European Commission

INCEPTION IMPACT ASSESSMENT	
TITLE OF THE INITIATIVE	Specifications for the provision of cooperative intelligent transport systems (C-ITS)
LEAD DG – RESPONSIBLE UNIT – AP NUMBER	DG MOVE B4 – PLAN/2017/662
LIKELY TYPE OF INITIATIVE	Delegated Regulation (functional, technical and organisational specifications)
INDICATIVE PLANNING	*3rd quarter 2018*

This Inception Impact Assessment aims to inform stakeholders about the Commission's work in order to allow them to provide feedback on the intended initiative and to participate effectively in future consultation activities. Stakeholders are in particular invited to provide views on the Commission's understanding of the problem and possible solutions and to make available any relevant information that they may have, including on possible impacts of the different options. The Inception Impact Assessment is provided for information purposes only and its content may change. This Inception Impact Assessment does not prejudge the final decision of the Commission on whether this initiative will be pursued or on its final content.

A. Context, Problem definition and Subsidiarity Check

Context

In many aspects, today's vehicles are already connected devices, and they are being linked and integrated into our ever more digital lifestyle. However, to make the transport system safer and more efficient, vehicles need to directly interact with each other and with the road infrastructure. Cooperative Intelligent Transport Systems (C-ITS) will allow road users and traffic managers to share and use information and coordinate their actions. This cooperative element – enabled by connectivity – is the key to significantly improving road safety and traffic efficiency, also for automated vehicles. Cooperation, connectivity, and automation are not only complementary technologies; they reinforce each other and will over time merge completely.

In line with the Declaration of Amsterdam[1], endorsed by Transport Ministers in April 2016, the Commission has announced in the 2017 work programme its intention to work in an integrated way on mobility, connectivity and the future of the automotive industry.

For aspects where legal certainty is needed, the EU Strategy on Cooperative Intelligent Transport Systems[2] foresees in particular the preparation of a delegated regulation on C-ITS to add or amend aspects to the ITS Directive 2010/40/EU[3]. Cooperative, connected and automated vehicles will contribute to the European Strategy for Low-Emission Mobility[4], which is part of the Commission's Energy Union Strategy[5], and the Commission's Digital Single Market Strategy.[6]

The C-ITS platform[7] brings together key public and private stakeholders along the value chain to develop a shared vision on the interoperable deployment of C-ITS in the EU.[8] The C-ROADS platform[9] links C-ITS

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[1] Declaration of Amsterdam on cooperation in the field of connected and automated driving, 14 April 2016

[2] A European strategy on Cooperative Intelligent Transport Systems, a milestone towards cooperative, connected and automated mobility. COM(2016) 766 final

[3] On 22 March 2017, the Commission adopted a proposal for a Decision of the European Parliament and of the Council amending Directive 2010/40/EU as regards the period for adopting delegated acts:

http://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1490257208411&uri=COM:2017:136:FIN

[4] A European Strategy for Low-Emission Mobility, COM(2016) 501 final

[5] A Framework Strategy for a Resilient Energy Union with a Forward-Looking Climate Change Policy - COM(2015) 80 final, ANNEX 1

[6] Digitising European Industry Reaping the full benefits of a Digital Single Market, COM(2016) 180, SWD(2016) 110. The Digitising European Industry Strategy identifies cooperative, connected and automated vehicles as a priority topic and hence a need for a coherent Commission strategy.

[7] https://ec.europa.eu/transport/themes/its/c-its_en

[8] The first phase of the platform resulted in a final report (January 2016) that provided critical input to the C-ITS Strategy. The ongoing second phase will accompany the deployment process with a special focus on the links between connectivity and automation, in particular in relation to infrastructure and road safety issues.

[9] https://www.c-roads.eu/platform.html

deployment activities in 13 countries[10] to jointly develop technical specifications and to verify cross-border interoperability, building the foundations for connected and automated vehicles.

A High Level Roundtable involving telecom and automotive industries was launched to develop joint roadmaps and establish cross-border deployment actions. Cross-border testing and demonstration initiatives will be launched on the basis of the letter of intent[11] signed by 27 Member States on 23 March 2017 in Rome.

The GEAR 2030 High Level Group will in particular assist the Commission in developing a long-term EU strategy for highly automated and connected vehicles by the end of 2017.

For longer term issues regarding connected, cooperative and automated mobility, the Commission is developing a roadmap on connected and automated transport in the context of the Strategic Transport Research and Innovation Agenda[12], to steer and coordinate R&I activities and policies in Europe.

Problem the initiative aims to tackle

C-ITS are technically mature (the technological capabilities among market parties are increasing, and vehicle manufacturers intend to launch series of vehicles with C-ITS technology on board by 2019). However, deployment is being delayed due to several barriers and uncertainties, and Europe risks seriously falling behind other regions in the world if it fails to act soon.

Without a clear legal framework, C-ITS deployment is expected to remain slow and fragmented, resulting in interoperability issues hindering continuity of services. This in turn will hinder the deployment and uptake of C-ITS and the realisation of their full benefits, in particular for road safety and traffic efficiency.

This initiative is expected to address the following two main problems contributing to the fragmented deployment of C-ITS:

• Barriers and uncertainties keep stakeholders from large-scale C-ITS deployment

• Solutions are deployed in a slow and fragmented manner, hindering interoperability and continuity across the EU

These problems are triggered by the five following important drivers:

• Failure to establish the necessary trust with regard to C-ITS security

As the transport system becomes more and more digitised, it may also become more vulnerable to hacking and cyber-attacks. The cyber-security of C-ITS communications is therefore critical, and without clear rules C-ITS deployment will be delayed, and fragmented security solutions will put interoperability and the safety of end-users at risk.

• Limited public acceptance due to unclear principles related to privacy and protection of personal data

Data broadcasted by C-ITS from vehicles will, in principle, qualify as personal data as it will relate to an identified or identifiable natural person. Users must have the assurance that personal data are not a commodity, and know they can effectively control how and for what purposes their data are being used. C-ITS will need to comply with the generally applicable data protection legal framework, but this alone does not provide enough clarity for the successful and trustworthy deployment of C-ITS, without additional clear principles for the practical implementation of this framework in the area of C-ITS.

• Incompatible communication technologies and frequency spectrum allocation can hamper the proper functioning of C-ITS

With ever increasing amounts of data being broadcasted, there is a risk that, due to incompatible services, inadequate frequency spectrum allocation and/or limited mitigation measures, harmful interference will hamper the proper functioning of C-ITS. Thus to support all C-ITS services, a hybrid mix of communication technologies, as described in the EU Strategy on C-ITS, is needed.[13]

• Uncertainties with regard to minimum requirements for interoperability and compliance assessment for C-ITS

For C-ITS to function properly, interoperability needs to be ensured at all levels: infrastructure, data, services, applications and networks. Standardisation activities have already provided a good basis, but are not enough to ensure interoperability. Standards need to be understood and applied in the same way, and common rules need to be applied when deploying the services.

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[10] AT, BE, CZ, DE, DK, ES, FI, FR, NL, NO, SE, SI, UK (making use of CEF co-funding)

[11]   https://ec.europa.eu/digital-single-market/en/news/eu-and-eea-member-states-sign-cross-border-experiments-cooperative-connected-and-automated

[12] COM(2016)763: Accelerating Clean Energy Innovation

[13] The choice of communication technology will depend on inter alia on the location, the type of service and cost efficiency.

- Deployment of separate C-ITS services / ecosystems does not reduce cost barriers

Most early deployment projects have a limited geographical and functional scope, and focus on services of specific interest to the stakeholders involved. If this were to continue, the resulting systems risk remaining separate and proprietary. This fragmentation will hamper interoperability, continuity and the emergence of positive network effects and economies of scale & scope (for which there is great potential as many services can use the same hardware). Without these, the large-scale deployment of services will remain prohibitively expensive.

These issues affect key stakeholders which include vehicle manufacturers & suppliers, C-ITS system/service providers (+ aftermarket), telecom service providers, road operators, road & transport authorities, public administrations (Member States, local authorities), transport operators and drivers (+ drivers' and consumer organisations).

As there is no EU legislative framework in place regarding C-ITS, no ex-post analysis has been conducted in this regard.

Subsidiarity check (and legal basis)

EU-wide interoperability and seamless cross-border deployment are essential for the deployment and operation of continuous and harmonised C-ITS services across the EU, which cannot be satisfactorily achieved by individual Member States and/or the industry. As a result, Member States and different stakeholders have been calling on the Commission to address the situation. The objectives of the proposed action can be better achieved at the Union level due to the effectiveness and efficiency of a common and harmonized framework that sets out common rules and requirements.

The interoperability and continuity of C-ITS have a clear cross-border dimension and thus coordination and action is justified on the grounds of subsidiarity as provided for in Article 91 TFEU.

The ITS Directive 2010/40/EU may be used as the basis to adopt a coherent set of rules at EU level in order to create a single market for cooperative, connected and automated vehicles. The Directive identifies (in its Article 2) priority areas for the development and use of specifications and standards, among which the area of connecting vehicles with transport infrastructure.

The actions to be taken in this priority area are further detailed in Annex 1 to the Directive and comprise, among others, the definition of necessary measures to integrate different ITS applications on an open in-vehicle platform and to further progress the development and implementation of cooperative (vehicle-vehicle, vehicle-infrastructure, infrastructure-infrastructure) systems. Article 6 of the ITS Directive empowers the Commission to adopt specifications ensuring compatibility, interoperability and continuity for the deployment and operational use of ITS for other actions to be taken in the priority areas identified in Article 2.

B. Objectives and Policy options

The main objective of this initiative is to establish right and clear framework conditions to improve the interoperability and continuity of C-ITS across Europe with the aim to significantly improve road safety and traffic efficiency. There is no prior legislation in this field, and thus no scope for simplification.

In relation to the problems and drivers described above the initiative aims to:

- establish common rules to ensure **security** of C-ITS communications

- ensure the practical application of the General **Data Protection** Regulation in the area of C-ITS

- ensure a forward looking **hybrid communication** approach

- establish common rules on **interoperability and compliance assessment**

- clearly define a set of priority C-ITS services to ensure **continuity** of C-ITS services

This initiative will be restricted to services included in the Day 1 C-ITS Services List defined in the EU Strategy on C-ITS. This is an agreed list of services that are technologically mature, highly beneficial and ready for large scale deployment.[14]

A number of measures, to be further developed and complemented, have been identified in response to the problem drivers identified above. Most of these measures should not be considered as mutually exclusive, and so they can be combined in different options, which will be further defined in the impact assessment process.

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[14] The Day 1.5 C-ITS Services defined in the Strategy are considered to be well developed and highly wanted by the market, however specifications or standards are not expected to be fully ready for large scale deployment from 2019.

The following preliminary options can already be envisaged at this stage:

1. Baseline scenario

Under the baseline scenario, no further action at EU level is taken. In the absence of coordinated action, it is expected that frontrunner public authorities and innovative and internationally operating manufacturers and service providers will continue to develop their own frameworks, services and technologies for C-ITS. However, these systems risk being separate and proprietary, and could focus more on improved comfort and functionality than road safety and traffic efficiency. This fragmentation will hamper interoperability, continuity and the emergence of positive network effects and economies of scale & scope.

Because of this, it is expected that there will be deployment of C-ITS based on existing and planned projects (notably C-ROADS), however beyond that no further deployment of infrastructure equipment is foreseen. Further deployment in vehicles is likely restricted to luxury vehicles and aftermarket solutions, supporting a limited and proprietary set of services.

2. "Soft" regulation (recommendations, guidelines, memoranda of understanding etc.)

The European Commission could, together with relevant stakeholders, develop recommendations or guidelines defining how to improve C-ITS, covering all or some of the aspects of security, protection of personal data, communication, interoperability, compliance assessment and continuity as described above. This would give stakeholders the freedom to deploy and develop their own services at their own pace without legally binding requirements.

Another measure could be a Memorandum of Understanding (MoU) in a ´bottom-up´ approach in which stakeholders could drive activities and initiatives forward themselves without EU intervention.

3. Legally binding specifications

This entails the adoption of specifications (in accordance with Article 6 of Directive 2010/40/EU) to ensure the compatibility, interoperability and continuity of existing and future C-ITS.

These specifications would cover all or some (others would be covered by soft measures) of the aspects of security, protection of personal data, communication, continuity, interoperability and compliance assessment as described above. Variations in the exact scope, timing and prescriptiveness for each of these aspects will need to be developed and assessed in close cooperation with stakeholders during the preparatory process.

The specifications are only applicable should Member States and/or stakeholders already deploy or intend to deploy applications and services covered by the legal act. Member States and/or stakeholders would retain the right to decide on the deployment of such applications and services.

Mandatory deployment (i.e. as specified in Article 6.2 of the ITS Directive as a follow-up initiative to specifications) is not within the scope of this initiative.

Enabling conditions

Each of these measures can be supported through exchange of best practise and funding instruments. Existing platforms, such as the C-ITS and C-Roads platforms, could be used as a platform to share examples of best practise between Member States and relevant stakeholders making advancements in the field of C-ITS. Such an exchange could contribute to common initiatives and activities from mutual interest. Different funding instruments (CEF, Horizon 2020, EFSI) of the European Union could continue to be used by funding various research and deployment projects supporting the development of C-ITS.

C. Preliminary Assessment of Expected Impacts

The direct impacts of specifications are expected to be rather modest, as impacts (both costs and benefits) are expected to only become significant with substantial deployment. However, specifications form a key stepping stone to cooperative, connected and automated mobility and so different approaches to, and levels of, future deployment of C-ITS will also be assessed as part of the Impact Assessment.

The envisaged options should comply with the legal requirements of the ITS Directive 2010/40/EU (Article 5) and should not go beyond what is necessary to have its objectives satisfactorily achieved. It is important not to hinder currently existing market and organisations, but rather to support further innovation, operational optimisation, and enhanced level of services. When defining options, the principles for specifications and deployment of ITS as defined in Annex II of the ITS Directive (e.g. cost-efficiency, backward compatibility, respect of existing infrastructure and network characteristics) will be duly taken into account.

Likely economic impacts

Accelerated deployment of C-ITS will entail large **investment and operational costs**, in particular for vehicle manufacturers, road and transport operators, public authorities, services providers/developers and individual users. On the other side, improved traffic flows are expected to lead to significantly **less time spent in traffic** and

could also reduce needed **expenditure in road infrastructure expansion and maintenance.**

Coordinated deployment is expected **to reduce redundancy and increase roll-out speed and network effects.** It has been estimated that Day 1 C-ITS services – when deployed in an interoperable way across Europe – will produce a benefit cost ratio of up to 3 to 1 based on cumulative costs and benefits from 2018 to 2030.[15]

The deployment of C-ITS is expected to have positive impacts on international competitiveness, research and innovation and the Digital Single Market, in particular as it is a stepping stone towards cooperative, connected and automated mobility.

Both costs & benefits are expected to be realised earlier in Member States with developed infrastructure and a larger share of new cars, but improved coordination could contribute to a more balanced roll-out of C-ITS across Europe.

A significant number of transport providers and service providers/developers are Small and Medium Enterprises (SME's) that might be affected. Therefore, the impact assessment will give attention to the likely impact on SMEs and micro-enterprises.

The deployment of new C-ITS service can create **new jobs and business opportunities** and common specifications can **broaden the C-ITS market and make it more accessible.**

Likely social impacts

C-ITS (and in particular many safety-related services included in the day-1 list) are expected to make a strong contribution to **improving road safety.**

Likely environmental impacts

C-ITS are expected to contribute to **reducing negative environmental externalities of transport (in particular pollutant and CO2 emissions),** through improved use of transport infrastructure and smoother flow of traffic, provided that it does not lead to an increase in road traffic, and the facilitation of intermodality (enabling the shift towards more efficient and environmentally-friendly modes).

Likely impacts on fundamental rights

The deployment of C-ITS will lead to a very strong increase in the information shared between vehicles, infrastructures and potential third parties. A detailed analysis and clear rules are thus needed to safeguard sound level of **privacy and protection of personal data**.

Likely impacts on simplification and/or administrative burden

Using legislation as opposed to only soft-law measures (such as recommendations, guidelines, exchange of best practises) would do more to ensure that developments and progress are made in a consistent and harmonised manner by all actors across the value chain. The impact assessment will estimate possible administrative burden and ways to minimize it.

D. Data Collection and Better Regulation Instruments

Impact assessment

An impact assessment is necessary for the Commission to take an informed decision. An Inter-service Steering Group, composed of representatives from all relevant Commission Directorates-General, will assist in reviewing the main milestones of the process, in particular in reviewing the consultation documents and main deliverables/tender specifications of the support study. Moreover, it will be consulted on the main elements of the impact assessment and it will contribute to the drafts of the impact assessment report.

The impact assessment support study will be launched in the second half of 2017.

Data collection

Since the sector is maturing, there are no large sets of data available regarding C-ITS. Available information mostly comes from projects carried out at European and/or national level, as well as other national reports. The Commission is currently also carrying out an evaluation of the ITS Directive; relevant findings will be considered in the IA where feasible.

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[15] Study on the Deployment of C-ITS in Europe: Final Report, February 2016

Since November 2014 the Commission hosts the C-ITS Platform, in which European stakeholders from both public and private sectors identify remaining barriers and propose solutions. The first phase of the C-ITS platform resulted in an expert report, which has been endorsed consensually in January 2016. This report was complemented by a Cost Benefit Analysis[16] analysing different deployment scenarios for C-ITS and an open public consultation.

The findings of the preceding cost-benefit analysis will have to be validated, expanded and aligned with the policy measures to be considered in this initiative; up-to-date evidence will be sought through case studies developed in close collaboration with advanced C-ITS deployment initiatives.

The results of the second phase of the C-ITS platform (expected in 3rd quarter of 2017) and the real-life deployment experiences gathered in the C-ROADS platform will also feed into the Impact Assessment.

Additional data will be gathered in the support study through desk and field research activities, including stakeholder consultation.

Consultation strategy

The consultation activities will have two main objectives:

- o To provide concerned stakeholders and the wider public with an opportunity to express their views on all elements related to C-ITS, and express their views and positions regarding the key elements of the impact assessment

- o To gather specialised input (data and factual information, expert views) from key stakeholders on their views and positions regarding the potential impacts of the various measures considered in the impact assessment.

The planned consultation activities are:

- A **12-week public consultation** to be launched in 3rd quarter 2017. The consultation aims to collect the opinions of stakeholders and interested parties including EU citizens and private and public organisations. The public consultation will be published on http://ec.europa.eu/transport/index_en.htm as well as on the Commission-wide Public Consultation website (http://ec.europa.eu/info/consultations_en) and will be available in the following languages: EN, FR, DE. Answers can be provided in any of the 24 official EU languages.

- Targeted consultation (surveys and/or interviews) of professional stakeholders on the issues related to the impact assessment as part of the support study.

- A stakeholder workshop will be held before the finalisation of the external support study, to which key operators and stakeholders will be invited with the aim to validate the findings of the external study and the possible options.

- The Commission will also inform and engage with the bodies established under the ITS Directive 2010/40/EU, namely the ITS Committee representing the Member States, as well as the ITS Advisory Group representing the industry and the C-ITS Platform, which includes all the relevant actors along the whole value chain including public authorities at national and local level.

At the end of the consultation process, a synopsis report will be published on the consultation website and added as an annex to the impact assessment. It will summarize all the consultation activities performed and the outcome of the consultation. This report will be available in all EU languages.

Will an Implementation plan be established?

The legislative option considered in this initiative concerns the adoption of a new Delegated Regulation, which would be directly applicable in Member States and thus would not need to be transposed into national law.

The functioning and implementation of the ITS Directive and its Delegated Regulations are monitored and reported on by the Member States and the Commission in a structured way under Article 17 of the Directive.

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[16] Study on the Deployment of C-ITS in Europe: Final Report, February 2016