

Vehicle dynamics

EU Commissioner Viviane Reding talks to ITS International about progress in the Intelligent Car Initiative



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EU Commissioner for Information Society and Media Viviane Reding highlights some significant contrasts when it comes to the deployment of safety technologies on Europe's roads. There is a mismatch, she says, between the pace of development and deployment from the automotive and infrastructure sides, with the former outpacing the latter.

The vehicle-infrastructure gap

The PREVENT Integrated Project (IP), which was co-funded by the EC and led by the automotive industry, and which looked to improve road safety by developing and demonstrating preventive safety applications and technologies was a particular highlight of Europe's Sixth Framework Programme for Research (FP6, which ran from 2003-2006). Nevertheless, it highlighted the disparity, Reding explains:

"When PREVENT was showcased in combination with the annual Intelligent Car last September in Versailles, 25 intelligent vehicles and 35 safety applications were demonstrated; 1,000 participants enjoyed more than 2,300 in-vehicle demonstrations over three days.

"PREVENT has shown the way forward in the field of advanced driver assistance for the next 15 years: applications and systems for lane keeping and blind spot

monitoring, safe speed and distance advice, and collision mitigation. As radar-based systems increasingly find their way into vehicles in the first half of the next decade, we'll see systems that protect vulnerable road users, mitigate collisions and monitor the sides and rear of a vehicle. Driver warning information systems can also be expected fairly soon. Further out, of course, once dedicated frequencies are allocated and safety standardisation across Europe is agreed, vehicle-to-vehicle and infrastructure communication will make sharing roads safer and less congested.

"In the European context, PREVENT has to be viewed alongside other work on better human:machine interfaces, as is being pursued by the AIDE project which is looking to reduce driver workload, or co-operative vehicle-to-vehicle and vehicle-to-infrastructure systems, such as the recently launched COOPERS, SAFESPOT and CVIS integrated projects. I look forward to the results of these projects.

"But it has to be said, infrastructure innovation is slower. Whereas commercial considerations play an important part in the fielding of vehicle-mounted solutions, from the infrastructure side the procurement procedures in the Member States, the need to have interoperable systems across Europe and the high levels of investment needed to equip the infrastructure with ITS keep the deployment process lengthy."

Going to the masses

In the current Seventh Framework Programme, the decision was taken to progress some of the Information & Communications Technology (ICT)-based solutions developed previously into real-world testing with normal drivers.

Reding: "We therefore developed extensive Field Operational Tests [FOTs] in three phases. In the first, to design, run and evaluate FOTs at a European level, a support action called FESTA was launched in November 2007. This has just delivered its results in the form of a handbook of best practice for the design and implementation of FOTs to be used by all other EU-funded field operational tests and we hope by national activities to ensure comparability and interoperability of the experimental results.

"Within Phase 2, under the second call of FP7, two IPs were set up. EUROFOT will assess advanced driver assistance and preventive safety functions in real traffic.

Eight safety functions will be tested in large field trials with 1,500 vehicles from 11 European car manufacturers over three years. TELEFOT addresses safe fixing and safe use of nomadic and aftermarket devices in vehicles. It will test safe driving, economic driving and a novel navigator-retrofitted eCall; this IP will last for four years and involve 3,000 drivers.

"In Phase 3, future calls could include more co-operative systems for safer and more efficient transport systems. Preventive safety and driver assistance will continue to be a priority as we focus on new areas such as intersection safety or pedestrian and other vulnerable road users' protection."

Improving awareness

The overarching Intelligent Car Initiative is intended to speed development by building consensus, removing barriers to system introduction and stimulating demand. In terms of speeding and expediting take-up, three areas were targeted - interoperability, supporting R&D and raising consumer awareness. These, says Reding, are key areas for the deployment of ICT based systems for safer, greener, more efficient transport.

"A lot of work has been done by the eSafety Forum, a group of professionals committed to finding solutions for faster system deployment. Current areas of work are ICT for clean mobility, security, R&D, nomadic devices, implementation roadmaps, international co-operation and service-oriented architectures. I hope that work on incentives and eCall implementation will also start soon. The eSafety R&D Working Group has produced a very important update to the strategic research agenda that we will use in planning future calls for proposals.

"Progress is needed in data privacy to ensure trust and confidence in transport telematics as well as the investigation of the security needs of in-vehicle control systems and communications.

"User awareness is a pillar of my intelligent car initiative and I can already see improvements," Reding continues. "Key stakeholders have joined forces to create the eSafetyAware platform. The ChooseESC! campaign is a clear example. The SCVP project will produce a video on intelligent vehicle safety systems for the general public, while our own Intelligent Car Website has been spruced up with features such as the Intelligent Car Quiz.

"Progress is never as fast as I would

like, but I believe these efforts are paying off: the number of new vehicles equipped with ESC rose 4 per cent in 2007, to 47 per cent. I believe the ChooseESC! Website has helped as it generates nearly 2,000 hits a month. About 35,000 people have played the Intelligent Car Quiz so far and more than 100 press articles were published to report on the Intelligent Car and PReVENT events last September.

"Our political targets are European decision-makers, especially the European Parliament, the Council of Ministers and the Social and Economic Committee. I am confident of a very positive report from the European Parliament on the second Intelligent Car Communication in June.

"Member States are also moving forward, with a growing number of signatures under the eCall Memorandum of Understanding and the increasing effort that is being made on the implementation of eCall and so on. Among the general public, progress in terms of awareness is somewhat harder to measure."

eSafety activities

An aspect of European Framework and Integrated Projects is the sheer number of public- and private-sector organisations which can become involved. The eSafety Forum, which coordinates the efforts of some 200 members, is no exception. The Forum also oversees quite a number of Working Groups whose efforts are at different stages of maturity. Here again, Reding says that there has been significant progress in recent months.

"Let me give you three examples," she continues. "The eCall Driving Group was taking forward the development of eCall in Europe. Its activities have now finished but full-scale roll-out is approaching and the Member States, mobile network operators and the automotive industry are moving ahead with this. I believe that in 2010 eCall will be operational, maybe not in all Member States but in many. I also fully support the new industry-led eCall deployment platform.

"ICT can contribute to 'green mobility' in all the three important areas, namely the driver, the vehicle and the

Clean and efficient mobility

The eSafety Forum's report focuses on five priority areas: eco-driving support which can save up to 25 per cent on fuel consumption; traffic management and control systems which could reduce delay and congestion by 40 per cent; demand and access management; navigation and travel information, where studies indicate that mileage could be reduced by 16 per cent when

driving in unknown areas and up to 30 per cent when looking to park; and freight logistics and fleet management. The report highlights the enormous potential of ICTs in energy efficiency, although real impact data are missing in a number of areas. More research is needed, as well as incentives for take-up. A coordinated stakeholder approach is needed, as well as global cooperation.

infrastructure. Overall, I believe that with the help of ICT we can have a big impact on the energy efficiency of the whole transportation sector - today responsible for 30 per cent of the EU energy bill. Eco-driving based on ICT tools could reduce fuel consumption in urban traffic by 30 per cent. Adaptive Cruise Control (ACC) in trucks could reduce overall energy consumption by 3 per cent and traffic calming of ACC could reduce fuel use by up to 15 per cent. Urban traffic control systems can smooth delays by 30 per cent, resulting in lower fuel consumption and emissions, according to a study by PATH in the US.

"The second example, the ICT for Clean and Efficient Mobility Working Group, shows how the Forum has embraced a topic which has crept steadily up the political and public agenda: energy efficiency and CO₂ reductions. The Group's report was tabled for discussion in the eSafety plenary meeting in Ljubljana in April this year (see Sidebar, 'Clean and efficient mobility').

"The third major success story is the eSafetyAware platform's campaign on ESC. I'm very pleased that we managed to spin off this activity, which is now led by FIA Foundation. I'm also very pleased to be a co-patron of the ChooseESC! campaign and am looking forward to its first annual symposium which will take place on 1 July at Autoworld in Brussels."

Legalities and liabilities

Reding acknowledges that in the broader context, particularly in terms of policy pull and market implementation, that there remain legal and liability issues. For the auto manufacturers in particular, the last-

mentioned is a concern. The increasing use of technology might be desirable from a safety and congestion management standpoint. But to whom does responsibility belong when an in-vehicle safety application goes unserviceable and injury or even death occurs? Put simply, the more technology there is in a vehicle, the more, potentially, there is to go wrong.

Reding: "R&D alone is not enough. If we look at two major new areas of R&D, automated driving and cooperative systems, we must work across the Commission to support competitiveness, create market incentives and resolve liability issues. Privacy and security are already addressed in projects like SEVECOM, CVIS, SAFESPOT and COOPERS. New projects are looking at standardisation in CEN and ETSI.

"The drive towards a common, pan-European communications architecture for cooperative systems is very important. This is led by COMeSafety and coordinated by BMW. It is doing crucial work in defining interoperability. I should also mention that I'm responsible for European spectrum policy, where we aim to allocate 30MHz at 5.9GHz for ITS applications in Europe." (See Sidebar, 'Frequency allocation.')

Structural concerns

The breadth and depth of Europe's research effort has led some observers to complain of structural problems and needless repetition. Reding, however, defends the current situation.

"A lot of effort goes into coordinating priorities across the Commission at both the political and service levels," she says. "All these priorities are approved by the Member States. As a result, the research undertaken under the Intelligent Car Initiative is clearly focused and complementary to other efforts taking place using Community instruments.

"New priorities, such as advanced driver assistance systems and cooperative systems, as well as new approaches such as Field Operational Tests, were all put in place through a clear and transparent process and in response to the expressed desires of industrial stakeholders and the EU's Member States." ■

<http://ec.europa.eu/intelligentcar/>

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Frequency allocation

A Commission decision on the allocation of the 5.9GHz band is expected by the end of 2008 or the beginning of 2009.

The intention is that compatibility with the USA will be ensured even if the allocation is not exactly the same; frequencies will be sufficiently close to enable the use of the same antenna and radio transmitter/receiver.

The frequency allocation is for the vehicle-to-vehicle and vehicle-to-infrastructure communications that are the basis for cooperative systems. Applications will include real-time traffic information, traffic management, safety at road intersections, vulnerable road user protection, collision avoidance, road geometry warning and assistance, and eCall.