Suite 206, Tower Bridge Business Centre
46-48 East Smithfield, London, E1W 1AW
+44 (0) 207 709 3003
contact@its-uk.org
its-uk.org

Intelligent Transport Systems UK
Empowering Transport Technology

Integrated National Transport Strategy Call for Ideas
Intelligent Transport Systems UK Submission

About Intelligent Transport Systems UK
Intelligent Transport Systems UK (ITS UK) is the national industry association for transport technology. We provide a national platform to support the roll out of technology for a cleaner, safer and more effective transport network, both at home and abroad.

ITS UK has 175+ members, from both the private and public sector, and covering all sizes and disciplines, with members working in areas like traffic management and enforcement, demand responsive transport, data analytics and AI, mobility as a service (MaaS), smart ticketing, integrated transport, connected and autonomous vehicles, public transport services and much more. More information on ITS UK and the intelligent transport sector can be found at www.its-uk.org

1. **In your opinion, how could the transport network be better 'joined-up'?**

ITS UK and our members strongly agree that the UK's transport network could be far more 'joined-up'. Currently the UK operates almost as a series of different modal networks, with different structures, industries, standards and practices across road, rail, bus, active travel, freight and logistics and other modes. For the public, the results are journeys that are not seamless, often requiring new tickets to be purchased between a bus and a train journey, or different information or timetables that mean longer waiting times or difficult last-mile journeys.

Whilst there are positive examples in the UK of where transport has become more integrated, such as around the Mayoral Combined Authorities and city regions, there are still many both urban and rural areas where modes operate with little interaction to one another, and where the customers' holistic journey, from A to B, is not considered.

The UK transport sector is highly complex and disparate, with differing regulation and structures, making integration all the more difficult. Some sectors have few large operators (such as passenger rail) whereas others have many (taxis). The need to cater for both goods and people, and to manage both national priorities against those at the regional and local levels, further makes the transport network difficult to manage as a holistic system.

However, because transport functions as an interdependent, interconnected system, there is all the more reason that it should be planned, managed, and operated as a whole, with a 'systems-based' approach. ITS UK believes that technology can allow for the greater integration and that there are some key actions the Government can take, summarised in the following table.

Data	Technology	Governance & Structures
- 'Open by default' approach to data by Government. - Develop a national standard of multimodal data. - Maintain focus on smart data in transport.	- Continued roll out of smart ticketing systems. - Greater strategic approach to Demand Responsive Transport. - Implement micromobility legislation.	- An INTS that runs for 5+ years, providing certainty to the private sector. - Support continued devolution of transport, but with Government working with regions and

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- Support for transport authorities to provide data service (including operational expenditure, technical skills and capabilities for staff). - Establish a centre of excellence for inter-modal transport data & technology.	- Support traffic management, utilising AI and automation. - Supercharge the roll out of connected and automated mobility.	nations to coordinate a network-wide approach. - Move beyond innovation trials and pilots to more permanent schemes.

2. **How could data be used to improve the transport network?**

A. Open Data

There is more data being produced from our transport network than ever before, whether through connected vehicles, satellite GIS, sensors and more. Increasingly, network operations are supported by real-time information that can be accessed from a range of mobile devices and are allowing the better planning, management and operation of our transport network.

The opening up and better use of data also has a strong economic value. Transport for London's (TfL) Open Data Initiative costs around £1 million per annum, but has been shown to deliver £130 million per annum in benefits, with estimated journey time savings of £70 - £90 million. It was also found to have supported 500+ jobs, contributed £12 - £15 million annually to London's economy and enabled the creation of 600+ transport apps, widely used by the public.[1]

There are a number of initiatives across different transport modes to improve the use of data, open it up to third parties and, ultimately, support better services for end users. To list just a few of these initiatives:

- **Bus Open Data Service (BODS):** A UK government initiative that provides open access to bus schedules, real-time locations, and fares to improve public transport accessibility and efficiency.
- **Street Manager:** A digital platform for managing street works, aimed at reducing congestion and improving coordination between utilities and transport authorities.
- **Rail Data Marketplace:** A platform that brings data publishers and data consumers together to make rail data searchable, easy to find and 'friction-free' to access.
- **Digitalisation of Traffic Regulation Orders (DTRO):** Currently underway, an initiative by the UK government to place TROs in a single unified platform to provide a greater understanding of road changes.
- **National Parking Platform:** A platform that brings together a live picture of parking conditions and availability across the country, allowing different participants in the system to share information through a single portal and to pass prices, occupancy data and more to users through a variety of means.
- **Data for Road Safety:** A Horizon Europe initiative, that the UK is part of, providing a system that any industry partners can use to exchange safety related traffic data and information.
- **Regional and city initiatives:** These include the TfL Open Data Initiative that provides open access to the city's transport data through the London Data Store.

[1] https://content.tfl.gov.uk/deloitte-report-tfl-open-data.pdf

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The Government and its Arm's Length Bodies should maintain their commitment to having an 'Open by Default' approach to data, including embedding the principle in legislation for when Great British Railways is set up. It should continue to explore, too, where new open data platforms, such as those listed above, could be introduced.

B. A National Data Standard

Increasingly, however, the focus will be on how we can join up these different data sources to produce a holistic picture of the network. By doing so, transport planners, operators and users would see even greater benefits in terms of understanding the network as a whole, and policy makers would have even greater ability to implement their priorities. The ITS industry is confident that transport data can be made available and interoperable, as local authorities and transport bodies are already paying for the collection and storing of data throughout the country. But leadership is required from Government on how to leverage this data, and what standards to use.

To start with, Government should look at joining up existing standards to create a national standard for transport data. This would also require deciding where the burden and cost of ensuring data quality and interoperability lies - whether it is with the DfT, the private sector, or local government - and ensuring that standards are not overly strict so as to limit innovation. One possible solution, is central government setting national standards and providing funding for local authorities to hold, manage and share their transport data.

The UK should examine international practice relating to standards too. For example, the EU legislates and recommends data standards, as well as including prescriptive requirements in government funding for projects. The UK should capitalise on standard practices that already exist and could be implemented immediately.

The greater integration of data will allow for the development of Digital Twins (DT) in transport. These are real-time digital representations of a specific location e.g. road or junction, or of a much wider place and its transport network i.e. a town or city, allowing for live visualisations of the transport network and for simulation of potential scenarios.

DTs have the potential to revolutionise how we manage our network. The collection of many types of data e.g. vehicle and pedestrian movements and patterns, air quality, congestion hotspots and weather events, can be used in a variety of models to pursue transport outcomes and policy objectives such as improving road safety, decarbonisation, active travel uptake, reducing congestion, effective asset management or proactive disruption mitigation to name a few. It is recommended that, to ensure cost-effectiveness, DTs should be established with very clear purposes, policy objective or social and environmental outcome.

Successful trials have taken place in the UK to achieve desired outcomes with DTs. For example, in Tees Valley, the Combined Authority set out to monitor active travel uptake, modal split and congestion. They used the newly collected data from their DT to direct their investment planning to the highest impact areas, identifying where and when investment was needed to supplement active travel trends and public transport usage. The DT also provided data to develop a system for automating bus reliability to model and predict delay – allowing for proactive interventions to keep services running smoothly and reduce congestion. Similarly, in Brixton, London, a DT trial set out to reduce polluting NO_2 and reduce congestion, leading to a 20% decrease in toxic pollutant NO_2 and smoother traffic congestion.

C. Smart Data

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Smart data is defined by the Government as the "secure sharing of customer data with authorised third parties, upon a customer's request". Not to be confused with open data, smart data is about increasing the ease of portability between one data platform and another. An example of this is open banking, which has radically transformed the way data has been shared across the finance industry. Open banking has also helped create 82 firms, raised over £2 billion of private funding and created over 4,800 skilled jobs in the financial year 2022-2023.[2]

Deploying smart data in transport could provide the sector with more information on consumer behaviour, helping operators to understand passengers on a deeper level, whilst also providing the travelling public with real-time, up-to-date and multimodal information about their journeys. Currently, work is being undertaken by the Department for Science, Innovation and Technology to see how a smart data scheme could be established in a number of different sectors, including transport. ITS UK would encourage this work to continue and for transport to be a priority industry for a future scheme.

D. Support for transport authorities

Local and transport authorities, as key purchasers and users of transport data, will be essential in creating a more data-led transport network. Large transport authorities, such as regional and subnational bodies often have the capabilities to invest in their data infrastructure, but this is not often the case for local authorities. Critically, open data isn't 'free data' – setting up and maintaining high quality data sources requires resource, which ultimately falls on public sector organisations with limited funding.

Because Government mostly funds capital expenditure, local authorities are encouraged to buy data on an ad hoc basis for individual projects instead of building strategic data capabilities, with a well-considered and city-scale understanding of transport. If we want to see local authorities take a more strategic approach, they will require funding for operational expenditure, to provide the capabilities to keep data services running. This expenditure would likely have a significant return on investment, as data services would reduce costs in other areas, such as by reducing the need for human monitoring of infrastructure assets.

In the long term, this requires a change to funding models for local authorities, recognising the increasing need for recurring spend as part of building an intelligent future driven by data, systems and technology. In the short term, the Government could look to set aside a fund, as it has done for road maintenance and potholes, to support operational expenditure of data systems and the upskilling of the local authority workforce.

E. A National Multi-Modal Data Initiative

ITS UK would recommend the establishment of a National Multi-Modal Data Initiative that aims to support the UK in positioning itself as a leader in data-driven transport innovation and support economic growth. We would suggest this initiative could involve a Centre for Excellence for Transport Data, establishing a dedicated centre for skills development, research, knowledge sharing, technology transfer, and best practices – as has been developed in the bus industry with the Bus Centre for Excellence.

ITS UK and our members would be happy to support this initiative, and work with Government on the establishment of a Centre of Excellence.

[2] https://www.its-uk.org/smart-data-is-transport-ready/

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3. **How could technology be used to improve the transport network?**

The UK already has an effective 'toolkit' of technologies that would allow for a more integrated transport network. The focus should now be more on how we deploy these technologies successfully.

A. Smart Ticketing

Implementing smart ticketing across all public transport modes will play a vital role in the integration of the transport network. Smart ticketing provides passengers with greater convenience and faster access to stations as well as information about fares, journey times and disruptions. For the operator, smart ticketing systems can give insights into passenger movements and travel patterns, allowing them to in turn better optimise services, as well as sharing this data with other transport operators.

An integrated transport network, will require the continued introduction of smart ticketing to provide the ease of access for passengers to use multiple modes throughout the network, and for transport operators to share data with each other to supply a 'joined-up' service that can relay information about passenger flows to relevant service providers, and relay information about services to passengers. Government should consider a national barcode standard for tickets, as currently, the lack of one hampers integrated ticketing solutions for transport providers and complicates the user experience.

B. Demand Responsive Transport

Demand Responsive Transport (DRT) is an innovative approach to public transport utilises technology to establish dynamic, on-demand networks, enabling passengers to book rides on-the-go or schedule trips in advance, thereby offering a highly adaptable and efficient public transport solution, especially in areas with limited transport alternatives. In these areas, these services can be a more sustainable alternative to underutilised fixed route buses and help reduce traffic through modal shift.

DRT can provide a vital link to plug gaps in support of fixed bus routes in rural and semi-rural areas, or in some cases replace fixed-line routes entirely. DRT schemes can:

- Decarbonise through the use of smaller vehicles with a lower environmental footprint, particularly in rural transport networks where average seat load is much lower than in urban areas.
- Encourage seamless, door-to-door travel, particularly when DRT schemes are integrated with the wider transport system or Mobility as a Service (MaaS) schemes.
- Increase public transport patronage by feeding in to the wider bus network and other public transport modes.
- Create flexible bus routes driven by passenger demand data, meeting passenger needs and reducing costs through more efficient use of transport vehicles. Support investment, jobs and economic growth by improving ease and access to travel.

ITS UK has been calling for a more strategic approach to DRT, with current trials placed on a longer-term footing, the VAT removed from DRT services that use smaller vehicles and for a greater focus on output specification in contracts. Our recommendations and successful case studies are outlined in our submission to the Transport Select Committee.[3]

C. Micromobility

[3] https://www.its-uk.org/publications/submission-to-the-transport-select-committee-inquiry-into-buses-connecting-communities/

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Micromobility is now well developed across urban areas, with e-bikes and e-scooter schemes proliferating across the UK. Shared micromobility schemes in particular, which provide access to an e-scooter, bike/e-bike or cargo bike without the need to own one, stand to play an essential part of shifting to a more integrated transport network, with many trips acting as an 'in-between' for other modes of public transport, whilst enabling flexible, affordable and environmentally friendly transport.[4]

Micromobility schemes are an essential part of an integrated transport network, as well as a growing global market – worth £37 billion in 2020, and predicted to grow to over £169 billion by 2030.[5] However, ensuring micromobility schemes are safe, have support from local communities and have the right regulation and governance in place is increasingly pressing, in order for this form of transport to thrive.

In England, rental e-scooters are available to ride in selected local authority areas as part of the Department for Transport's national shared e-scooter trial, implemented in order to gather data on their usage, safety and environmental benefits. These trials were previously due to end in May 2024 but are currently extended to May 2026, and have been enabled through use of Vehicle Special Orders (VSO). However, this is not a viable long-term solution, and doesn't apply to privately owned e-scooters which remain illegal to use on public roads and spaces. A lack of dedicated regulations for e-scooters thus leaves industry uncertain about the future long-term viability of shared micromobility schemes, and the market prospects for e-scooters in general.

Regulations should remain flexible and performance-based – encouraging innovation by being open enough to allow for new technologies to develop, whilst also having a clear focus on improving safety, sustainability and accessibility for users and the public.

D. Traffic management

An integrated transport network must include a plan for effective use of the road network with traffic management solutions that provide regular and on-time journeys, and provide safe travel options for all road users. Through the use of roadside technology, data analytics and AI, the ITS industry can effectively understand the use of the road network and ensure traffic operations support an integrated system.

An international example of this is Madrid's Urban Transport System, which employs an advanced traffic management system. Its primary goal is to collect, analyse, and visualise real-time road data to detect potential safety-critical events. The system gathers data from traffic signals, mobile networks, video analytics, public transport databases, and vehicle sensors, enabling multi-modal load balancing to optimise traffic flows.

Greater innovation in traffic management should be supported in the UK. However, in November 2023, the Government cancelled the Intelligent Traffic Management Fund (ITMF), a £20 million pot of funding for local authorities to work with traffic management suppliers to explore innovation in the market. We believe this decision should be re-evaluated, with consideration of how this innovation fund could be used to support public transport and active travel.[6]

E. Connected and Automated Mobility

[4] Shared micromobility within the UK, Local Government Association
[5] Micromobility Market Size, Share, Competitive Landscape and Trend Analysis Report by Propulsion Type, Vehicle Type Sharing Type and Age Group : Global Opportunity Analysis and Industry Forecast, 2021-2030
[6] https://www.its-uk.org/cancellation-of-intelligent-traffic-management-fund-is-hugely-missed-opportunity/

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The Automated Vehicles Act, passed in May 2024, provides a pathway for the regulated roll out of self-driving vehicles on UK roads. Now, it is crucial that the Government begins the introduction of statutory instruments/secondary legislation to allow the implementation of a national pathfinder scheme. An Integrated Transport Strategy should consider how connected and automated vehicle technology can support its aims.

It's important to note that while these technologies work in tandem as it pertains to vehicles, there are also broader applications for 'connected vehicles' outside of automation. In order for an integrated transport network to function properly, individuals need to feed-in, and receive data from many platforms and service providers throughout their journey.

Sending and receiving of data to and from individuals, vehicles, services and platforms, will require interoperable standards. Government should assess how these standards should align with international data standards, given how vehicles and individuals frequently travel abroad, and, in particular to the EU.

4. **How, if at all, would you improve the way decisions are made about the transport network?**

A workshop with ITS UK members on the Integrated Transport Strategy explored some of the non-technical barriers around greater integration. Suggestions from the session included:

- Ensure long term certainty, as this provides the private sector with confidence to deliver. We would suggest the INTS act as a long-term strategy, covering – at the very least – the length of the Government's term.
- The need of a mix between devolving decisions to regions, combined authorities and nations, but also working across devolved bodies to bring data and technology together. This was particularly pertinent for smart ticketing and integrating data sources.
- For start-ups and small businesses, there was a sentiment that moving beyond trials and pilots to permanent schemes, such as in the connected and automated vehicle space, would allow for greater commercial viability and support the growth of the market.
- There was a need for greater consideration of social value across procurement, not just on most advantageous economic tender. There was recognition that changes to procurement law could support this, but that it would also require behavioural changes in transport authorities.

5. **Any other comments?**

ITS UK would put forth that the INTS also considers how international travel ties-in to an integrated transport network in England, including aviation, maritime and international rail.

Intelligent Transport Systems UK
February 2025