

CONVERGE is conducting research for efficient and safe mobility

## Well on the way towards an open V2X architecture

Frankfurt, 24. June 2015 – Over the last three years the CONVERGE research initiative, funded by the Federal Government, has concerned itself with the technical and operational framework of a cooperative architecture for the communication of vehicles with the transport infrastructure, service providers and other vehicles (V2X-communication). One priority has been the development of an access concept, which enables a wide variety of providers to contribute services and then make them available to road users. Now the results have been presented to the public.

The technical requirements for safe and efficient transport of individuals and road freight have long since been fulfilled. What is lacking is a flexible and secure network of information sources and information recipients. "Only if we manage to combine various communication systems such as wireless LAN, mobile data networks and broadcasting, we will be able to use information about traffic conditions in a better and smarter way," project coordinator Horst Wieker said at the presentation of CONVERGE results. He is the head of the transport telematics research group at the University of Applied Sciences of the Saarland (Hochschule für Technik und Wirtschaft des Saarlandes).

During 2012 to 2015 the CONVERGE project has defined the organisational and technical foundations of an open and collaborative architecture for V2X-communication. "Our goal has been extending different communication systems for the targeted distribution of information and making them shareable," said Wieker. "Accordingly, we can create the conditions for a significant improvement in traffic flow and enhance road safety."

### Efficiency in road freight transport, rapid wrong-way driver warning and other situation-related information

Through its research, CONVERGE has created a basis for the organisation and operation of a coordinated, open, expandable and decentralised V2X system network. This includes the communication of vehicles with other vehicles, with service providers or with components of the transport infrastructure such as so-called ITS Roadside Stations. One of many possible application scenarios is the "wrong-way driver notification": The cooperative road infrastructure identifies a wrong-way driver; within a split second, the driver and endangered road users within the immediate area receive a warning on their Smartphone or on the navigation screen, for example.

Following the example of the Internet, CONVERGE strives to create an architecture which allows any number of content and service providers to interact in a protected network and to disseminate information as needed: Only information which is relevant due to a road user's current geographical position, his/her planned route or general information should reach the road user - regardless of the access technology that he/she uses. Horst Wieker stressed that it is not just about indicating danger: "If traffic reports are intelligently networked with the planned route of a truck and the current availability of truck parking areas, freight transport can be routed more efficiently. This avoids delays at loading ramps and supports the driver compliance with statutory rest periods."

### Service diversity following the example of the Internet

In preparation of nationally and internationally recognised standards for the V2X architecture, CONVERGE has involved numerous key players in the research. These include service providers, traffic control centres, road infrastructure and mobile operators, automotive manufacturers and suppliers, IT service providers, as well as universities and research institutes.

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The system strived after by CONVERGE will create the technical conditions which will allow content and service providers to offer their services to road users via a decentralised V2X architecture with only minimum technical input. As with the Internet, the service provider selects the composite offers which are of importance to their customers. For this purpose CONVERGE defines methods for automated event management and a directory service based on "Yellow Pages" for institutional and transnational V2X applications.

To meet the requirements for data protection, CONVERGE has developed an integrated IT security concept which protects the data of users (e.g. movement data) and also ensures high quality internal and external services. Information will only be exchanged on the V2X architecture by authorised service providers. The system screens messages to make sure only information from trustworthy participants are processed.

### Basis for intelligent transport systems

At the presentation of the results Horst Wieker underlined the fact that the publicly funded research project has achieved its objectives. "We end the successful cooperation in the belief that the solution defined by CONVERGE can play a vital role in the implementation and use of intelligent transport systems within five years." The results of the project are available publicly and are enjoying national, European and international attention. Initial activities to put the CONVERGE architecture into practice are already being prepared.

Involved in the CONVERGE research project are: **Automotive manufacturers:** Adam Opel AG, BMW Group, Volkswagen AG; **Suppliers:** PTV Group, Robert Bosch GmbH; **Mobile Solutions:** Ericsson GmbH, Vodafone GmbH; **Public facilities:** Hessen Mobil – Straßen- und Verkehrsmanagement (road and traffic management); **Research:** Bundesanstalt für Straßenwesen (BASt), Fraunhofer-Institut AISEC, Fraunhofer-Institut FOKUS, Hochschule für Technik und Wirtschaft des Saarlandes (htw saar). **Associated Partners** are: Bundesnetzagentur (BNetzA) and the city of Frankfurt am Main (Straßenverkehrsamt).

**For more information visit: [www.converge-online.de](http://www.converge-online.de).**

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Due to a decision of the German Bundestag



Figure 1: Logo „CONVERGE“

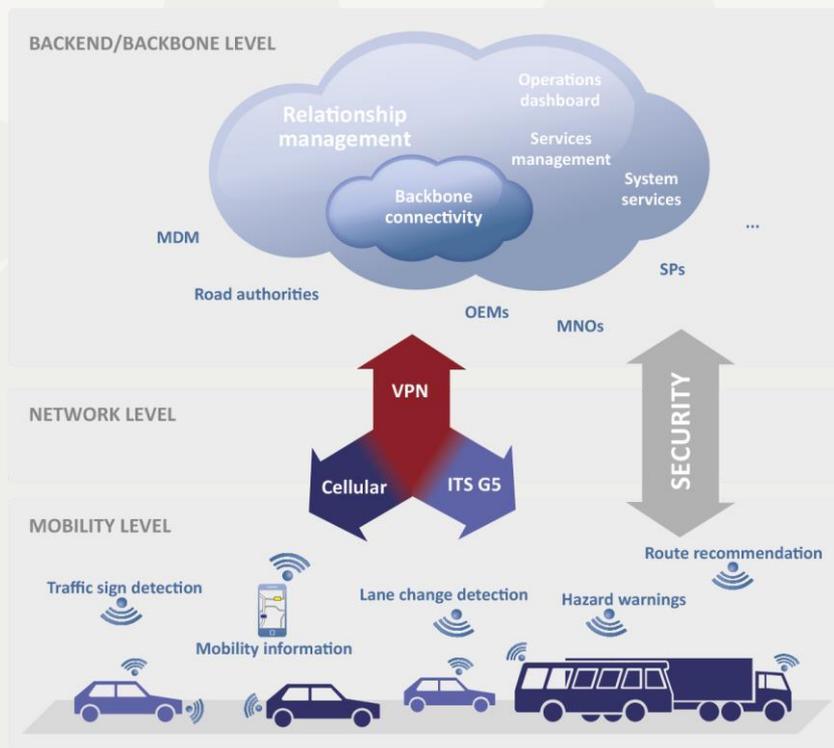


Figure 2: Schematic representation of interactions within the hybrid communication architecture



Figure 3: Title page of the current CONVERGE brochure

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