



Implementation Road Map for Dynamic Traffic Management – Vehicle Systems Co-operation Workshop

Representation of the State of Baden-Württemberg

Brussels, 14 November 2006

Conclusions and recommendations

1. Description of workshop

The Implementation Road Maps (IRM) Working Group of the eSafety Forum organised a workshop on 14 November 2006 at the Representation of the State of Baden-Württemberg to the European Union in Brussels. The workshop attracted 40 participants representing a variety of public and private stakeholders throughout Europe and began with presentation of the following papers:

- Traffic management now and in 2020 – a vision (Fritz Busch, TUM)
- Dynamic traffic management utilising FCD (Hans Hubschneider, PTV)
- Use of slippery road FCD for traffic management, information and road maintenance (Pär Ekström, CARAN AB)
- Perspectives and examples of integration of FCD in traffic management systems (Jauffrey Faustini, Autoroutes Traffic)
- Use of floating phone data for traffic management and information (Georg Lerner, BMW)
- Providing FVD to traffic management and network status and incident data to vehicle systems (Jan Cools, ITIS Holdings)
- Mobility of the future – traffic management and vehicle system co-operation (Markus Lienkamp, Volkswagen)

The workshop participants were given the task to provide answers to the following questions:

- What are the most important issues and obstacles for deployment?
- What actions should be carried out to overcome these issues and obstacles?
- What are the milestones and responsibilities for actions?

The participants broke out to deal with the questions in four groups:

- Technology issues including interoperability
- Business models and markets
- User acceptance and willingness to pay
- Legal issues, e.g. privacy, liability and security

The workshop was chaired by Risto Kulmala and minutes were written by Hans-Jürgen Mäurer, i.e. the chairs of the IRM Working Group. The break-out groups were reported by Christine Lotz, Pär Ekström, Bengt Hallström, Hans-Jürgen Mäurer and Risto Kulmala). The practical organisation was taken care of by eSafety Support's Alessandro Carrotta, Irina Silva and Javier Barrio.

2. Summary of presentations and discussions

A very actual and comprehensive overview was given by the presentations and examples to the audience by dedicated specialists in the field of traffic management systems (existing applications and business solutions in the field of FCD, XFCD, other traffic management measures as well as special solutions for a wider deployment of eSafety relevant systems).

Since 1960, increasing options for traffic management are available. Technical, functional and organisational aspects should be taken into account for the future architecture of traffic management solutions. Dynamic traffic management is based on local detection and decentralised data collection. For reliable traffic forecast, the customer behaviour should be predictable. Floating car data is one of the favourite solutions for decentralized data collection, also to identify traffic events. Some field tests and projects have shown very positive results. Mobile phone FCD with cooperative monitoring leads to a traffic platform with a lot of possible services. Appropriate Human Machine Interfaces (HMI) can avoid an overflow of information in future. Security and liability for the user will also be challenging aspects to deal with. In some cases there is a risk of the loss of some parts of driver competence. Cost of communication was identified as one of the existing problems for positive business cases.

The use of FCD for identification and prediction of dangerous road surface conditions was shown as a project in Sweden. Such a kind of data fusion can lead to high quality local danger warnings based on road surface condition FCD information.

Toll roads utilise dynamic traffic management as a special service. The existing structure of these companies can sufficiently be combined with different additional services. They already work together on B2B level with other traffic data suppliers. Even eCall can be integrated into their system. It was feasible that toll roads will have a good opportunity to support some more modern/future traffic management solutions.

The use of FCD on the basis of 40.000 equipped vehicles (BMW) with a pre-processing of on board data before transmission needs for a wider deployment a common universal gateway. The penetration rate should be increased by lower cost per unit. A range of different percentages needed for minimal service was shown (range of 2 up to 20% for different roads). It was also clearly stated that especially for C2C applications a timeframe of about 20 years is expected. The high number of different projects, workgroups and

other activities around C2X makes the monitoring of developments quite difficult, but anyhow there is a big move into these future services.

One other example from the UK was given of Floating Vehicle Data for a fleet of over 100.000 vehicles. In the future, floating phone data is also in preparation; despite the low data accuracy the high number of systems will give enable information of sufficient quality. Additional journalistic data (customer interviews) will provide in combination with FCD and Phone data very detailed information pattern. Cost for communication is also an issue, but the utilisation of the existing fleet management systems and their communications provided for a good business case.

Vehicle based electronic driver assistance systems (EDAS) are able to avoid a wide range of accidents and also ACC can reduce the risk of traffic congestions by appropriate speed management. For wider deployment of EDAS systems VW is offering together with an insurance company a special insurance rate for vehicles equipped with ESP (VW POLO). The price of 405€ for the optional ESP will be compensated by lower insurance rates in 3.5 years. Similar offers are also available from DC for specially equipped trucks. Such incentives are able to generate a higher customer demand and as a result higher overall deployment rates. These are examples for supporting the business case, which is most often the key issue for introduction of new services/systems.

Some future challenges were mentioned and also some existing applications were explained. A combination of different information sources seems to be able to solve today's problems. The key questions of *Technology, Business & Market, User acceptance & Safety, and Legal issues* were discussed at the breakout sessions to find some recommended actions for the implementation of modern traffic management systems in future. The results will be taken into consideration for the update of the Implementation Road Map 2006 report.

3. Actions recommended to the WG and the eSafety Forum Steering Group

- **Agreement on and standardisation of common interfaces and protocols** for v2i and i2v is now crucial for deployment of cooperative systems
- A standard "connector" in the vehicle is required to enable many beneficial services. The system needs to be simple but smart and enable an increase in services and application through a flexible and modular open platform. The system has to be sustainable in a way that customers changing their short living consumer electronic devices to a new system will still be able to use the new one in the same vehicle. This means common standards and protocols (e.g. Bluetooth) but most importantly agreement on who will pay for it and how can the deployment be accelerated?
- Further work needs to be undertaken for interoperable and seamless communication.

- Work on common and open system architectures need to be continued following the example of KAREN, FRAME etc.
- The use of existing technologies is essential to speed up deployment, even if the technologies might be proprietary.
- As the penetration of Electronic Fee Collection (EFC) systems is expected to increase strongly, actions should be commenced to enable the utilisation of their technologies (positioning, communications with secure monetary transactions, are utilised for other purposes.
- Quality levels need to be established and monitored for data required by the eSafety systems and services as well as the information infrastructure behind the services.
- Much more emphasis needs to be put on user centred design i.e. on making the systems work on a relevant manner from the user perspective to gain user acceptance and willingness to pay.
- Special efforts should be undertaken to establish fair sharing of the benefits from the eSafety systems to those bearing the investments and costs. The impacts of the current insurance incentives for ESC need to be studied carefully.
- The solid business cases for FCD building on existing fleet management systems should be utilised for other possible cases. It is also advisable in order to reduce the high communication costs to pay more attention to having more intelligence in the vehicles so that FCD related results can be calculated in the vehicle rather than in a server.
- The Field Operation Tests as planned for the 7th Framework Programme (FP7) should be used to evaluate the benefits and acceptance of the systems for the end users as well as to increase the user and political awareness of the eSafety systems.
- The stakeholders aiming to promote the deployment of eSafety should make much better use of the Article 29 Group dealing with all issues of data protection and privacy.
- In order to provide the vehicle systems safeguards from outside disturbance due to "cracking" or viruses as well as owner or driver manipulation, the eSecurity Working Group should start its work as soon as possible taking into consideration to work already carried out on the national level. In addition, some of the specific FP7 R&D efforts on security should be concentrated in the vehicle service domain.
- The proposal to solve liability issues with the code of practice approach as developed by the RESPONSE 3 project should be studied for infrastructure based systems such as dynamic traffic management, too.
- Actions should be commenced to ensure that the annual vehicle inspections can also check for any manipulation of in-vehicle eSafety systems.
- The European Commission is hoped to act as an active moderator concerning regulation so that regulation can be used in the cases, where it is clearly needed.

- The possible legal funding restrictions still existing for ITS investments in the European countries should be eliminated as soon as possible.

More information on the workshop discussions behind these recommendations can be found at the eSafety Support website:

http://www.esafetysupport.org/en/esafety_activities/esafety_working_groups/implementation_road_maps/irm_for_dynamic_traffic_management_96_vehicle_systems_co-operation_workshop.htm

4. Acknowledgements

Thanks are extended to the Representation of the State of Baden-Württemberg to the European Union, eSafety Support, the speakers, breakout session chairs and rapporteurs as well as all active participants for making the workshop a successful event.