

Intelligent road transport systems

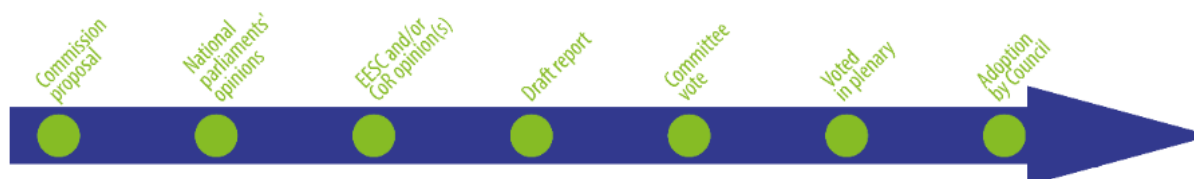
OVERVIEW

The European Commission proposed changes to the existing EU rules on the deployment of intelligent transport systems (ITS) in road transport. The objective of the proposal was to expand the scope of the existing EU rules to cover new and emerging challenges and to make essential ITS services mandatory across the EU. The proposal sought to resolve problems stemming from the lack of interoperability and continuity of the existing applications and services, but also from the low level of availability and sharing of the data supporting ITS services. Finally, it aimed to ensure effective concertation and cooperation among stakeholders.

The Commission adopted the proposal on 14 December 2021. Within the Council, the Working Party on Transport – Intermodal Questions and Networks carried out the preparatory work, and the Council adopted its general approach on 2 June 2022. In the European Parliament, the Committee on Transport and Tourism (TRAN) took the lead on the file. The committee's report was tabled for plenary on 29 October 2022 and its decision to enter interinstitutional negotiations was confirmed by the plenary on 21 November 2022. A provisional agreement was reached on 8 June 2023 and voted in plenary on 3 October 2023. The final act was signed on 22 November 2023 and the directive was published in the Official Journal on 30 November 2023.

Proposal for a directive amending Directive 2010/40/EU on the framework for the deployment of intelligent transport systems in the field of road transport and for interfaces with other modes of transport

<i>Committee responsible:</i>	Committee on Transport and Tourism (TRAN)	COM(2021) 813 14.12.2021
<i>Rapporteur:</i>	Rovana Plumb (S&D, Romania)	2021/0419(COD)
<i>Shadow rapporteurs:</i>	Jens Gieseke (EPP, Germany) Izaskun Bilbao Barandica (Renew, Spain) Alviina Alametsä (Greens/EFA, Finland) Johan Van Overtveldt (ECR, Belgium) Kateřina Konečná (The Left, Czechia)	Ordinary legislative procedure (COD) (Parliament and Council on equal footing – formerly 'co-decision')
Procedure completed	Directive 2023/2661 OJ L 30.11.2023	



Introduction

In line with the 2019 [European Green Deal](#) and the [EU Climate Law](#), the EU has set itself the goal of having a climate-neutral economy by 2050. Achieving it requires a dramatic improvement in the functioning of the entire transport system, to make it capable of delivering a 90 % reduction of greenhouse gases. Digitalisation, as one of the key drivers of this transformation, will help to make transport more efficient, while also increasing its safety, security, reliability and comfort. This process relies on intelligent transport systems (ITS).

With its 2020 [sustainable and smart mobility strategy](#), the Commission identified the deployment of ITS as a key action for achieving sustainable and modern EU transport systems, and set several targets that build on ITS. Automated mobility should be deployed on a large scale and multimodal electronic tickets should be available to passengers by 2030; transport fatalities should be down to zero by 2050. Through ITS, the EU wants to develop smart traffic management systems and sustainable mobility services, as well as reducing congestion and pollution, mostly in urban areas.

EU framework rules for the deployment of ITS in road transport (the [ITS Directive](#)) date back to 2010. The Commission announced that it would review the ITS Directive, together with some of its delegated regulations, and support the creation of a coordination mechanism for the national access points (NAPs) created under the directive. The revision is also part of the evolving EU legislation on data, in accordance with the [European strategy for data](#).

Context

ITS use information and communication technologies to improve the way people and things move. They comprise a broad range of applications, systems and subsystems that provide sets of services, usually combining the use of an intelligent vehicle and intelligent infrastructure.

On the road, beyond vehicle navigation systems and provision of information on traffic and parking availabilities, ITS solutions have multiple applications ranging from the provision of in-vehicle alerts on roadworks and congestion, to support for electronic fee collection, traffic management, ride-hailing and car-sharing platforms. They also enable vehicle-to-vehicle communications and support automated driving. Many of these systems are based on technically harmonised data that can be exchanged and used by different operators.

ITS improve traffic efficiency and help lower emissions and congestion. By reducing human error, they make mobility safer and have the potential to make it more accessible, for instance, to disabled people. In addition, their deployment can generate new services and jobs. However, these benefits can only be gained if ITS solutions are introduced in a coherent and coordinated way.

The use of ITS in road transport has grown fast, raising multiple challenges. Their rapid uptake has spurred the development of voluntary standards that often differ between neighbouring countries and sometimes even within the same country. To ensure safe and smooth operation as well as data security, these standards have to become interoperable and harmonised, both at national and international level.

International coordination has been led by the United Nations Economic Commission for Europe ([UNECE](#)) since 2004. It has published and has been updating an [ITS road map](#) as a tool to share information and best practice. The road map reflects the need for international harmonisation, identifies the main gaps and barriers to the broader use of ITS and outlines further areas of common action.

Existing situation

The EU rules for ITS development in road transport were set in [Directive 2010/40/EU](#) (the ITS Directive), designed as a framework for accelerating and coordinating the deployment and use of ITS applied to road transport and its interfaces with other transport modes. The directive introduced

common EU standards and specifications for interoperable and efficient ITS services, but left EU countries to decide in which systems they want to invest. It focuses on security issues and the optimal use of road, traffic and travel data. It also promotes cooperation among entities introducing new ITS technologies.

The directive identified six priority actions, which the European Commission later detailed in [delegated regulations](#) (see box).

These oblige Member States to set up and manage [national access points](#) (NAPs) to ensure easy access to the relevant data that different public or private operators and service providers collect and store. NAPs can take the form of a repository, registry or a web portal. The directive does not provide a legal basis for contractual coordination among mobility operators.

Delegated regulations adopted under the ITS Directive

These include: [No 305/2013](#), introducing automatic reporting of serious road accidents (eCall); [No 886/2013](#), on road safety-related minimum universal traffic information; [No 885/2013](#), on information services for safe and secure parking places for trucks and commercial vehicles; [No 2015/962](#), on real-time traffic information services; [No 2017/1926](#), on multimodal travel information services; and [No 2022/670](#), related to the provision of EU-wide real-time traffic information services.

Parliament's starting position

In a [2017 resolution](#) on road transport in the EU, the Parliament recalled that ITS, including cooperative intelligent transport systems (C-ITS)¹ and other innovations, could play an important role in enhancing the efficiency, safety and environmental performance of transport system. It called on the Commission to stimulate the development and use of ITS and to promote innovations.

Following a 2018 positive [initial reaction](#) to the Commission [strategy on the deployment of C-ITS](#), the Parliament, in its January 2019 [resolution on autonomous driving](#) in European transport, called on the Commission to support the Member States and industry in deploying C-ITS services through EU funding. Two months later, when the Commission put forward a [delegated act on C-ITS](#) to further supplement the ITS Directive, the Parliament's TRAN committee prepared a [motion](#) to reject the delegated act on the grounds that it was not technology neutral (rapporteur: Dominique Riquet, ALDE, France). However, following the plenary vote, Parliament decided [not to object](#).

In January 2021, the Parliament stressed the need to boost innovative digital applications in [all transport modes](#) across the trans-European transport network (TEN-T).

Council starting position

While the Council has not adopted any recent conclusions on ITS, the debates surrounding the reactions to the delegated acts proposed by the Commission to complement the current ITS Directive reveal some issues of importance to the Member States.²

In 2019, when considering how to react to the proposed delegated regulation on [cooperative intelligent transport systems](#), several Member States raised [concerns](#) about the legal aspects of the proposal and its lack of technology neutrality, but also about its 'impossible requirement' of backward interoperability.³ The deadline for the Council Legal Service to prepare an [opinion](#) was prolonged. Eventually, the required qualified majority of Member States intending to object to the delegated act was reached and the Council objected, effectively stopping the proposal.

Preparation of the proposal

In 2019, the Commission outsourced a [support study for the ex-post evaluation](#) of the directive. The ensuing ex-post evaluation (SWD(2019) 368) concluded that the directive was relevant and had a positive impact on the deployment of ITS across the EU. Despite improvements, however, the deployment of ITS was slow, fragmented and often limited in geographical scope. Further action

was needed on interoperability and cooperation, better accessibility and availability of data on infrastructure, traffic and travel. Furthermore, new developments in connected and automated mobility and mobility platforms needed to be added.

The Commission in 2019 also [analysed](#) Member States' [national reports](#) and sent a [report](#) to the Parliament and the Council on the implementation of the directive. Therein, it affirmed the need to further improve coordination for making data accessible, to take into account the emergence of new ITS aspects and challenges, and to improve the availability of key data types on the whole road transport network by making them available in digital machine-readable format.

Preceded by a 2021 support study,⁴ the [impact assessment](#) (IA) accompanying the proposal considered three policy options. All included stronger coordination and deployment principles, extending the scope of the directive to operation in new and emerging ITS services and institutionalised stakeholder cooperation (the basic option). The second, more advanced option would further mandate the availability and accessibility of crucial data, key for the operation of ITS services. The third and most ambitious option – the one preferred by the Commission – would also mandate the provision of essential ITS services as well as further support the deployment of interoperable and continuous services, in particular the road safety ones.

The IA quantified the total expected benefits of the preferred policy option at €179.1 billion (over 2021-2040), which includes time savings, accident reduction, GDP increase, a reduction of CO₂ and other emissions as well as fuel savings.

Total expected costs were estimated at €20.8 billion (resulting in a benefit/cost ratio of 8.6). By far the largest part of costs would go for setting up in-vehicle systems (€15.4 billion); further costs – which may largely need to be borne by public authorities – include investment in roadside infrastructure and units, national access points and central ITS subsystems. In addition, there are unquantified costs related to the changes in reporting and the alignment with existing frameworks and initiatives, which should ultimately reduce the administrative costs of Member States and relevant stakeholders.

Harmonised market standards should lower barriers to new entrants, allowing them to grow and compete with larger enterprises. Common data specifications and improved data availability are expected to stimulate innovation. To providers of digital services, this should bring more accurate data and lower costs when integrating data across the EU. Infrastructure deployment and data collection can create jobs, while a rapid deployment of ITS would benefit the internal market and the competitive position of businesses. ITS services should make multimodal journey planning easier for all and transport information services should facilitate life for persons with reduced mobility. Driving would become safer and more comfortable, with better information on traffic regulations or roadworks. Positive impacts for society at large are expected from fewer road accidents, better traffic and mobility management, as well as reduced congestion and air pollution.

A stakeholder consultation was held in the course of the preparation of the support study for the IA. The Commission published the inception impact assessment, requested comments from the interested stakeholders (October-November 2020) and received 34 responses. An open public consultation (November 2020-February 2021) received 149 responses in total.

In the ensuing targeted consultation, the Commission did an online survey of all key stakeholder groups (February-March 2021) and interviewed 53 of them (February-May 2021), organised six stakeholder workshops (December 2020-June 2021) as well as two meetings of the ITS committee.

In reviewing the consultation [outcomes](#), the Commission affirmed that public authorities appreciate the preferred option as a tool to improve sustainability and achieve the Green Deal goals; industry stakeholders as a way to achieve the needed return on investment in ITS services and systems as well as to get new business opportunities; and transport users as a way to improve safety.

The changes the proposal would bring

The [proposal](#) seeks to address the lacking interoperability and continuity of ITS applications, systems and services. It also targets the missing cooperation among stakeholders as well as the problems related to the availability and sharing of data supporting ITS services.

The Commission proposes to expand the scope of the ITS Directive to include new and emerging ITS service areas. Furthermore, it mandates the availability and accessibility of crucial data in machine-readable format as well as the provision of essential ITS services across the EU. It also adds rules to better align the directive with current practices and standards.

The list of definitions is updated and expanded, as are the references to other EU legislation. The requirements on Member States to cooperate in the deployment of ITS services is strengthened (Article 5). The rules on committee procedure (Article 15) and on reporting (Article 17) are adapted.

There are four [annexes](#), specifying:

- I. the priority areas (rearranged and expanded);
- II. the principles for specifications and deployment of ITS (updated and complemented);
- III. a new listing of the data types that has to be available and accessible, specifying the date and the geographical coverage required;
- IV. a new listing of the ITS services to be deployed, specifying for each the date and geographical coverage required.

Given the number of existing delegated acts and the past experience with the process of their adoption, the provisions conferring delegated powers on the Commission are important for the expected future technology developments in the field.

While the requirement on Member States to make certain data available and accessible as well as to provide certain services is stipulated within the body of the proposed directive, the Commission seeks the power to modify the lists of required data and services through delegated acts (update annexes III and IV), subject to a prior impact assessment including a cost-benefit analysis (Article 7).

The Commission also proposes to set up, through a delegated act, an EU C-ITS security credential management system (Article 10a).

There is also a new provision on interim measures (Article 7a). In case of an emergency situation with a severe direct impact on road safety, cybersecurity or the availability and integrity of ITS services, the Commission may adopt immediately applicable implementing acts suspending or establishing obligations within the scope of the defined priority areas.

Advisory committees

The European Economic and Social Committee in its [opinion](#) of 23 March 2022 (rapporteur: Stefan Back, Employers – Group I, Sweden) appreciated the proposal's added value with respect to improvements, security, safety and efficiency. The Committee recalled that the deployment of ITS must be undertaken in a broad societal context and that sufficient attention and resources have to be devoted to the needs of rural areas, including public service aspects and alternative means of mobility such as walking and cycling. It saw the proposal as a significant step towards a common European mobility data space, bringing added value through improved efficiency and creating prerequisites for improved working conditions in the transport sector.

Previously, expressing its views on the sustainable and smart mobility strategy, the European Committee of the Regions in its [opinion](#) of 30 June 2021 (rapporteur: Robert van Asten, Renew Europe, the Netherlands) recalled that EU legislation must ensure proper data standardisation, protection and exchanges. To facilitate multimodal mobility, the EU should focus on multimodal tickets and integrated information about all possible types or combinations of transport.

National parliaments

The deadline for [subsidiarity scrutiny](#) by national parliaments was 22 March 2022. The Czech Senate contributed to the political dialogue with an [opinion](#), voicing its regret that the proposal does not include an adequate provision for conformity assessment. The purpose of such a provision would have been to define the technical requirements, coordination and standardisation work needed for the creation of the kind of data exchange and distribution mechanisms that would remedy the shortcomings of the existing ITS legal framework. It also recalls the need to respect the principles of technology neutrality and ensure that technologies are technically ready for implementation and tested in real-life conditions. Finally, the Senate disagrees with the extent of the powers conferred on the Commission to adopt delegated acts when seeking to update the substantive scope of the directive, as this could constitute an amendment of the essential elements of the legislative act, and as such is not permissible.

Stakeholder views⁵

Car manufacturers (European Automobile Manufacturers' Association, [ACEA](#)) welcome the proposal, but are concerned both with the extent of the Commission's power to adopt delegated acts and the fact that ITS service providers would have increased obligations yet no involvement in decision-making (ACEA sees their involvement as essential for effective ITS services). ACEA's list of recommendations to the Commission includes further harmonisation of NAPs and a plan for centralised data-sharing between them; an action plan for the adoption of ITS specifications in consultation with ITS service providers; and a clear definition of emergency situations that would justify the adoption of interim measures, with defined time limitations. ACEA also asks for guarantees for ITS service providers who are expected to share data with NAPs, including private data, as well as for the involvement of ITS service providers in all ITS activities and in the EU ITS committee. The association demands that the Commission specify the path to be followed when switching to the next generation eCall technology. Finally, it recalls that the principle of technological neutrality should be added to Annex II.

For the road transport industry (International Road Transport Union, [IRU](#)), while Member States should facilitate the harmonised and interoperable deployment of ITS, the sharing of business-generated data by commercial road transport operators should always be voluntary, and the data collected used for a specific purpose only. They ask the Commission to ensure that the data on NAPs should be available both in static and dynamic format and include the data on urban vehicle access regulations (UVARs) and alternative fuels infrastructure, in an easily readable form commonly understood by commercial transport operators. Their other demands concern the use of electronic proof of compliance with EU and national rules relating to the use of the vehicle and to the driver, and the integration of the electronic consignment note (eCMR) into the eCall system to give emergency teams information on what goods are being carried inside the vehicle. Furthermore, the communication infrastructure and standardised message format need to be defined, data security ensured and privacy legislation respected. Finally, IRU demands that the ownership of data related to transport operations stays with the transport operators.

The European Transport Safety Council ([ETSC](#)) welcomes in particular the requirement for the supply of data on speed limits, as correct speed limit information is key for vehicle safety systems, such as Intelligent Speed Assistance (ISA), to achieve their potential to improve road safety in the EU. The requirement for Member States to make data on speed limits for their entire road network available would help map-makers improve the accuracy of their own data on speed limits and ensure correct assistance to drivers, minimising annoyance from incorrect information.

Expert views

The European Data Protection Supervisor (EDPS) in its [Opinion 3/2022](#) recalls that the proposed data types and services, the provision of which should be mandatory, would be specified in delegated

acts supplementing the ITS Directive and would reflect the data types and services set therein. In parallel, the Commission proposes to delete a number of provisions included in the existing ITS Directive, including those relating to the principle of data purpose specification and data minimisation. However, the EDPS considers that the proposal should directly specify the categories of personal data and the manner in which processing of personal data would take place. Furthermore, the EDPS recommends that the revised directive reflect the requirements of purpose specification, security and data minimisation as well as the need to ensure that provisions on consent are respected. Moreover, the directive should also set a maximum storage duration of the relevant categories of data concerned.

Legislative process

In the European Parliament, the TRAN committee has taken the lead, appointing Rovana Plumb (S&D, Romania) as rapporteur. The draft report was published on 24 May 2022. In her [draft report](#), the rapporteur highlighted the following aspects:

- the need to take specific requirements of suburban, rural and peripheral areas into account;
- the importance of technological neutrality;
- the role of national access points (NAPs) in providing an appropriate user interface and presenting comprehensible data to end users in both static and dynamic formats;
- the provision of data on alternative fuels infrastructure by NAPs;
- the importance of cooperation between Member States and NAPs on data provision;
- the importance of integrating the electronic consignment note (eCMR) within the emergency call (eCall) system, to ensure that emergency responders have all the necessary information on goods carried by the vehicle;
- the importance of effective privacy and data protection in the context of the deployment of ITS, and the voluntary character of sharing business-generated data.

In the Council, the proposal was examined by the Working Party on Transport – Intermodal Questions and Networks. On 2 June 2022, the Council agreed its [general approach](#), in which it stated that Member States should move forward in the systematic and harmonised deployment of ITS, but in a gradual manner to take full account of benefits and costs.

The general approach significantly reinforces the role of Member States in deciding on the conditions for implementing the new obligations, notably for determining the geographical coverage and timetable for the data and services to be provided.

Regarding data protection, the Council encourages the use of anonymous data or the pseudonymisation of data. The fact that private operators will have to shoulder an administrative burden for having to make relevant data available should be taken into account.

Member States must submit to the Commission, within 18 months of the date of the directive's entry into force, a report on its implementation, as well as on their main national activities and projects regarding the priority areas and the availability of data and services. After that, a progress report should be submitted every 3 years.

Parliament's TRAN committee adopted its [report](#) on 26 October 2022. Below is a summary of its main points.

The development of ITS should take into account the specific needs of suburban, rural and peripheral areas, in order to ensure that they are able to profit from solutions provided by ITS.

Technological neutrality should be granted and specifications should describe the result to be achieved but neither impose nor discriminate in favour of the use of a particular type of technology to achieve it.

Data in national access points (NAPs) should be available in a static and dynamic format, and the data shared by NAPs should be easily readable and commonly understood by commercial transport operators. They should be also interoperable and harmonised. Data focused on alternative fuels infrastructure should be made available in NAPs. The possibility of having digitalised data on the vehicle (registration documents, certificates of roadworthiness, reports related to roadside testing) and the driver (community licence) should be considered further. Member States should ensure that data are accessible, up to date and complete, and should share their best practices. Real-time traffic information on restrictions, prohibitions and obligations with zonal validity should also be made available.

It would be important to provide an electronic consignment note (eCMR), which should be integrated within the emergency call (eCall) system to allow emergency responders to have the necessary information on what goods are being carried inside the vehicle.

It is necessary to specify the communication infrastructure and standardised message format that are to be used among the connected and automated vehicles, the authorities, the infrastructure and the overall environment.

The TRAN committee tabled its report for the plenary on 29 October 2022, and on 9 November it decided to enter into interinstitutional negotiations. On 21 November, the plenary confirmed this decision.

On 8 June 2023, after conducting interinstitutional negotiations, the Spanish Presidency of the Council and Parliament representatives reached a [provisional agreement](#). The TRAN committee [approved](#) the provisional agreement on 26 June. The final text was adopted by the Parliament on 3 October and by the Council on 23 October 2023.

While the agreement retains the ambition for a systematic and harmonised deployment of intelligent transport systems, its aim is to do this gradually, to take into account the cost-benefit aspects and the existing administrative capacity.

The agreement preserves the structure of the Commission's proposal, according to which the ITS directive has a framework character, and the various technical interventions are introduced by way of implementing and delegated acts.

Under the agreement, the revised directive will take into account technological developments such as connected and automated mobility, on-demand mobility applications, or multimodal transport. The revised directive will also seek to create the right conditions to accelerate the availability and improve the interoperability of digital data that feed these services. Therefore, the proposal is an important step towards the creation of the common European mobility data space.

Data that are necessary for the deployment of intelligent transport systems across the EU, for instance access conditions for tunnels and bridges, speed limits, traffic circulation plans, permanent access restrictions, road closures, roadworks, temporary traffic management measures, or *critical services*, such as road safety-related traffic information services, will be set out in the annexes to the directive. During the negotiations, Parliament succeeded in including additional crucial road and traffic data – such as data on one-way streets in cities, traffic weight, length, width and height restrictions as well as conditions for circulation in regulated traffic zones – among those that are to be shared online.

The new directive will include an implementation programme covering at least the next 5 years and the exact geographical scope of the road network. The Commission might complement certain aspects of this implementation programme through delegated acts.

The provisional agreement explains and specifies several provisions of the Commission proposal, namely the provisional treatment of emergency situations, the protection of personal data, the priority areas for the deployment and use of specifications and standards as well as the principles applying to the development of EU-level technical specifications.

The final act was signed on 22 November 2023 and the [directive](#) was published in the Official Journal on 30 November 2023. Member States must adopt the laws, regulations and administrative provisions necessary to comply with this directive by 21 December 2025.

EUROPEAN PARLIAMENT SUPPORTING ANALYSIS

[The impact of emerging technologies on the transport system](#), Policy Department for Structural and Cohesion Policies study, European Parliament, 2020.

[Sustainable and smart urban transport](#), Policy Department for Structural and Cohesion Policies study, European Parliament, 2020.

Hahnkamper-Vandenbulcke N., [Review of the Intelligent Transport Systems Directive](#), EPRS implementation appraisal, European Parliament, 2021.

Pape M., Rittelmeyer Y.-S., [Intelligent transport systems and multimodal ticketing – Pre-legislative synthesis of national, regional and local positions on the European Commission's initiative](#), EPRS briefing, European Parliament, 2021.

OTHER SOURCES

[Intelligent Road Transport Systems](#), Legislative Observatory (OEIL), European Parliament.

ENDNOTES

- ¹ C-ITS use technologies allowing road vehicles to communicate with other vehicles or road users and roadside infrastructure.
- ² Proposed delegated acts cannot be amended, Council may only decide to object or not to object.
- ³ The Commission proposed to support [only wifi](#) over already existing cellular technologies, namely 2G/3G/4G/LTE.
- ⁴ Ricardo et al. (2021), Impact Assessment Support Study for the revision of the Intelligent Transport System Directive (2010/40/EU), Study contract No MOVE/B4/SER/2020-230.
- ⁵ This section aims to provide a flavour of the debate and is not intended to be an exhaustive account of all different views on the proposal. Additional information can be found in related publications listed under 'European Parliament supporting analysis'.

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