

Intelligent transport systems and multimodal ticketing

Pre-legislative synthesis of national, regional and local positions on the European Commission's initiative



This Briefing forms part of an EPRS series which offers a synthesis of the pre-legislative state-of-play and advance consultation on a range of key European Commission priorities during the latter's five-year term in office. It seeks to summarise the state of affairs in the relevant policy field, examine how existing policy is working on the ground, and identify best practice and ideas for the future on the part of governmental organisations at all levels of European system of multilevel governance.

Summary of findings

An EPRS analysis of the positions of partner governmental organisations at EU, national, regional and local levels suggests that they would like the following main considerations to be reflected in the discussion on the revision of the Directive on Intelligent Transport Systems (ITS), including a multimodal ticketing initiative:

- The current ITS framework, developed through delegated regulations, has to be evaluated and gaps corrected. The new rules' **coherence with existing European Union legislation** (e.g. competition law, public service obligations, data sharing, passenger rights) should be ensured. Future ITS developments should take better account of regional and local authorities' experience, as exemplified here.
- ITS services' **interoperability**, based on common EU-wide standards and cooperation, should be ensured, given that current ITS standards differ greatly between and within EU Member States. Best-practice solutions from the local level should be replicable and systems better shared. Cross-border continuity must be guaranteed.
- The **role of public authorities** in the provision of multimodal transport services through digital platforms needs to be clarified (legal framework, involvement in privately driven initiatives, etc.). The ITS framework should propose an **attractive environment for investment and innovation** to all stakeholders, especially those operating at local and regional levels.
- Governmental organisations favour open data and digitalisation, but warn of related costs. Rules are needed on **data management, opening access to data and sharing the costs** that arise from the production of transport-related public sector data. Security and privacy must be preserved.
- Before expanding **data collection obligations**, the extent to which the (often locally) collected data is actually reused and how ITS services help improve mobility should be evaluated. Any new obligations placed on the local and regional levels should be accompanied by **financial support**.

1. State of play

Background

Intelligent transport systems (ITS) use information and communication technologies to improve the way people and things move. They consist of procedures, systems and devices that allow for the collection, analysis and distribution of information that facilitates transport and mobility. 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.

Such ITS applications provide services to all transport modes, each defining its own needs for which particular systems are designed. In the European Union (EU), ITS support rail traffic across borders, air traffic management, monitoring of maritime vessels, information services in inland navigation as well as ticket reservation and payment systems and cargo tracing. On the road, beyond vehicle navigation systems and provision of information on traffic and parking availabilities, ITS solutions provide in-vehicle alerts on road works and congestion, support electronic fee collection, traffic management, ride-hailing and car-sharing platforms. They also enable vehicle-to-vehicle communications and support automated driving. While some systems cannot be physically or remotely linked, others are based on technically harmonised data that can be exchanged and used by different operators.

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

The uses for ITS in road transport are growing fast, raising multiple challenges. Their rapid uptake has spurred the development of voluntary standards that often differ between neighbouring countries, and sometimes even within one country. For a 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. The United Nations body dedicated to (all) inland transport, UNECE 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.

The **European Union** sought to encourage ITS development in road transport with [Directive 2010/40/EU](#). This legislation introduced common EU standards and specifications for interoperable and efficient ITS services, but left EU countries decide in which systems they wanted to invest. The directive focuses on security issues and the optimal use of road, traffic and travel data. It also promotes cooperation among entities introducing new ITS technologies. It identified six **priority actions**, which the European Commission later detailed in **delegated regulations**.

Delegated regulations under the ITS Directive

These included: [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; and [No 2017/1926](#), on multimodal travel information services. The Commission also proposed a delegated regulation on the deployment and [use of cooperative intelligent transport systems](#) (C-ITS). As the Commission wanted to rely solely on WiFi technology for short-range communications whereas other players wanted to also be able to use cellular technologies, the proposal has been blocked by EU Member States.

These delegated regulations oblige Member States to set up and manage **national access points** (NAPs) to ensure easy access to the relevant data, collected and stored by different public or private operators and service providers. The 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.

With the 2019 [European Green Deal](#), the EU wants to capitalise on digitalisation in the development of smart traffic management systems and sustainable mobility services, to reduce congestion and pollution, especially in urban areas. The Commission affirmed it would help develop smart systems for traffic management as well as 'Mobility as a Service' (MaaS) solutions and provide funding support. In its [2021 work programme](#), the Commission announced a review of the ITS Directive and a new multimodal ticketing initiative. The Commission [sustainable and smart mobility strategy](#) of 9 December 2020 outlined several further [actions](#) harnessing innovation and digitalisation for the planned transformation of European transport. The Commission is currently reviewing the ITS Directive and the regulations on real time traffic information services and on multimodal travel information services.

Expressing their views on the sustainable and smart mobility strategy, a [European Committee of the Regions opinion](#) (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. For its part, a [European Economic and Social Committee opinion](#) (rapporteur: Stefan Back, Group I, Sweden) cautioned that mobility platforms should be subject to public accountability, to ensure that mobility develops in line with sustainable urban plans and that service providers offer decent working conditions.

Methodology

The data sources for this briefing were obtained through:

- 1 **general requests** for input from governmental organisations at all levels of government;
- 2 **targeted requests** for input, seeking to obtain specific input from partner organisations; and
- 3 **proactive desk research**, aiming to obtain additional relevant input online.

First, general requests for input on key Commission priorities were sent to all the governmental organisations in the European Parliamentary Research Service's Linking the Levels Unit network. This was done by means of a monthly newsletter, *The Link*,¹ with calls sent each month between February and July 2021 to an expanding network, reaching 739 contacts by the end of that period.

Second, targeted emails were sent to experts within the partner organisations with specific expertise on intelligent transport systems, as well as to the ministries of transport in each Member State. At this stage, some guiding questions were provided on the topics to be addressed, covering the following main points:

- General objectives and scope of the ITS Directive,
- Interoperability and cross-border continuity,
- Data (quality, access, costs, etc.),
- Coordination among all stakeholders,
- Physical and digital infrastructure.

Finally, proactive desk research was carried out to gather further information from other governmental organisations online, as well as from the relevant literature, using the European Parliament's Library knowledge resources. This process took place from March to July 2021, with a view to closing identified analytical gaps and mitigating, to the extent possible, self-selection bias.

Our outreach strategy garnered 106 documents, which are analysed for this briefing: 3 from the local, 11 from the regional, 68 from the national and 23 from the European level. Figure 1 shows the levels of governmental organisations that published input documents analysed in this briefing.

The documents are published or provided by governmental organisations, such as national ministries, and by umbrella organisations bringing public authorities together such as [Eurocities](#) or the [Polis](#) network, as well as by individual regional or local governmental organisations.

2. Governmental organisation positions to date

The input from governmental organisations suggests that three elements are key in the revision of the ITS Directive: interoperability, data and ticketing. The Commission has also identified the first two as '[key problem drivers](#)'. While new

measures in these areas could improve the continuity of ITS services, governmental organisations and their public transport operators have views and concerns that need to be specifically taken into account, as ITS-related legislation has implications in various domains.

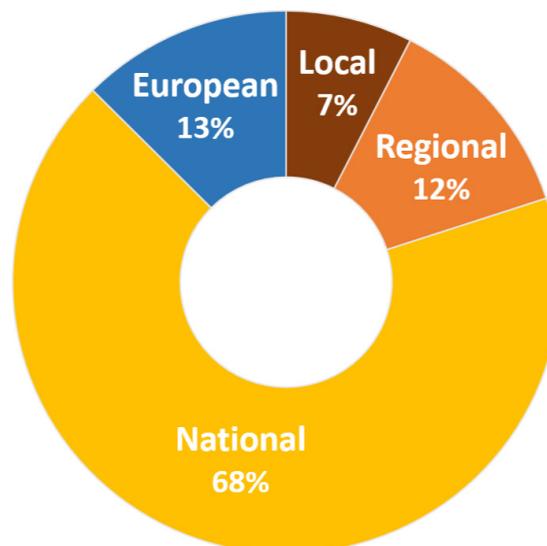
Interoperability and continuity of applications, systems and services

Interoperability and continuity, central elements of the 2010 ITS Directive, are intrinsically linked with areas such as data sharing and cooperation between stakeholders, and are a pre-condition for their development. As pointed in the 2017 ITS progress [report](#) by the **Hellenic Ministry of Infrastructure and Transport**, research, design and implementation of ITS has been carried out for years without any common strategic framework for their deployment nor attention paid to ensuring interoperability across systems and services. The situation has improved over the years, but this widespread original observation continues to affect the development of ITS services.

A guiding ambition is to develop a homogeneous and coherent framework for ITS services.² Their interoperability will determine the success of the investment made. Services need to be expandable and replaceable, and able to 'seamlessly connect all services in a common infrastructure'.³ For the **Czech Ministry of Transport**, the whole chain of ITS service provisions has to be considered, from equipment installation to delivering services.⁴ This implies clear definitions, technical standards and requirements, and performing conformity assessments. From a **Danish** perspective, a common understanding of the use of standards and a common goal among stakeholders is needed.⁵ The **Hungarian Ministry for Innovation and Transport** sees the way forward in common standards or cooperative services,⁶ while several other stakeholders propose creating a unique EU-wide standard.

Latvia suggested using the lessons learned from the deployment of the EU Covid19 certificate, or from the telecom sector unification, to create standardised interfaces and set interoperability requirements.⁷ From a [Dutch perspective](#), it is important to implement ITS services across borders,

Figure 1 – Levels of governmental organisations which contributed input analysed in this briefing



Source: EPRS.

standardisation should thus occur at the international level and cooperation should be further developed with service providers and the automotive sector.

Continuity of applications and services is the basis of cooperative ITS (cooperative systems or C-ITS, see Box 1), many of which enhance road safety. These technologies and applications allow wireless data exchange between vehicles or between vehicles and infrastructure.

In the EU, Member States and road operators have been working on the deployment of harmonised and interoperable C-ITS services in Europe through the [C-Roads platform](#).

Payment systems

Various ways exist to improve the interoperability and cross-border continuity of ITS services, but **payment** systems appear to be a key element. Processes for money and data transfers between operators have to be in place to allow the usage of several transport carriers. Even where several systems and carriers are involved, payments have to be 'integrated, user-friendly, transparent', to ensure a seamless travel experience.⁸ Having [analysed](#) the need to develop payment interfaces between service providers, the **Finnish Transport and Communications Agency** concluded that operators should rely on the payment services, systems and interfaces already on the market, instead of new payment interfaces.

Beyond technical aspects, the harmonisation of payment systems requires 'an environment of trust for electronic ticket purchasing', possibly through mutual recognition and cooperation with public transport operators.⁹

Regional and local levels

From a [Finnish](#) point of view, the review of the directive should seek to enhance interoperability between different modes of transport. The use of a combination of transport services could offer more economically sustainable mobility to sparsely populated areas and help resolve existing problems related to service availability in those areas.

Regional and local authorities and their public transport operators act as implementing bodies, and as such, can help facilitate interoperability. The local level has also played a key role in the development of pilot projects. While these can show what is feasible, increasing the sharing of and learning from the best local practices is also needed. The **Czech Ministry of Transport** advocates the 'launch of large-scale pilot projects' especially cross-border, to test the functioning of the systems and help increase their compatibility and interoperability at national and European level.¹⁰ In a similar vein, [Eurocities](#) has pointed out that developing ITS projects in silos is costly for the local level, as is their lack of interoperability. Local solutions should be more replicable and the software and other tools used to develop the systems could be shared more widely.

Availability and sharing of data supporting ITS services

The development of ITS services and multimodal mobility builds on data (see Box 2). However, as the Commission [recognises](#), the availability and accessibility of data sets in digital, machine-

Box 1 – NordicWay projects

These C-ITS [pilot projects](#), a public and private partner collaboration in Finland, Norway, Sweden and Denmark, enable vehicles, infrastructure and network operators to continuously communicate safety hazards and other information from roads in the Nordic countries. Initially starting on [motorways](#), several cities have become involved in [later phases](#).



Source: [Denmark 2020 ITS Progress report](#)
© Petair / Adobe Stock.

readable format and the interoperability of booking, payment and ticketing systems is still not optimal.

The ITS Directive and the complementing delegated regulations translate the EU's [ambition](#) to make transport, traffic and travel data both easier to access through their NAPs and to reuse, through common standards. The 2020 [country reports](#) on the implementation of the ITS Directive show how Member States have progressed with the requirements to establish NAPs, to make the different sets of data collected available. The multimodal travel data, in particular, appears to remain a 'work in progress' for many.

Reviewing the ITS Directive, the Commission has proposed to expand its original scope and make the availability of machine-readable data and the deployment of ITS services obligatory. For the **Polis** network, representing European local and regional authorities promoting sustainable mobility, this amounts to a significant [shift in scope](#). To them, an evaluation of the delegated regulations already in place is needed before adding any data-sharing obligations that are likely to fall on local authorities. The evaluation should assess to what extent the data on the NAPs is actually reused and how these data-enhanced ITS services contribute towards making mobility more sustainable.

For its part, the **Danish Ministry of Transport** considers that 'a demand to create and share all datasets covered by delegated acts is in reality impossible and disproportional', and thus asks for clarification and scrutiny of the data concerned.¹¹

Several stakeholders have [identified](#) issues related to the data supporting ITS services, including limited data availability, quality, access, exchange and usage. To public transport operators, however, neither the lack of standardisation nor data availability and sharing seem to be an issue, while mutual reciprocity in data sharing between public and private stakeholders, as well as missing agreements for data reuse, are problematic.

Open data and machine readability

One of the problems identified is that different standards for data exchange are used in each transport mode. The **Latvian authorities** emphasise that common standards exist and that those should be encouraged.¹² From **Finland's** [point of view](#), more active EU level input is needed 'in the development of data standards and formats that facilitate the interoperability and usability of data'.

Governmental organisations appear to be largely in favour of open data that is accessible in machine-readable format. The **Polis** network has however [warned](#) that the availability of machine-readable data would have significant implications for city and

Box 2 – Data

Intelligent transport systems operate with a variety of data, each category having its own characteristics and requirements. 'Road data' cover infrastructure – both static data (that does not change often or regularly) and dynamic, such as data on accidents and road works. 'Traffic data' includes historic and real-time data on road traffic. 'Travel data', such as public transport timetables and tariffs, are necessary to provide multi-modal travel information before and during a trip to facilitate travel planning. For instance, real-time traffic information services are based on updates and combinations of static and dynamic road data and traffic data.

Box 3: Interoperability of carpooling websites in France

As carpooling helps reduce traffic congestion and pollution by reducing the number of cars in circulation, the French carpooling federation Feduco has developed a new communication standard called RDEX (Ridesharing Data Exchange) to pool the various operators' databases. Local authorities save the costs related to database and software and can focus their resources on coordinating, communicating on and promoting carpooling.



Source: [Intelligent transport systems, the French expertise](#) © Andrey Popov / Adobe Stock.

Box 4 – Digitransit open source platform

[Digitransit](#) is an open source real-time journey planning and passenger information platform developed by Helsinki Regional Transport and the Finnish Transport Infrastructure Agency.



This project ensures that route and timetable data gathered from various sources is comprehensive and of high quality. Both the data and the application code are open. The service already covers the whole Finnish territory and was introduced to Estonia in 2019.

Source: [Finland 2020 ITS report](#) © onephoto / Adobe Stock.

regional authorities, given that they still hold a 'substantial amount of data in a non-machine-readable format'.

The German [Region of Baden-Württemberg](#) is of the opinion that cooperation among the ITS stakeholders is more likely when 'mobility data is available for common use (also in private business) under open-licence models'. Open licensing should enhance the availability and sharing of mobility data. **Estonia**, for example, has made information on public transport available in open data, with descriptions, timetables and locations of stops on domestic transport routes freely accessible to all interested parties.¹³

According to an informal working input from the **Ministry of Infrastructure of Poland**, the implementation of traffic and public transport management systems and digitisation of other necessary data should be seen as a priority.¹⁴ This would provide access to the transport data needed, but making open data available must be transparent, simple and without duplication.

More digitalised and open data could make using the interfaces easier and more intuitive, while also improving accessibility for disabled people. Indeed, access to data for people with disabilities has to be considered according to their special needs. The 2020 Commission [study](#) 'Mapping accessible transport for persons with reduced mobility' identified heterogeneous data as the main problem. Only after harmonised quality data become available (both static data for travel planning and specific dynamic and real-time data) were scalable journey-planning tools for persons with reduced mobility conceivable (see Box 5 for an example).

Security and privacy

Next to data availability and reusability, governmental organisations point to the importance of data security and the respect of privacy. **Finland** [sees](#) as 'crucial' the maintenance of a 'high level of security as well as trust associated with the use of new technologies'. Further, **Czechia** believes that specific conditions for data reuse should exist and that public sector bodies should retain verification rights in order to preserve the integrity of the data.

Concerns regarding privacy have to be taken into account and the full respect of the General Data Protection Regulation ([GDPR](#))

Box 5 – Czech services for blind and visually impaired people

In Czechia, blind and visually impaired people travelling by public passenger transport use a radio system for orientation and information purposes. This [video](#) shows how this system works in practice.



Source: 'Trip without barriers', © Halfpoint / Adobe Stock.

has to be ensured. [Eurocities](#) has identified as an important aspect: 'the management of personal data and commercially sensitive data'. It therefore asks for a clarification of the relationship between the ITS Directive and related horizontal data management legislation, such as the GDPR or the [European interoperability framework](#). The **City of Stockholm** makes a [similar request](#), mentioning the [European data strategy](#) and the future legislation on artificial intelligence. Ambiguities between this legislation could 'create difficulties for local authorities concerning data management, sharing and a successful wide-scale implementation of ITS solutions'.

Data collection and related costs

Transformations such as digitalisation, standardisation, or making open data available will generate costs that will mostly fall on public authorities. **Hungary** warns that moving away from traditional data collection bears costs that need to be addressed.¹⁵ **Latvian authorities** agree that preparing standardised and open data is costly, but acknowledge the benefits for the society, businesses, rail and train operators and other actors.¹⁶ Furthermore, EU funding would help achieve 'faster and easier' development. The **Czech Ministry of Transport** believes that the costs to the public sector should 'be limited to the necessary costs' related to the reproduction, provision and dissemination of data, anonymisation of personal data, or maintenance of the secure processing environment.

The **Polis** network calls for 'a public debate about sharing the costs arising from the production and sharing of public sector data' and asks the Commission to initiate a discussion on the sensitive topic of 'public sector data monetisation'. Such income could help reduce the gap between the public and private sector, improve the quality of public sector data and enhance data skills. From a **Latvian perspective**, charges should indeed be established for the commercial use of data, but they should remain small, ideally regulated on pan-European scale, and they should be justified and linked to clearly demonstrated costs incurred solely in order to make this data available.¹⁷

Multimodal ticketing and Mobility as a Service

As ITS applications allow for a broad range of services, the idea has emerged of integrating various forms of transport services into a single mobility service, accessible on demand. The aim is to provide a tailor-made, efficient, sustainable and environmentally friendly alternative to the use of private cars. The passenger should have access to a continuous service with a single ticket or payment, regardless of how many transport modes and operators are involved.

Multimodal integrated solutions for booking and purchasing of tickets can be used both in long-distance travel (including the first and last mile) and for everyday journeys involving urban, suburban, regional and rural connections. In urban areas, this concept is also known as 'Mobility as a Service', or MaaS. The MaaS business models follow a platform economy approach.

Numerous electronic and smart ticketing solutions have been developed and applied across the EU in a non-harmonised way, which limits their potential for cross-border usage. Some EU countries already have national laws on integrated ticketing and payments.¹⁸ As such, laws focus mainly on national markets, they may increase the fragmentation across the EU, if no common EU rules exist.

Building on a 2019 [study](#) and expert consultations, the European Commission has been preparing a framework to support integrated ticketing and MaaS services. These systems need access to both static and dynamic data and the Commission is considering ways to make the availability of such data mandatory.

While MaaS pilot projects have been tested in several cities,¹⁹ the **Ministry of Transport of Baden-Württemberg** is convinced that MaaS can contribute to better accessibility of alternative, environmentally friendly transport. It considers that this approach can be strengthened by technically standardised mobility data available under open licensing. Several challenges in terms of governance, costs or cooperation between public and private actors still need to be overcome.

Governance issues

The [Polis](#) network cautioned that the creation of ticketing interfaces is a matter of subsidiarity. Where mandated, (public) mobility operators have to be free to set the governance terms and conditions. Otherwise, third-party platforms may steer users towards modes generating most revenue, instead of walking, cycling and public transport. Public authorities would lose the revenue tool provided by public transport fares that enables them to ensure affordable, accessible and environmentally sustainable mobility.

[Cities and public transport authorities](#) jointly affirm that, with effective governance, integrated mobility services can make sustainable mobility more attractive and competitive, but regulations must apply to all mobility operators, not just public ones. The MaaS provision should not be limited to a commercial business case, all vendors should be subject to the same rules with respect to passenger rights or accessibility information. Without effective governance, however, business interests may not align with sustainable mobility goals.

The provision of multimodal travel services requires higher interaction and clear rules for the cooperation among the providers of public and private transport services (including operators of car-, ride-, bike-sharing schemes and e-scooters), platform operators selling tickets and public authorities. To achieve this, the **Flemish government** is drafting a 'Maas governance framework' to specify the facilitating and supporting role local authorities will play towards Maas actors.²⁰ [Austria](#) has noted that in the MaaS world, many private 'mobility integrators' were using MaaS services mainly to promote their own, car-heavy services. Good integration with public transport was lacking and operators received no feedback on the demands that travellers place on mobility services. They addressed these issues in a 'MaaS – made in Austria' [brochure](#) detailing the framework conditions and various service levels for a scaled approach towards MaaS in the country.

Data use and platforms

Issues of content among the various actors include the secure provision of – often commercially sensitive – data through licensing, ticket pricing and reselling. **Hungary** believes that MaaS participants should benefit from the system: if not, the system should be adjusted.²¹ Rather than MaaS entailing significant extra expenditure for the public sector, it should provide some benefits. A public service operator could participate in the process to build a MaaS solution if they decide to do so, after an evaluation of costs and benefits. To **Latvia**, providing a concession of a 'pan-European' or 'nationwide' MaaS application may be worth discussing, to ensure a better payback ratio on investment.²² The Latvian national recovery and resilience [plan](#) contains key public transport reform measures such as a platform for ticket sales (single ticket for several journeys in different modes) and a real-time passenger information system.

The **Finnish Transport and Communications Agency** has observed that transport services must be available and accessible to everyone but that 'there is no technology or a combination of technologies available yet that suits all situations'.²³ For the agency, solutions based solely on smartphones or smart payment cards cannot be considered. Neither is it possible to ask a low-volume transport service provider to invest in heavy and costly electronic systems. Instead, they see the near future as coexistence on the market of several different ticketing technologies, meeting different needs.

3. Analysis of governmental organisations' positions

Remarkable features of input

The documents analysed show that despite the fact that local and regional actors are very much concerned by the issues tackled in the EU directive, the main players remain at national and European level, while the private sector is a significant component of the equation. The technicality of the topic and the lack of local and regional authority resources largely explain this situation.

Another reason is the way the 2010 directive envisaged ITS deployment, with Member States in charge of taking the necessary measures, deploying services and reporting. Local and regional authorities were limited to an advisory role, as were service providers, transport and facilities operators, manufacturing industry representatives, social partners and professional associations.

This contrasted with the fact that most cities had already developed their own public transport ticketing systems, usually integrating several modes (tram, bus, metro); systems conceived and financed locally to serve local (and regional) needs. Consequently, while ITS are often perceived as a means to support public transport, cities and public transport operators have voiced their fundamental [concern](#) that the existing public transport system has to be taken as the starting point for building any platforms that link privately and publicly offered transport services to create a door-to-door travel chain. The MaaS concept indeed offers a powerful tool to organise and manage mobility at regional and local level across all modes of transport, but the way it is conceived has direct consequences for public authorities.

Scope and objectives of the directive

Broadening of the scope of ITS applications and services beyond road transport and its interfaces is encountering mixed reactions from governmental organisations. While some consider the current scope as satisfactory, others want it to be expanded so that all modes of transport are treated equally. The [Region of Baden-Württemberg](#), for example, encourages 'the European Commission to understand 'ITS' in a way that includes classical modes of transport as well as new service oriented mobility solutions'. The underlying questions are however how expansion would be done, why, and what it would imply. There is a general understanding that this could help standardisation and interoperability, as well as contribute to sustainable mobility and digitalisation. The Belgian region of **Flanders**, however, considers that the inclusion of all aspects and modes in one directive would go too far, preferring specifications per mode.²⁴

The first priority lies in correcting the gaps in the current framework. Several ministries have pointed to the lack of clear definitions and procedures concerning the conformity assessment envisaged for ITS products and services. Based on a recent study,²⁵ the **Latvian Ministry of Transport** noticed the lack of synergy between the systems and data sets, and considered enlarging the scope to other modes of transport (including rail) as a way to tackle this issue. It nevertheless wants to see all modes of transport treated equally, meaning that road systems and standards should not be imposed on other modes.²⁶ There is a desire – expressed for example informally by **Polish authorities** – to see the existing regulations simplified and ensure their compliance with other related EU legislation.

Beyond data protection and access to data owned by a monopolistic data holder, this concerns for instance the liability issues incurred through the resale of tickets (how is the liability shared between the service provider and the combined ticket reseller) and the provision of assistance to passengers. In particular the setting up of a MaaS system is a new approach that may encounter issues with EU competition law, rules on State aid and public service obligation. Relatedly, if the scope is extended, the variations in passengers' rights covered by EU legislation will have to be considered and solutions proposed in the new legislation. Public authorities want rights and obligations to be evenly distributed between public and private actors.

The new ITS framework should also propose an environment that remains [attractive](#) for investment and innovation. The potential infrastructure- and data-related costs arising from new measures raise local and regional government concerns. For instance, the [City of Stockholm](#) has recently implemented ITS solutions in all port areas that have made management more effective, but have been costly. They warn that obliging the public sector to implement new ITS solutions and supply different sets of data will require EU financial support, as the investment needed will likely be substantial. In this regard, [Eurocities](#) asked for the additional costs for city authorities calculated in the impact assessment. **Finland** recommended a phased implementation of the new EU provisions with a sufficiently long transition period.²⁷

Multi-level and cross-sector cooperation

Many of the issues identified and that are key for the success of ITS services are linked to the question of cooperation between the many stakeholders involved. In practice, ITS development needs cooperation and coordination between different levels of governance, public and private stakeholders, as well as cross-border cooperation. One way to support their coordination, according to the **Bulgarian Ministry of Transport**, could be 'a Single National Authority and a Single Portal'.²⁸

While the policy and cooperation have been very much driven at national and EU levels, cities and regions have organised themselves in umbrella organisations to increase their influence and develop exchanges. The respect of the principle of subsidiarity may play a greater role in future ITS developments, with local and regional actors more involved at the different stages and better supported. The **Czechs** see the need for a cooperation mechanism 'designed in a way that co-ordination, planning and consultation will be established across' all levels and actors as well as aligned at the cross-border level.²⁹ Recognising that the implementation of ITS services requires a specific organisation for the governmental bodies, 'new internal processes and possibly even new competencies and knowledge', the **Netherlands** introduced formal cooperation between governmental bodies at different levels in 2018, called **Bundling Forces** ('*Krachtenbundeling*'). Its [purpose](#) is 'to ensure scale and harmonisation of policies, workflow and standards'.

Given that public authorities and private operators are inevitably linked in various aspects of ITS development, regional and local authorities need to seek partnerships with the private sector. However, the difficulties reported point to a lack of trust among actors involved in exchanging and sharing (commercially) sensitive data, safeguards on data sharing and other governance issues. The [Commission](#) has noted that 'in some cities, the close competition between different stakeholders makes them unwilling to share information, expose their business models and collaborate with competitors'. The cooperation of both sectors can be achieved with appropriate regulations that will help them to recognise the 'common interests and benefits of cooperation'.³⁰

In **Finland**, for example, several ITS development programmes bring together relevant public and private stakeholders, thereby 'enhancing the collaboration between different parties to promote the development of the industry'. In the **Netherlands**, public-private partnerships have proved their value, with both sides realising that 'working together is the only option'. This allows for better mutual understanding and the building of trust.

A successful development of EU-wide ITS services however requires taking a step further and fully overcoming national barriers, eliminating cross-border restrictions and developing cross-border projects. Several Member States have already taken up this course, for instance, **Slovakia** has committed to 'supporting cross-border cooperation in the development and testing of new technologies, communication networks and data services for interconnected autonomous vehicles'.

Even with standards and cooperation mechanisms in place, narrow cooperation and trust building among public and private stakeholders, as well as the disclosure of tariffs, revenue sharing and fare management, still require numerous legal clarifications and signing many contracts. In this sense, EU action laying down a functional common framework reflecting local and regional needs can make a real difference. The European Commission is carrying out an impact assessment and plans to put forward the proposal for a revised ITS Directive in December 2021. It should suggest solutions to the issues described above and move ITS implementation further.

EXPERT READING ON THE TOPIC

Dimitrakopoulos G. J., Uden L., and Varlamis I., *The Future of Intelligent Transport Systems*, Elsevier, 2020.

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

Valdani Vicari & Associati, [Study on market access and competition issues related to MaaS](#), 2019.

ENDNOTES

- ¹ Governmental organisations wishing to subscribe to 'The LINK' newsletter can write to EPRS-LinkingLevels@europarl.europa.eu.
- ² The regulations on [real-time traffic information services](#) and [multimodal travel information services](#) do not oblige Member States to introduce such services, only to harmonise their deployment if authorities decide to introduce them.
- ³ Dimitrakopoulos G. J., Uden L., and Varlamis I., *The Future of Intelligent Transport Systems*, Elsevier, 2020, p. 99.
- ⁴ Information provided by the Ministry of Transport of the Czech Republic, June 2021.
- ⁵ Information provided by the Danish Ministry of Transport, August 2021.
- ⁶ Information provided by the Hungarian Ministry for Innovation and Transport, June 2021.
- ⁷ Information provided by the Latvian Ministry of Transport, July 2021.
- ⁸ Information provided by the Hungarian Ministry for Innovation and Transport, June 2021.
- ⁹ Information provided by the Ministry of Transport of the Czech Republic, June 2021.
- ¹⁰ Ibid.
- ¹¹ Information provided by the Danish Ministry of Transport, August 2021.
- ¹² Information provided by the Latvian Ministry of Transport, July 2021.
- ¹³ Road administration of the Republic of Estonia, Letter sent to the European Commission to report on the implementation of Union-wide multimodal travel information services on the TEN-T network, January 2019.
- ¹⁴ Informal working input provided by the Ministry of Infrastructure of Poland, June 2021.
- ¹⁵ Information provided by the Hungarian Ministry for Innovation and Transport, June 2021.
- ¹⁶ Information provided by the Latvian Ministry of Transport, July 2021.
- ¹⁷ Ibid.
- ¹⁸ For instance, the French Mobility orientation law ([LOM](#)) sets rules on ITS data use, obliging all transport service providers to share their static and dynamic [data](#) as a condition to obtaining a licence. The Finnish [Act on Transport Services](#) requires all transport service providers to open the basic information regarding their services and share it in the Finnish NAP.
- ¹⁹ The EU funded the [MOVE](#) project to accelerate the deployment and the scalability of MaaS schemes. The selected cities ('[living labs](#)') – Berlin, Gothenburg, Manchester and Turin – tested solutions to improve the deployment and operation of MaaS and its underlying business models.
- ²⁰ Information provided by the Delegation of Flanders to the EU and Flemish Department of Mobility and Public Works, August 2021.
- ²¹ Information provided by the Hungarian Ministry for Innovation and Transport, June 2021.
- ²² Information provided by the Latvian Ministry of Transport, July 2021.
- ²³ Finnish Transport and Communications Agency, 'Analysis of the ticket technologies on the market. Interoperability of ticket and payment systems project', 22 December 2017.
- ²⁴ Information provided by the Delegation of Flanders to the EU and Flemish Department of Mobility and Public Works, August 2021.
- ²⁵ KPMG and Valdani Vicari & Associati, 'Ensuring Sustainable Mobility', September 2021.
- ²⁶ Information provided by the Latvian Ministry of Transport, July 2021.
- ²⁷ Finnish Ministry of Transport and Communications, Response to the European Commission Public consultation on the revision of the Directive on intelligent transport systems, 2 February 2021.
- ²⁸ Information provided by the Bulgarian Ministry for Transport, Information technology and communications, August 2021.
- ²⁹ Information provided by the Ministry of Transport of the Czech Republic, June 2021.
- ³⁰ Information provided by the Hungarian Ministry for Innovation and Transport, June 2021.

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