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The provision of EU-wide real-time traffic information services

Accompanying the document

Commission Delegated Regulation

**supplementing Directive 2010/40/EU of the European Parliament and of the Council
with regard to the provision of EU-wide real-time traffic information services**

{C(2014) 9672 final}

1. CONTEXT OF THE DELEGATED ACT

The Delegated Regulation supplementing Directive 2010/40/EU of the European Parliament and of the Council with regard to the provision of EU-wide real-time traffic information services¹ establishes the specifications necessary to ensure accessibility, exchange, re-use and update of road and traffic data for the provision of real-time traffic information services in the European Union. It applies to the comprehensive Trans-European road network and motorways not included in this network in order to ensure continuity of the service for any driver all along the connected networks and highways of similar characteristics, including across borders. It also applies to priority zones identified by the national authorities where they consider that to be relevant. The Delegated Regulation is intended to provide appropriate framework conditions enabling the co-operation of all the relevant stakeholders (road authorities, road operators and ITS service providers) involved in the traffic information value chain, and to support the interoperability, compatibility, and continuity of real-time traffic information services across Europe. In return, higher quality information services are expected for both passengers and freight operations, while this favourable context would contribute to enhance the Union industry's competitive position.

This document explains and clarifies the approach followed to develop the Delegated Regulation on the provision of Europe-wide real-time traffic information services adopted in conformity with Article 7 of Directive 2010/40/EU (ITS Directive)².

1.1. Background

On 28 March 2011 the European Commission adopted the White Paper on Transport³. The White Paper defines a long-term vision for a transport sector that serves the needs of the economy and of the citizens while meeting future constraints: oil scarcity, growing congestion and the need to cut CO2 emissions. The vision was to a substantial degree based on better multimodality of transport and new technologies that should lead to more optimised journeys.

On 16 December 2008, the Commission adopted an Action Plan for the Deployment of Intelligent Transport Systems for road transport and its interfaces with other modes⁴. The aim of this Action Plan was to accelerate and coordinate the deployment of ITS applications. Action 1.1 of the Plan calls for the definition of procedures for the provision of EU-wide real-time traffic and travel information services.

Directive 2010/40/EU of the European Parliament and of the Council of 7 July 2010 on the legal framework for the deployment of Intelligent Transport Systems in the field of road transport and for interfaces with other modes of transport⁵ identified six priority actions for the adoption of specifications and, if appropriate, their mandatory deployment. 'The provision of EU-wide real-time traffic information services' is one of these six priorities.

¹ C(2014) 9672final

² OJ L 207, 6.8.2010, p. 1.

³ COM(2011) 144 final.

⁴ COM(2008) 886 final.

⁵ OJ L 207, 6.8.2010, p.1.

On 20 July 2010, in the Communication "Towards a European road safety area: policy orientations on road safety 2011-2020"⁶, the Commission set itself the ambitious target of halving the overall number of road fatalities in the European Union by 2020 starting from 2010 and presented seven strategic objectives to that end, among which to "Promote the use of modern technology to increase road safety".

On 12 December 2011, in the Communication 'Open Data: An engine for innovation, growth and transparent governance'⁷, the Commission stressed that intelligent processing of data was essential for addressing societal challenges. Opening up public and private data for re-use not only improves information-based services helping business and citizens to take informed decisions, but also stimulates innovation and contributes to growth. This was also pointed out in the Digital Agenda for Europe adopted by the Commission on 19 May 2010⁸.

Together with the White Paper on Transport and the Energy Efficiency Plan⁹, the Roadmap of 8 March 2011 for moving to a competitive low carbon economy in 2050¹⁰ is a key deliverable under the Resource Efficiency Flagship. Moreover technological innovation can help the transition to a more efficient and sustainable European transport system by acting, for example on a better use of networks and safer and more secure operation through information and communication systems.

Highly relevant for the current initiative is Directive 2007/2/EC of the European Parliament and of the Council of 14 March 2007¹¹ which aims to create a European Union spatial data infrastructure to enable the sharing of and public access to spatial information (including information related to transport networks) across the Union with a view to supporting the Union's environmental policies, and policies or activities which may have an impact on the environment. The specifications for the provision of real time traffic information services are compatible with the requirements established by this Directive.

Regulation (EU) 1315/2013 of the European Parliament and the Council defines the road transport infrastructure that is part of the trans-European transport network¹².

Under the framework of the ITS Directive the Commission already adopted the Delegated Regulation (EU) No 886/2013 of 15 May 2013¹³ containing specifications for road safety related minimum universal traffic information services. This Regulation defines minimum requirements for the provision of road safety related traffic information. This would guarantee interoperability and continuity of the information services along the trans-European road network throughout Europe.

Under the framework of the ITS Directive the Commission also adopted the Delegated Regulation No 885/2013 of 15 May 2013¹⁴ containing specifications on the provision of information services on safe and secure parking places for trucks and commercial vehicles. It

⁶ COM(2010) 389 final.

⁷ COM(2011) 882 final.

⁸ COM(2010) 245 final.

⁹ COM(2011) 109 final.

¹⁰ COM(2011) 112 final.

¹¹ OJ L 108, 25.04.2007, p.1.

¹² OJ L 338, 20.12.2013, p.1.

¹³ OJ L 247, 18.9.2013, p. 6.

¹⁴ OJ L 247, 18.9.2013, p. 1.

is intended to prevent dangerous parking of trucks on the hard shoulder and to help drivers comply with driving time regulation across Europe.

1.2. Approach leading to the provision of EU-wide real-time traffic information services

Real-time traffic information services aim to provide road users with timely, relevant, accurate and up-to-date information related to their journeys including information about the physical characteristics of the road network, traffic circulation plans, traffic regulations (such as speed limits and access restrictions), recommended driving routes and real-time traffic data including estimated travel times, information about congestion, accidents, roadworks and road closures, weather conditions, and any other information considered relevant to the planning and the execution of the trip (e.g. information about road tolls and availability and cost of parking places at the destination). This is an area where the market is already providing services. However, services provided to users are sub-optimal due for instance to lack of cross-border continuity, few data exchange agreements intra-EU and internationally, or low quality. Level of services can be enhanced through better stakeholder collaboration and thanks to new technologies/innovations. Therefore, the European Commission can clearly act to the benefit of all stakeholders (i.e. for drivers to better plan their journey, for road operators to better manage traffic flows, for service providers to enhance the reliability of their services) and on reaching the wider policy objectives of increasing road safety, improving infrastructure optimisation, increasing energy efficiency and reducing harmful emissions from road transport. Nevertheless, the costs of deploying real-time traffic information need to be carefully considered and weighted to reach an optimal result.

The users of real-time traffic information services fall into three main categories: actual and potential road users including commercial road transport operators (incl. fleet operators), private motorists, long-distance passenger transport operators (especially charters) and, to some extent, users of regional and local public transport services who want to optimise their transport activities and enhance their journeys; transport infrastructure managers, road operators and traffic managers who on the one hand want to optimise the use of transport infrastructure they are responsible for but on the other hand also aim to provide a better user experience for road users; and ITS service providers who use real-time traffic information to provide value-added services to their own customers.

The promotion of providing and having access to EU-wide seamless multimodal travel information, planning and ticketing services, and better use and integration of transport modes and various mobility services in general is another pillar of the European Commission integrated approach towards seamless mobility.

To reach the policy objectives referred to above, the Commission Services suggest filling in the gaps in the provision of an EU-wide deployment of real-time traffic information services by:

1.2.1. Making real-time traffic information data interoperable

Some of the relevant road and traffic data is already available in most Member States but the way the data is processed and communicated is not always interoperable to allow continuity of services from one Member State, region or city to another (e.g. due to different data formats and limited access). Therefore, efforts should be undertaken to improve the

interoperability of real-time traffic information (e.g. by standardisation efforts and better collaboration) that can support increasing the compatibility of cross-border services continuity and smooth urban-interurban interfaces.

1.2.2. Supporting more efficient management of road infrastructure and equipment

The road and traffic data associated with real-time traffic information services could be used by road operators to optimise the operation and performance of the road network. Traffic managers should routinely use such data to redirect traffic flows as necessary with a view to optimising the capacity and performance of the available road infrastructure. At the same time road operators and traffic managers should make widely available in a timely manner up-to-date road and traffic data that they own or collect (e.g. current and future roadworks and other relevant planned and unplanned events) thereby contributing to the overall quality of real-time traffic information.

Real-time traffic information services use road and traffic data from a combination of public and private sources. The services should cover the whole of the TEN-T¹⁵ roads and motorways outside the TEN-T as well as up to major interurban / urban areas, where appropriate and where congestion represents a problem. The quality of the services should be gradually improved with a view to better accommodating the users' needs. Integrating interurban traffic management plans with lower level circulation plans could be considered as an option.

Efficient (electronic) arrangements for the exchange of road and traffic data need to be established between the relevant public authorities and private service providers. There are already initiatives geared at reaching this goal (e.g. TEN-T projects, stakeholder platforms). Apart from the above-mentioned areas, private digital map producers and service providers would also benefit from existing national Spatial Data Infrastructures.

1.2.3. Ensuring that road users have access to the right scope of data and information (in combination with travel information services)

Based on the identification of users' needs and consumers' expectations and taking into account the development potential of technology to meet these needs and expectations, accurate real-time traffic information, with a degree of interoperability, should be provided across the whole of the Union to road users. This information should allow optimal performance of the transport infrastructure respecting the safety, environmental and social considerations of the communities where the transport activities take place. It would also help users to decide on the appropriate mode of transport to use and plan their trip in a way that is optimal for them while keeping them informed of relevant developments affecting traffic conditions throughout their journey. In particular, effective interfaces should be established between the interurban and urban links of the transport network.

In order to better plan or re-plan their journey, users would need a variety of information building up a large scope of road, traffic and travel data, e.g. on roadworks, accidents, weather condition, congestions, parking facilities or public transport interchanges.

¹⁵ Trans-European Transport Network. 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 Text with EEA relevance (OJ L 348, 20.12.2013, p. 1–128).

1.2.4. Improving the quality of the real-time traffic information services

The concept of data quality encompasses several aspects including accuracy, timeliness, reliability and granularity of data. The level of accuracy required also depends on what purpose the data is used for. High-quality data may come at a substantial cost and data users must choose a level of data quality that is in line with their needs. The optimal data quality is when costs and benefits are balanced. There are no agreed standards for data quality in the Union. A combination of road and traffic data from multiple public and private sources makes it increasingly challenging to process and aggregate these data but offers the potential of drastically increasing the quality of the services to end users without major costs.

Appropriate stakeholder collaboration can help to enhance the quality of data, its definition, monitoring and assessment. The target should be put on reaching optimal and accurate data quality for service users.

1.2.5. Paying attention to wider policy considerations

The deployment of an EU-wide real-time traffic information system should contribute to increasing road safety, enhancing environmental well-being and reaching the Union's climate change and energy efficiency targets (e.g. by reducing trip lengths, congestion, accidents and GHG emissions from road transport). Efficient traffic management and pre-warnings to drivers of any events should lead to less congestion, less fuel consumption and smoother driving. It would also help fleet operators to optimise the use of their fleet operation, thereby saving costs, improving road safety and decreasing environmental emissions.

1.3. Delegated act under Directive 2010/40/EU (the "ITS Directive")

To make further progress in the above-mentioned areas, the Commission Services provide a toolbox to support interoperability of real-time traffic information.

Directive 2010/40/EU aims to accelerate the coordinated deployment and use of ITS in road transport (and its interfaces with other modes) across Europe. Action (b) on 'the provision of EU-wide real-time traffic information services' is one of the six priority actions defined in Article 3 of Directive 2010/40/EU.

Article 7 of Directive 2010/40/EU empowers the Commission to adopt Delegated Acts in accordance with Article 290 of the Treaty on the Functioning of the European Union (TFEU) to define specifications for the priority actions.

The Directive foresees these specifications to be binding and aims at ensuring the development of interoperable services, where possible based on existing standards and technology. The initiative is expected to contribute to EU-wide continuity and interoperable delivery of real-time traffic information services.

The present Act, adopted as a Delegated Regulation, constitutes the binding specifications for priority action (b) of the ITS Directive.

Member States need to take the necessary measures from 24 months after the Delegated Regulation enters into force to ensure that the specifications are applied to the relevant ITS applications and services that are deployed at the time when the Delegated Regulation is

applied or that will be deployed after its date of application. This complies with Article 5 of the ITS Directive which specifically states the right of each Member State to decide on the deployment of such applications and services on its territory (subsidiarity and proportionality).

At a later stage, after the adoption of the specifications for the priority action and after having conducting a thorough impact assessment including a cost benefit analysis, the Commission might, if appropriate, under the co-decision procedure, present a proposal to the European Parliament and the Council on a mandatory deployment of the priority action.

Other measures in the toolbox include support for research and development activities under Horizon 2020¹⁶ and support for the deployment of real time traffic information services, and the associated activities and equipment / facilities necessary for the provision of high quality real time traffic information services, under the Connecting Europe Facility¹⁷.

2. CONSULTATIONS AND EXTERNAL INPUTS PRIOR TO ADOPTION OF THE DELEGATED REGULATION

2.1. Background expertise

While keeping in mind that a market already exists and provides real-time-traffic information solutions, the Delegated Regulation for the provision of EU-wide real time traffic information services drew on external expertise and material, in particular:

- A number of Euro-regional ITS deployment projects have been funded under the Trans-European Transport Network (TEN-T) programme over the past years and work has continued in the EasyWay projects, which have finalised 'Deployment Guidelines'¹⁸ for core ITS services;
- National Reports and 5-year Plans on ITS Actions submitted by the Member States to the Commission under Article 17 of Directive 2010/40/EU provided a broad picture of existing ITS services across Europe;
- A support study¹⁹ on EU-wide real-time traffic information services was carried out for the Commission from February 2013 to June 2014. The findings of this study were summarised in a final report.

2.2. Stakeholder consultations²⁰

The Delegated Regulation for the provision of EU-wide real time traffic information services is the result of extensive consultations with stakeholders.

¹⁶ <http://ec.europa.eu/programmes/horizon2020/en/h2020-section/smart-green-and-integrated-transport>.

¹⁷ http://ec.europa.eu/transport/themes/infrastructure/ten-t-guidelines/project-funding/cef_en.htm.

¹⁸ <http://www.easyway-its.eu/deployment-guidelines/>.

¹⁹ Deliverables of this support study are available online: http://ec.europa.eu/transport/themes/its/index_en.htm.

²⁰ Details of the stakeholder consultation are provided and fully documented in the Consultation Report of the support study, which is available online: http://ec.europa.eu/transport/themes/its/index_en.htm.

2.2.1. *Stakeholder input to the support study*

As part of the external study mentioned above, small group discussions with interested public and private stakeholders were carried out in May 2013.

The first group discussion was reserved for public authorities and included policy makers and road authorities from a selection of Member States considered as representative of the different approaches and organisational arrangements across the Union. The second group brought together representatives of leading mapping companies and traffic information and navigation service providers. ITS experts were invited to the third group to elaborate on the more technical aspects and quality issues of real time traffic information.

The public authorities represented in the discussions indicated that private services would always rely on road operators information (for some categories of information), and that road operators would always require traffic data for their traffic management purposes.

The private service providers who participated in the discussions indicated that public authorities should define the role and responsibilities they still want to assume, and at which cost, balancing costs and societal benefits. Traffic management and crisis management would always remain in the public domain but public authorities should be aware that new efficient tools from private companies are available for these purposes. All recommended that road operators should leave journey times production and provision to commercial actors. Furthermore, the private companies indicated that public road authorities should support the business cases of private companies rather than compete with them.

For traffic regulations and traffic management measures, all public authorities agreed that information needs to be made available and timely updated. Currently some information is available but the mechanisms for their publication differ for each level (local, regional, national) in each Member State. Private stakeholders all agreed that journalistic data created or collected by road operators should be made available in a harmonised and machine readable format. All agreed that fixed and variable speed limits, parking information and traffic management information in general are not provided in an optimal manner for developing good quality real time traffic information services. They regret that roadworks data / information are generally not available or reliable enough or provided in a digital format. They see a leading role for road authorities to incentivise on the provision of such data/information by road operators to service providers.

2.2.2. *Stakeholder workshop*

In June 2013²¹ a workshop was organised in Brussels by the Commission, which was well attended by public and private stakeholders involved in the various roles of the value chain²². Participants represented public authorities, road operators, private organisations (including automotive industry, data/service providers) and users associations. The following key findings were derived from the Workshop Minutes.

In the discussions both public and private organisations stressed that the traffic information value chain is organised in different ways in the various Member States, regions and cities, and investments have been made based on the established form of cooperation. Any new

²¹ Workshop materials available at:
http://ec.europa.eu/transport/themes/its/events/2013_06_27_workshop_rtti_en.htm.

²² See TISA definition of the traffic information value chain:
<http://www.tisa.org/assets/Uploads/Public/EO12013TISADefinition-ITS-value-chain20121018.pdf>.

legislation should respect these existing arrangements by allowing for flexibility in the deployment of services. The workshop considered that any Commission intervention should not disrupt the existing market. The industry was concerned that if the Commission demands availability and sharing of all road and traffic data (and especially traffic data), price erosion might occur in the market and private stakeholders might even stop collecting useful data or providing some services. Public authorities were concerned that intervention by the Commission could potentially lead to extra costs.

Both public and private organisations pointed out that market and technology developments usually outpace legislation. Various people expressed the view that the Union's legislation should provide a framework but that deployment should then be left to the Member States and services driven by the market.

There was broad consensus that quality is an important issue that needs to be tackled but further research and development was needed in this field before mandatory requirements could be specified.

On the publication of road and traffic regulations by public authorities, opinions seemed to be divided. Some participants argued that public authorities who create road and traffic regulations and should therefore be responsible for their timely publication. Others argued that the ITS industry already found (technological) solutions to circumvent the lack of data and that public authorities should therefore not be forced to invest in publication of the regulations.

2.3. Meetings with Member State experts

The findings from the stakeholder consultations and the preliminary conclusions from the external study have been taken into account in preparing a first draft of the specifications for real time traffic information, which have been discussed in a series of meetings with technical experts nominated by Member States, plus the EEA countries and Switzerland. Seven meetings with nominated experts took place from 15 April 2013 to 10 July 2014²³. Invited experts from the European Parliament also participated in these meetings.

The work with the experts nominated by the Member States has developed gradually over the meetings, starting with a first meeting on state of the art and specific issues (e.g. digital maps, liability, traffic regulation and road data). During the second meeting the Commission presented a background document with a view to agree on a shared vision as well as on the objectives of the initiative. The third meeting has been dedicated to a commonly agreed problems definition, which translated into a first skeleton of the specifications. During the fourth meeting the main elements of the framework conditions for the provision of real-time traffic information were discussed (i.e. data scope, roles along the value chain, geographical scope), and the results of the support study on real-time traffic information services (in particular the results of the online public consultation and outcomes of the cost-benefit analysis) have been presented to the experts. Then the three last meetings have been fully dedicated to the drafting of the specifications for the provisions of real-time traffic information services.

The detailed discussions with the Member State experts confirmed that:

²³

Agenda and summary records of each meeting are available at:
<http://ec.europa.eu/transparency/regexpert/index.cfm?do=groupDetail.groupDetail&groupID=1941>.

- The comprehensive trans-European road network with the addition of other motorways that are not part of this network would be the appropriate geographical scope for the specifications but Member States should be able, where they consider appropriate, to identify additional road sections, notably in interurban / urban areas, where the specifications could also be applied.
- The types of data supporting the provision of real-time traffic information are numerous and of different nature, e.g. static, dynamic, related to physical characteristics, to traffic regulations or traffic flows. Therefore the data scope should be kept flexible, depending on data availability and purpose of use.
- As mostly used by road operators, DATEX II would be an appropriate European standard for data sharing.
- The specifications should remain functional and respect technological neutrality (i.e. no favoured delivery channel).
- Although the quality of real-time traffic information was of significant importance, this was considered as a topic to be further investigated at the level of each Member State in order to define criteria, measurement methods and quality targets for the deployment of an efficient service. The work could be subsequently developed at Union level.
- A flexible and cost-efficient model for conformity assessment for instance based on self-declaration and contributing to the benchmarking of Member States' practices could be an option for some Member States.
- A transition period of 2 years following entry into force of the Delegated Regulation would be justified in order to ensure that any processes and systems already implemented would meet the requirements of the specifications.

2.4. Other consultations

The members of the European ITS Advisory Group²⁴, composed of high-level representatives from ITS service providers, associations of users, transport and facilities operators, manufacturing industry, social partners, professional associations, local authorities and other relevant fora, were consulted on the draft specifications (written consultation held in September 2014).

An online public consultation on the provision of real-time traffic information services ran for 12 weeks between December 2013 and March 2014. In total 101 people and organisations completed the questionnaire, with a good mix of all stakeholders in the traffic information value chain (with 20 stakeholder groups) and representing 22 Member States. A summary of the findings of the public online consultation are available online²⁵.

²⁴ Composition and task of the group:

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

²⁵ Online questionnaire and results at: http://ec.europa.eu/transport/themes/its/consultations/2014-03-14-rtti_en.htm

The Commission's approach to foster the provision of (high quality) real-time traffic information services across Europe was presented to the TRAN committee of the European Parliament during a meeting in October 2014.

3. COST-BENEFIT ANALYSIS AND POTENTIAL IMPACTS

3.1. Market Developments

The past decade has seen a clear change in the European real-time traffic information market. 10 years ago, it was dominated by small and medium-sized companies which usually focused on one specific national market. Public authorities played a leading role in the collection of road and traffic data, aggregation and validation of these data, and the provisioning of (real-time) traffic information services. Driven by the need to provide uniform traffic information for the purpose of navigation services by service providers such as Personal Navigation Devices (PND) manufacturers and the automotive industry, large companies started to collect their own real-time traffic data, relying in particular on floating vehicle data and floating cellular data.

The entry of large players in the market has changed the market dynamics. There has been consolidation in the form of mergers or larger players taking over smaller companies. This trend is expected to continue in the coming years. Nevertheless, smaller companies with specific know-how can remain in the market in several functions, such as playing their existing role or becoming subcontractors or suppliers to larger companies. In this way the SMEs operating in the real-time traffic information market can have a positive contribution to employment. The emergence of new services can also become a factor in increasing employment irrespective of the company size.

More openness in the market is of high importance to the Commission Services so that SMEs have equal access to road and traffic data / information as compared to larger players. Well-identified national or common access points (i.e. single window) for easy access to road and traffic data associated with discovery services can support them in this respect.

The data scope of the specifications includes different types of road and traffic data that are considered either necessary or beneficial for the provision of real-time traffic information services. It is acknowledged that not all Member States or stakeholders are necessarily collecting all the types of data listed in the Annex of the specifications and the Annex is not meant to represent an exhaustive or exclusive list of data.

Annex I to this Commission Staff Working Document provides examples of real-time traffic information services provided in Europe through selected delivery channels.

3.2. Public and Private Roles

Private companies will be fast to adopt the new technologies, further accelerating their footprint in the European real time traffic information services market. Alongside the increased role of private companies in all stages of the value chain (e.g. data collection, aggregation and processing, information development and delivery), public authorities play a key role as they are in general the original source of certain types of information, e.g.

regulations, information on roadworks, accidents and diversions, and traffic management measures for publicly operated roads.

New technologies will enable more comprehensive and efficient traffic management by road authorities in collaboration with private companies; and some initiatives already exist between private service providers and public authorities towards this aim²⁶.

The role of private companies in the delivery of real-time traffic information to end-users has increased drastically over the past decade. The emergence of cooperative technology will further enhance the ability of private companies to cost-efficiently collect large volumes of real time traffic data. These technologies will also enable them to collect safety related traffic data, using vehicle based sensors to assess road and weather conditions or detect accidents and wrong-way drivers in real-time.

It is clear that both public and private organisations will continue complementing each other in the value chain of the future. The regulatory challenge for the public authorities is to define an appropriate policy framework that will foster cooperation between public and private organisations in a continuously evolving value chain in such a way that all stakeholders take on the role where they add most value, and that all could satisfactorily achieve their policy, societal or business goals.

3.3. Problem identification

The geographical scope of the real-time information services is currently fragmented and does not allow interoperability between countries, regions and cities. Data collection characteristics and scope differ from Member State to Member State. This should not be the case at least for TEN-T roads and on other motorways, and, if a Member State so decides, for its inter-urban / urban priority zones.

The non-availability of EU-wide continuous and high quality real-time traffic information services can be explained by a lack of (digital) road and traffic data, the fact that existing road and traffic data is not being shared, and that the accessible road and traffic data is fragmented, non-interoperable (due to the use of various formats / standards) and of insufficient quality. Also the timeliness of the available road and traffic data could be improved. Compatible discovery services are missing and there are no national access points for all road and traffic data together in a single place in each Member State.

Data quality is also not ensured or monitored sufficiently. At the same time and in conjunction with data quality monitoring, an adequate description of the attributes of the data should be guaranteed (such as accuracy, lifespan, update frequency, granularity).

There is no appropriate European-wide governance framework concerning the roles and responsibilities of different public and private actors even though road and traffic data is sourced largely from the public sector and is processed and disseminated largely by the private sector.

²⁶ See for instance the platform "Traffic Management 2.0" <http://tm20.org/>.

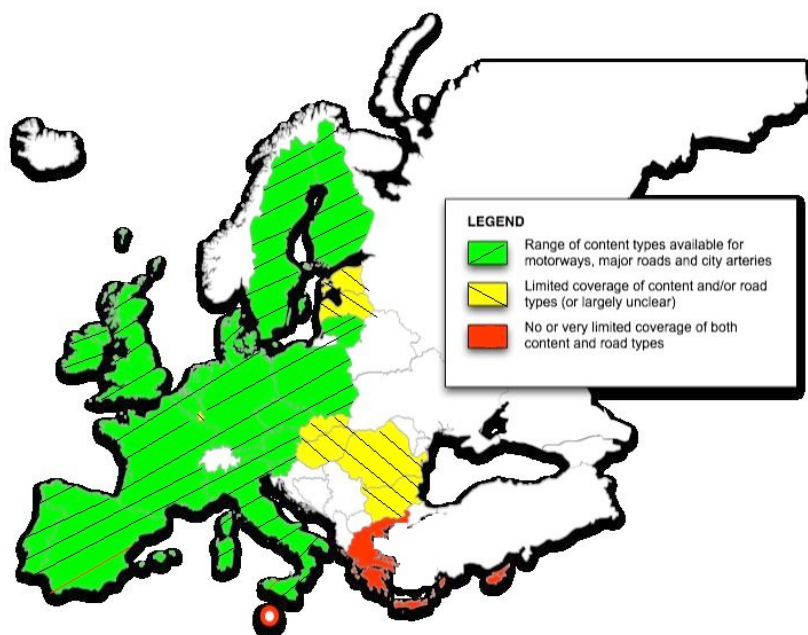


Figure 1 - Overall availability of traffic content in EU27.

A survey of 50 organisations across Europe²⁷ indicated that the five most frequent difficulties are related to:

- Problems with getting access to existing data (70%);
- Difficulties with finding out which data is available (56%);
- The data needed is not available (51%);
- Data sets from different suppliers are not compatible (47%);
- Existing data is of insufficient quality (47%).

The problem drivers include the high cost of road and traffic data collection, the high cost of data digitalisation, the lack of physical access to data, the lack of appropriate framework conditions for use and re-use of data (including ownership, liability, privacy issues etc.), the lack of co-operation among stakeholders, the lack of common definitions for quality of data and services, the lack of regular data updates, the lack of suitable standards and/or insufficient use of existing standards, and ultimately the lack of users' awareness.

A visual representation of the problem tree can be found in Annex II to this Commission Staff Working Document.

3.4. Intervention logic

The current specifications are presented as one component in the toolbox of measures designed to address the identified problems. The problem of lack of available digital data, driven by the high cost of data collection and the cost associated with digitising data that is only available in non-machine readable format, and to some extent the problem of the

²⁷

Internal research of the European Commission Services. See: http://inspire.ec.europa.eu/reports/fds_report.pdf.

insufficient quality of the available data, can be much more effectively addressed through other measures such as those supporting research and development activities or supporting deployment of ITS services and the infrastructure necessary for the provision of these services.

Therefore, the current specifications are developed to overcome other main problems, namely the non-sharing of existing road and traffic data and the fragmentation and non-interoperability of existing road and traffic data. Moreover the specifications aim at incentivising stakeholder collaboration and the improvement of data quality. There are already existing initiatives between stakeholders and co-funded by the European Commission on data / information quality (e.g. TEN-T projects).

The specifications do not oblige Member States to deploy ITS services. They only apply to road and traffic data that road authorities, other road operators and service providers are already collecting or that they irrespectively will collect within the geographical scope of the specifications.

3.5. Elements of a cost-benefit analysis²⁸

Based on the findings of initial desk research and the results of the consultations, a preliminary cost-benefit analysis was carried out by consultants aiming at quantifying the costs and benefits of possible measures. Overall, the consultants' estimates indicate a positive cost/benefit ratio of the Commission taking action in the field of real-time traffic information (as opposed to no action) in the study window (2015-2025).

The Commission Services used some elements of the study to prepare this Commission Staff Working Document.

3.5.1. Some cost estimates

Since the Delegated Regulation does not require that the Member States collect any more road and traffic data than they are already collecting or they intend to collect in the future neither to digitise any data that is not already available in machine readable format, the additional costs of the actions in the specifications remain moderate.

The Delegated Regulation affects only those Member States that are already collecting road and traffic data or intend to collect it in the future.

There would be costs of sharing information between all players (except for those who distribute data for a fee to cover the costs) and administrative costs of setting up a discovery service and a national access point. Those member States and road operators concerned that do not yet provide dynamic road status data and traffic data in the widely used machine-readable DATEX II format would have to do so. Timely map updates of information might also bear a marginal cost for those Member States and road operators that do not provide such updates yet. There would be running administrative costs of providing the services for all players (except when the data is distributed for a fee to cover the costs). Quality control would also bear administrative costs.

²⁸

Details and rationale of the CBA are provided and fully documented in the Final Report (D5) of the external study, which is available online: http://ec.europa.eu/transport/themes/its/studies/its_en.htm.

According to the consultants' study, if no further intervention by the European Commission is undertaken beyond the actions already required by the ITS Directive within the time line 2015-2025, congestion costs could amount to about €13,6 billion in EU27²⁹ in 2025. Without further intervention, the costs of congestion caused by accidents and incidents on the network are expected to decrease from €11,4 billion in 2015 to €9,5 billion in 2025 due to existing EU policy and other priority actions under the ITS Directive. The costs of congestion caused by roadworks are expected to increase from €6,9 billion in 2015 to €7,8 billion in 2025. In this context of "no further action" it is also assumed that active traffic management plan information would not be published via DATEX II by road operators during the analysis period (i.e. until 2025).

The consultants' study (under the assumptions of introducing a framework with non-mandatory data content, including specifications for certain road and traffic data types) estimated the total costs of the following items for whole Union for the period of 2015-2025:

- Messaging middleware costs at approx. €1,1 million;
- DATEX II publisher costs at approx. €3,3 million;
- DATEX II node modification and provision of data costs at approx. € 3,3 million;
- Implementation and operation of a national roadworks database costs at €58,2 – 64,4 million while the maintenance of the database would also have running administrative costs.

In the context of the provision of road safety related traffic information services, the Netherlands has estimated that the annual costs of a point of access with web links and metadata would amount to €31.000. With web links only the costs would go down to €8.000 a year, whereas going for a point of access with web links, metadata and data would cost €151.000 a year.³⁰

Finland has similarly estimated the annual costs associated to a national point of access to approximately €100.000.

No specific information of the running annual costs is available from other Member States but one could assume that the annual costs of most Member State might fall between the cost range presented by the Netherlands depending on the complexity of the national access point set up, the data scope and pre-existence of legacy facilities.

The Delegated Regulation leaves Member States free, if they so wish, to cooperate with each other, and with stakeholders (already managing / providing an access to data), to share the costs associated with the establishment and operation of a common access point. Moreover, those Member States who have already set up or are setting up an access point for previously adopted Delegated Acts could build upon those existing solutions.

²⁹ The consultants' study covers only EU27 because the data collection took place prior to Croatia becoming an EU Member State.

³⁰ Study by the Dutch Ministry of Infrastructure and Environment, <http://www.connekt.nl/uploads/2014/01/rapport-onderzoek-en-advies-invulling-toezicht-op-naleving-its-acties-c-en-e.pdf>.

Estimations drawn from the Dutch study on the implementation of road safety related traffic information services offer background information for real-time traffic information services. This study estimated that the initial costs involved in shaping the supervision necessary for assessment of compliance of the provision of road safety related traffic information services could be of approx. €40.000, whereas costs for self-declaration authentication and random checks could be of €100.000 and up till €200.000 for a close oversight through monitoring and labelling³¹. These costs would also depend on the number of complaints received and subsequent potential court cases.

It is worth noting that the costs are likely to be weighted up front whereas the benefits accrue and grow over time.

Annex III to this Commission Staff Working Document contains an overview of some average cost elements for stakeholders as estimated in the consultants' study.

3.5.2. *Estimates of benefits*

The external consultants considered (under the same assumptions and study window as above) that the benefits of including traffic management incidents in the scope of real-time traffic information services could possibly amount to €67,8 million whereas also including roadworks information could lead to benefits in the range of €82,6 – 219,1 million.

Overall, in the consultants' estimates, net benefits with non-mandatory minimum data content, including data specifications for particular road and traffic data types (e.g. traffic management messages related to incidents, with information presented via variable message signs (VMS) and road and traffic data made available via DATEX II) could be €225 million by 2025. If the data content is extended (e.g. to road data updates and speed limit changes), the net benefits could become €246 million.

The above benefits are aggregated net benefits for the road operators, traffic managers, service providers, road authorities, road drivers and the society as a whole over a 10-year period.

The benefits calculated by the consultants contain accelerated provision of information about traffic management information for incidents via DATEX II by road operators, accelerated provision of information about location of other real time traffic data via DATEX II by road operators, more efficient routing for equipped user networks including areas where there are no variable message signs (VMS), more efficient routing for users due to provision of real-time traffic information via DATEX II, and reduced costs for digital map providers and ITS service providers due to more / easier access to road and traffic data.

Some Member States³² in general do not yet have a DATEX II node, but are working on its development.

³¹ These are only indicative costs to be refined further following implementation of the specifications on data and procedures for the provision, where possible, of road safety related minimum universal traffic information free of charge to users.

³² e.g. Bulgaria, Cyprus, Estonia, Latvia, Lithuania, Luxembourg, Malta, Poland. Ref. Commission Staff Working Document - Cost-Benefit Analysis accompanying the document "Commission Delegated Regulation supplementing Directive 2010/40/EU of the European Parliament and of the Council with regard to data and procedures for the

Going beyond the consultants' report, one should keep in mind that the ability to discover existing data sets reduces the barriers of entry in markets where “local knowledge” is a necessary condition for entry, which thereof contributes to the single market (though this constitutes a wider benefit rather than an efficiency saving).

The benefits in terms of efficiency gains accrue both to the public sector and to the private sector. However, the benefits to business are particularly difficult to quantify because either the costs of poor data and poor access are usually hidden within organisations or the benefits would accrue in terms of new services. The distribution of the benefits between public and private sector bodies is therefore difficult to establish.

When road operators share their road and traffic data, they receive access to a considerable amount of additional data that can help them optimise their infrastructure use and maintenance (and save money).

Moreover the cost-benefit analysis carried out by the consultants shows better cost-benefit ratios for deployment options on the comprehensive TEN-T network as compared to the deployment options on the core TEN-T network. This is due to the extent of the comprehensive network as compared to the core network, i.e. the larger the network, the larger the benefits, whereas costs remain reasonable since additional data collection is not required, and data portals already exist in several Member States.

Along the lines of the specifications, the INSPIRE Directive has also opened up access to spatial data via interoperable network services such as the discovery service, to the business community, too.

The French authorities consider in their report³³ on the INSPIRE Directive 2013 that the implementation of the provisions of the Directive do not merely represent a cost, but also an investment which is rapidly turned to account in the light of the testimonies.

They point out that the prime beneficiaries are the staff of the public authorities themselves, who in this way sometimes obtain access to their partners' data. The gains result from faster discovery of the data, easier use of the data, limitation of the restrictions and reduction of the cost barriers thanks to mastering new tools and rising competence. The optimisation of the business exchanges between partners and the reduction in duplications of data lead to an increase in dissemination, better re-use and finally time-saving for everyone. An increase in the quality of the data and their accuracy and an increase in the interest of users are also benefits found.

The Dutch report on the implementation of the INSPIRE Directive 2012³⁴ indicates efficiency gains due, for example, to increased data availability, ease of use, better data-sharing, savings in time and money.

provision where possible, of road safety-related minimum universal traffic information free of charge to users", CSWD(2013) 170 final of 15.5.2013.

³³ http://inspire.ec.europa.eu/reports/country_reports_mr2012/FR-INSPIRE-Report-2013_ENV-2013-00439-00-00-EN-TRA-00.pdf.

³⁴ http://inspire.ec.europa.eu/reports/country_reports_mr2012/NL-INSPIRE-Report-2013_ENV-2013-00445-00-00-EN-TRA-00.pdf.

The Delegated Regulation has a similar aim of making data more accessible to all in a machine readable format (DATEX II, and subsequently upgraded versions, for dynamic road status data and traffic data). The nature of the benefits for sharing road and traffic data should therefore correspond to those for INSPIRE.

The Commission Services consider that cooperation between Member States and stakeholders should be encouraged, especially in the complex areas of data definition, data format, metadata model, and data quality since it will further foster interoperability, enhanced level of services, and cost sharing. Such cooperation already exists and is supported by the Commission through INSPIRE, the TEN-T policy and the Connecting Europe Facility. The role of the Commission should primarily be that of a facilitator to this cooperation and capacity building through guidance, exchange of best practices and comparison of experiences (e.g. reporting, expert meetings, WIK-ITS³⁵).

3.6. Contents of the Delegated Act

In conformity with Article 5 of Directive 2010/40/EU, the current specifications are binding only if the applications and services they cover are deployed or will be deployed by Member States or stakeholders such as road authorities, road operators or ITS service providers. This means in practice that the adoption of the specifications does not oblige stakeholders to start deploying an activity such as providing an ITS application or a service that they have not been providing before. However, if at the time of the date of application of the specifications they are already providing such an application or service or after the adoption of the specifications they decide to provide them, then they will need to provide them in a way that is in compliance with the provisions of the specifications adopted.

The geographical scope of the specifications is the comprehensive trans-European road network, with the addition of other motorways that are not included in this network in order to offer the relevant continuity of services to road drivers.

The initiative covers the entire TEN-T comprehensive road network for several reasons. The new TEN-T policy aims to close the gaps between Member States' transport networks, address fragmentation and discontinuity still hampering the smooth functioning of the internal market and seamless transport chains for both passengers and freight, and overcome technical barriers due to lack of interoperability of systems and services, in order to achieve a single European Transport Area, encompassing all EU countries and regions, including peripheral ones.

Additionally, Member States may extend, if they consider it appropriate, the scope of the specifications to other road sections, notably selected inter-urban/urban roads or particularly busy roads of the secondary road network by designating them as 'priority zones' under the specifications. This designation as 'priority zones' shall be based on their own assessment of traffic conditions or other traffic management considerations. They are free to consult the cities and urban areas in their Member States when designating 'priority zones'. There is, however, no obligation for Member States to identify any priority zones or to identify any particular types of roads as a priority zones. The concept of priority zones offers flexibility to

³⁵ Interactive workspace for Member States participating in Intelligent Transport Systems set up by the Commission Services.

Member States to use the specifications to tackle traffic congestion or other negative transport externalities also beyond the TEN-T and the motorway network.

The specifications focus on the enabling conditions for road and traffic data access and sharing as needed to provide high quality traffic information across Europe rather than on services themselves which are accommodated by the market.

The specifications require each Member State falling under the scope of the specifications to contribute to the accessibility of the relevant road and traffic data by setting up a national access point providing interested potential and actual data users a single point of access (i.e. a single window) for all available road and traffic data and their corresponding description (i.e. metadata) for a given territory. The specifications also allow two or more Member States to co-operate and set up a common access point providing a single point of access to the road and traffic data of the participating Member States.

There are obligations for owners of the data to make their road and traffic data accessible via the national or common access point. The obligations are different for road authorities and other road operators and for service providers. Road authorities and other road operators need to make accessible the road and traffic data they collect on a non-discriminatory basis through the national access point. There is no general obligation established for service providers to make their (traffic) data accessible on a non-discriminatory basis since this would go against the principle of fair competition. Service providers are only obliged to provide, if and when requested by road authorities and road operators, via the national access point, the data needed for the purpose of optimising traffic management activities. The access to road and traffic data via the national access point, combined with the requirement that these data are provided in standardised formats, would improve data interoperability and tackle the fragmentation in the current offer of services.

To improve the quality (i.e. that the data provided is accurate and up-to-date) the specifications establish specific rules for road and traffic data updates. These rules can differ from one data type to another. The updates and their processing by the service providers or digital map producers need to be fast enough to make the information available to the end users as soon as they need it.

The use of DATEX II (CEN/TS 16157) format is required for the provision of dynamic road status data and traffic data while static road data needs to be provided in a standardised format when such a standard is available. DATEX II is the standard commonly used by European road operators and traffic managers. DATEX II may be an appropriate European standard for data sharing acknowledging that the INSPIRE Directive (2007/2/EC³⁶) and its implementing regulations should be considered. For static road data in particular, Member States and other stakeholders are encouraged to use the data categories and geoportal infrastructure that is being developed to meet the requirements of the INSPIRE Directive and its implementing Regulations³⁷.

³⁶ OJ L 108, 25.04.2007, p.1.

³⁷ Road authorities and road operators, when providing the static road data they collect and the update, should be taking into account, where practicable, the Commission Regulation (EU) No 102/2011 amending Regulation (EU) No 1089/2010 implementing Directive 2007/2/EC of the European Parliament and of the Council as regards interoperability of spatial data sets and services.

If a data type is included in the non-exhaustive and non-exclusive list in the Annex of the specifications, the relevant provisions of the specifications need to be applied provided that the data in question is already being collected or it will be collected in the future in a digital machine readable format by the Member States or stakeholders. Also Member State may provide access to additional data which is not listed in Annex, and should thereby comply with the provisions of the specifications accordingly.

In order to allow interested parties to successfully and cost-efficiently discover and use the data, it is necessary for the owners of these data to properly describe the content and structure of the data using appropriate metadata and it is necessary for the operator of the national access point to provide appropriate discovery services (i.e. search and browse functionalities)³⁸. The objective of discovery services is to enable effective access to data by enabling any data user to find out what data is available (in relation to a specific topic or purpose), where it is located / stored (and possibly who owns it), how to use it (e.g. possible conditions of re-use under specific contractual agreements). However, it is foreseen that Member states can fulfil this obligation in a flexible way in which the costs are proportionate to the benefits achieved. Therefore Member States are free to design such discovery services as they wish. Metadata search engines may in particular represent a cost-efficient solution. As the volume and complexity of the data accessible via the national access point grows, Member States may, if appropriate, further develop the discovery services provided following a step-by-step approach.

Member States are required to assess the compliance of the stakeholders involved in the provision of real-time traffic information services (road authorities, road operators, service providers, digital map producers) with the provisions of the specifications. To do so Member States may request descriptive documents and evidence-based declarations of compliance from the abovementioned stakeholders. Member States would also need to conduct random checks to control the correctness of these declarations. The extent of the assessment and control as well as the organisational means to run these tasks are left to the discretion of each Member States to best fit with their administrative processes and framework in place if any. Such an assessment is important to settle a sound ecosystem for the implementation of well-functioning real-time traffic information services, to safeguard the achievement of the objectives (e.g. policy objectives, quality of service) associated with the provision of real-time traffic information services, meanwhile ensuring lower cost of developments and fairness of competition, including notably access to the market for SMEs.

In case personal data were to be processed, it should be, where possible, irreversibly anonymised. Moreover, it should be processed in accordance with the Union law, as set out, in particular, in Directive 95/46/EC of the European Parliament and of the Council³⁹ and in Directive 2002/58/EC of the European Parliament and of the Council⁴⁰, and with the national legislations thereto. And it should comply with the principles of purpose limitation and data minimisation.

³⁸ Today the most well know discovery service being Google.

³⁹ Directive 95/46/EC of the European Parliament and of the Council of 24 October 1995 on the protection of individuals with regard to the processing of personal data and on the free movement of such data, OJ L 281, 23.11.1995, p. 31.

⁴⁰ Directive 2002/58/EC of the European Parliament and of the Council of 12 July 2002 concerning the processing of personal data and the protection of privacy in the electronic communications sector, OJ L 201, 31.7.2002, p. 37.

In addition a new Commission proposal⁴¹ on data protection would reinforce the exiting principles, such as anonymising data, and introduce new reinforced protection to citizens, such as a right to be forgotten, easier access to one's own data and explicit consent for processing personal data. Privacy by default and privacy by design are also fundamental principles in the Commission proposal.

Member States will provide every two years an accurate overview of the progress made in the provision of real-time traffic information services on their territory. They should do so in the form of a report providing information regarding the progress made in terms of accessibility, exchange, re-use and update of the road and traffic data, the geographical scope and data content, including qualitative and monitoring aspects of the data necessary for the provision of real-time traffic information services, and an overview of the results of the assessment of compliance. Where relevant, a description of the changes to the national access points and priority zones should be added to the report. This information would allow the Commission services to report on the regular progress made for the implementation of ITS applications and services within the EU as required in Article 17(4) of Directive 2010/40/EU.

A first report will be provided by the Member States two years after the entry into force of the Delegated Regulation. To monitor the implementation of the Delegated Regulation, the next report will be asked one year after its date of application and then every two years. Also, to support the implementation of the Delegated Regulation, meetings will be organised annually by the Commission in order to facilitate the exchange of experiences and best practice between Member States experts / stakeholders active in the field of real-time traffic information services and systems. When possible, the Member States could be encouraged to combine the reports under this Delegated Regulation with their national progress reports on ITS.

Reporting by the Member States is important since it contributes to a better understanding of the state of the art, monitoring of ITS deployment, and assessment of costs and benefits. This is both beneficial for the Member States themselves (i.e. individual evaluation and benchmarking) and the Commission (i.e. review and consolidation at EU level). It worth stressing that the 1st and 2nd reports are different in subject and scope, and that the 1st report will be provided when Member States plan and set up their national access point and have motorways or priority zones to declare. These reports will also contribute to the reporting obligation of the Member States under the ITS Directive (i.e. no duplication of tasks but integration of various elements).

3.6.1. Contents of the Delegated Act Article by Article:

Article 1 defines the subject matter and scope of the Delegated Regulation that establishes the specifications necessary to ensure the accessibility, exchange, re-use and update of road and traffic data for the provision of EU-wide real-time traffic information services on the comprehensive trans-European road network, as well as on motorways not included in this network and on priority zones identified by national authorities where they consider this to be relevant.

⁴¹ COM(2012) 11 final.

Article 2 provides definitions that apply in addition to those provided in Directive 2010/40/EU.

Article 3 requires the Member States to set up a national access point for access to road and traffic data. The national access points would also provide appropriate discovery services (search and browse functionalities).

Article 4 concerns the provision, accessibility, exchange and re-use of static road data. The data should be provided in a standardised format when such a format is available.

Article 5 concerns the provision, accessibility, exchange and re-use of dynamic road status data. The data should be provided in a standardised format (DATEX II and subsequently upgraded versions).

Article 6 concerns the provision, accessibility, exchange and re-use of traffic data. The data should be provided in a standardised format (DATEX II and subsequently upgraded versions).

Article 7 requires that regular updates (including correction of inaccuracies) of static road data, dynamic road status data and traffic data are made.

Article 8 contains provisions on the updates of static road data.

Article 9 contains provisions on the updates of dynamic road status data.

Article 10 contains provisions on the updates of traffic data.

Article 11 provides the approach towards assessment of compliance with the requirements of this Delegated Regulation. Member States may require evidence-based declarations of compliance from the relevant stakeholders and should conduct random checks to control the correctness of these declarations.

Article 12 sets the requirements for regular reporting by the Member States, first after 24 and 36 months from the entry into force of the Delegated Regulation and every two years thereafter.

Article 13 provides that this Delegated Regulation should enter into force on the twentieth day following that of its publication in the Official Journal. It should apply from 24 months following the date of its entry into force to the accessibility, exchange, re-use and update of road and traffic data for the provision of EU-wide real-time traffic information services already deployed on the date of application of the Regulation or that would be deployed after the date of application.

The Annex gives a non-exhaustive and non-exclusive list of static road data, dynamic road status data and traffic data categories.

4. LEGAL ELEMENTS OF THE DELEGATED ACT

4.1. Legal basis

The Delegated Regulation supplements Directive 2010/40/EU in compliance with its article 7.

The specifications set out in the Delegated Regulation will ensure a predictable framework for road authorities, other road operators and service providers. The flexibility built in the specifications allows national authorities, road operators and service providers, whether public or private, to rely on the organisational processes and existing or future technologies they consider the most relevant and suitable to achieve the overall objective of providing real-time traffic information services provided that the functional requirements of the Delegated Regulation are met.

A Regulation seems the most appropriate legal instrument for the Delegated Act as it does not call for national transposition measures, thus ensuring a higher degree of harmonisation and control by the Commission as well as quicker entry into force.

4.2. Subsidiarity and proportionality

According to the principle of subsidiarity (Article 5(3) of the Treaty on the European Union), action at the Union level should be taken only when the aims envisaged cannot be achieved satisfactorily by Member States alone and can therefore, by reason of the scale or effects of the proposed action, be better achieved by the Union.

Road traffic congestion, safety and emissions from road vehicles are a major concern across the whole of the European Union.

Action at the Union level is needed in order to guarantee the interoperability and continuity of the real-time traffic information services throughout Europe, including across borders, which cannot be satisfactorily achieved by individual Member States. Action at the Union's level would trigger benefits of scale and can foster European competitiveness and growth.

The specifications for the provision of real-time traffic information services have been designed so as to minimise the negative impact on all public and private stakeholders in the value chain (i.e. Member States, road authorities, road operators, and service providers).

The design and development of ITS services are well driven by the market. A functioning market already exists for the delivery of services to end users. Therefore the aim of the proposed action is to help bridge the gaps in this existing market and address potential market failures as and when necessary. The key concept is to improve accessibility to existing road and traffic data so that potential users of these data could assess the relevant data at the time and to the extent it is needed.

It is important to stress that the specifications do not oblige stakeholders to deploy services. The requirements will only concern new services and existing services after an appropriate transitional period of 24 months as discussed and agreed with the concerned stakeholders.

The specifications also do not contain requirements on harmonisation of data, which is left for the Member States to decide. A substantial part of the implementation measures of this Delegated Regulation, in particular the assessment of compliance is left to national decisions.

The financial and administrative costs for national authorities are expected to be minor and proportionate to the objectives to be achieved. The organisational processes needed to meet the functional requirements of the specifications would be undertaken by the Member States in a way best suited to their particular situations, thus respecting the specificities and

circumstances of each Member State. In particular, requirements for the assessment of compliance with this Delegated Regulation and reporting by the Member States have been kept moderate and flexible.

Also the coverage of the specifications, apart from the TEN-T roads and other motorways on their territory which are not part of the TEN-T, leaves the Member States considerable room for manoeuvre in relation to the priority zones.

5. CONCLUSIONS

The geographical scope of the real-time information services is currently fragmented and does not allow sufficient interoperability between countries, regions and cities. Data collection characteristics and scope differ from Member State to Member State. This should not be the case at least for TEN-T roads and on other motorways, and, if a Member State so decides, for its inter-urban / urban priority zones.

The non-availability of EU-wide continuous and high quality real-time traffic information can be explained by a lack of (digital) data, the fact that existing road and traffic data is not being shared, and that the accessible road and traffic data is fragmented, non-interoperable (due to the use of various formats / standards) and of insufficient quality. Also the timeliness of the available road and traffic data could be improved. Compatible discovery services are missing and there are no national access points for all road and traffic data together in a single place in all Member States.

Data quality is also not ensured or monitored sufficiently. At the same time and in conjunction with data quality monitoring, an adequate description of the attributes of the data should be guaranteed (such as accuracy, lifespan, update frequency, granularity).

There is no straightforward governance framework concerning the roles and responsibilities of different public and private actors even though road and traffic data is sourced largely from the public sector and is processed and disseminated largely by the private sector.

To contribute to solving the problems and reaching European policy objectives, the Commission Services suggest filling in the gaps in the provision of an EU-wide deployment of real-time traffic information services by:

- Making real-time traffic information data fully interoperable;
- Supporting more efficient management of road infrastructure and equipment;
- Clarifying the roles of different stakeholders (public and private);
- Ensuring that road users have access to the right scope of data and information (in combination with travel information services);
- Improving the quality of the real-time traffic information services;
- Paying attention to wider policy considerations (such as safety and environmental efficiency).

Annex I

(See chapter 3.1.)

Examples of real-time traffic information services provided in Europe through selected delivery channels⁴²

Country	Public services	Commercial services
Austria	Asfinag/ORF RDS-TMC	INRIX Connected Services (TPEG/GSM based service) TomTom Traffic (TPEG/GSM, Datex2/XML, Protobuf/XML – all using TMC and/or OpenLR location referencing) HERE
Belgium	VVC (Flanders): RDS TMC, XML, internet based service, DATEX2 PEREX (Wallonie): RDS TMC, XML Mobiris (Brussels): XML	Be-Mobile: XML, DAB, RDS TMC INRIX Connected Services (TPEG/GSM based service) TomTom Traffic (TPEG/GSM, Datex2/XML, Protobuf/XML – all using TMC and/or OpenLR location referencing) HERE
Bulgaria	No public service	Be-Mobile: XML TrafficNav RDS-TMC
Croatia	HAK: RDS-TMC services and mobile, Internet-based RTTI services in process	No private service
Cyprus	No public service	No private service
Czech Republic	Service provider: National Traffic Information and Management Centre of the Czech Republic (NDIC), distribution protocol used: "DDR" - AlertC based XML format, distribution channel: Internet, FM RDS-TMC Service provider: Technical Administration of Roads of the Capital City of Prague (TSK), distribution protocol used: "DDR" - AlertC based XML format, distribution channel: Internet, FM RDS-TMC	Service provider: CE-Traffic: TMC, distribution channel: GSM/UMTS, Internet INRIX Connected Services (TPEG/GSM based service) TomTom Traffic (TPEG/GSM, Datex2/XML, Protobuf/XML – all using TMC and/or OpenLR location referencing) HERE
Denmark	DRD: RDS-TMC free	INRIX Connected Services (TPEG/GSM based service)

⁴²

The table contains only services encoded in TMC and TPEG, delivered by means of radio (FM and DAB), wireless networks (GSM, UMTS or WiFi) or Internet (either stationary or mobile). Other real-time traffic information services, e.g. Variable Message Signs (VMS) or spoken radio services, are not covered.

		<p>TomTom Traffic (TPEG/GSM, Datex2/XML, Protobuf/XML – all using TMC and/or OpenLR location referencing)</p> <p>HERE</p>
Estonia	No public service	No private service
Finland	No public service	<p>Mediamobile RDS-TMC</p> <p>TomTom Traffic (TPEG/GSM, Datex2/XML, Protobuf/XML – all using TMC and/or OpenLR location referencing)</p> <p>HERE</p>
France	No TMC/TPEG public services available	<p>INRIX Connected Services (TPEG/GSM based service)</p> <p>Michelin Travel Partner RDS/TMC and TPEG (Connected devices).</p> <p>Mediamobile RDS-TMC</p> <p>TomTom Traffic (TPEG/GSM, Datex2/XML, Protobuf/XML – all using TMC and/or OpenLR location referencing)</p> <p>HERE</p>
Germany	ARD: RDS-TMC, DAB-TPEG	<p>INRIX Connected Services (TPEG/GSM based service)</p> <p>Mediamobile DAB-TPEG</p> <p>TomTom Traffic (TPEG/GSM, Datex2/XML, Protobuf/XML – all using TMC and/or OpenLR location referencing)</p> <p>HERE (internet, RDS-TMC, DAB-TPEG)</p>
Greece	No service	<p>Be-Mobile: RDS TMC, XML</p> <p>TrafficNav: RDS TMC, XML</p> <p>TomTom Traffic (TPEG/GSM, Datex2/XML, Protobuf/XML – all using TMC and/or OpenLR location referencing)</p> <p>HERE</p>
Hungary	No service	<p>Be-Mobile: XML</p> <p>TrafficNav RDS-TMC</p> <p>TomTom Traffic (TPEG/GSM, Datex2/XML, Protobuf/XML – all using TMC and/or OpenLR location referencing)</p> <p>HERE</p>
Ireland	No public service	<p>INRIX Connected Services (TPEG/GSM based service)</p> <p>TrafficNav RDS-TMC</p> <p>TomTom Traffic (TPEG/GSM, Datex2/XML, Protobuf/XML – using OpenLR location referencing)</p>

		HERE
Italy	No public service	INRIX Connected Services (TPEG/GSM based service) Infoblu TomTom Traffic (TPEG/GSM, Datex2/XML, Protobuf/XML – all using TMC and/or OpenLR location referencing) HERE
Latvia	No public service	No private service
Lithuania	No public service	No private service
Luxembourg	No public service	Be-Mobile: RDS TMC, XML INRIX Connected Services (TPEG/GSM based service) TomTom Traffic (TPEG/GSM, Datex2/XML, Protobuf/XML – all using TMC and/or OpenLR location referencing) HERE
Malta	No public service	TomTom Traffic (TPEG/GSM, Datex2/XML, Protobuf/XML – all using OpenLR location referencing)
The Netherlands	Be-Mobile: RDS TMC ANWB: RDS TMC	Be-Mobile: DAB, RDS TMC, XML ANWB: RDS-TMC, internet VerkeersInformatieDienst (VID): RDS-TMC; internet INRIX Connected Services (TPEG/GSM based service) TomTom Traffic (TPEG/GSM, Datex2/XML, Protobuf/XML – all using TMC and/or OpenLR location referencing) HERE
Norway	NRK: TMC-trial in FM-RDS	Mediamobile RDS-TMC, TPEG TomTom Traffic (TPEG/GSM, Datex2/XML, Protobuf/XML – all using TMC and/or OpenLR location referencing) HERE
Poland	No public service	INRIX Connected Services (TPEG/GSM based service) Mediamobile RDS-TMC Service provider: CE-Traffic: TMC Distribution channel: GSM/UMTS, FM RDS, Internet TomTom Traffic (TPEG/GSM, Datex2/XML, Protobuf/XML – all using TMC and/or OpenLR location referencing)

		HERE
Portugal	No public service	Be-Mobile: RDS TMC, XML INRIX Connected Services (TPEG/GSM based service) TomTom Traffic (TPEG/GSM, Datex2/XML, Protobuf/XML – all using TMC and/or OpenLR location referencing) HERE
Romania	No public service	Be-Mobile: RDS TMC, XML
Slovakia	No public service	CE-Traffic:: TMC, distribution channel: GSM/UMTS, FM RDS, Internet RDS TMC, XML Be-Mobile: XML TrafficNav RDS-MTC HERE
Slovenia	No public service	TrafficNav: RDS TMC, XML Be-Mobile: XML HERE
Spain	DGT (TMC)	INRIX Connected Services (TPEG/GSM based service) TomTom Traffic (TPEG/GSM, Datex2/XML, Protobuf/XML – all using TMC and/or OpenLR location referencing) HERE
Sweden	STA/ RDS-TMC free STA/Internet/läget i trafiken	Mediamobile RDS-TMC premium Smartphones apps INRIX Connected Services (TPEG/GSM based service) TomTom Traffic (TPEG/GSM, Datex2/XML, Protobuf/XML – all using TMC and/or OpenLR location referencing) HERE
Switzerland	Viasuisse/SRG (RDS-TMC)	Viasuisse/SRG (RDS-TMC) TomTom Traffic (TPEG/GSM, Datex2/XML, Protobuf/XML – all using TMC and/or OpenLR location referencing) HERE
United Kingdom	Traffic England Traffic Scotland Traffic Wales	INRIX Connected Services (TPEG/GSM based service) Trafficmaster TMC via FM RDS Trafficmaster TPEG via DAB Trafficmaster TMC (and other proprietary formats) via Internet INRIX TPEG service (over DAB)

		<p>INRIX TMC service (over FM RDS)</p> <p>TomTom Traffic (TPEG/GSM, Datex2/XML, Protobuf/XML – all using TMC and/or OpenLR location referencing)</p> <p>HERE</p>
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The information above is based on information that has been collected from the European members of the Traveller Information Services Association (TISA) and represents as snapshot as of March 2014.

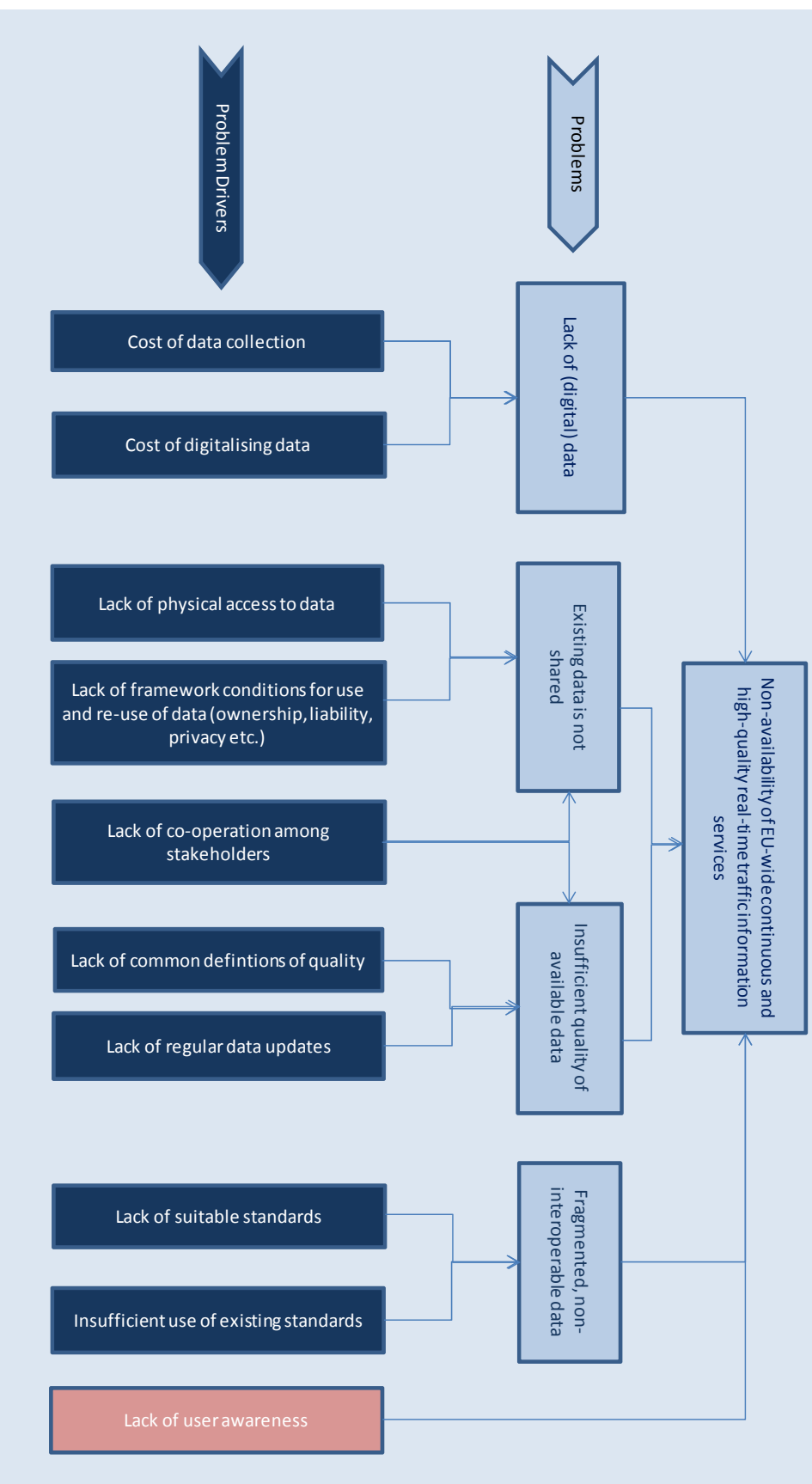
Source: TISA

Annex II

(See chapter 3.3)

Problem tree representing the problems and problem drivers associated with the provision of real-time traffic information services across the European Union

PROVISION OF REAL-TIME TRAFFIC INFORMATION (RTTI) SERVICES - PROBLEM TREE



Annex III

(See chapter 3.5.1)

Summary of some cost elements by stakeholder group

The following sections provide an overview of the average one-off and annual cost elements for the different stakeholder groups as estimated in the consultants' study for the period 2015-2025:

MEMBER STATES

- National DATEXII node modification (VMS & TMP) - €50.000;
- National DATEXII node modification (roadworks) - €50.000.

NATIONAL ROAD AUTHORITIES

- Annual cost of messaging middleware to publish information to national DATEXII node - €15.900;
- Roadworks Database implementation cost - €1.200.000;
- Roadworks Database annual operational cost - €840.000;
- Cost of providing Traffic Management Messages – no additional costs;
- Cost of providing information on Road Network extensions – no additional costs as already required by the INSPIRE Directive;
- Cost of providing information on Speed Limits updates – variable dependent on network length and frequency of speed limit changes, fixed cost of €15 per individual update;
- Cost of providing information on roadworks – variable dependent on network length and frequency of roadworks on network, fixed cost of €15 per individual update.

OTHER ROAD AUTHORITIES

- DATEXII Publisher instance (conversion of electronic data to DATEXII format) - €50.000;

- Annual cost of messaging middleware to publish information to national DATEXII node - €15.900;
- Annual subscription to use national roadworks database electronic interface - €10.000;
- Cost of providing Traffic Management Messages – no additional costs;
- Cost of providing information on Road Network extensions – no additional costs as already required by the INSPIRE Directive;
- Cost of providing information on Speed Limits updates – variable dependent on network length and frequency of speed limit changes, fixed cost of €15 per individual update;
- Cost of providing information on roadworks – variable dependent on network length and frequency of roadworks on network, fixed cost of €15 per individual update.

ITS SERVICE PROVIDERS

- DATEXII interface (for those who have yet to implement Road Safety-Related Traffic Information - SRTI) - €50.000;
- INSPIRE web services interface (for those who have not already implemented) - €50.000.