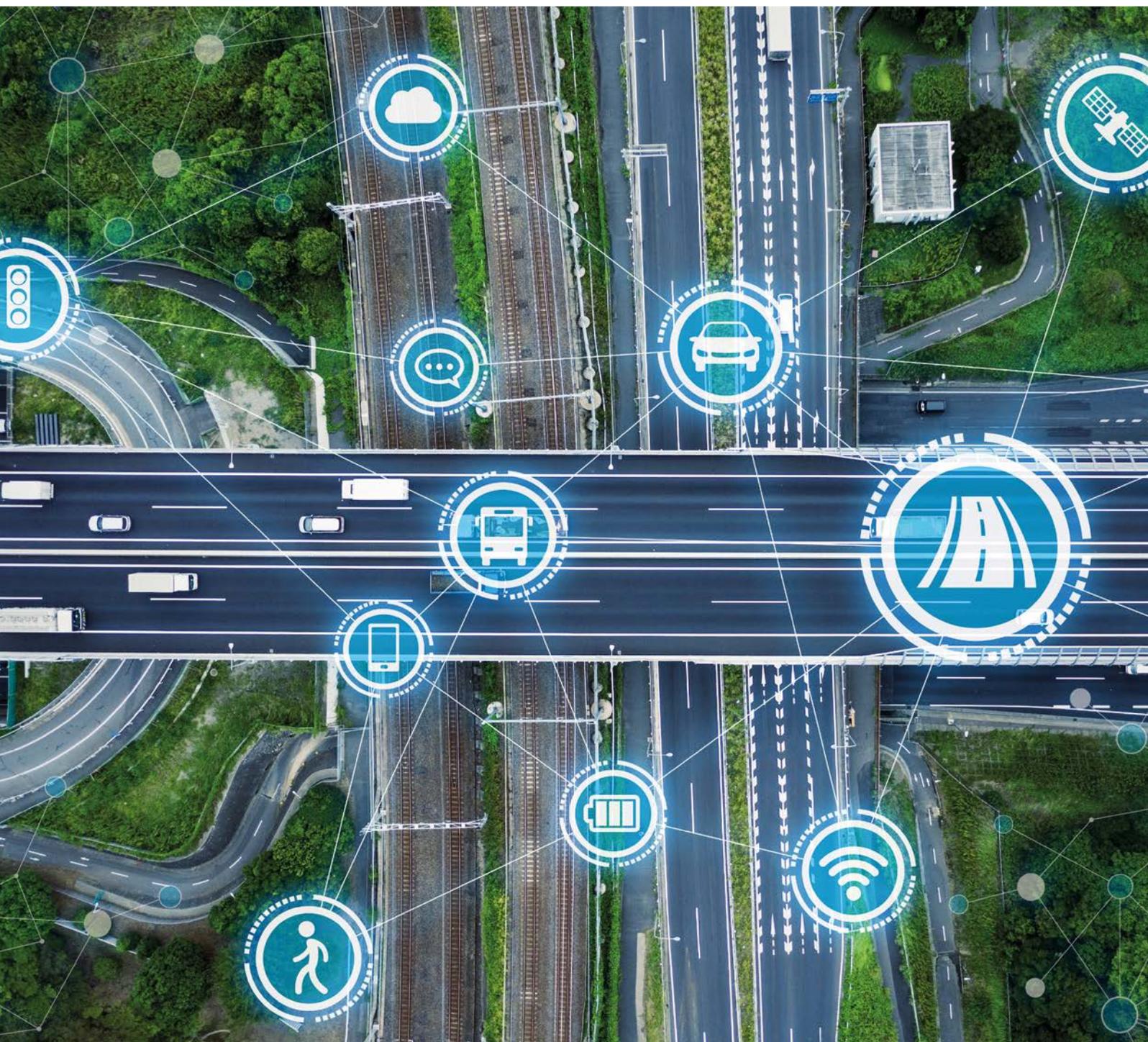




Department
for Transport

Transport Data Strategy

Innovation through data



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Contents

- Ministerial Foreword 2
- Introduction 4
- Benefits of unlocking data 6
- Barriers 12
- Current work to support transport data 14
- Our strategic approach and themes for action 17
 - Sharing, Discoverability, and Access 19
 - Data standards and Quality 20
 - Skills, Culture, and Leadership 22
 - User needs and Communications 23
 - Governance, Protection, and Ethics 25
- A living strategy 27
 - Measuring Progress 27
 - How to get involved 27
- Annex A – Engagement so far 29
- Annex B – Current work to support Transport Data 31
- Annex C – Lessons learnt from Covid-19 37
- Annex D – Useful References 39

Ministerial Foreword

Transport Data Strategy – innovation through data.

Improving the use of and access to data plays an important part in meeting the Government's aims of growing and levelling up the economy, reducing environmental impacts and improving transport for the user.

As the government's National Data Strategy notes "Data is now the driving force of the world's modern economies. It fuels innovation in businesses large and small and has been a lifeline during the global coronavirus pandemic. The fact that governments, businesses, organisations and public services were able to share vital information quickly, efficiently and ethically during the pandemic has not only saved countless lives, but has enabled us to work from home, keep the economy running and stay connected with loved ones during a period of unprecedented disruption. As we enter recovery, it is vital that we make the most of what we have learnt."

The Department has made a valuable contribution to help to improve data by delivering services such as Bus Open Data (giving customers better information on bus trips) and Street Manager (giving up to date and accurate data on planned and live works, improving journey planning). The Department, through the Williams-Shapps plan, is exploring how the better use of rail data can improve rail services and user experience. The Department is also working with the Office for Zero Emission Vehicles on how data can improve the user experience regarding charging points to help deliver the Government's net zero transport targets.

There is much more the transport sector could do and learn from other industries: how we shop, bank and access entertainment has been transformed by data and digital connectivity, which has helped to provide personalised services and ease of use, whilst lowering costs.

However, our engagement with innovators shows that, too often, transport data resides in silos and is not shared, which prevents the value of data being realised and opportunities unlocked.

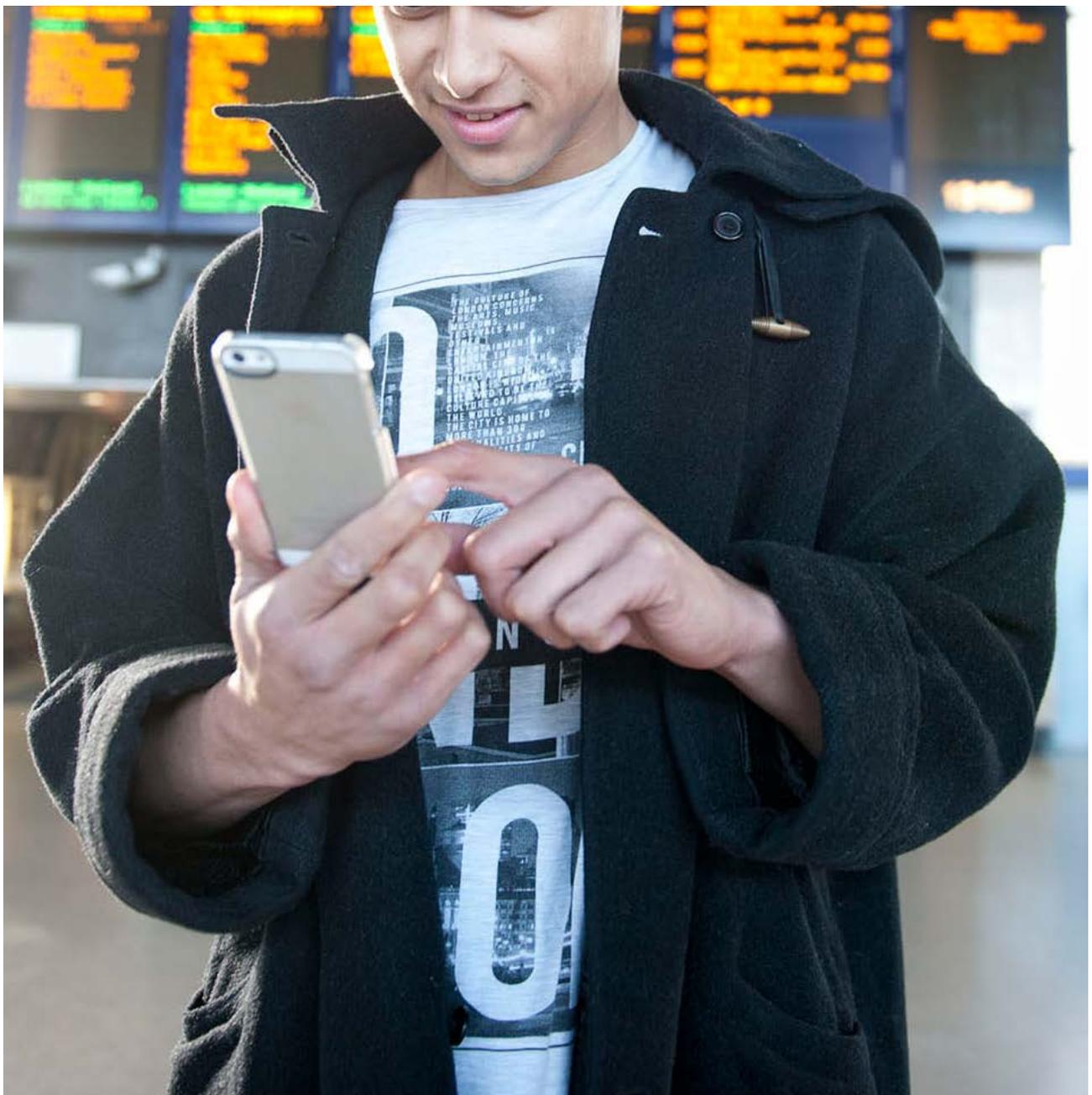
I want to see faster change in data enabled innovation in transport to help solve our key societal challenges, and create seamless, low emission, less congested journeys through integrating our transport systems. Therefore, the Department is publishing the first country's first Transport Data Strategy. This sets out how the Department will work collaboratively with organisations in the transport sector, building on the excellent spirit of collaboration and can-do attitude seen during the pandemic, to help overcome the barriers to data sharing and move towards an "open by default" approach that still protects commercial value and the privacy of the travelling public.

Moving forward, I want the Department and the transport sector to work together to use all the tools at our collective disposal to ensure that data plays a key role in the improvement of transport. I want the use of data to benefit every community, supporting our levelling up and decarbonisation goals. This will require innovative approaches which the market, including the UK's innovative SMEs and academic institutions, are best placed to deliver.

This strategy set outs how the Department, by working with the transport sector, can improve the discoverability, quality and accessibility of transport data. It outlines where the Department will make targeted interventions to support a healthy transport data ecosystem, such as delivering a transport data catalogue “Find Transport Data” to make finding the data needed to innovate much easier. This is also part of the Department’s efforts to improve the granularity, timeliness and coverage of data we collect and use.

This strategy is a “live” document and will be refreshed annually. Updates will be informed by an expert panel drawn from across the industry, including SMEs, academia, local authorities, and the data community.

I look forward to working with service operators and providers, innovators, academia, government partners and end users of transport services, to harness the benefits that data can offer to individuals, communities, and business.



Introduction

Doing so will help us meet the DfT's strategic objectives of growing and levelling up the economy, decarbonising the transport system, improving transport for the user, and increasing our global impact.

Analytics can add value in many ways: providing new operational and policy insights that help 'nudge' people towards more active and greener travel, improving interconnectivity between modes and fuelling journey planning apps and services that make travel easier. It can also help optimise local traffic management systems to reduce air pollution and support digital tools that can manage our transport systems and networks more effectively.

Data powers innovation and can help unlock new opportunities to do things differently – it can offer new products and services providing customer benefits, new jobs and trade opportunities. Faster, more responsive data increases situational awareness and improves resilience in the face of increasing threats to transport and other areas, such as climate change, pandemics, and terrorism.

The more data is shared and combined with other data sets in new and innovative ways (through secure and ethical frameworks), the more value it unlocks. However, data too often resides in modal and geographical isolation. This hinders the innovation that delivers customer and commercial value to meet our societal challenges, such as creating more liveable communities. The situation is further complicated because it is not just transport data that needs to be linked and integrated. For instance, decarbonising the transport sector requires a range of data sources (i.e. electric vehicle chargepoint, emissions, traffic and active

travel data) to be combined. Additionally, there has historically been a significant gap in the availability of a wide range of real-time transport data – the type of data needed to take innovation to the next level.

The reasons why data is not being shared are well researched. There is no single underlying cause but a plethora of reasons (some of which vary by geography and topic), including:

- **Discoverability** – not being able to find the data needed
- **Privacy, security and ethical concerns as well as wider cultural factors within organisations** – not being able to share.
- **Legal, monetary and contractual barriers** – being uncertain over what can be shared, and at what level.
- **Lack of widespread data literate culture and technical skills across the transport sectors** – not knowing how to share and how to extract value from the data.
- **Lack of incentives to invest in and make data available** – not being able to make the business case to unlock the funding and resources to share.
- **Data standards and Quality** – not knowing in what format to share and being concerned about sharing imperfect data.
- **A lack of leadership in the transport data sector** – not prioritising or valuing sharing or having a clear sense of purpose as to why we are sharing data.

The Department has already made good progress in facilitating the opening up of third-party data through initiatives such as the Bus Open Data Service (BODS), Street Manager, the development of the Rail Data Marketplace, and the modernisation of National Public Transport Access Nodes (NaPTAN). However, there is still much more to be achieved.

In developing this strategy, the department has undertaken a wide range of user research, including individual projects such as the Bus Open Data Service and the Local Transport Data Discovery (a comprehensive review of the local authority transport data landscape), and the work supporting the National Data Strategy. The department has also identified and peer reviewed – with an expert panel and range of stakeholders – actions which would address the barriers identified above.

Many of these actions are already underway (see Annex A) and have been grouped under five key themes. One of the challenges in working on improving data infrastructure is that it can be hard to explain the end benefit. Therefore, we have included a benefits summary and a theory of change which shows how these underpinning actions lead to the end outcomes of improving transport links, decarbonising transport and improving transport for the user. More detail on the themes and actions can be found further in the document, but a brief summary is below, followed by the benefits summary.

The strategy covers both reserved and devolved areas: where the strategy covers reserved areas (and, in respect of Northern Ireland, excepted areas), it does so for the whole of the UK, and where it covers devolved or transferred areas, it applies to England only.



5 themes in the Transport Data Strategy

Themes and mission statements



Sharing, Discoverability, and Access

We will support data users to better share, find and access transport data, so that transport users benefit from it.



Data standards and Quality

We will develop and promote the use of data standards in transport. The use of data standards should enable interoperability across modes of transport and with other systems such as energy and smart cities. We will work to identify key data sets where data quality is a barrier to use – and explore solutions with data owners.



Skills, Culture, and Leadership

We will help lead and promote a data driven culture across the transport sector by improving data literacy and providing targeted support to raise the skills base, as well as creating clear visions for the data programmes and services.



User needs and Communication

In order to uncover and fulfill their needs, we will keep users and industry informed of progress. We will also ensure engagement and engaged with our mission through events, regular communication, and various stakeholder boards and forums, and ongoing user research, and evaluation of our activities.



Governance, Protection, and Ethics

We will help provide leadership and support to help the transport sector ensure data is subject to appropriate governance, is protected, used for its lawful and ethical purposes, and that at the same time its value is maximised.

These themes missions by themselves are by no means the ‘silver bullet’ to solving the barriers of sharing transport related data but represent an important step in the right direction to help address the data issues

faced within the transport sector. We need the engagement and support of a wide range of partners and stakeholders to make this work, and to keep iterating as technology and transport changes.

Benefits of unlocking data

Data is changing the world and has become a new kind of infrastructure. Data fuels innovation and whole sectors of the economy have been transformed by data when combined with digital connectivity, such as banking, media and retail which has

delivered significant customer value through ease of use and greater choice. There is an opportunity for a similar step change in transport and improving transport for the user.

Benefits of unlocking data

The 2017 Deloitte report showed how in 2017, there were over **600 apps** powered by the more than **80 data feeds** published by TfL being used by **42% of Londoners**. It resulted in an increased supply chain with **over 200 jobs** being created directly and over 700 indirectly, and an estimated **£14m per annum** Gross Value Added.



Examples of Long-term benefits of open data:

- Unnecessary contractual barriers and data monopolies are removed.
- Better interoperable systems e.g. integrated energy systems for electric vehicle charging enabling low-emission travel.
- Increased connectivity and communication between systems and accelerated systematic changes to enable the vision for Smart Places and user-friendly multimodal transport (MaaS)
- The government's Future of Mobility: Urban Strategy describes how data, connectivity, and automation are transforming the way people and goods move, underpinned by location data.
- Allows for a better understanding of the impact of environment policies and transport behaviour.
- Coherent vision with industry which will result in optimised data access and sharing so that every one across the country can benefit from levelling up.
- Raises productivity and empower Local Authorities to utilise their data efficiently.



The release of **open data** by TfL is generating annual economic benefits and savings of up to **£130m** for travellers, London and TfL itself.



A [2017] report commissioned by the Transport Systems Catapult, using analysis from the Open Data Institute and Deloitte, stated that by removing the barriers mentioned above this could unlock the full potential of the UK's transport network, providing a value of **£14bn by 2025**.

A range of estimates suggest that the data economy grew about twice as quickly as the rest of the economy during the 2010s, making up about **4% of UK GDP in 2020**.

Better operational and policy insights and new apps and services that help 'nudge' behaviours towards more **active travel** and **decarbonisation**.

Recent research by Tech City noted London's digital economy was worth **£30bn in GVA** supporting over **300,000 jobs**.



Over the period of the Covid 19 Pandemic and with issues such as fuel shortages and supply chain issues, the importance of having the data needed for decision making and informing the public at time of crisis has never been clearer. This provides a different type of 'value' to that identified in other evidence (such as TfL) which has not yet been quantified but will only increase the value of data investments. For more information on the lessons learnt from data work during the Coronavirus pandemic see Annex C.

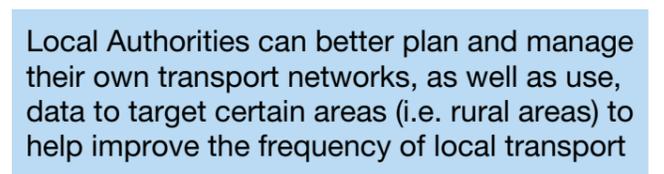
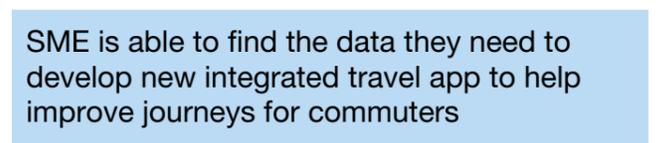
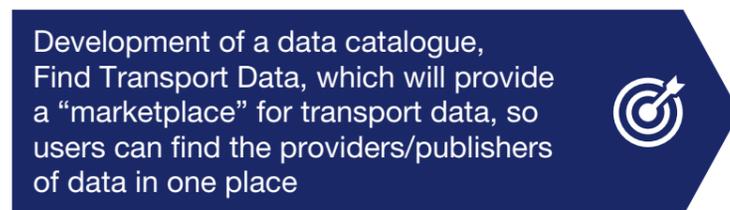
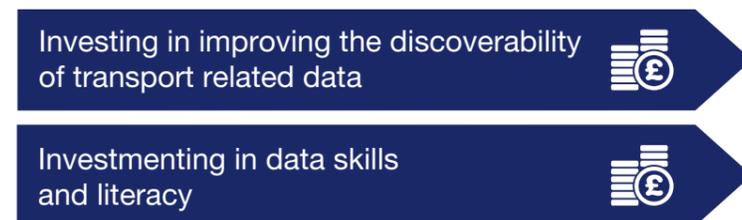
To understand how good data infrastructure enables the creation of a wide range of products and services – in all sectors of our economies, at the local, national, and global level – we have developed a logic model (opposite) to map the connections. This model can be used on any new project to test how it will feed through to end benefits. The model will also help those developing business cases for investing in data and approaches to treating data like any other asset.



Transport Data Logic Model

Input		Outputs		Outcomes	
	Investment in data and the improvement of the discoverability, quality, and accessibility of transport data	1	<ul style="list-style-type: none"> 1 3 New datasets unlocked and datasets are easier to find (i.e. through Find Transport Data catalogue) 1 5 Bigger datasets that allow scalability 1 3 Modern and agile transport and geographical/geospatial data standards 	1 2 3 4 5 Better transport for the user from new products and services e.g. allowing commuters to plan journeys more effectively. Better data standards will also help innovators create apps that allow single payment for multimodal journeys	
	Improved leadership and support to help the transport sector transport data		2	<ul style="list-style-type: none"> 4 5 Interoperable data and improved data sharing to link datasets with each other, and other data that would benefit the wider transport data landscape 1 2 3 A bigger and more connected transport community e.g. NaPTAN is being redeveloped to make the wider service scalable and extendable for future transport needs 	1 2 3 4 5 De-carbonising transport: reduced congestion, more active travel e.g. better mapping of electric vehicle chargepoints and improved charging experience, increased cyclist routes, and greater uptake of car sharing
	Investment in data skills and literacy			3	<ul style="list-style-type: none"> 1 2 Growth in transport data SME sector 1 3 4 5 Better operational and policy insights that help 'nudge' behaviours towards more active travel and improved safety 1 3 5 More personalised data on carbon use and consistent methodology for measuring impact
	Improved transport infrastructure data	4	<ul style="list-style-type: none"> 2 3 5 Improved transport data quality 1 4 Improved data maturity 		1 2 3 4 5 Levelling-up as more innovations become possible outside of London with better data availability. This will lead to improved transport connectivity, which will help to improve journeys for commuters in rural areas
	Investment in data standards	5	<ul style="list-style-type: none"> 1 2 5 Better operational efficiencies and transport network management 1 2 3 4 5 New transport innovations giving way to more/new machine learning tools and automation (products, services, and business model) such as Street Manager and National Parking Platform 		

Theory of Change Examples



The use of data is essential if we are to deliver innovative solutions to current societal challenges

The use of and the demand for real-time, interconnected data is growing in the transport sector.

Achieving the green transport objectives of the Transport Decarbonisation Plan will need better access to and use of data. The Office for Zero Emission Vehicles is currently working with industry to make public chargepoint data openly available which will drive the growth of mobile apps that will enable drivers of Electric Vehicles (EVs) to plan their journeys and locate and access chargepoints with ease. The same data will enable EV network operators to optimise their charging networks and provide government, public authorities and electricity network operators with the data they need to effectively plan for any future interventions, as well as investment required to grow and improve the UK's charging network. We also plan to incorporate EV charging availability into Mobility as a Service (MaaS), as well as standardised carbon data.

In March 2022, the Geospatial Commission launched a discovery research project to explore how location data can be better utilised to support planning and delivery of chargepoints by local authorities. The Commission will be publishing its findings at the end of 2022, highlighting the opportunities for location data to boost delivery of chargepoint rollout. Good, timely data made available to the right people can help map demand for a given area, identify the most cost-effective locations and select which of these will best meet the needs of the community.

Connected vehicle data plays a vital role in driving transport innovation and making our roads safer, cleaner and less congested. Previously, the focus had been on using

vehicle data to reduce operating costs and enhance driver safety. Increasingly it is being used to support a switch to more sustainable travel choices by enabling people to optimise their journeys including cycling, buses, rail and other transport modes. Vehicle data can also be used to optimise traffic management systems to improve network efficiency and help decarbonise transport. When aggregated, vehicle data can deliver powerful insights that can be used to plan for vital new EV infrastructure or deliver new mobility solutions. Delivering these benefits relies on everyone in the automotive, mobility sectors and local authority traffic managers having easy, secure, affordable and fair access to in-vehicle data.

This strategy can support the objectives of DfT's Inclusive Transport Strategy in a number of ways, for example, timetables could be augmented with live data indicating the availability of wheelchair platforms on buses, or describe, with standardised data, the grade of accessibility of stops and stations for a variety of mobility levels.

Good quality open data allows innovators to create journey planning apps that can integrate the first and last mile of a journey, giving end users more modal travel options. Encouraging active travel will result in better air quality due to reduced emissions, which will contribute towards the Government's net zero targets. Additionally, better data availability can lead to improved transport connectivity, which will help to improve journeys for commuters in rural areas. We will also use data to measure the 'connectivity' of places and assess benefits from new infrastructure or services, to support business cases and appraisal. It could also support planning decisions and account for interaction between multiple projects.

By creating data guidance (Local Authority Transport Data Guidance) with and for local authorities, this will help them unlock, use

and share their transport data for the public good e.g. Improved data on roadworks will help increase road network efficiency, giving commuters the ability to better plan their journeys.

In setting out the future plan for the rail sector, the Williams-Shapps Plan for Rail (the ‘Plan’) recognises the importance of data within the system, both in powering an effective network, and through providing users with accurate and up-to-date information. Better sharing and use of data will deliver benefits to industry, government and users; for example, through greater visibility of operational and passenger data, there will be opportunities to support collaboration with planning, operations, analysis and innovation, leading to a more efficient system that works better for society. The Plan has committed to an ‘open by default’ approach to data, building on industry efforts in sharing data in recent years, for example through the development of the Darwin real-time data feed.

The Transport Infrastructure Efficiency Strategy (TIES) team have developed living labs which uses data to improve efficiency of infrastructure projects by producing more accurate and complete project performance information. This will help to achieve better assurance of what programmes are likely to cost; identify the drivers of cost in individual

projects; and use this intelligence to highlight best practice. This can help make projects greener, safer, better value-for-money, and less disruptive, whilst delivering maximum social value across the country.

Data collection and sharing is also critical for Artificial Intelligence (AI) and autonomy applications. Applications of AI may include improving network performance or assisting on data collection which can improve productivity, government and private sector efficiencies, and enable growth. According to the National AI Strategy, Artificial Intelligence is currently the fastest growing deep technology in the world with the UK already in a world leading position. However, AI relies on data being available, representative and of high quality. The public sector has a key role in enabling data to be used for both societal and economic growth in a responsible manner.

There are many other ways in which the better use of data can deliver societal value – improving understanding of safety risks allowing targeting of interventions to reduce accidents and travel disruption; unlocking new behavioural insights to help ‘nudge’ behaviours towards more sustainable and active travel choices; delivering decarbonisation and health benefits are just a few examples of this.



Barriers

Through a range of extensive user research and further reinforced through learning during the Coronavirus, we have established the key barriers which are preventing more widespread innovation, which we need to overcome to unleash the full potential that data could enable.

	<p>Discoverability – It is difficult for innovators to find out what data is available and under what conditions it can be accessed and used, as transport data can be fragmented – Traffic Regulation Orders data, for example, is held by over 150 LAs in different formats and not all data is stored digitally.</p>
	<p>Privacy, security, and ethical concerns as well as wider cultural factors within organisations can lead to a risk averse approach to opening data and data sharing. There may be fear around companies monetising their data for purposes different to those for which the data was initially collected.</p>
	<p>Legal and contractual barriers – Organisations may be in long-term contracts where historically, data was not valued or considered as an asset. Consequently, open data and data sharing is hard to address until the next time a contract is let. Additionally, there can be ownership issues associated with data: for some data sets it can be hard to trace who owns them and what permissions they have. It is therefore crucial to ensure the next wave of contracts includes data as an asset.</p>
	<p>Lack of incentives to invest in and make data available – for most of the organisations who hold, or could easily collect vital transport data, as the benefits typically accrue to the data aggregators and developers who build and offer services using this data. There is current dearth of evidence on the direct value generated by investment. However, it can sometimes be difficult to make the business case to senior leadership for implementing more innovative approaches to release, acquire, or exploit data.</p>
	<p>Lack of widespread data literate culture and technical skills – across the transport sectors is affecting areas such as data governance, data management, data privacy as well as technical skills gaps in APIs, data engineering and data science. There is also inconsistency in data literacy/culture. Most of the data literacy and technical skills are still located in universities, larger operational bodies and other centres of excellence, therefore, other sectors may only have a small number of specialist staff.</p>

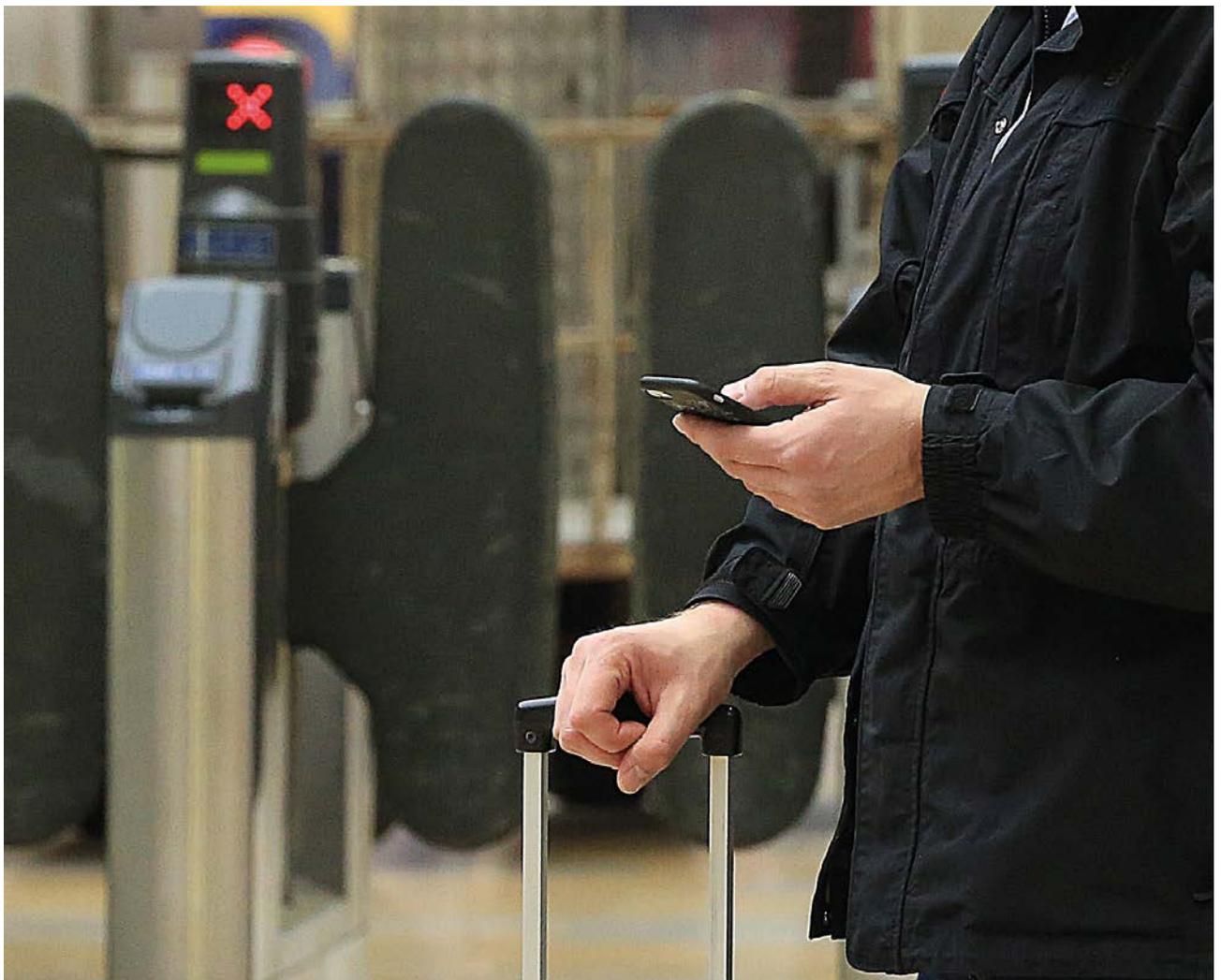


Data standards and quality – making data available is one step, but if it is not in a recognised standard format it can make it hard to use for live services, especially those which are trying to reliably link data together from different sources. This is compounded by variable and inconsistent data quality where the financial burden on innovators becomes too high, they often avoid using the data. This may lead to monopolisation of certain data sets by ‘big tech’ companies who have the financial leverage to clean and use the data.

Providing good quality data that opens opportunity as widely as possible is the real challenge.



A lack of leadership in transport data – a consistent message from our engagement with stakeholders from across the transport sector – public and private – is a desire for greater leadership from Government on data issues. This includes data privacy and security, procurement, appropriate technologies, standards/formatting, and a vision of what the Government wants to help inform investment decisions.



Current work to support transport data

Good progress has been made and continues to be made in improving the amount of third-party data available to innovators and researchers. This is achieved by the Department working closely with the

sector to create new digital products and services that support third parties opening up their data, a few examples of this includes:

Rail Data Marketplace

What is the Rail Data Marketplace?

The Rail Data Marketplace will remove barriers to accessing rail data, delivering a new way of sharing data between consumers – including app developers, tech firms, academia – and the rail industry. The Marketplace will provide the enabling technology and capabilities to open industry-wide data up through a single-access B2B platform.

Why do we need a Rail Data Marketplace?

- Rail data ownership is fragmented and access to the data often restricted. This leads to challenges in using rail data in a way that can support operations, passengers and decision making. It also discourages third-party innovation.
- The Rail Data Marketplace will drive value in rail industry efficiency and customer service through a coordinated access to shareable data via an ecosystem of federated APIs and encouraging widespread adoption of advanced data analytics. New data sharing opportunities will drive innovation, leading to the development of innovative passenger-facing applications, operational efficiencies and improved transparency.

Who are the stakeholders?

- Rail Delivery Group
- Rail Data Council
- DfT
- Network Rail
- The Rail Safety and Standards Board
- Train Operating Companies
- Industry supply chain

Related Projects

- Find Transport Data
- NaPTAN
- Data Standards
- Bus Open Data Service (BODS)

Street Manager

What is Street Manager

Street Manager provides open data on planned and live street works, helping to transform the planning and management of street works, as well as, improve journey planning for the road travelling public and logistics sector. Since its launch last year, the metrics have been impressive **9,000+** users from **500+ organisations**, with **2 million permits raised**. Continuous improvement work is also underway.

Why do we need Street Manager

- Helps to reduce congestion.
- There is still a high demand for infrastructure.
- Digital transport agenda needs data and information.
- Increased public expectations for personalised, up-to-date and accurate data and information.
- Rising demand for reliable, up-to-date, and open data to support data-driven decision making.

Development of Street Manager Platform

- The Street Manager platform was propelled by the need for a one-stop-shop to exchange and provide accurate and up-to-date information on street and road works. The system prototype was built during the Alpha phase. Extensive research with end-users ensured that the feedback from engagement events fed into the development of the platform.

Who are the main stakeholders?

- Highways Authorities
- Utilities Companies
- Technology providers
- Data suppliers
- DfT

Related Projects

National Parking Platform (NPP)
Find Transport Data – metadata catalogue



National Public Transport Access Nodes (NaPTAN)	
<p>What is NaPTAN</p> <ul style="list-style-type: none"> The National Public Transport Access Nodes, NaPTAN, is a national dataset of unique entries for public transport access points (bus stops, rail stations, airports, ferry piers, tram/metro/underground stops). It is a key part of transport ecosystem – e.g. supporting Google Maps – therefore it must be accurate, modernised and take account of user needs. 	<p>Why is NaPTAN important?</p> <ul style="list-style-type: none"> NaPTAN can play a significant role supporting transport user needs and achieving DfT policy goals in the future. NaPTAN could also support a range of different accessibility needs for transport users, from fuelling better on vehicle information announcements to potentially increasing the availability of stop accessibility information. It is also a vital component of the Bus Open Data Programme, with a statutory requirement for Local Transport Authorities to update the bus stop section of this dataset since the Bus Services Act 2017.
<p>Re-vamping NaPTAN</p> <ul style="list-style-type: none"> The NaPTAN service is currently being redeveloped and redesigned to make the data standard and wider service scalable and extendable for future transport needs. The end goal is to be re-platform NaPTAN onto a secure, stable, reliable, infrastructure based on Google Cloud. Recent work has been done to make the service fully accessible in line with updates to Government website accessibility regulations. 	<p>Who are the main stakeholders</p> <ul style="list-style-type: none"> BODS Technology providers e.g. Citymapper Local Authorities Google Maps DfT Other Government Departments (OGDs) <p>Related Projects</p> <p>National Parking Platform (NPP) Find Transport Data – metadata catalogue Bus Open Data Service (BODS) Transport Data Strategy Transport Regulatory Orders (TROs)</p>

More can be found on the current work to support transport data at annex B.

Our strategic approach and themes for action

Our strategic focus is to enable innovation rather than directly deliver it, other than in a few situations where the Department's direct action is required to deliver national scale solutions. Through a range of research and engagement, we have identified both high level and specific actions to address these barriers and help create the data infrastructure to enable innovation.

These actions clustered around a set of key themes with a clear mission which emerged through the user research and align with the pillars and missions in the National Data Strategy. In each case, this will cover the actions needed within the Department and its wider family of agencies and bodies, as well as actions to work with the sector to deliver the strategy. The five themes are summarised in the table below and explored along with actions to support the mission and help realise the end benefits of the strategy.

Themes and Mission statements



Sharing, Discovery, and Access

We will support data users to better share, find and access transport data, so that transport users benefit from it.



Data standards and Quality

We will develop and promote the use of data standards in transport. The use of data standards should enable interoperability across modes of transport and with other systems such as energy and smart cities. We will work to identify key data sets where data quality is a barrier to use – and explore solutions with data owners.



Skills, Culture, and Leadership

We will help lead and promote a data driven culture across the transport sector by improving data literacy and providing targeted support to raise the skills base.



User needs and Communication

In order to uncover and fulfil their needs, we will keep users and industry informed of progress and engaged with our mission through events, regular communication and various stakeholder boards and forums, and ongoing user research, and evaluation of our activities.



Governance, Protection, and Ethics

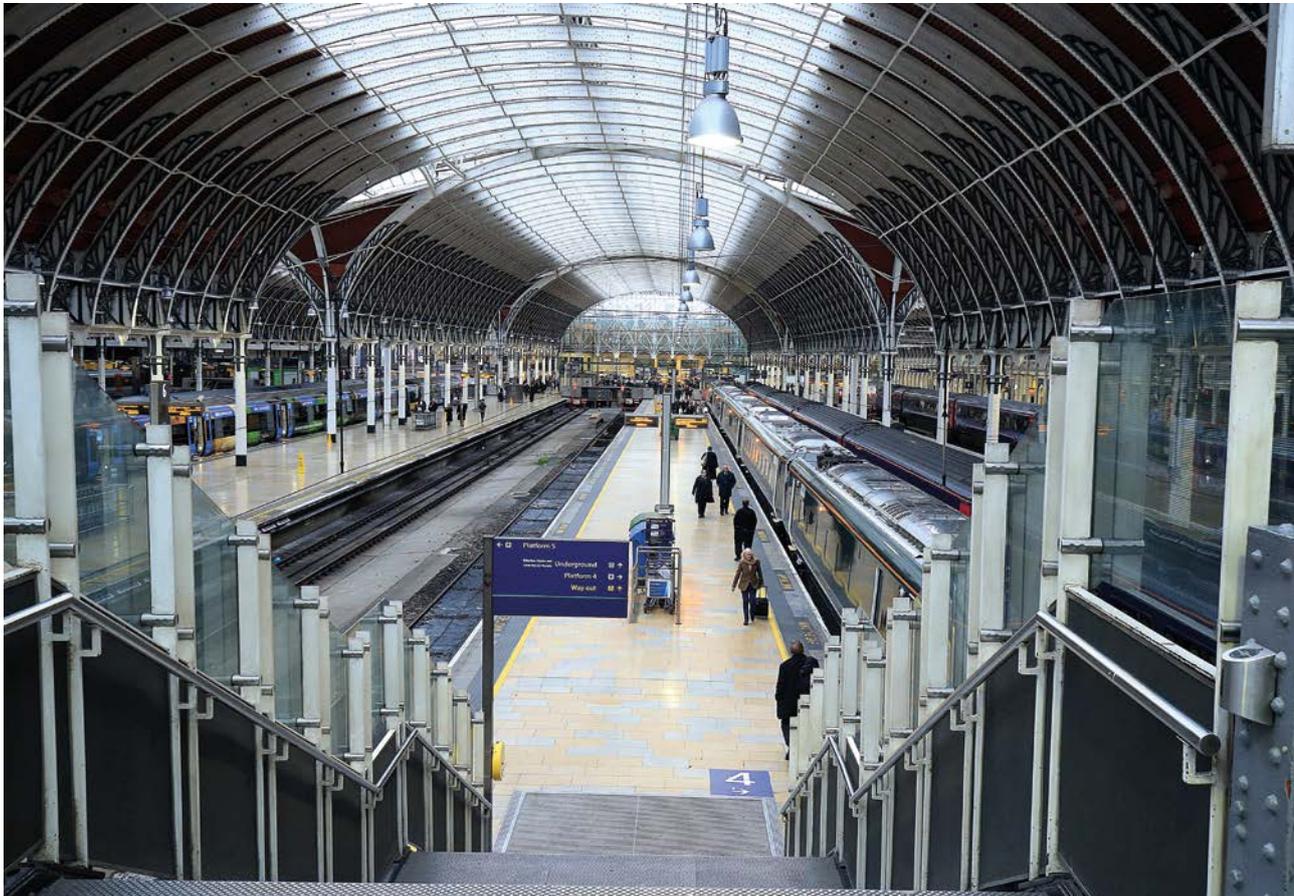
We will help provide leadership and support to help the transport sector ensure data is subject to appropriate governance, is protected, used for its lawful and ethical purposes, and at the same time its value is maximised.

The themes cover the long-term goals but include shorter term specific actions which are needed to 'build the foundation' before more aspirational action can be undertaken. Given

the pace of changes and complexities, this strategy and its associated action plan will be reviewed annually and overseen by an independent expert panel.

Implicit in the themes and missions are a set of principles our approach will be governed by:

- Data should be open by default and using open standards¹.
- Data should be protected and appropriately governed, maintaining public trust, while not using security and privacy as blockers to innovation where privacy protecting solutions can be found.
- Data and algorithms should be used ethically.
- Data generated through public investment should be used for public benefit.
- Data from new mobility services should be shared where appropriate.
- We should test the market before commissioning new services and solutions.
- Where these principles are not met and the case for intervention can be made, we will consider the use of regulation or legislation.



¹ This complies with the Government Digital Service's Technology Code of Practice: <https://www.gov.uk/government/publications/technology-code-of-practice/technology-code-of-practice>

Sharing, Discoverability, and Access

Mission statement: “We will support data users to better share, find and access transport data, so that transport users benefit from it”.

Data needs to be discoverable and barriers to access need to be reduced if improvement to use and impact of data in transport is to be seen.

Below are descriptions of the key actions the Department will be taking to improve Sharing, Discoverability and Access of transport data:

Action	Description
Create and maintain a Transport Data Catalogue	<p>This project will build the authoritative source for finding transport data. By bringing a range of private and third sector partners on board to create a data catalogue which will grow over time, this in turn will potentially generate a marketplace for transport data and help clarify the value of different data sets which may help with prioritisation of investment to improve quality and access of crucial datasets. The work is underway, Find Transport Data which will provide a “marketplace” for transport data, so users can find the providers/publishers of data in one place, therefore, making innovation easier.</p> <p>In addition, we will also work working closely with the levelling up and spatial data unit and other partners across government to support the development of data driven services in levelling up mission 3 on local public connectivity.</p>
Open by default – challenge function	<p>For action both within the Department and in the wider sector, our central data team will act as a focal point to challenge why data is not being made openly available, with a presumption of open by default. We will engage with data owners to test the cases put forward for why this cannot be achieved; looking at where we can help to unlock data, or where other solutions may be needed. We will focus also on ensuring the creation of open source code, applications including API's and solutions.</p>
Exploring solutions on secure data sharing	<p>Whilst we promote open data by default, there will be instances where datasets cannot be made available without controls. For these situations, institutions need to have secure, approved, and value for money solutions to allow for data to be exchanged and used. Existing projects and bodies in transport are already exploring different solutions to this challenge, including Street Manager, Centre for Connected and Autonomous Vehicles (CCAV) and Future Transport Zones (FTZs).</p> <p>We will share best practice and guidance and look to work with those who need support to enact these solutions. The Department has developed the Local Authority Transport Data Guidance (LATDG) to help English local authorities to open, share and exploit their transport data.</p>

Data standards and Quality

Mission statement: “We will develop and promote the use of data standards in transport. The use of data standards should enable interoperability across modes of transport and with other systems such as energy and smart cities”.

Our research and engagement have identified that uncertainty around data standards is preventing data sharing, hindering data interoperability and impeding innovation. Consequently, the Department commissioned the British Standards Institution (BSI) to map the existing data standards landscape, to explore whether existing standards are fit-for-purpose to support new innovative applications, and what role, if any, the Department should play in the governance, regulation and communication of standards. This work helped inform the actions below:

Action	Description
Create a Transport Data Standards Panel.	This panel will draw on expertise from across the transport sector to provide strategic advice to the department on transport data standards, including the identification of priority areas. This action will help oversee the development and promotion of agile data standards that flex with technological advancement, building a community of use, and in parallel testing new and developing areas for standards in real-world settings, for example through the Future Transport Zones (FTZs).
Develop a data standards catalogue	By having all the standards in one place, this action will help improve the discoverability of data standards and help facilitate interoperability between transport systems and interfaces. It will also reduce the duplication and creation of unnecessary standards and reveal potential gaps that need to be filled.
Develop and promote Transport Data Standards and build community of use	<p>Research on the transport data standards has revealed a wide range of published national and international standards supporting the delivery of mobility services. These formal standards are available through national standard bodies such as the (BSI) (https://shop.bsigroup.com) or open platforms. This action will focus on evolving these standards to support new innovative applications, promoting their use and adoption of the relevant standards in all commissioned projects, and building a transport data standards community. It will include the possibility of creating a data standards catalogue, as well as, any recommendations for policy changes, and changes to terms and conditions needed to promote the adoption of consistent standards.</p> <p>The issue of consistent data standards is wider than Future of Transport (FoT); the approach would support the wider needs of the transport sector.</p>

Action	Description
<p>The Future of Transport (FoT)</p>	<p>Data is a key enabler for innovation in transport and improving the user experience. The Future of Mobility: Urban Strategy includes a principle that “Data from new mobility services must be shared where appropriate to improve choice and the operation of the transport system”</p> <p>The Department is also developing a Code of Practice for MaaS operators which will include guidance on data. Additionally, we will also consider the lessons on data standards and data interoperability from the FTZ programme. We will also consider the options around “open by default” in the FoT Regulatory Review to ensure that non-commercially sensitive transport data is shared for the public good to enable innovation.</p>
<p>Improving data quality</p>	<p>We will provide guidance, support and cases studies on assessing and improving data quality.</p> <p>We will continue to assess the case for targeted interventions/support to improve data quality and collection through our wider engagement – including continuing the redevelopment of NaPTAN to meet needs of transport users.</p>
<p>Improving sensor data</p>	<p>We will continue to explore how sensors can be used to collect and make available transport-related data and support the creation of smart places and digital twins. We have already undertaken a discovery with the Connected Places Catapult.</p> <p>Additionally, the Department has utilised money from HMT’s Economic Data Innovation Fund to work with the Urban Observatories (UOs) in Birmingham, Manchester and Newcastle on making more transport-related data available, including improving the quality and quantity of sensor data networks, as well as developing a blueprint of how this could be done elsewhere.</p> <p>We are building on this to extend the geographical scope of this project. This will include creating a sustainable, long-term data platform and exploring how this work can be integrated into the National Digital Twin programme, in collaboration with the Connected Places Catapult. The Alan Turing Institute, as part of this project, will also be utilising the data feeds to create trip and mobility models using various data methods (i.e. machine learning, data assimilation, data science and AI).</p>

Additionally, we will review the use of harmonised data standards in transport statistics to ensure we can easily link different datasets through common identifiers to make better use of data. These learnings will be shared with the wider standards community to ensure changes are made to standards and underlying systems.

Skills, Culture, and Leadership

Mission statement: “We will lead and promote a data driven culture across the transport sector by improving data literacy and targeted support to the sector to raise the skills base.”

The research underpinning the strategy highlighted a significant gap in data literacy in the transport sector and the Department should play a leading role in developing a common understanding of data terms, including the ways that data can be used and its limitations. This strategy and supporting actions aims to make those working in the transport sector, outside of the data profession, to feel comfortable talking about data, the art of the possible and building their skills to be comfortable using data themselves without always needing to rely on data and analytical professionals.

Below are key actions the Department will be taking to fulfil the proposals mentioned above:

Action	Description
Establish a regular transport data senior user/ expert group	We will establish a group of cross sector representatives, academic institutions, and data experts such as The Open Data Institute (ODI), The National Innovation Centre for Data and Turing institute, to test and support wider work to align data projects, standards development, funding opportunities, and generally ensure a better focussed future for data in transport. This would be through virtual discussion groups and period meetings which would feed into ongoing data policy development. This group would also have a key role to play in the ongoing iteration of the data strategy and new actions needed.
Develop and coordinate a programme of transport data innovation events in collaboration with a range of partners	<p>We also want to work with other government Departments (OGDs) to help improve data literacy. We will work with the transport and technology communities to develop solutions to support upskilling in coding and data skills. We will arrange targeted events on key topics to support those wanting to progress. This will be informed by what we hear from transport and technology organisations and findings from ongoing user research.</p> <p>We will also explore how we can leverage innovation programmes to ensure a legacy of improved skills. In addition, continue to get the most from existing programmes of innovation such as Transport Research Innovation Grant (TRIG) and through working with innovation organisations and funders.</p>

User needs and Communications

Mission statement: “We will keep users and industry informed of progress and engaged with our mission”

Engaging with users, whether they are DfT officials or app developers, is a key element to the effective use of data. To realise this mission, we plan to communicate inclusively with everyone involved in transport in the most efficient and impactful ways, looking to keep growing the community.

The key actions in this theme are summarised in the table below:

Action	Description
<p>Develop the wider transport data community</p>	<p>Continue to grow and engage with the body of data leaders and users in the transport sector, maintain links through strategy discovery work, explore areas for collaboration, and discover problems and issues which DfT data team can help address (directly or through linking up with others/guidance).</p> <p>This will include:</p> <p>Regular blogs highlighting trends in data and data services in transport to continue engagement, build the data community and provoke further idea generation for data in transport projects, approaches and sharing of best practice.</p> <p>We will also produce an evaluation of all recent data investments and projects with a substantial data component, to develop summary evidence on the value of data in transport, and a library of case studies.</p> <p>This is in addition to producing feedback survey and other qualitative measures to evaluate how many actions were delivered against initial plans.</p> <p>Continuing and improving existing events: Data Science in Transport; a new data working group as part of the Transport Technology Forum to focus on key themes to support access and use of LA data; we will aim to increase the number of data related transport events we can present at and hear from to keep engaging and hearing from users on our plans and things we need to focus on – and where innovation is occurring which we can help amplify. We will aim to develop a summary list of events to help people plan their engagement and development in transport data.</p> <p>Another output of this work will be any modifications needed to the evaluation framework when assessing projects which are mainly about data (rather than wider policy/delivery) in nature to ensure we can help generate better evidence on the impact of investing in data.</p>

Action	Description
<p>Developing the evidence base (for investments in data)</p>	<p>We will support future business cases for data investment, promote the understanding of the importance of data as an asset, and embed evaluation into projects to provide learning for how to improve future projects and investments.</p> <p>DfT commissioned Ipsos MORI to conduct a process evaluation of three transport open data projects: Street Manager, The Bus Open Data Service, Opening of LA Transport Data – Funding for Innovation. The aim was to assess the processes of delivering of each of the projects to identify the factors that have hindered or enabled the achievement of intended outcomes, to help identify key lessons for future open data projects. Further information can be found [here]</p>
<p>Running roundtables on data to provide an advisory/ challenge function</p>	<p>Formalise a process for quarterly roundtables with a rotating set of attendees to provide opportunities for many different players in the transport sector and will ensure any problems or challenges are properly addressed whilst encouraging potential synergies and opportunities.</p>



Governance, Protection, and Ethics

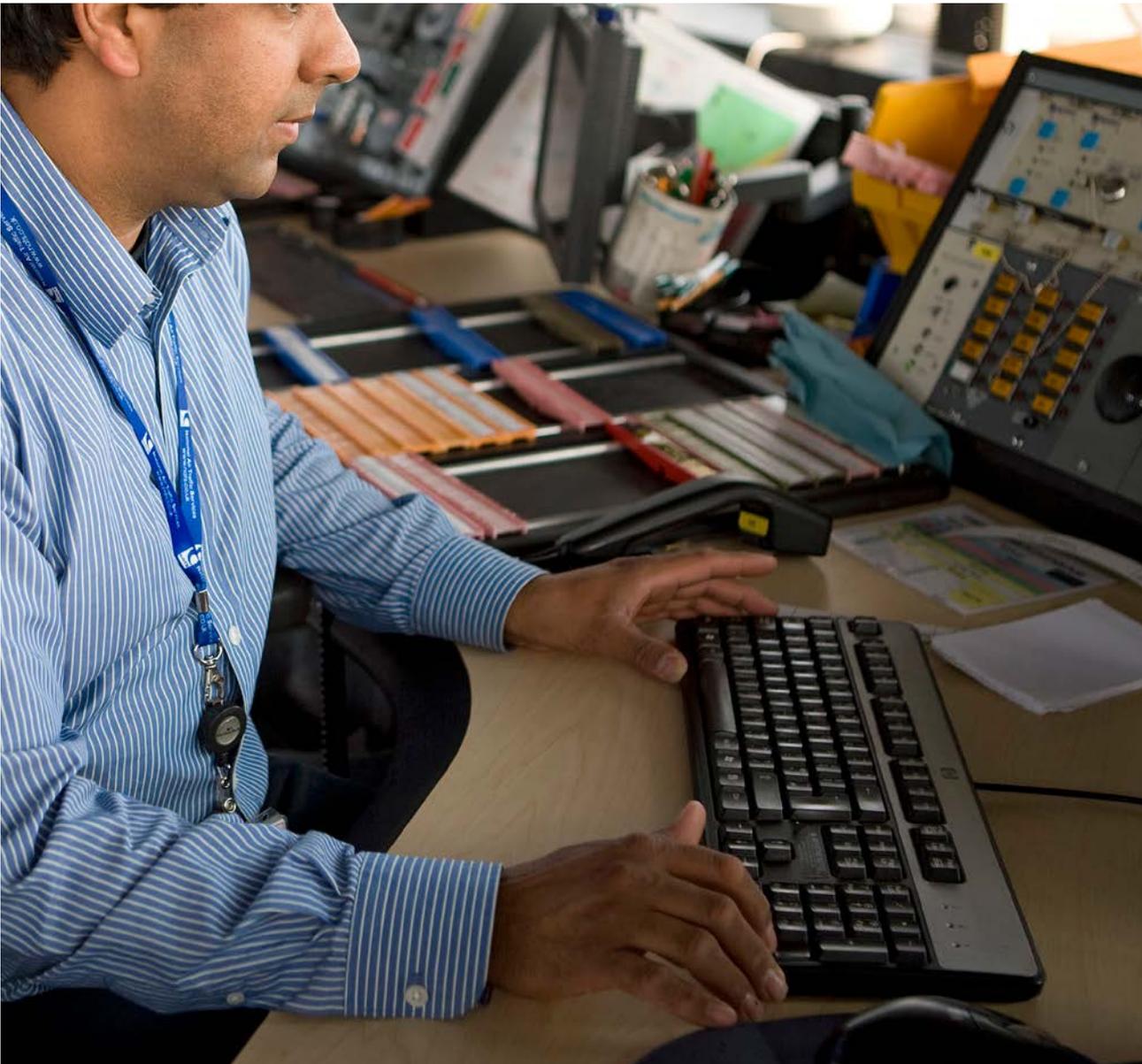
Mission statement: “We will provide leadership and support to help the transport sector ensure data is subject to appropriate governance, is protected, used for its lawful and ethical purposes, and that its value is maximised.”

To maintain public trust in data and encourage innovation, data must be treated within the right control framework by promoting secure sharing. This must not simply be the bare minimum of ensuring compliance with governance such as the General Data Protection Regulation (GDPR) and other regulations but go a step further by assuring the data and the algorithms are auditable, traceable and are ethically used.

Below are key actions the Department will be taking to fulfil the proposals mentioned above:

Action	Description
<p>Review terms and conditions in grant funding and contracts about data ownership and release</p>	<p>We will ensure that issues such as the ownership and licensing of data generated through projects which are government funded have clear Terms and Conditions to ensure the maximum value of assets and that they are auditable, traceable and are ethically used. This will also cover the expected means through which this data will be made available, the types of data we expect to be collected through these projects and the data standards we would expect to be used. We will share this learning with other public bodies who commission projects which generate data through existing networks and through updated guidance.</p>
<p>Contribute to, and ensure alignment with the National Data Strategy, the National Digital Twin Programme (NDTP), and the mobility work in the Geospatial strategy</p>	<p>In 2020, the government published the National Data Strategy (NDS) which sets out how best to unlock the power of data for the UK. The Transport data strategy was developed in step with the NDS and we continue to ensure close alignment in our work. Alongside that the Department have also been working with the Geospatial Commission and are supportive of the priorities set out in the Geospatial Strategy (GS), particularly its main commitment to the development of a Location Data Framework for the UK by 2025. Many of the initiatives mentioned in the GS show synergies with themes in the TDS such as improving the ability to find, access, share and use data.</p> <p>We are also developing our relationships with other bodies, to ensure we understand and contribute to the secure development of digital twins. This is to ensure we will feed in our research and learning, and at the same time, bring back more learning from others, and ensure a joined-up approach.</p>

Action	Description
Explore the development of a Data Ethics Panel	Set up a Data Ethics Panel where individuals can bring forward any ethical concerns on the usage of certain data sets to ensure that the usage aligns with GDPR. Additionally, through the board we will assess all current and future data projects against the Data Ethics Framework to ensure that we are ‘appropriately and responsibly when planning, implementing, and evaluating a new policy or service’.
Annual Data Survey	We will procure an annual survey on data and data use in the transport sector, to monitor trends/issues and to use as part of an assessment of how well we are doing and where we may need to change our approach – this will be a part of how we measure success/progress.



A living strategy

This strategy is a live document, with short-term actions seen as enablers for longer-term actions and a clear roadmap for development and delivery. This provides a forum for ongoing discussion and engagement on the transport data agenda and ensures we have a joined-up approach.

We plan to review this annually, in order to make sure the actions and themes are current and effectively approaching the “transport data” challenges reflecting the pace of change in transport technology and data, and the agile nature of delivery, to fail fast where something is not working.

The expert advisory board will be a route through which we test new priorities.

We will also work closely with the relevant devolved government data leads as there are a range of areas which would benefit from close collaboration:

- Geospatial coverage of datasets on a consistent basis where appropriate and the potential for achieving better value for money on projects/collections if they can meet collective needs.
- User needs and user research where we might be working on similar projects with similar users.
- interoperability of modes of transport across borders and the approach to data standards.

Measuring Progress

To assess progress across actions and themes, and for the strategy overall, we plan to measure a number of indicators:

- An annual data survey (see action in user needs and communications)
- Use metrics on Find Transport Data usage
- Evaluation evidence on data projects to assess the value of investments
- User feedback and other qualitative measures to be developed.
- The number of actions underway and delivered from original plan.

How to get involved

We welcome people and organisations who would like to be involved in the development of transport data and its use please contact transportdatastrategy@dft.gov.uk

For both Local Authorities and industry/SMEs we would recommend engaging with the work of the Traffic Technology Forum which provides leadership, direction and support to stimulate investment in innovation and technological solutions. This includes a dedicated working group specifically looking at traffic data, which can be found here; <https://tff.uk.net/category/community/>

Organisations such as 100% Open and the Open Data Institute also provide guidance and training opportunities on a range of data topics which can be found here: [Courses and training – The ODI](#)

For anyone interested in the application of data science in the transport sector we run the Data Science in Transport (DSiT) event series. These include conference days and mini hacks. To join the mailing list for future events please email data.science@dft.gov.uk

For SMEs looking for opportunities to turn proof of concept to commercial reality please join the Connected Places Catapult network where you can access advice and support to grow data-driven innovations in the transport sector: [Join the SME network – Connected Places Catapult](#)

For those keen to support/challenge the strategic direction, we have established an expert advisory board drawn from across the transport sector and data community.

For academic institutions – we are working with the Turing institute and associated Turing fellows as well as with the Urban observatories programme.



Annex A – Engagement so far

During Transport Data discovery the Department engaged with over 400 data users and has continued to engage with key stakeholders throughout the drafting process of the strategy. Below is the list of the internal DfT and external industry stakeholders.

DfT stakeholders	Agencies and ALBs
Data Unit	Driver and Vehicle Licencing Agency
Connected and Autonomous Vehicles	Driver and Vehicle Standards Agency
Statistics, Road and Freight	Civil Aviation Authority
Resources and Strategy group	National Highways
Digital Adoption and DfT Lab	Centre for Connected and Autonomous Vehicles
Aviation and Maritime	Vehicle Certification Agency
Knowledge Information Management	Innovate UK
Statistics, Road and Freight	Herts Country Council
International and Security Group	Connected Places Catapult
	Engineering and Physical Sciences Research Council
	High Speed 2
	Rail Safety and Standards Board
	British Standards Institution

AECOM	Kent CC	Stagecoach
Amey	Landmark	Tech UK
Arriva	Leeds City Council	Telefonica
Atkins Global	Leeds University	TFGM
Birmingham City Council	Lincolnshire CC	TfL
Bucks CC	Martlet	TFWM
CAA	Mobility Lab	ThingCo
Cumbria CC	NIC	Tracsis
DCMS	Open Data Soft	Transport for the North
Derbyshire CC	Ordnance Survey	Transport Scotland
Durham CC	Ormdigital	Transport Systems Catapult
Essex CC	Oxford bus	Traveline
Future Cities Catapult	Passenger Team	Urban Silence Ltd
Highways England	RAC Foundation	Warwick University
Hull CC	Salesforce	Wavestone
ITO world	SamsonVT	West Yorkshire CA
ITP world	Smartran	WSP
Jacobs Engineering Group	Sopra Steria	



Annex B – Current work to support Transport Data

Digital projects supporting third parties to make their data open:

- **The Bus Open Data Service (BODS)**

was launched during early 2020. Its aim is to help facilitate the development of new passenger-focused apps, as already seen in London, to improve the bus passenger experience. The Analyse Bus Data Service function also provides local intelligence to operators and local authorities to help encourage greater bus use. From Autumn 2020, BODS has provided a real-time update of all timetable and published location data for data consumers. Furthermore, occupancy data is starting to be published, and so far, we have over 1300 vehicles are providing this data. We expect BODS to deliver the following benefits.

- **Passengers** – deliver seamless intermodal transportation faster and provide consistent, secure, real-time information improving passenger journeys, reducing waiting times and reduced journey times via multimodal information and ticketing.
- **Bus operators** – help reverse falling demand of bus patronage over the years and increase revenue, customer satisfaction and reduced costs of developing passenger apps.
- **Local Authorities** – can make better decisions around planning public transport provision and mobility solutions to enable their citizens to switch to public transport.

- **Tech companies** – enables new business models and innovation e.g. for app developers to make journey planning and mobility products.

- **Central Government** – supports economic growth and new business opportunities as well as encouraging transport decarbonization enabling citizens to make the switch to public transport.

- **Street Manager** is used by every highway authority and utility company in England to plan and manage over 2.5 million roadworks that take place each year. It transformed the planning and coordination of works and is helping to reduce the impact that works have on congestion. Management data is also being used to improve performance and quality of works. Street Manager provides open data on planned and live works that the transport technology sector is taking and using on websites and in apps, giving up-to-date and accurate information that is improving journey planning for the travelling public and logistics sector.

Since its launch in July 2020, the metrics have been impressive with 10,000+ users from 500+ organisations and over 4 million permits raised. Continuous improvement work is also underway.

- **NaPTAN** is the national dataset of unique entries for public transport access points (bus stops, coach stations, rail stations, airports, ferry piers, underground stops, ect.) that feeds all journey planners from CityMapper to Google Maps. It is a vital component of the Bus Open Data

Programme, with a statutory requirement for Local Transport Authorities to update the bus stop section of this dataset since the Bus Services Act 2017.

The NaPTAN service is currently being redeveloped and redesigned to make the data standard and wider service scalable and extendable for future transport needs. We have recently published a new version of the NaPTAN service for users to download NaPTAN data which includes recently published a new version of the NaPTAN service which includes a new API for users to download NaPTAN data.

In the future, NaPTAN could support a range of different accessibility needs for transport users, from providing on vehicle information announcements to potentially making stop accessibility information available.

- **The Rail Data Marketplace** will remove barriers to accessing rail data and make it easier for partners to work with the rail industry. Rail data ownership is fragmented and access to data often restricted. This results in challenges with using data in a way that can support rail operations, passengers and decision making. It also discourages third-party innovation.

The Rail Data Marketplace will provide the enabling technology and capabilities to open industry-wide rail data up to a wider user base through a single-access Business to Business platform. The platform will deliver a new way of sharing data between consumers – including app developers, tech firms, academia – and the rail industry. New data sharing opportunities will drive innovation, leading to the development of new passenger-facing applications, operational efficiencies, and improved transparency.

Open EV chargepoint data will enable open public chargepoint data across the entire UK, mandated through regulation. In summer 2022, OZEV completed a data alpha to focusing on the data requirements for local authorities to support the roll out of EV charging infrastructure. The Government will be convening round tables over the next year to ensure that chargepoint data is made available to consumers and to local authorities and monitor the market rather than building a data platform. The mandated data standards and use of the metadata catalogue will enable industry to locate and access the right data for consumers. This will support the data to be linked to other data sets such as parking, rail, buses, and to the energy sector, enabling data driven policy decision.

Open data demonstration projects and pilots:

- **The National Parking Platform (NPP).**

Following seed funding and leadership from the Department, the International Organisation for Standardisation (ISO) has formally adopted the Alliance for Parking Data Standards global data specification for vehicle parking and mobility data. The adoption of this formal standard provides a new capability for the parking sector.

The Department is developing the National Parking Platform for the exchange of this standardised, real-time parking data through a central data platform to enable:

- multiple vendors to provide parking payment services in participating parking areas.

- data interoperability across local authorities and service providers, and with EV services, connected vehicles and other transport services.
- better sustainability and traffic management decisions through strategic data reporting.
- reduced procurement costs for local authorities.

An operational pilot platform is being led and managed by Manchester City Council. It is not a public facing service, but motorists are benefiting from improved service provision: real-time availability of parking spaces, access to more accurate and timely parking information, and the ability to use the payment service provider of their choice.

- During the Pandemic, the Newcastle Urban Observatory openly published data from their sensor network to show how mobility trends were changing in response to different levels of lockdown. The data was particularly useful for understanding changes in pedestrian behaviour and in local traffic. It also was used in DfT as a form of quality assurance to compare to trends from other national data sources. The Observatory's data is a great example of the benefits of open data and the speed with which data can be made available with the right infrastructure and approach. There is scope for many more city areas to make similar data available with support to help them take the first steps.

The Department was awarded £300k from HMT's Economic Data Innovation Fund (EDIF), to work with the Urban Observatories (UOs) in Birmingham, Newcastle Manchester, as well as, the Connected Places Catapult, Turing Institute and other government Departments on making more real-time

urban transport-related data available through the use of sensors, building on the work during the C-19 response.

From this we hope the project will produce the following outcomes:

- New datasets e.g. air quality, meteorology, traffic flow, micro-mobility and active travel
- Improved data quality
- Better defined and usable data
- Improved data discoverability by linking to 'Find Transport Data' metadata catalogue.
- A model for data sharing – including common standards, definitions etc. – that could be applied to all the UK's major urban centers to create digital twins and support the creation of more livable cities and 15-minute communities/urban villages.
- Better understanding of the art-of-the-possible and lessons capture which can inform future initiatives in other geographical areas.
- Better data to support contribution to Bus Strategy, including the design of future bus network and potential franchising models.

Taken together, these outputs contribute to a long-term aim to provide a scalable, common, platform for sensor data, and act as a part a transport specific urban component to the national digital twin.

Data standards to facilitate data sharing and enable interoperability between transport modes and with other systems:

- The Department has worked closely with the British Standards Institute (BSI) on *mapping the existing data standards landscape, including scenarios for data interoperability in a Future of Mobility context, to explore whether existing standards are fit-for-purpose* to support new innovative applications. The study also examined what role, if any, the Department should play in the governance and regulation of standards, as well as, providing guidance and training support to help people use standards consistently.
- **The Local Transport Plan** provides a series of actions, in response to the recommendations arising from the Local Transport Data Discovery, including the funding of eleven local authorities to open their parking and traffic data. These datasets were identified as high value datasets by the Discovery and the eleven projects are delivering a wide range of benefits for relatively modest investment.
- **A data model to digitise Traffic Regulation Orders** – Traffic Authorities need to make a Traffic Regulation Order (TRO) if they want to introduce a new rule about how a road is used or designed, or to make changes. The Department consulted on proposals to modernise the TRO process – the “Reform of Traffic Regulation Orders” between February and April 2022 and will announce next steps shortly. One of the key change proposals is to create digital TROs through the development of a national TRO Data Model: this would mean that applicants could apply for them online. TROs would be processed using digital, software systems, and they would be published in an open, digital format so the information

- they contain can be accessed easily by the range of organisations and people who have an interest, at consultation stage and when they are made.

Improving the discoverability of transport data to support innovation:

- **Find Transport Data** (formerly “the National Access Point”) will improve signposting of transport related data as issues around the discoverability of data has been hindering innovation and was also an issue during the Pandemic response. This will also help develop a “marketplace” for transport data so user can access the data they need in one place and lower costs of finding data, make innovation easier, as well as provide the foundation for cross-modal analysis, giving the Department the ability to understand end-to-end passenger journeys.

Evaluation and building the evidence base:

- As a part of the Department’s monitoring and evaluation framework, in June 2020 DfT commissioned **Ipsos MORI to conduct a process evaluation of three transport open data projects:** Street Manager, the Bus Open Data Service and Local Authority Transport Data competition. The aim of the evaluation was to identify factors that have hindered or enabled the achievement of the intended outcomes of each workstream, as well as draw key lessons for future open data projects. The key recommendations are:
 - DfT should investigate the use of a range of support mechanisms to build capacity within government and in key stakeholder groups and facilitate both the quality and completeness of open data.

- Learning within the DfT should be gathered, documented and shared between projects, Departments and with other government stakeholders
- DfT should develop a monitoring and evaluation framework, through a Data Strategy, to measure the contribution of different data projects to the Department's overall strategic objectives.

The Department have already taken steps to address these recommendations as evidenced in the actions section of the TDS. The report can be found [here].

Data discoveries to explore opportunities and help address pain points in the sharing of data:

- A micromobility 'revolution' has been taking place over the last few years. This kicked off in the West Coast of America in 2017, with the introduction of 'dockless' e-cycles and e-scooters and began operating in the UK in 2017 and 2018. *Future Transport Zones and e-scooter trials* have created bespoke APIs to inform detailed evaluation of e-scooter trials to inform future policy, improve transparency and allow companies to innovate to improve public experience. Data dashboard updates daily, providing insights on over three million trips in the trials so far. Operators are now sharing historical and live data.

To gather crucial data and evidence about the UK trials of rental e-scooters, launched in July 2020, the Department created bespoke APIs to transfer data from e-scooter rental operators to our evaluation experts responsible for the central evaluation of the trials. The aim of this data project was to inform future policy: the interactive dashboard is updated monthly, providing insights on

over 14 million trips in the trials so far. This information will help develop future regulations for e-scooters and other micromobility vehicles that improve safety and user experiences and increase access to zero emission transport.

- **We worked with Connected Places Catapult on a discovery into the use of sensors to collect transport data and barriers to their adoption.** This was in conjunction with the work on the EDIF/UO project on improving the quality and quantity of sensor data networks. Smart use of sensor data can help improve air quality, encourage active travel, and decrease accidents. For example, it can be used to track movement to help inform future activity plans to give people enjoyable forms of active travel, building on the increases in walking and cycling seen during the pandemic. It can also monitor cyclist movement to help decrease cycling collision accidents, which are much more likely at particular junctions. More information can be found [here].

Guidance to help others on using and sharing their transport data

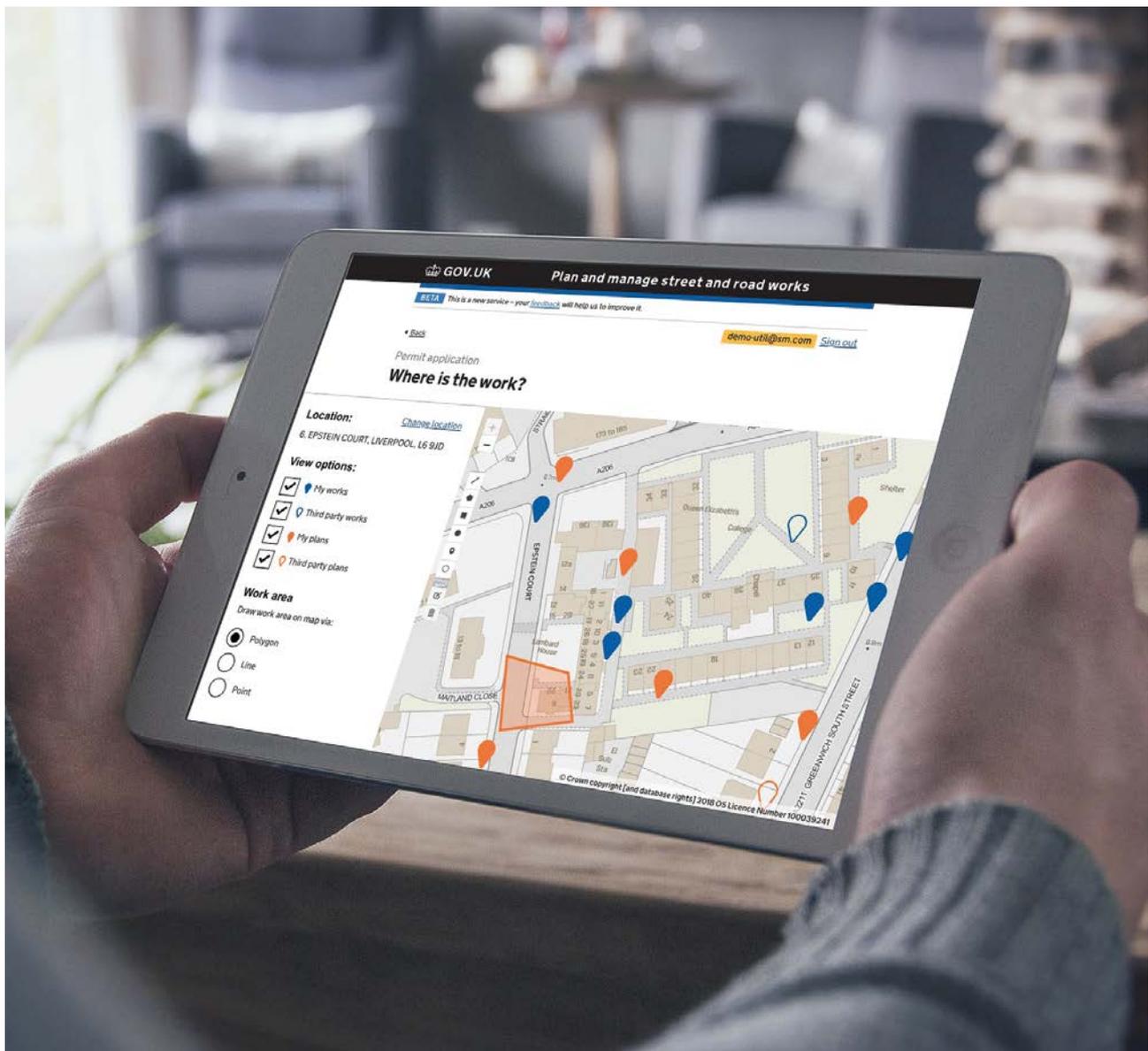
- Local Authorities are a significant provider and manager of transport services in their areas and are responsible for 97% of the national road networks. However, the sharing and use of local authority transport data is currently limited. As one of the recommendations in the local transport data discovery, the Department have been developing guidance to local authorities on using and sharing their transport data, which has been informed by extensive user research. The guidance will help local authorities unlock, use and share their transport data for the public good e.g. better data on roadwork will help improve transport journeys for the end user. The guidance can be found [here].

Other important departmental data projects

- **Collision Recording and Sharing (CRaSH)** allows police forces to effectively manage road traffic collisions through mobile and desk-based applications all the way from initial recording at the scene, the investigation process and preparing a case for prosecution. CRaSH forces can also collaborate efficiently by automatically merging records for large collisions, transferring cases over to other CRaSH forces and identifying drivers and vehicles involved in multiple collisions.

- The system increases the quality of the information which, in turn, will improve the timeliness of information available for use by both police and local authorities.

National adoption of CRaSH will enable strategic decision makers such as the National Police Chief’s Council and DfT to design road safety policy in a timelier manner, with better quality data, supporting our shared ambition to save lives on our roads.



Annex C – Lessons learnt from Covid-19

Case Study: The COVID-19 crisis

The pandemic has greatly magnified the importance of data in transport, in addition to offering data that we never knew existed or didn't have a suitable use case for procuring. It has also:

- Reinforced the need for a metadata catalogue, such as Find Transport Data, to help people easily find the data they need.
- Helped build the case for sharing data which data controllers had previously deemed commercially sensitive.
- Operational, near-real time, transport data has been a key input into the Covid-19 response.
- During the pandemic, the Urban Observatory at Newcastle University produced and shared traffic and public transport data for the Newcastle area, which developed micro level understanding of mobility changes in that area in response to regulation changes, and quality assure other sources of data.
- Presented a good branding opportunity for companies to showcase services as well as delivering public good – DfT held a roundtable to investigate new technologies that could help public transport users stagger their journey times to avoid crowding and keep people safe throughout the Covid-19 pandemic and beyond.
- Opened thinking to how more innovative use of data sources can be used in transport to monitor policies and changes in travel patterns such as anonymised mobile phone data and aggregated camera sourced data.
- Allowed access to daily data on usage on transport services from operators directly providing an example of how much more near real time data could be made available if needed and provide a better and more granular understanding of mobility.
- Encouraged international networking to gain insight on how other countries use transport data.
- Identify outliers in transport use by geography that may be useful in the future, e.g. for informing policies on “levelling-up”.
- Encouraged local authorities to open and share parking, traffic and cycling data with the Department to baseline changes and potentially develop national datasets.

The Pandemic has also surfaced issues that were not fully considered previously which we can now develop solutions to, such as:

- Dealing with the unexpected withdrawal of some data sets when running near real time analysis e.g. TfL's bus tap-in counts data when the process for bus boarding changed during the pandemic.
- Combining different datasets with different baselines and methodologies (i.e. to attempt to produce a national mobility metric) proved difficult from traditional sources due to differences in the frequency of collection and methodology, (e.g. road traffic data is daily to a baseline earlier this year, whilst others are rolling weekly to a relevant week last year).
- New data arose that hasn't been used previously, making it difficult to assess quality (e.g. mobile phone data), which encouraged the triangulation of different sources of novel data.
- Considerable variation in the data capabilities of LAs; more needs to be done to provide support to certain cities/ authorities with additional needs.
- Some data sources/collections take time to develop/use – so it is crucial to have explored all possible future major risks and considered the likely data which would be needed so that actions can be taken to ensure clear processes are in place for accessing data in emergencies which we might not need in normal times.

Overall, learning from the access to and use of data during Covid-19 has been a key input to the development of this strategy.



Annex D – Useful References

- BSI: Future of Mobility
<https://www.bsigroup.com/en-GB/topics/future-of-mobility/>
- Bus Open Data
<https://www.gov.uk/government/collections/bus-open-data-service>
- British Standards Institute (BSI)
[Standards, Training, Testing, Assessment and Certification | BSI \(bsigroup.com\)](https://www.bsigroup.com/Standards_Training_Testing_Assessment_and_Certification)
- Centre for Digital Built Britain
<https://www.cdbb.cam.ac.uk/>
- CRaSH
<https://www.civica.com/en-gb/product-pages/platforms/crash/>
- “Data for the Public Good”, a report by the National Infrastructure Commission
<https://nic.org.uk/app/uploads/Data-for-the-Public-Good-NIC-Report.pdf>
- Deloitte, Assessing the value of TfL’s open data and digital partnerships
<http://content.tfl.gov.uk/deloitte-report-tfl-open-data.pdf>
- Everitt, V. (2014). Delivering better customer information through free open data. PTI, 1, pp. 8-11.
- Future of Transport: data standards scoping study
[Future of Transport: data standards scoping study – GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/collections/future-of-transport-data-standards-scoping-study)
- Future of Transport Regulatory Review
<https://www.gov.uk/government/collections/future-of-transport-regulatory-review-call-for-evidence-on-micromobility-vehicles-flexible-bus-services-and-mobility-as-a-service>
- National Geospatial Strategy
<https://www.gov.uk/government/publications/unlocking-the-power-of-locationthe-uks-geospatial-strategy>
- NDS Government consultation response
<https://www.gov.uk/government/consultations/uk-national-data-strategy-nds-consultation/outcome/government-response-to-the-consultation-on-the-national-data-strategy>
- Mission One Policy Framework
<https://www.gov.uk/government/publications/national-data-strategy-mission-1-policy-framework-unlocking-the-value-of-data-across-the-economy>
- NDS M&E Framework
<https://www.gov.uk/government/publications/national-data-strategy-monitoring-and-evaluation-update>
- Joining the Dots
<https://gow.epsrc.ukri.org/NGBOViewGrant.aspx?GrantRef=EP/N014189/1>
- Local transport data discovery and action plan
<https://www.gov.uk/government/publications/transport-decarbonisation-plan>
- National Data Strategy
<https://www.gov.uk/government/publications/uk-national-data-strategy/national-data-strategy>
- National AI Strategy
<https://www.gov.uk/government/publications/national-ai-strategy>
- NaPTAN
<https://www.gov.uk/government/publications/national-public-transport-access-node-schema>

RAC Foundation data driven

<https://www.racfoundation.org/data-driven>

Smart Class

<https://www.smartclass.com.tr/en/home>

Traffic and Technology Forum

<https://tff.uk.net/>

Transport Decarbonisation Plan

<https://www.gov.uk/government/publications/transport-decarbonisation-plan>

William Shapps Review

<https://www.gov.uk/government/publications/great-british-railways-williams-shapps-plan-for-rail>

Urban Villages

[The Changing Face of Urban Farming in London | Smart Cities Dive](#)

Digital Twins

[Garden communities: using 'digital twins' in your data strategy \(pinsentmasons.com\)](#)

Smart Cities

[Smart City Trends for 2022 Put People First - RTInsights](#)

15 Minute Cities

<https://www.smarttransport.org.uk/insight-and-policy/latest-insight-and-policy/what-is-a-15-minute-neighbourhood>

15 Minute Cities

[Future proofing our cities with the 15 minute concept - Arup](#)

