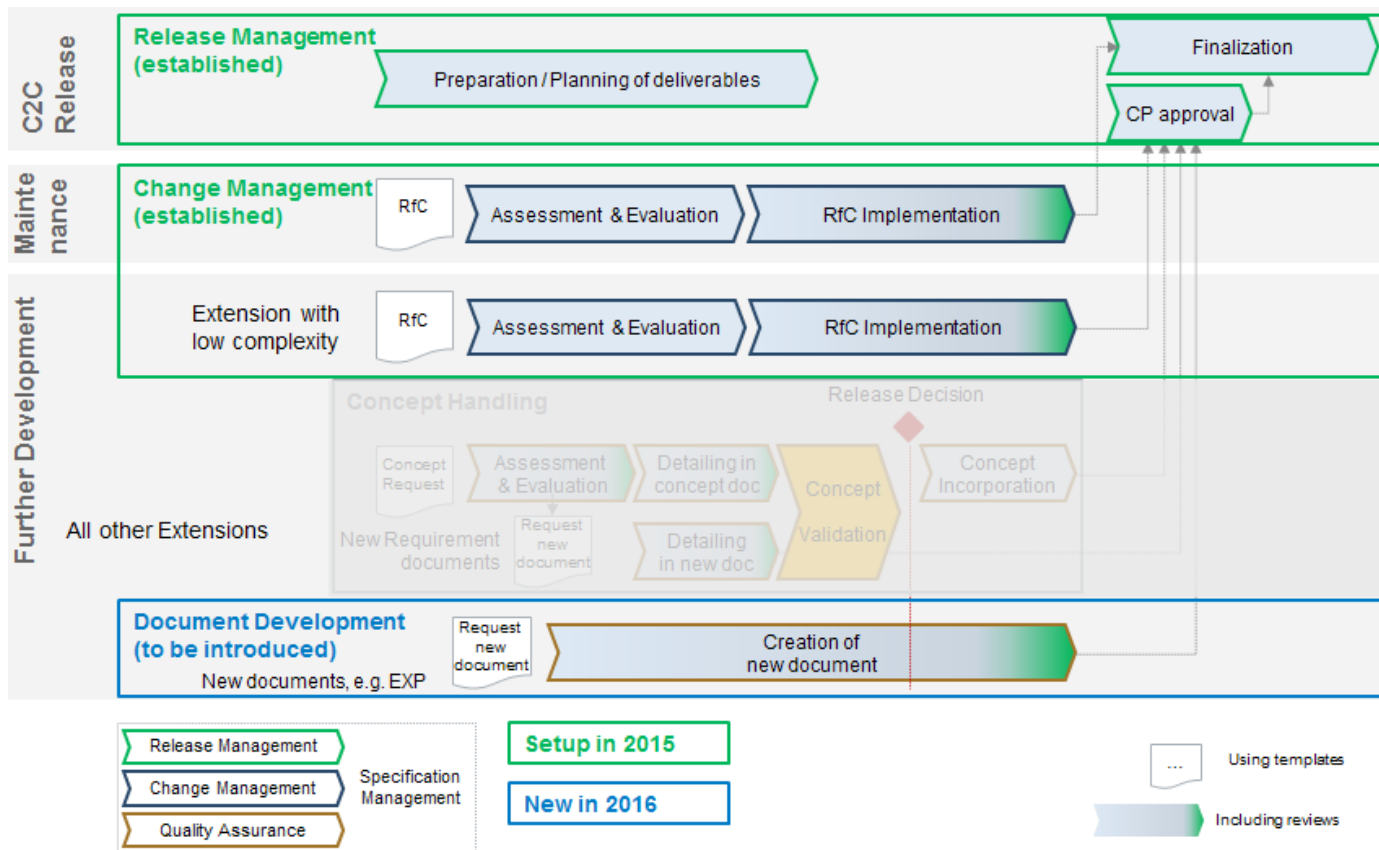


**Figure 1: Release plan 2016**

Figure 2: CAR 2 CAR Process coverage

*Figure 2 visualizes the CAR 2 CAR process landscape based on the process blueprints provided by AUTOSAR. The green framed process parts have been already established for maintaining existing documents. The blue framed one is the Document Development process which shall be introduced this year. This process is suited for the development of completely new documents, as it gives more freedom for creativeness. The process of writing or changing requirements is not "hindered" by the more restrictive Change Management process, where every change has to be agreed. Yet,*

*the quality and the transparency of the development in CAR 2 CAR are ensured through review cycles.*
*The whole process is managed by the CAR 2 CAR Quality Assurance (QA) in close cooperation with the document owner. The Quality Assurance can be reached via e-mail to qa@car-2-car.org (see also contact box).*
*As shown in figure 3 the process is divided into the following phases:*
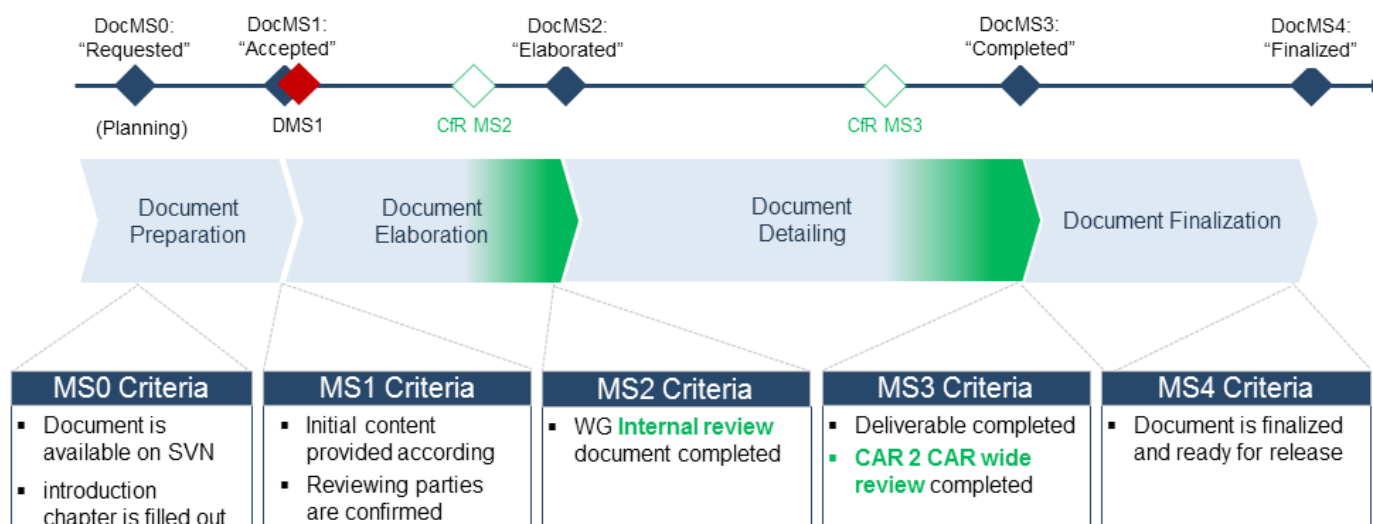
Figure 3: Document Development process

- **document preparation.** *In this phase the documents are made available on the SVN server, which is the prerequisite to have a document developed and reviewed in the CAR 2 CAR "community". When the document contains the introduction chapter, a time plan and the reviewer have been agreed with the Quality Assurance the Technical Committee (TC) is informed about the proposed new deliverable of CAR 2 CAR. The TC will review whether the content of the new deliverable fits to the CAR 2 CAR targets and decides about the further work. The decision milestone (DocDMS1) is then given.*

- **document elaboration** *until CfR MS2 (Call for review MS2), i.e. the Quality Assurance will call for review. During this phase and all following phases the review findings are reported as new issues into Bugzilla. Issues against new (evolution) documents are automatically of type "other" and not Requests for Change (RfC). By this different issue type it is ensured that they don't go through the CM process but are handled bi-literally by reporter and document owner. When QA performs the interview for DocMS2, all findings need to be closed. Then the milestone can be given by QA and the next phase*

- **document detailing** *can be entered. With the DocMS3 the technical document content has been completed.*
  *Note: The review for DocMS2 is a WG internal review which is followed by a CAR 2 CAR wide review at the end of the detailing phase (which involves additional WGs).*

- *the* **document finalization** *ensures that formal requirements on the documents are fulfilled such as: usage of correct template, formatting and document information like author and history.*

*Having the right process at hand and the release plan agreed, will enable the CAR 2 CAR experts to work effectively with sustainable results.*

*"We are looking forward to a growing and improving CAR 2 CAR Specification!"*

*Please get into contact with us in case of any questions!*

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## C2C CC-Application and System Level Testfest
### by Sebastian Bode, IAV GmbH

On behalf of the working group Compliance Assessment, IAV is hosting the first Testfest event with a focus on system and application test case validation on a vehicle basis. The event will take place from April 11th to 15th at IAV's development center located at Rockwellstraße 16, 38518 Gifhorn, Germany.

The test cases and test system will be validated with communication devices and vehicles from different manufacturers as well as testing software and equipment providers that are actively contributing to the C2C- CC working groups. There are currently more than 10 companies involved in the event presenting a solid base for the intended validation purpose. ▶next page



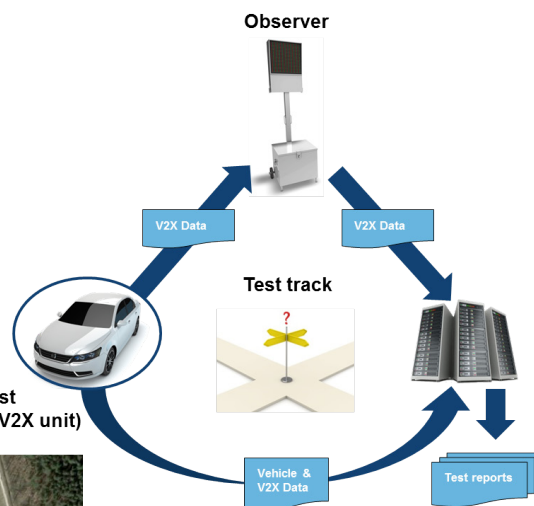**Figure 1: Test rack at IAV's Gifhorn facilities which will be used during the Testfest.**



**Figure 2: Overview of the test system setup**

A gateway approach enables us to support multiple communication devices and different vehicle platforms without having to change or adapt the data evaluation logic reducing testing efforts for all parties.

The test system records all relevant data from vehicle busses as well as transmitted ITS G5 communication messages using industry proven data logging technology. The data is stored in the IAV Measurement Data Platform, which can be considered as a measurement data private cloud capable of storing Petabytes of raw data and a data management application. All further data evaluation is performed automatically in order to generate test result reports directly after each test has been conducted.

Furthermore, each test case is implemented prior to the actual event using IAV's software in the loop testing tool IAV Scene Suite in order to ensure a smooth and successful Testfest.

A preliminary schedule for the event and further information regarding venue and hotel recommendations will be sent out to the participants and interested parties at about 18th March.

IAV likes to thank all contributors which have supported our efforts in the event preparation until now and is looking forward to a great event taking Compliance Assessment efforts one step further to a finalized application and system level certification and the C2C community one step closer to a successful market introduction.
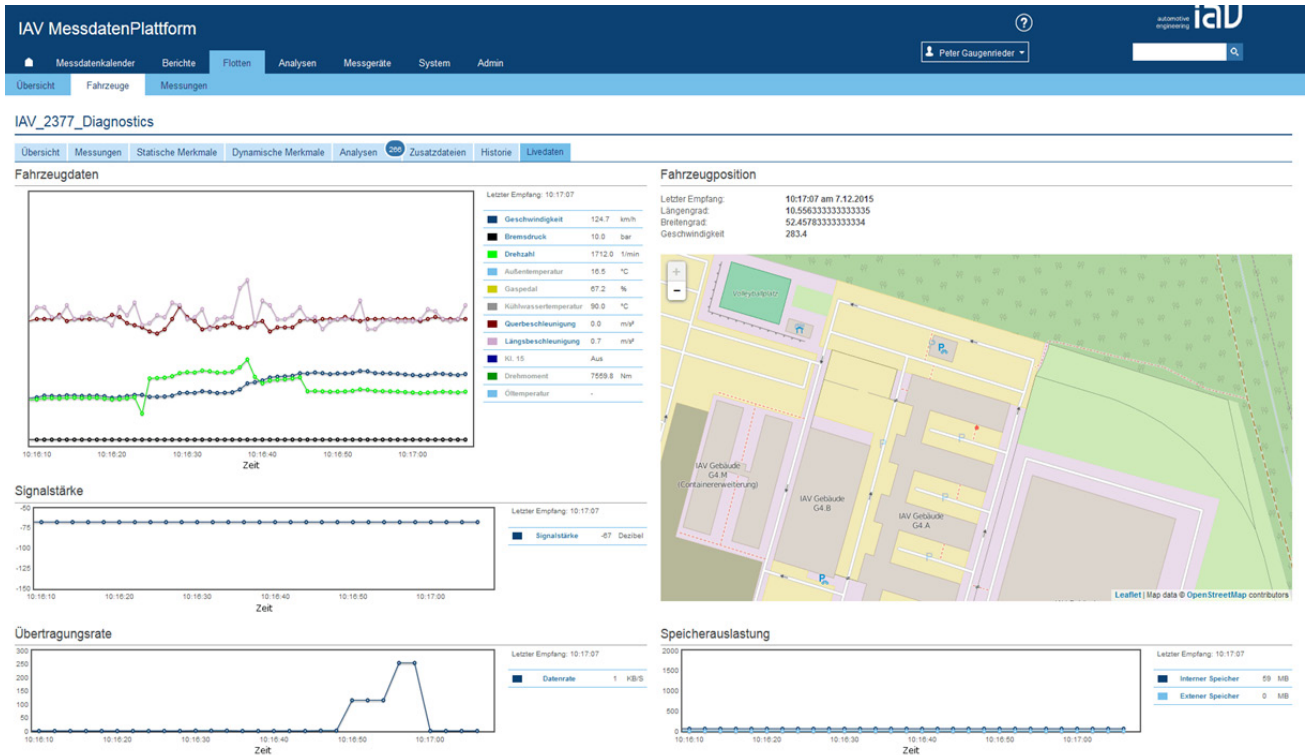


**Figure 3: Live data view of the IAV Measurement Data Platform used for live validation during the test execution**
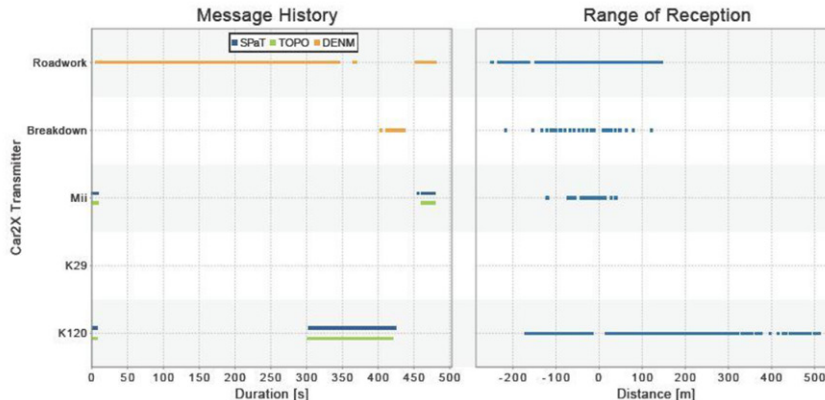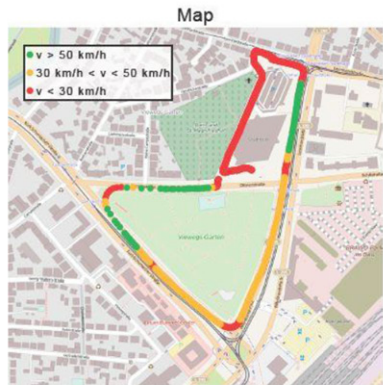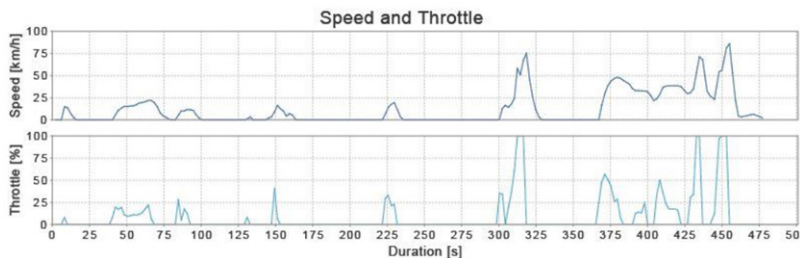


**Figure 4: Example report generated from captured vehicle and V2X data**

# Use case illustration tool kit available for all active CAR 2 CAR members

*by Sonja Eickmann, CAR 2 CAR Communication Consortium*

The mechanisms of C-ITS as well as the benefits they provide to traffic participants are a complex matter not always explicable in one sentence. To ease the explanation of traffic safety and efficiency services provided through V2X communication, as well as to support a common understanding of use case details, the CAR 2 CAR Communication Consortium has secured a power-point illustration tool-kit.

It can be used by all active CAR 2 CAR members for presentation purposes in and on behalf of the Consortium. Specifically, it shall support the presentation of Day One and future C-ITS use cases being part of the C2C-CC roadmap established by the working group Roadmap. These complex graphics will be created during 2016 in close collaboration of the working groups and the Consortium's Administrators at ITS automotive nord.

As the pictures on this page show, the tool-kit allows to establish traffic scenarios of varying complexity, either from a top-view or as perspective illustration. The tool-kit contains overall about 600 graphical elements, for example

- vehicles: cars, busses, trucks, trailer, road works warning trailer
- pedestrians, pedestrian way, cross-walk
- cyclists, bike way, bike boxes (waiting area for cyclists at traffic lights)
- traffic lights with different signal phases
- bus stop
- traffic signs
- arrows visualising communication between vehicles
- lines, curves, intersections and side stripes of a 2-3, and 4-lanes road, Lane marking
- road hole, sand heap, pylons
- motorway entrance & exit ramp
- roundabout
- road works

and many more.

For establishing a traffic scenario, the particular graphical elements have to be put together like a puzzle. As they are provided in power-point, neither special software nor design expertise is needed by the users.

The raw data – power points slides with the graphical elements, thematically sorted – will be made available to all active CAR 2 CAR members in the Collaboration Area in the oncoming month. The administrators at ITS automotive nord are currently processing the raw data to make them easy-to-use. You will be informed via email when and where the toolkit is available, together with some practical instruction of how the tool-kit can be used.

If you miss any graphical elements in the tool-kit for illustrating a traffic scenario and a C-ITS use case – e. g. for the moment, no railway vehicles are included – please do not hesitate to contact ITS automotive nord, Sonja Eickmann (sonja.eickmann@its-an.de). The tool-kit might be extended step-by-step.

If you use the graphics established with the tool-kit for presentation purposes outside the Consortium, the CAR 2 CAR Communication Consortium has to be mentioned as image source.
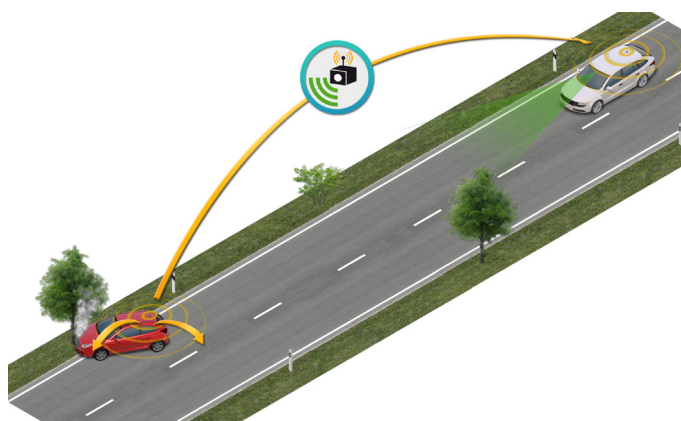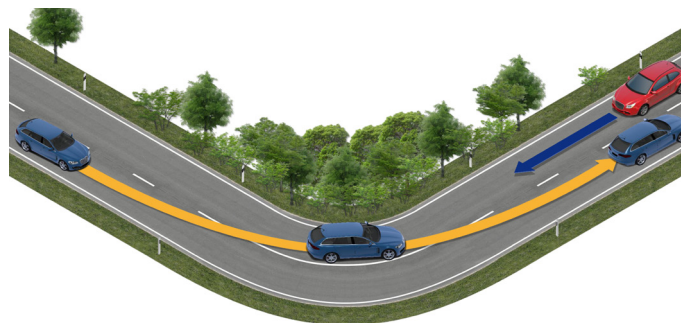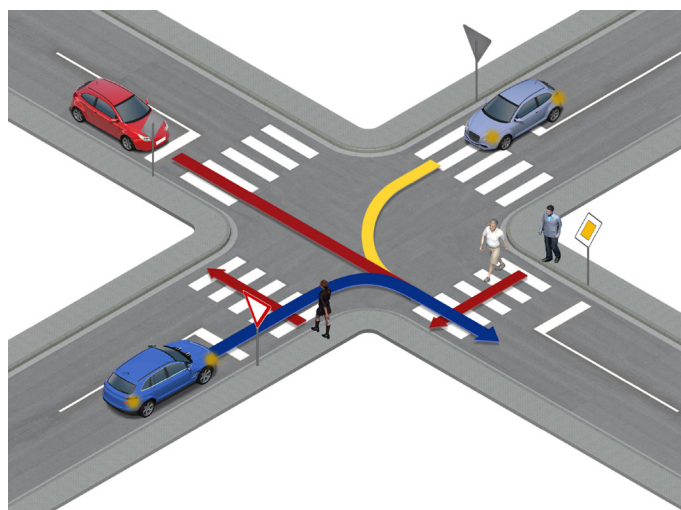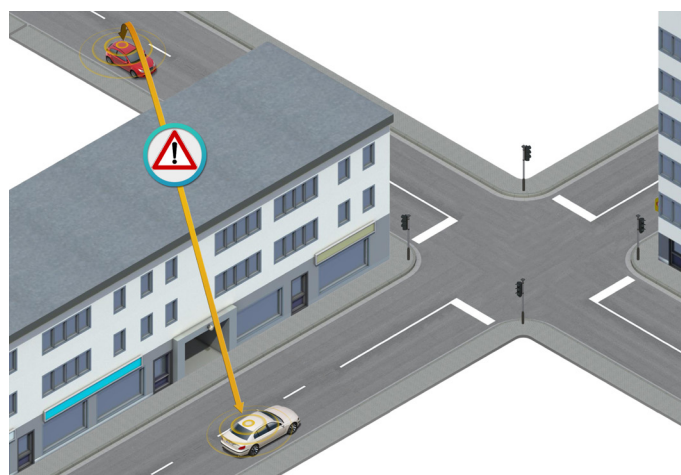
## UK AutoDrive: Trialing automated vehicle technology
*by the UK AutoDrive Consortium*

UK AutoDrive is the largest of 3 UK consortiums aiming to trial automated vehicle technology as part of the government's "Introducing driverless cars to UK roads" competition launched to support the introduction of self-driving vehicles into the UK.

The project kicked-off in November 2015 and first tests and demonstrations on enclosed test track are expected for autumn 2016. Further information about UK AutoDrive will be shared in future editions of this newsletter.

### Partners:

UK AutoDrive brings together leading technology and automotive businesses, project management company, forward thinking local authorities, fast growing SMEs and technology spin-outs, major insurance and legal firms, UK's technology & innovation centre for intelligent mobility and academic institutions to deliver a major three-year UK trial of autonomous and connected vehicle technologies.

### Purpose, Aim and Objectives of AutoDrive:

- Integrate autonomous and connected vehicles into real-world urban environments
- Demonstrate the commercial operation of electric-powered self-driving "pods" at a city scale
- Focus on understanding the impact on road users and society
- Resolution of challenges of road complexity and congestion
- Provide insight for key stakeholders and decision-makers, including legislators, insurers & investors
- Global engagement and dissemination to increase public awareness
- Scalability and applicability to different city / town infrastructures

### Summary Programme of Work:

The proposed programme of work will last for 36 months and will include the following key activities:

**The M1 vehicle trials** – in which OEM's will place their vehicles into carefully controlled and progressively more ambitious theatres of public road-space over a period of 36 months. OEM's will be given regular access to a wide variety of road types and intersection configurations which will be made available under controlled conditions which will be negotiated in advance with Milton Keynes and/or Coventry City Council.

**The M1 systems test days** – a series of co-ordinated test days in Milton Keynes and Coventry which will be designed to allow vehicles from different OEM's to participate in shared road-space exercises. This will allow participants to explore issues of common interest (such as V2I, V2V, and V2X connectivity). These trials will be carefully planned in discussion between the Local Authorities and the OEM's in advance of any field activity taking place. They are expected to involve supervised trials under controlled conditions at locations such as car parks, urban junctions (signalled and un-signalled), roundabouts, dual carriageways, on/off ramps, etc.

**The L-SATS driverless vehicle trials** – in which approximately 40 L-SATS driverless vehicles will be placed into carefully controlled and progressively more ambitious theatres of pedestrianised public space. The purpose of this activity will be to explore how large numbers of vehicles inter-act with each other and their surrounding environment, particularly when they are working in close proximity. These trials will also explore the challenges of making a safety case designed to enable the future operation of a larger L-SATS fleet to provide a working public transport system.

**Research papers** – in addition to the trials themselves, UK Autodrive's Cities Research work package will contribute a significant number of research papers, covering areas such as public attitudes to self-driving vehicles, the potential effect on future urban congestion levels, the business case for L-SATS vehicles and the scalability of the technology involved. Two series of white papers will also be produced, by Gowling WLG and AXA respectively, on legal and insurance issues, while HORIBA MIRA and Thales will create recommended guidelines for safety, data security and communications security in future deployments.

## Gearing up for C-ITS deployment – Special Interest Session at ITS European Congress 2016
### by Maarten Amelink, Amsterdam Group

The European Commission and the Amsterdam Group submitted a proposal for a Special Interest Session during the ITS European Congress in Glasgow (6 to 9 June 2016). We are happy to announce that the proposal was accepted by the congress organisation. Time and date will be announced soon (see www.amsterdamgroup.eu or the congress website for updates). The session title is 'Gearing up for C-ITS deployment'. The preparation for roll-out of Cooperative ITS in Europe is intensified; cross-sector cooperation on European scale is essential for harmonised and coherent deployment. In this session, European Commission and Amsterdam Group will provide their view on the status of overarching open issues which are crucial to ensure interoperability.

Representatives from C-ITS deployment initiatives all over Europe (e.g. UK, France, Czech Republic, Austria, Germany, Netherlands, Nordic countries) will briefly present the current status of their initiatives, lessons learned from deployment preparation and future plans. The representatives will share experience and knowledge in a subsequent Q & A session.

We would like to invite you to join this session and discuss C-ITS deployment with us. We look forward to meet you there!

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Get It In On The Road, Get It In the Vehicle.

## C-ITS Deployment is underway Part II -2nd public workshop on 26 April in Amsterdam
### by Sonja Eickmann, ITS automotive nord GmbH, Coordinator of CODECS

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**CODECS**

The H2020 Coordination & Support Action CODECS and the Amsterdam Group proceed their successful collaboration with organising the second edition of the public workshop "C-ITS Deployment is underway!". This format provides C-ITS deployment pilots and corridors with a platform to report their progress in making cooperative road traffic a reality. The second workshop will take place on 26th April 2016 at Schiphol Airport in Amsterdam, the Netherlands, and is the successor of the Roskilde Workshop from September 2015. The presentations and discussion shall serve for a status update with respect to lessons-learned, identifies challenges for C-ITS deployment as well as selected solution approaches.

CODECS and the Amsterdam Group invite you to already Save the Date of the workshop in your calendars. Further information and registration facilities will soon be provided on the CODECS Website (www.codecs-project.eu)

For the first "C-ITS Deployment is underway!" workshop, CODECS and the Amsterdam Group could welcome more than 40 attendees from 12 different European Countries in Roskilde, Denmark.