

# newsletter 09/09

Newsletter for the European Project PRE-DRIVE C2X: second release.

PRE-DRIVE C2X "Preparation for Driving Implementation and Evaluation of C2X Communication Technology" started in July 2008 and is working for two years.

## architecture

PRE-DRIVE C2X has been consolidating and extending the harmonized European ITS communication architecture for cooperative systems. In particular, it has defined a strategy to use and propagate the architecture towards testing, functional validation and trials on effectiveness of the system and its applications. PRE-DRIVE C2X pursues a close bi-directional cooperation with the coordinated activity for the architecture definition led by the COMeSafety project. PRE-DRIVE C2X supports and leverages the benefits of the architectural concepts and provides important measures to validate the architectural concepts that are adopted and further harmonized in ETSI TC ITS for standardisation.

PRE-DRIVE C2X prepares a large-scale field trial for vehicular communication technology based on the European COMeSafety architecture for a vehicle-to-x communication system.

In this context, PRE-DRIVE C2X has put a special focus on all key aspects related to security, privacy and identity management as well as the necessary administrative processes for ITS G5A communications.

The security architecture is flexible, adaptable and extendable to fit the different usage scenarios. Selected aspects of the security architecture can be tested and validated in later field trials, such as privacy provisioning, identity management and trustworthiness of decentrally generated data.

## simulation

PRE-DRIVE C2X is providing the methods, tools and systems required for the evaluation of vehicle-to-vehicle and vehicle-to-infrastructure communication technologies as well as the cooperative applications enabled by them.

The goals are to create and apply an integrated tool set that allows a complete simulation and evaluation of the interaction of vehicle traffic, vehicular communication and of the resulting applications.

Simulation is important for the standardization of cooperative systems technologies as well as for the development of applications. For this reason, it is very important to define a set of simulator tools which allow comparing and evaluating all aspects in the required quality.

The work done so far by PRE-DRIVE C2X comprises the identification of the stakeholders' needs, the definition of requirements for the tool set, the evaluation of the existing simulation tools and the creation of an architecture for a suitable simulation tool set.

preparation for driving  
implementation and evaluation of  
C2X communication technology

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## network

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[www.pre-drive-c2x.eu](http://www.pre-drive-c2x.eu)

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## functions & components

PRE-DRIVE C2X established a proper procedure for selection of existing components and for the development of the needed ones. This procedure includes, as first step, the investigation of already existing systems, demonstrators and components that have been developed within previous or ongoing activities for their applicability in terms of interoperability and re-uses potential that can significantly speed up the development of suitable prototypes for cooperative systems.

Moreover, PRE-DRIVE C2X identified and specified the needed components that are not yet available. In fact PRE-DRIVE C2X will demonstrate not only C2X communication based safety related use cases, but it will also include non safety use cases (e.g. backend services) and validate the technology and its applications by including dedicated testing components.

The results of this selection procedure show that while various basic components are already available, their integration and interoperability cannot be granted automatically. In addition, components for the testing phase, for the backend service integration and for the system management are still missing and they need to be developed from scratch. Furthermore, the so-called HMI Device Provider Application, needed to interact with proprietary in vehicle HMI, is to be developed. PRE-DRIVE C2X is also extending the network card software interfaces and is developing common interfaces for data transport, networking, security as well as facility-related components.

Today PRE-DRIVE C2X is in the phase of developing a reference prototype which includes the related components necessary to realize the architecture.

## tools for field operational tests

The preparation of future comprehensive field operational tests (FOTs) of cooperative systems for a sustainable mobility requires the selection of use-cases suitable to evaluate the prototype's quality as well as the possible impact on road safety, traffic efficiency and fuel saving.

A central element for future FOTs is a comprehensive testing infrastructure which supports any aspect of the system's verification and validation.

The complete testing infrastructure covers all aspects of testing in system engineering. In order to validate the system efficiently, tests will be enabled in three different environments: the field operational test, the test bench, and in the simulation environment.

The basic architecture of the test bench is ready and provides the basis for the complete specification.

PRE-DRIVE C2X is developing this testing infrastructure, it includes a test management centre, a central point for observation and control, as well as onboard or road-side testing units deployed within vehicles or next to the ITS road-side station. The combination of both closes the gap between the remote test management centre and the relevant ITS stations.

Today PRE-DRIVE C2X is in the phase of development and implementation of the related technological components and tools.

## forum

On June 25th 2009, the PRE-DRIVE C2X and the EASYWAY projects co-organised the Joint Stakeholder Workshop on Perspectives of Cooperative Systems for a Safe and Sustainable Mobility.

For the first time, representatives from all relevant stakeholders that have a key role for the future of cooperative systems showed their commitment and agreed to work on a roadmap for the deployment of ITS in Europe.

Around eighty people attended the workshop, hosted by Volvo in Brussels. Industrial stakeholders met with representatives from road operators and relevant associations. The European Commission attended the Workshop with representatives from DG Information Society and Media and DG Transport.

Different stakeholders presented their viewpoints and approaches to cooperative systems, while interactive sessions with very constructive discussions took place. Workshop discussion has shown that a new era has started where a new and open cooperation should be established: "the pillars of the bridge are there, now we have to build the bridge".

In this framework of cooperation the European Commission can provide an "umbrella" to support the joint initiative of the PRE-DRIVE C2X and the EASYWAY projects. For more details, the workshop presentations can be downloaded in the PRE-DRIVE C2X web site at the following link:

<http://www.pre-drive-c2x.eu/index.dhtml/294a5222fa42f460083ul-/deDEI-/CSI-/publications>

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