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Progress Report and review of the ITS action plan

Accompanying the document

Report from the Commission to the European Parliament and to the Council

Implementation of Directive 2010/40/EU of the European Parliament and of the Council of 7 July 2010 on the framework for the deployment of Intelligent Transport Systems in the field of road transport and for interfaces with other modes of transport

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1. INTRODUCTION

Innovative technologies, and in particular intelligent transport systems, have a clear role in addressing Europe's transport system challenges. To achieve their potential, greater efforts are required to set up and accelerate their deployment in Europe. This is why, on 16 December 2008, the Commission adopted a Communication on the Action Plan for the Deployment of Intelligent Transport Systems in Europe — the ITS Action Plan¹. With this, the Commission aims to accelerate and coordinate the deployment of intelligent transport systems in road transport, including interfaces with other transport modes.

To assess progress in implementation of the ITS Action Plan, the Communication included a commitment to review its progress in 2012 and explore the grounds for possible future initiatives. This is the scope of this progress report.

In pursuit of policy objectives, the ITS Action Plan proposed an approach for a coherent and faster deployment of ITS across Europe in road transport, including interfaces with other transport modes. It identified 24 specific actions in 6 priority areas, with target dates for their achievement spanning from 2009 to 2014. The plan integrates and complements the various activities supported in the past at EU and national levels. It focuses on lifting existing barriers to ITS deployment by benefiting from ongoing work and successful deployment of emerging ITS applications and services. The ITS Action Plan covers the short-to-medium term perspective in its efforts to promote ITS deployment in the EU, but it also aims at building a long-term vision clearly defining the role of ITS in tomorrow's transport system in Europe.

In presenting the ITS Action Plan, the Commission also presented a proposal² for a Directive of the European Parliament and of the Council laying down the framework for the deployment of intelligent transport systems in the field of road transport and for interfaces with other transport modes. This proposal was formally adopted by the co-legislators in July 2010 as Directive 2010/40/EU, and is known as the 'ITS Directive'.

This progress report examines the current situation in implementing the ITS Action Plan. It reviews all actions since its adoption in December 2008, assesses the impacts of individual actions and their combined influence in accelerating ITS uptake in Europe, and makes recommendations for follow-up initiatives. It builds on the results of an external evaluation report³ that includes individual information sheets detailing the state of play of each action and a summary of consultations with stakeholders.

This report presents the state of play of implementation of the ITS Action Plan and its actions, area by area, describing the completed work and outcomes. Section 3 presents the global

¹ COM(2008) 886 final

² COM(2008) 887

³ 'Final Report – Mid-Term Evaluation of the Implementation of the ITS Action Plan', Ramboll – http://ec.europa.eu/transport/themes/its/road/action_plan/doc/Mid-term-evaluation-of-the-ITS-Action-Plan.pdf

impact of the ITS Action Plan and assesses the relevance, effectiveness, sustainability and efficiency of the actions. Section 4 provides a conclusion and suggests next steps.

2. PROGRESS IN THE IMPLEMENTATION OF THE ITS ACTION PLAN

The ITS Action Plan contains a wide range of measures intended to mobilise industry, Member States, infrastructure and service providers, and other stakeholders. It puts forward 24 specific measures, with target dates spanning from 2009 to 2014, in six identified priority areas for action:

- Priority area 1: optimal use of road, traffic and travel data;
- Priority area 2: continuity of traffic and freight management ITS services on European transport corridors and in conurbations;
- Priority area 3: road safety and security;
- Priority area 4: integration of the vehicle into the transport infrastructure;
- Priority area 5: data security and protection, and liability issues;
- Priority area 6: European ITS cooperation and coordination.

The implementation of the ITS Action Plan represents a joint effort by several European Commission services in close cooperation with ITS stakeholders. Work on implementing the plan has been taken forward with the help of several preparatory studies launched since the end of 2009. Early findings were discussed during the ITS Conference⁴ held in June 2010 and in workshops organised on the side. Further work and findings were presented and discussed during the 2nd ITS Conference⁵ in Lyon in June 2011, and the 3rd ITS Conference and 19th ITS World Congress organised in Vienna in October 2012⁶. The latest inputs and results were presented during the 4th ITS Conference in Brussels in December 2013⁷. In addition to their participation in the four ITS conferences, stakeholders were involved in various public consultations and workshops, in meetings of existing groups (e.g. eCall Implementation Platform) that support the various actions, and in several meetings involving the European ITS Advisory Group established under the ITS Directive.

Overall, implementation of the Action Plan is well advanced. A significant number of the 24 actions are considered to be well on track (i.e. more than 70% completion), with substantial outcomes realised.

Five actions have been completed:

⁴ http://ec.europa.eu/transport/themes/its/events/2010_06_22_its_conference_en.htm

⁵ http://ec.europa.eu/transport/themes/its/events/2011_06_06_its_conference_en.htm

⁶ http://ec.europa.eu/transport/themes/its/events/2012_10_22_its_conference_en.htm

⁷ http://ec.europa.eu/transport/themes/its/events/2013_12_02_its_conference_en.htm

- A dedicated legal framework has been established with the entry into force of the ITS Directive, supporting the harmonised deployment in the EU of ITS solutions in road transport (action 6.1).
- Specifications for data and procedures for the free provision of minimum universal traffic information services (action 1.4) have been defined with the adopted specifications under the ITS Directive.
- The introduction of eCall (action 3.2) has been supported through the proposed comprehensive regulatory framework for eCall deployment by October 2015.
- The promotion of multimodal journey planners (action 1.5), considered as a priority by the Commission to provide users with all the required information to plan their journey door-to-door.
- The Urban ITS platform (action 6.4) has been set up to provide a dedicated forum to raise awareness among the ITS community about the specific needs of local authorities. The specific guidelines on urban ITS delivered in this context have been promoted by the Commission under the urban mobility initiative⁸.

These five actions are among those that have benefited most from the priorities set in the ITS Directive, therefore highlighting the importance of an EU legal instrument in supporting implementation of the ITS Action Plan. Similarly, actions 1.1 on EU-wide real-time traffic and travel information services, and 3.5 on secure parking places for trucks and commercial vehicles, benefited from the work completed under the ITS Directive on specifications for safe and secure parking places and for road safety related minimum universal traffic information.

A number of actions have been experiencing delays or have been suspended during their implementation. This shows that prioritisation is essential, and perhaps indicates that the Action Plan's objectives have been overly ambitious, considering the complexity of the area in which they seek to make an impact.

Another element to take into account is that the later stages of implementation of any action typically require more time than initially expected. In a number of instances, delays and suspensions have been intentional, given the desire to ensure complementarities with other policies (e.g. actions 2.1 on continuity of ITS services, 2.3 on European ITS framework architecture, and 6.3 on guidelines for public funding).

A limited number of actions had their scope slightly modified, and were therefore not pursued according to the initial plan. This holds true for action 2.2 on e-Freight, the scope of which, from a policy viewpoint, will be addressed in a forthcoming communication. Some actions (action 3.3 on a framework for a safe human-machine interface, or action 6.3 on guidelines for public funding) could also have benefited, in their implementation, from a better-defined work plan to ensure clarity and visibility.

⁸ http://ec.europa.eu/transport/themes/urban/urban_mobility/

For some of the actions (action 4.4 on standardisation, or actions 5.1 and 5.2 on data protection and liability issues, respectively), more progress would have been possible if there had been greater involvement and a more genuine enthusiasm from key stakeholders to commit to the new EU approach based on the ITS Action Plan and the proposed ITS Directive.

2.1. Priority area 1: Optimal use of road, traffic and travel data

Many road ITS applications rely on an accurate knowledge of the road network and of traffic regulations, such as one-way streets and speed limits. In the past, the bulk of this knowledge was provided by authorities, but today, commercial sources are increasingly exploited. The relevant data used to build the provided traffic or travel information should however be duly validated in order to ensure the safe and orderly management of traffic. In particular, this concerns both digital mapping and the provision of (real-time) traffic and travel information services. Optimal use of data is also crucial for enabling multimodal journey planning.

The re-use of transport data is crucial for developing and deploying the necessary ITS services and applications. Not surprisingly this is the area of the ITS Action Plan where most activities have been conducted and progress achieved. This is also the area where all five actions are directly or indirectly related to the priority actions under the Directive, for which specifications have first to be adopted.

Despite delays affecting target dates for actions 1.1 dealing with real-time traffic and information services and 1.3 on availability of public data for digital maps, the level of completion of the actions is very high, especially as regards actions 1.4 on road safety-related traffic information and 1.5 on multimodal journey planning:

- Specifications for road safety-related minimum universal traffic information services were adopted as a delegated act under the ITS Directive on 15 May 2013⁹. They provide the content and format of the safety-related traffic information service for a defined set of road safety incidents. These specifications are part of the technological approach contributing to the overall target of halving the number of road safety fatalities in the EU by 2020.
- Specifications for real-time EU wide traffic information are being discussed with Member State experts and will be adopted by the end of 2014. They will lay down the conditions for sharing and exchange of relevant transport data between all public and private stakeholders.
- EU-wide multimodal journey planners have been heavily promoted by the Commission through the 1st Smart Mobility Challenge¹⁰. This has demonstrated many ongoing developments, but has also highlighted the remaining challenges in this area. In addition to promoting the opening of access to transport data from which multimodal journey planners will benefit, progress is also being made in the definition of specifications to ensure

⁹ OJ L 247, 18.9.2013, p. 6

¹⁰ 1st Smart Mobility Challenge : http://ec.europa.eu/transport/its/multimodal-planners/index_en.htm

interoperability for telematics applications for rail passenger services. This represents an intermediate step to providing multimodal journey planners.

In terms of the uptake of technologies and initiatives in Member States, this area is considered the most advanced among the four main priority areas of the ITS Directive. This is seen in the national reports collected in 2011, and in the five-year national plans collected in 2012¹¹, as part of the implementation of the ITS Directive.

The experience in some Member States in terms of platforms for accessing or sharing travel and traffic data should be underlined. It constitutes a good basis for the remaining work at EU level. This ‘evaluation’ underscores and confirms the coherence between the assessed importance of priority area 1 and the level of commitment as pursued in most Member States.

Whereas further work is already planned, notably in preparation of **specifications** still to be adopted by the Commission under the ITS Directive on the **provision of EU-wide real-time information services** (at an advanced stage of development) and on **the provision of EU-wide multimodal travel information services**, there seems to be a growing awareness among stakeholders and Member States about the benefits of applying an **open data policy to the transport sector**.

To advance this work, **the Commission services opened a discussion¹² on a possible initiative on access to multimodal transport data**. The challenge is to make transport data accessible, covering all modes of transport and mobility services.

Other key actions will include: ensuring and maintaining the quality of transport data; further addressing the multimodal aspect of the provision of travel information services, in particular, integrated ticketing; and tapping the potential of crowdsourcing in the transport domain, especially by promoting next-generation transport-related applications based on information provided and exchanged among users themselves, whether they be those taking a journey or those providing the transport service.

2.2. Priority area 2: Continuity of traffic and freight management ITS services on European transport corridors and in conurbations

Despite the work achieved in this area at project level, progress so far has been very slow, with most actions either delayed or put on hold:

- Action 2.1 has a broad scope, aiming at seamless, effective and co-modal travel and freight and logistics operations. The first priorities were therefore narrowed to support for co-modal trip-planning and for enhanced cooperation in urban and interurban (road) interfaces. This would be addressed by improving effective exchange of travel and traffic data and by promoting continuity of dedicated ITS services.

¹¹ http://ec.europa.eu/transport/themes/its/road/action_plan/its_national_reports_en.htm

¹² http://ec.europa.eu/transport/themes/its/events/2013-11-15-towards-eu-wide-multimodal-travel-planning_en.htm

Significant results have been achieved in the field of standardised data exchange (DATEX II) among neighbouring traffic management centres and the harmonised use of variable message signs (VMS). Both actions were well supported by the EasyWay II project (2010-2012). Progress with regard to the better interconnection of complementary transport modes and a better balancing of networks remains limited. This is simply because of organisational ‘islands’ hampering effective analysis and decision-making beyond the individual transport modes, and the apparent absence of incentives and sound, co-modal business models. It is recommended to review and set the objectives and priorities of this action in light of the revision of the trans-European transport network guidelines and of the upcoming e-Freight initiative.

- With the uptake of a real EU single transport network, the ITS services that are needed to support efficient and sustainable transport logistics have progressively moved from a modal to a multimodal dimension. This is being translated by the Commission into a dedicated e-Freight initiative that takes forward the conclusions of several research projects (e.g. e-Freight or Euridice) demonstrating the benefits of ITS applications in this field.
- Progress to establish a European ITS Framework Architecture infrastructure, building in particular on the FRAME and eFrame projects¹³ led by the FRAME Forum¹⁴, has been rather limited.
- The European Electronic Toll Service, which will ensure the interoperability of all electronic road toll systems in the EU, has not yet become reality. This is despite the fact that the necessary legal framework (Directive 2004/52/EC and Commission Decision 2009/750/EC) has been in place for some time. Not all Member States and stakeholders have demonstrated the necessary commitment to finalise the regulatory and operational context of the service at their level, in such a way the timetable set out in the Directive could be respected.

The Commission has recently taken some remedial follow-up measures. It is starting infringement procedures against some Member States for not having fulfilled their obligations and it is co-financing a regional toll interoperability feasibility study (REETS project¹⁵). Further funding under the Connecting Europe Facility could be given to concrete deployment projects. If progress remains unsatisfactory, the Commission may consider other possibilities, including regulatory intervention, as appropriate.

Interestingly, the activities covered by the Member States in this area — essentially related to the deployment of traffic management systems and electronic tolling solutions — are quite advanced, according to the 2011 national reports. This seems paradoxical when considering the rather low level of commitment from national stakeholders to contribute to and complete

¹³ <http://www.frame-online.net/>

¹⁴ <http://www.frame-online.net/frame-forum.html>

¹⁵ Regional European Electronic Toll Service

some of the actions in this priority area, which focuses precisely on the interoperability of systems, the continuity of services, and their actual implementation.

Specific encouragement and support for the deployment of interoperable ITS applications and services is therefore needed in accordance with adopted specifications. It should also use relevant provisions of the 2012 Deployment Guidelines¹⁶ that were issued and adopted under the EasyWay project.

Addressing **continuity of ITS services** and ensuring **urban-interurban interoperability** remains a priority. **The recommendations made by the Urban ITS Expert Group¹⁷ and promoted by the Commission in the Urban Mobility Package¹⁸ should be followed by local and national authorities.** In addition, it is crucial to ensure that urban, interurban, or mode-specific implementations will all fit into an overall collaborative framework providing maximum possibilities for effective data exchange and synergies beyond borders, networks and modes.

2.3. Priority area 3: Road safety and security

Road safety is and remains an area that could clearly benefit from a broader ITS penetration. Since the adoption of the ITS Action Plan, this has been re-confirmed in the Commission's Communication on the policy orientations on road safety¹⁹, and by the definition of the zero-vision (of fatalities) laid down in the 2011 White Paper on Transport²⁰. This is also underlined in the ITS Directive, where three of the six priority actions relate to road safety and security: priority actions (d) on interoperable eCall, and (e) on information and (f) on reservation services for safe and secure truck parking. Several actions under priority area 3 have a high level of completeness:

- Substantial progress can be recorded as regards the promotion and deployment of advanced driver assistance systems (ADAS) and safety and security-related ITS systems. An agreement has been reached with international partners within the United Nations Economic Commission for Europe on new internationally harmonised rules on advanced emergency braking systems (AEBS) and lane departure warning systems (LDWS); these will be mandatory for new trucks and buses as from 2015²¹. Additional dialogue with stakeholders should help to assess how to accelerate the further uptake of in-vehicle road safety-related ITS systems. An evaluation of potential additional measures is planned for 2014, which will in particular identify which of the available technologies — such as intelligent speed assistance (ISA) and speed limitation devices or event data recorders (EDR) — would be cost-effective and mature for deployment.

¹⁶ <http://www.easyway-its.eu/deployment-guidelines/>

¹⁷ http://ec.europa.eu/transport/themes/its/road/action_plan/its_for_urban_areas_en.htm

¹⁸ http://ec.europa.eu/transport/themes/urban/urban_mobility/

¹⁹ COM(2010) 389 final - http://ec.europa.eu/transport/road_safety/pdf/com_20072010_en.pdf

²⁰ 2011 White Paper on Transport – Initiative 16 - page 22 - http://ec.europa.eu/transport/themes/strategies/doc/2011_white_paper/white-paper-illustrated-brochure_en.pdf

²¹ http://ec.europa.eu/enterprise/sectors/automotive/documents/unece/index_en.htm

- A considerable amount of work has been put into completing the legislative framework on the effective deployment of eCall in Europe. The Impact Assessment²² for the Commission Recommendation²³ of 8 September 2011 clarified the need for a regulatory approach for the deployment of eCall. It was followed by the eCall specifications on public safety answering points (PSAP) adopted by the Commission, as a delegated act supplementing the ITS Directive²⁴, on 26 November 2012. The Commission proposed further regulatory steps in June 2013, including a Regulation on the in-vehicle part of eCall²⁵ and a Decision on the mandatory deployment of the part concerning public safety answering points²⁶. The latter was rapidly adopted by the European Parliament and the Council²⁷ and the in-vehicle part is expected to follow quickly. Progress on support for the implementation of eCall has also been substantial. It includes the finalisation of the eCall standards, the efforts of the eCall Implementation Platform²⁸, the launch of the HeERO²⁹ pilot projects and continuous awareness campaigns (including eCall Day on 4 May 2011, HeERO International conferences in 2012 in Zagreb³⁰ and in 2013 in Bucharest³¹ and eCall Days in several Member States).
- The integration of nomadic devices into vehicles has so far been guided by the recommendation on the European Statement of Principles (ESoP) on human-machine interface (HMI)³². While such a framework is perceived as positive, it is important to conduct an in-depth assessment of the results of this Statement of Principles before deciding further action. In parallel, the magnitude of the threats of distracted driving — caused by the proliferation of nomadic devices and new in-vehicle applications, coming together with mobility apps — has been highlighted but not yet sufficiently analysed in details.
- Another area of development concerns the impact of ITS on vulnerable road users, and the potential definition of a framework or rules to limit as far as possible any negative impact of mainstream services and applications. A preliminary assessment has been conducted and published³³. Under the Seventh Framework Programme for Research, the VRUITS project will take forward some recommendations, and consider pilot developments³⁴. An evaluation of potential additional measures is planned for 2014. This will in particular

²² http://ec.europa.eu/smart-regulation/impact/ia_carried_out/docs/ia_2011/sec_2011_1019_en.pdf

²³ C(2011) 6269 final

²⁴ OJ L 91, 3.4.2013, p. 1

²⁵ <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2013:0316:FIN:EN:PDF>

²⁶ <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2013:0315:FIN:EN:PDF>

²⁷ OJ L 164, 3.6.2014, p.6

²⁸ <http://www.imobilitysupport.eu/about-ecall/european-ecall-implementation-platform-eeip>

²⁹ <http://www.heero-pilot.eu/view/en/home.html>

³⁰ http://www.heero-pilot.eu/preview/en/events/heeroconf_nov2012

³¹ http://www.heero-pilot.eu/preview/en/events/heeroconf_nov2013

³² C(2008)1742 final - <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2008:216:0001:0042:EN:PDF>

³³ Study on the safety and comfort of the Vulnerable Road User - http://ec.europa.eu/transport/themes/its/studies/doc/2011_05-safety-and-comfort-vulnerable-road-user.pdf

³⁴ <http://www.vruits.eu/>

identify which of the existing technologies — such as pedestrian detection system and emergency braking (PDS/EBR) or blind spot detection for trucks (BSD-T) — would be cost-effective and mature for deployment.

- Specifications on information services for safe and secure parking places for trucks and commercial vehicles were adopted as a delegated act under the ITS Directive on 15 May 2013³⁵. The Commission consulted Member States experts and the main stakeholders on the reservation aspects, and the work on specifications and standards has been put on hold for the moment (see report on the implementation of the ITS Directive).

In the area of road safety, Member States are quite active, as illustrated by the 2011 national reports on state of the art in ITS deployment. There is, in that respect, a convergence between their expressed commitment and plans for the upcoming five years, illustrated in the 2012 reports, and the priorities defined in this area to further work on road safety.

Most actions in this priority area are still ongoing. This priority area is and remains crucial because ITS applications and services can bring substantial value and reduce the number of road fatalities and severe injuries.

Specifications on eCall and information services for truck parking have been adopted and work on in-vehicle road-safety ITS equipment is well advanced. Some follow-up actions have already been planned. Nevertheless, this area deserves a renewed focus, with additional efforts especially as regard the human-machine-interface and the impact of ITS services on driving behaviour.

The risk of **distracted driving** is likely to increase with the growth of nomadic devices, mobile communication and social networks, and as a result of a trend towards the ‘always connected traveller’ that builds on enhanced communication between vehicles, infrastructure and people. In order to address these issues, the Commission in 2014 launched a **study to analyse the main distraction factors and to consider possible countermeasures**.

2.4. Priority area 4: Integration of the vehicle into the transport infrastructure

This area of the ITS Action Plan has long been deemed one for the future, as it was considered that work on an open in-vehicle platform architecture or progress in cooperative mobility would take much more time before bearing fruit. Actions in this priority area have however seen considerable progress, especially in the area of cooperative systems:

- Although a single open in-vehicle architecture has not yet been established, a preliminary study³⁶ has underlined that a dedicated approach would be required first for commercial vehicles. A follow-up study has been launched to detail specifically the required system and communications architecture.

³⁵ OJ L 247, 18.9.2013, p. 1

³⁶ http://ec.europa.eu/transport/themes/its/studies/doc/2010_12_20_study-open-in-vehicle-platform-architecture.pdf

- There is progress on the actions related to cooperative systems. The implementation of various research and innovation projects validating the technical approach and necessary elements, and the progress in establishing the necessary standards for cooperative systems, have cleared the path to define the most appropriate deployment strategy. This was discussed in a dedicated stakeholder workshop³⁷ in June 2012 and in specific meetings with public and private stakeholders in June 2013 in Dublin and in December 2013 in Brussels. There is however, a need to prioritise the remaining work, to agree on a joint vision, to establish an effective implementation platform and to concentrate the efforts on a European scale. To that effect, a dedicated platform will be established in the autumn 2014 for which a call for applications has been published in July 2014³⁸.
- Regarding exchange of information and communication between vehicles and with the road infrastructure in cooperative systems, the European Committee for Standardisation has approved specifications (DATEX II - CEN/TS 16157) for the automated, electronic exchange of traffic data and information between disparate systems (infrastructure-to-infrastructure — I2I). Additional work is ongoing particularly with regard to the operational command of variable message signs (messages to be displayed) and the exchange of information on truck parking, including information on available parking lots. In the field of vehicle-to-infrastructure (V2I) and vehicle-to-vehicle (V2V), the use of mobile communication (3G, 4G) has been further explored. Basic standardisation has been realised in short-range and radio technology, reflecting a growing, world-wide consensus on the most appropriate communication means, depending on the type of application, taking into account safety, security and quality requirements.
- In the standardisation lifecycle for ITS, there has been significant progress for cooperative systems through standardisation mandate M/453³⁹. Progress has also been achieved in the further standardisation of eCall, and for electronic tolling through standardisation mandate M/338.

Looking at the 2011 national ITS reports, and the five-years national plans of 2012, only a few Member States seem to be actively pursuing their efforts towards deployment of cooperative systems in an operational environment. The front runners in this area, in particular Austria and the Netherlands, have been involved in large-scale demonstrations of cooperative systems, such as the field trials in the Helmond⁴⁰ test site, and in Vienna⁴¹ during the ITS World Congress.

Other Member States seem to be willing to consider pilot deployment of cooperative systems, and would potentially offer financial support. Industry still needs to engage effectively in such

³⁷ http://ec.europa.eu/transport/themes/its/events/2012_06_07_cooperative_systems_en.htm

³⁸ http://ec.europa.eu/transport/themes/its/news/c-its-deployment-platform_en.htm

³⁹ Standardisation mandate to CEN, CENELEC and ETSI in the field of ICT to support the interoperability of co-operative systems for ITS - http://ec.europa.eu/enterprise/sectors/ict/files/standardisation_mandate_en.pdf

⁴⁰ <http://www.drive-c2x.eu/helmond>

⁴¹ <http://2012.itsworldcongress.com/content/news/press-releases/cooperative-intelligent-transport-systems-on-the-road-to-deployment>

projects. Progress seems to be limited, as far as the private sector is concerned, with ongoing discussions on the prioritisation of types of ITS application and related investments. All this underlines the need for additional work to bridge the gap between the research and innovation phase and a business-as-usual deployment scenario.

Despite some progress, more effort is needed to conclude the work on **open in-vehicle** platform, using a renewed approach focusing on access to services and vehicle resources, and to provide greater clarity, particularly by establishing a joint vision and by agreeing on a **deployment strategy for cooperative systems**.

Additional standardisation work might be required on these topics, arising in particular from the needs identified during the work on specifications and the stakeholder consultations. The evolution of communication networks and services will also need to be factored in when considering the development of the most appropriate connections between vehicles and infrastructure, without forgetting the human (people) component and data protection, privacy and liability issues.

Concerning cooperative systems, the real bottleneck seems to be in deployment, requiring concerted actions (including ambitious and flexible cross-border deployment pilot projects) and synchronisation. There is a need for significant up-front investments, including EU funding, and cooperation and synergies, with a clear definition of roles and responsibilities need to be defined. In addition user acceptance will rely on the overall quality, and continuity of the services will stimulate user acceptance.

2.5. Priority area 5: Data security and protection, and liability issues

The handling of data — in particular, personal and financial — in ITS applications has raised a number of issues for citizens. Data integrity and confidentiality as well as protection of personal data must be ensured for all parties involved when ITS services are provided. Likewise, liability should be taken into account in the provision and use of ITS applications.

This area has been duly recognised in the ITS Directive with dedicated articles on both data protection and liability. The European Data Protection Supervisor has also addressed this issue in its Opinion⁴² on the ITS Action Plan and the proposed Directive, and is always consulted at an early stage when drafting specifications in the ITS field. These legal issues have therefore been taken up in studies assessing their importance for ITS applications:

- For data protection, a study⁴³ has identified the issues and the most privacy-prone ITS applications. The study suggests some specific measures, in particular, the preparation and adoption of a template for privacy impact assessments for ITS applications.

⁴² OJEU, C47/06 of 25/02/2010 - http://www.edps.europa.eu/EDPSWEB/webdav/shared/Documents/Consultation/Opinions/2009/09-07-22_Intelligent_Transport_Systems_EN.pdf

⁴³ http://ec.europa.eu/transport/themes/its/road/action_plan/data_protection_en.htm

- For liability, in a similar study⁴⁴, two specific types of ITS applications have been identified as the most sensitive: cooperative systems applications and automated driving. Specific recommendations to address these liability issues have been suggested. These recommendations point out the need to further investigate the more systematic use of in-vehicle event data recorders and to support the work on the adaptation of the 1968 Vienna Convention on road traffic.

Both studies have been instrumental in showing that issues exist but that they are usually being taken care of by the respective stakeholders, although sometimes slower than expected.

Therefore, applying both a **privacy-by-design** and **liability-by-design** philosophy should be further promoted. The preparation, in close cooperation with stakeholders, of instruments such as a **privacy impact assessment template** for ITS, would in that sense be helpful to support ITS developers and ITS services providers. Regarding liability, specific attention should be given to multi-stakeholders applications, such as cooperative systems and multimodal journey planning applications.

2.6. Priority area 6: European ITS cooperation and coordination

Coordinated EU deployment of ITS requires intensive cooperation at European level between all parties involved, and an adequate governance structure and legal framework. Such coordinated deployment at EU and Member State level also requires greater involvement of cities and regional authorities. Guidance and technical support should be provided to facilitate consensus-building and decision-making, and to make sure all ITS deployment is realised in a truly interoperable way, which provides synergies and maximum opportunities for re-use of available data and investments. The ITS Action Plan already helped to trigger many efforts:

- The adoption and start of implementation of the ITS Directive, with the adoption of a Work Programme⁴⁵, the discussions within the European ITS Committee and the European ITS Advisory Group⁴⁶, which ensure dialogue and a smooth decision-making process, and build on the input of Member States and the industry.
- The work under the EasyWay II project in terms of enhanced consultation and development of an ITS deployment road map and Deployment Guidelines⁴⁷ for particular ITS services.
- A decision-support toolkit⁴⁸ for investment decisions in ITS applications and services was established through the 2DECIDE⁴⁹ project. Despite its potential, the instrument has not entirely fulfilled its mission which was to promote best practices in the deployment of ITS applications. Stakeholder uptake of the tool has so far been low, mainly because of its

⁴⁴ http://ec.europa.eu/transport/themes/its/road/action_plan/liability_en.htm

⁴⁵ C(2011) 289 final - http://ec.europa.eu/transport/themes/its/road/action_plan/doc/c_2011_0289_en.pdf

⁴⁶ http://ec.europa.eu/transport/themes/its/road/action_plan/its_advisory_group_en.htm

⁴⁷ <http://www.easyway-its.eu/deployment-guidelines/>

⁴⁸ www.its-toolkit.eu

⁴⁹ <http://www.2decide.eu/>

complexity and the low number of existing shared cases and transferable good practices. To ensure its wider use, stakeholders should commit to further enhance and maintain it.

- An interesting initial study⁵⁰ resulted in better understanding of existing funding schemes and provided more details on the existing sources of ITS financing currently used by authorities and organisations wishing to deploy ITS. The Connecting Europe Facility (CEF)⁵¹ will make funding available in the form of both grants and innovative financial instruments. ITS should benefit from guidelines to be developed to optimise the available sources of funding.
- The Urban ITS Expert Group⁵², established by the European Commission, has produced a set of guidelines for ITS deployment in urban areas, a collection of best practices and a report on further standardisation needs for urban ITS. The guidelines will help urban communities in raising awareness on their specific needs in relation to ITS applications. This work will be taken further in support of urban mobility policies. In particular, urban ITS deployment is prominently featured in the Commission's Urban Mobility Package⁵³.

Building on the achievements in this priority area, additional work would be needed especially in the area of **support to business cases** for ITS deployment (including robust and commonly agreed methods of assessment and evaluation) and with regard to interoperable and continuous roll-out of services. To that effect, in 2014, the Commission launched a study to develop a recommended set of common key performance indicators applicable to ITS for road transport across Europe. This will in particular enable a better assessment of the contribution of ITS to policy goals.

This cannot be done without the direct participation and **strong commitment of all stakeholders**, as for example illustrated by the observed limitations in the creation and exploitation of a useful decision-support toolkit. To prove such a commitment, Member States and other stakeholders should, in addition to complying with the specifications adopted under the ITS Directive, effectively use relevant provisions of the Deployment Guidelines for specific ITS services developed under EasyWay. This requires the putting in place of **additional forms of stakeholders' involvement**, notably through or with **dedicated collaboration platforms that could be supported under Horizon 2020**, and possibly including public private partnerships.

⁵⁰ http://ec.europa.eu/transport/themes/its/studies/doc/2011_05-its-public-funding-guidelines.pdf

⁵¹ Regulation (EU) No 1316/2013 of the European Parliament and of the Council of 11 December 2013 establishing the Connecting Europe Facility, amending Regulation (EU) No 913/2010 and repealing Regulations (EC) No 680/2007 and (EC) No 67/2010

⁵² http://ec.europa.eu/transport/themes/its/road/action_plan/its_for_urban_areas_en.htm

⁵³ http://ec.europa.eu/transport/themes/urban/urban_mobility/

3. IMPACT OF THE IMPLEMENTATION OF THE ITS ACTION PLAN

3.1. Achievements in the implementation of the ITS Action Plan

3.1.1. Mainstreaming ITS and raising awareness

Mainstreaming the notion of intelligent transport systems in the design of transport policies, and highlighting the value of deploying ITS in the transport system, can be considered as one of the major successes of the ITS Action Plan. The adoption of the plan and its subsequent implementation, especially through the work done under the ITS Directive, have contributed to that. In particular, there is an increased awareness about the need to tackle bottlenecks that hinder interoperable deployment and to address other technical or legal issues hampering a broader take-up of such systems.

3.1.2. Boosting stakeholder cooperation

As underlined by many stakeholders, the adoption and implementation of the ITS Action Plan has also been a catalyst for a greater and more focused involvement, cooperation and collaboration of the large stakeholder community. This activity has built on existing research cooperation and existing forums and initiatives such as the iMobility Forum⁵⁴ and the ITS World and European Congresses organised by ERTICO-ITS Europe⁵⁵. The work undertaken in the implementation of the ITS Action Plan, especially under the framework of the ITS Directive, has brought together, in expert meetings, workshops and discussions in the ITS Committee and the ITS Advisory Group, the most relevant stakeholders of the ITS and transport community. They have coalesced around clear objectives and a clear road map of actions with identified priorities and timetables. The structuring role of the ITS Action Plan as a road map, and of the Commission as coordinator, facilitator and moderator, have been widely appreciated by stakeholders.

3.1.3. Promoting multimodality

Another element of satisfaction with respect to the implementation of the ITS Action Plan is the progress achieved in specific areas, in particular the discussion and debate around truly European multimodal journey planners that was launched through the 1st Smart Mobility Challenge. This has contributed to highlighting the issue and sparking a broader discussion on the value of the further sharing of — and opening access to — transport data in all modes of transport, as was the case during the Informal Ministerial Meeting⁵⁶ on Transport and Telecommunications held in Nicosia on 17 July 2012. Another specific achievement of the implementation of the ITS Action Plan — which, at its inception, was primarily focused on road transport — is the promotion of synergies and complementarities across existing Commission initiatives and programmes⁵⁷, especially across modes of transport.

⁵⁴ <http://www.imobilitysupport.eu/imobility-forum>

⁵⁵ <http://www.ertico.com/>

⁵⁶ Presidency Conclusions - <http://ec.europa.eu/transport/themes/its/news/doc/2012-07-17-cy-informal-presidency-conclusions.pdf>

⁵⁷ Such as the eSafety Forum initiative by (then) DG INFSO (which has evolved into the iMobility Forum since then), FP7 research programme, CIP programme, ICT Standardisation Work Programme.

3.2. Issues in the implementation of the ITS Action Plan

3.2.1. Lack of prioritisation

Notwithstanding the successes described above, the ITS Action Plan has also suffered some difficulties in its implementation. As explained above, some actions have been delayed as compared with the timing set out in the Action Plan, mainly because of difficulties encountered in building consensus among Member States and given the multitude and diversity of stakeholders. Also, the level of ambition set in the Action Plan, with a wide range of very specific but quite different types of action, did not help to prioritise actions.

3.2.2. Diversity of stakeholders and vested interests

As a consequence of the various and sometimes diverging stakeholder interests, progress has been slow in some actions (e.g. action 2.4 on a European Electronic Toll Service or 4.1 on the open in-vehicle platform) owing to the resistance of some players. For other actions (e.g. action 2.3 on a European ITS framework architecture), it is rather the lack of involvement or real interest from some major stakeholders that has caused delays. Even when workshops and consultations have involved stakeholders, there was still a perception, among some, that the implementation of some actions could have been more inclusive.

3.3. Relevance, effectiveness and sustainability of the ITS Action Plan

3.3.1. Relevance

The need to address the lack of ITS deployment in Europe was clearly acknowledged by all stakeholders. There was also consensus on the need for clear policy orientations and top-down steering at EU level. The bottom-up approach previously followed, particularly through the EU financing of research projects, has demonstrated its limitations.

Establishing a list of common priorities for concerted actions through the Action Plan has been highly appreciated. In terms of priority areas and specific actions, feedback received from stakeholders confirms their relevance.

3.3.2. Effectiveness

Regarding the actual contribution of the ITS Action Plan to enhanced deployment of ITS in Europe, the external report⁵⁸ suggests that positive impacts can be expected — despite the difficulties in measuring their effects — in terms of interoperability of applications and systems, continuity of services in the EU, and enhanced cooperation and coordination.

The picture remains mixed, however. This probably reflects the fact that, for the majority of actions, a follow-up step is still taking place or is only in a planning phase. Nevertheless, uptake by stakeholders of the first results of the various actions seems to have been quite high, according to the online consultation and reactions from the ITS community. This can be seen

⁵⁸ ‘Final Report – Mid-Term Evaluation of the Implementation of the ITS Action Plan’, Ramboll – http://ec.europa.eu/transport/themes/its/road/action_plan/doc/Mid-term-evaluation-of-the-ITS-Action-Plan.pdf

by the fact that standards developed for eCall (action 3.2), or for cooperative systems (actions 4.2 and 4.4) are already being used by industry. It is also expected that the specifications of the ITS Directive, in particular those on 112 eCall, road safety-related traffic information services, and information services for safe and secure parking places, will all be used extensively in a near future.

3.3.3. Sustainability

The sustainability of the various actions has also been assessed, and many stakeholders believe that implementation of the ITS Action Plan will improve the sustainability of the transport system. This is especially the case for the achievements of actions 4.2 and 4.3 on cooperative systems, despite the additional required efforts required in terms of prioritisation and deployment. It is also the case for road safety actions (actions 3.1 on in-vehicle safety devices, 3.2 on eCall and 3.3 on human-machine-interface) which are expected to be formalised by specific legislation (e.g. mandatory deployment for 112 eCall) or other measures.

4. CONCLUSIONS AND WAY FORWARD

The ITS Action Plan is still relevant in addressing the objectives of all the defined priority areas. The Plan has also contributed to bringing stakeholders together and offered a forum for discussion on a wide array of topics. However, in certain areas, slippages compared with the initial timetable have occurred, and some actions have been suspended. Difficulties can be explained partly by the complexity of the ITS community and the need to reconcile divergent interests and the wide range of approaches emerging from industry and users.

Looking at the relevance of various actions, and based on the stakeholder consultations, the needs and priorities, as defined in the ITS Action Plan in December 2008, have not significantly changed and are still relevant.

Implementation of the remaining actions of the ITS Action Plan should therefore be pursued, especially through taking forward implementation of the ITS Directive. To ensure better effectiveness, it is envisaged to define or complement, as appropriate, a detailed work plan for each of the remaining actions. This work plan would take into account synergies with complementary activities, in particular, research and innovation, standardisation, and funding (trans-European transport network, structural and investment funds, etc...).

Similarly, especially within the context of the Connecting Europe Facility (CEF) and of the new TEN-T Guidelines⁵⁹, greater interest has been demonstrated for the need for appropriate funding mechanisms, linked to the notion of serious business cases and evaluation strategies. In parallel, interaction and further collaboration with stakeholders should be further

⁵⁹ Regulation (EU) No 1315/2013 of the European Parliament and of the Council of 11 December 2013 on Union guidelines for the development of the trans-European transport network and repealing Decision No 661/2010/EU

streamlined, intensified and stimulated. This would help to focus on some actions that deserve better attention and require proper follow-up.

Based on feedback from the stakeholder consultations, the following areas may be considered for future work, subject to an appropriate analysis of their effectiveness in achieving the objectives of the ITS Directive and a careful assessment of their impacts:

4.1. Transport data dimension

With respect to road, traffic and travel data, which was already defined as priority area 1 of the ITS Action Plan, work started with the adoption of first specifications, the 1st Smart Mobility Challenge and the follow-up public consultation⁶⁰ and stakeholder workshop⁶¹ on enablers for multimodal travel planning and information services. The work needs to be pursued and reinforced.

Unlocking the use of transport data remains a horizontal prerequisite to ITS deployment. It will help to develop and deploy numerous applications (e.g. real-time traffic information, multimodal travel planning) that bring substantial benefits, especially in terms of road safety and optimisation of the usage of transport networks. In addition, Smart Cities and Communities generic data principles on ownership, privacy and optimising the data value chain will contribute to these benefits linked to ITS deployment.

Specific measures to open up access to transport data and to facilitate their effective re-use have to be further pursued. This is especially necessary to define and monitor data quality and to establish the necessary platforms to share data among relevant stakeholders, including the definition of data formats and exchange mechanisms. To tackle that, the Commission services are working on a possible initiative in the field of access to transport data. Work has already begun with a recent public consultation on access to multimodal traffic and travel data in the European Union⁶² and the Commission Staff Working Document ‘Roadmap towards delivering EU-wide multimodal travel information, planning and ticketing services’⁶³. An impact assessment is currently being drafted.

4.2. Multimodality dimension

Delays have been experienced in priority area 2 (continuity of traffic and freight management) and there is a re-emerging interest in multimodal transport chains and well-functioning interfaces between urban and inter-urban environments. It is crucial, therefore, to revitalise this priority area and especially to give substantial support to on-going efforts to re-define the scope of the e-Freight initiative.

⁶⁰ Public Online Consultation on Enablers for European multimodal travel planning and information services, http://ec.europa.eu/transport/media/consultations/2013-03-12-mtpis_en.htm

⁶¹ http://ec.europa.eu/transport/themes/its/events/2013_04_16_workshop_multimodal_journey_planners.htm

⁶² http://ec.europa.eu/transport/media/consultations/2013-accesstraveldata_en.htm

⁶³ SWD(2014) 194 final

It is also important to further promote the deployment of EU-wide multimodal travel information, planning and ticketing services by enabling a fair and equal access to travel and traffic data and improving the availability of data. Moreover, integrated ticketing will be promoted, for example by means of standardisation activities.

Building on the connectivity dimension and taking a user-oriented approach, this will help to transform the current scattered mobility supply into integrated, multimodal transportation services, allowing optimal use of existing capacities and enhancing customer travel experiences through new, innovative mobility services.

4.3. Connectivity (ICT networking) dimension

Building an ICT-connected transport system, where people, vehicles and transport infrastructure are continuously connected and potentially interact, stands at the heart of priority area 4. Some progress has been achieved in particular through research and standardisation efforts on so-called ‘cooperative systems’, facilitating the possibility for vehicles to ‘talk’ to other vehicles and to the road infrastructure.

Today’s world is one of high-speed communication networks, crowdsourcing and social networks, the ‘internet of things’ and a multiplication of mobile applications. They all provide the connectivity components of a new, ubiquitous information and management space offering novel opportunities for personal mobility, for the transport of goods and for the large-scale uptake of electric vehicles.

An extension, at least partially, of automated driving to the road, with certain priority functions for commercial fleets, could also drastically influence individual transport preferences and habits. At the same time, it could enhance the efficient use of infrastructure and of traffic management and improve road safety to the levels experienced in rail or air transport. All these aspects will need to be further and more systematically addressed in the future, both at interurban and urban levels.

In the context of a future definition of an EU road map for the coordinated deployment of cooperative systems building on current initiatives such as the Amsterdam Group⁶⁴, a follow-up and policy steering by the Commission services and coordination of stakeholders initiatives will therefore be required. This will be all the more necessary because of the dramatic and accelerated expansion of the above-mentioned ICT technologies, networks and services. The absence of further EU coordinated action in that domain would probably lead to slow deployment of cooperative systems and a patchwork of non-coordinated and proprietary initiatives.

4.4. Coordination Platforms

Intelligent transport systems are at the confluence of ICT and transport, and have a wide diversity of stakeholders. The ITS Action Plan and the ITS Directive, and dedicated projects

⁶⁴ <http://www.amsterdamgroup.eu/>

— such as the EasyWay II project to some extent —, have contributed to raising awareness about the benefits of ITS and to bringing stakeholders together to discuss and tackle important issues and barriers for the deployment of ITS in Europe.

Targeted initiatives have been useful and constructive, as for example illustrated by the achievements of the Urban ITS Expert Group in delivering guidelines for the deployment of urban ITS. However, accelerated deployment of ITS requires a shared European vision backed by measures addressing economic and business-related aspects, such as the business cases, the evaluation of impacts, costs and benefits, and aspects related to financing and alternative funding sources. Considering the growing interest of cities and regional authorities, and the need to enhance interaction between complementary transport modes, guidance and technical support should be provided to ensure all ITS deployment is effectively realised in a truly interoperable and scalable way, taking also into account the on-going work within the European Innovation Partnership on Smart Cities and Communities, especially for horizontal topics such as standardisation, data ownership security, privacy and optimisation of the data value chain.

All this requires the creation, guidance and maintenance of a sustained form of cooperation between industry and relevant stakeholders (both public and private). Fields such as cooperative systems or multimodal travel planning and ticketing, and technical, organisational and legal agreements, should receive major attention. In addition, fora like the iMobility Forum offer a suitable and promising platform to support stakeholder cooperation.

4.5. Further use of the ITS Directive

The ITS Directive has demonstrable achievements in further enhancing the positive impacts of the ITS Action Plan. It has promoted, where needed and especially through the adoption of specifications, a common understanding, a greater legal certainty and a common basis for European-wide deployment of ITS services. In this respect, further specifications may be adopted beyond the currently defined six priority actions, in particular related to the important elements listed in Annex I to the Directive. These include freight transport logistics and the continuity of freight management, the safety and comfort of the vulnerable road user, the safe design and secure use of human-machine interfaces or the deployment of cooperative systems (see report on the implementation of the ITS Directive).

4.6. Shaping research and innovation in ITS through Horizon 2020

Horizon 2020, the Framework Programme for Research and Innovation (2014-20) in support of research, technological development, demonstration and innovation actions, can contribute to achieving a European transport system that is resource-efficient, environmentally friendly, safe and seamless for the benefit of citizens, the economy and society.

The integration of vehicle to vehicle and vehicle to infrastructure communications into an overall open mobility data ecosystem fed by machine-to-machine (M2M) communication and combined with high quality transport data will provide substantial improvements for the

mobility of people and freight. Transport safety should also benefit from enhanced human-machine interfaces and from a trend towards further automation of vehicles.

Elements to be further explored for development should include issues related to an integrated infostructure, transport data quality (including methods of monitoring and measurement), human-machine interface, naturalistic driving impacting driving behaviours (under various scenarios of ITS services provision), and automation of vehicles. These elements are addressed in the Smart, Green and Integrated Transport - challenge under Horizon 2020.

4.7. Making the best use of the Connecting Europe Facility and other funding instruments (European Structural and Investment Funds, EIB...) for the deployment of ITS

The economic downturn in 2008, followed by the financial crisis in 2011, has meant ITS has to compete even more powerfully for funding against much more expensive traditional hard infrastructures. A clear demonstration and provision of evidence of the benefits of ITS at urban and interurban levels has turned out to be crucial in securing funding. Making use of — and coordinating — existing funding sources will be a necessity for many Member States. These sources include the European structural and investment funds on the one hand, and financing opportunities offered, for example, by the European Investment Bank on the other, and tapping into the Connecting Europe Facility.

Available instruments should be managed as well as possible to respond to the demand for deployment of interoperable ITS services and applications — such as eCall public safety answering point infrastructures, cooperative mobility services, traffic management applications enhancing road safety and efficiency of logistics or intelligent parking installations — all in full compliance with adopted specifications and standards.