improving public transport through technology

Submission to
Integrated National Transport Strategy: a call for ideas

1. Introduction

1.1. RTIG Inform is a community organisation with over 50 members which seeks to establish, support and share good practice in the use of information and communications technology in public transport. With members from public authorities, transport operators, consultancies and the systems industry, we have an impartial perspective and aim to support the common good.

1.2. More information on RTIG Inform and the public transport technology sector can be found at www.rtig.org.uk

1.3. We welcome the opportunity to respond to this call for ideas.

1.4. We would be happy to supplement the submission below with any oral or additional evidence required by the Department.

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

2.1. RTIG Inform and its members work to the objective of improving public transport through technology, a significant part of that objective is "joining up" the technology necessary to achieve an overall more joined up transport network.

2.2. The experience of many at the moment is far from joined up with the need to source information from many sources, pay for travel from the different providers with different apps and payment methods, all of which leads to a reduced prevalence to travel, particularly for those reliant on public transport and with the most economic need.

2.3. Transport networks need to be planned and developed to meet the needs of the communities they serve - with their particular mobility needs in mind. Fundamentally, they need to enable everyone to get to where they need to, at the times they need - with as little friction as possible.

2.4. Achieving this requires an ongoing detailed understanding of the needs of a community. Travel patterns and requirements change over time and any transport network, particularly public provision, which is rigidly fixed will not meet requirements in the medium term.

2.5. To assist with this, there needs to be more openness in planning, with residents being fully appraised of the constraints and decisions that have to be made. Through the use of online and in-person digital tools, it is now possible to involve more individuals in multi-modal placemaking in an engaging and interactive way.

2.6. There are some good examples of joined up travel being discussed and delivered in England, notably areas with combined authorities and elected mayors. Other areas though travel is becoming less joined up for people without access to a car.

2.7. New residential and business developments should be designed to ensure easy access to public and active forms of transport, not just private transport.

2.8. Places where people access transport, in the case of public transport: bus stops, need to be visible and attractive and provide key information to enable informed decisions to be made.

2.9. In a multi-modal environment, the interchange cost and friction needs to be minimised to make it attractive enough for people to be willing to use multiple modes or vehicles. Passenger wait times need to be managed through properly planned connections. This will require information to be shared between the connecting services to ensure that connections are protected; and high-quality passenger information - particularly when things are not going as expected.

2.10. Increases in interchange and use of multimodal trips will require simpler ticket retailing processes, which allow for transparent journeys using multiple modes. For the customer, a journey is about how to get from A to B and not which modes, or operators they will need to buy tickets for.

2.11. There needs to be greater publicity on public transport availability in a wider variety of locations. Information should be ubiquitous and meet minimum requirements to ensure that lack of information is no longer a valid reason for not using public transport; the technologies to allow this to happen simply and cost effectively already exist.

Data in the context of the next question can mean having better information about journeys, such as but not limited to departure times, journey planning, traffic information and accessibility information.

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

3.1. A pre-requisite for many improvements will be access to data which is standardised and consistently available. The quality of the data needs to be measurable and as consistent as possible. This will allow innovative data consumers to be able to commit to development of products and services that are not currently feasible because the cost of handling non-standardised data and the potential loss of access to data, makes investment in development too risky.

3.2. There are some examples of transport data initiatives by government which can be used as the basis for further work, for example Bus Open Data Service, Street Manager as well as local initiations for example Manchester and Leeds.

3.3. Standardisation of data is increasingly important to enable ease of access and understanding of the data, there is significant work being undertaken in Europe on standardisation and England can usefully learn from their experience particularly around joining up data sets and having coherent standards across transport modes.

3.4. The design of many public transport networks is based on currently known public transport journeys and travel patterns - with limited data on non-user travel demand because anything else is consistently difficult to access. Access on a consistent and reliable basis to wider travel data, beyond Origin-Destination (OD) data from bus operators, would allow for public transport networks to be planned based on the actual travel patterns and demand. This, in turn, would enable road networks to be better managed through traffic signal timings: thereby encouraging the use of particular routes based on the known destinations of traffic, as well as ensuring that public transport journey times are reliable and competitive with private transport.

3.5. Open-source or open availability mapping is typically targeted at private transport modes: elements such as bus gates/lanes etc. don't usually feature. This makes it harder for small developers to produce a quality journey planning solution, despite the prevalence of open-source journey planning engines. Providing open-source mapping providers with access to, and the knowhow to process - the proposed Digital Traffic Regulation Orders, would significantly improve the situation.

3.6. As vehicles become more connected and data handling more automated, even more granular mapping detail will be required. This will benefit large scale companies who can collect this themselves or have the financial wherewithal to procure the detail from mapping providers. Indeed, enabling easy access to the granular detail from the likes of Ordnance Survey would benefit UK based developers enabling their innovation to benefit UK transport users and build tools which can be exported.

3.7. Access to detailed internal mapping of public spaces including railway stations can be used to improve navigation and accessibility - thereby reducing the uncertainty and risk around making journeys - particularly for first time users.

Technology in the context of the next question means new and innovative ways to complete journeys, for example but not limited to the use of autonomous vehicles, electric scooters and e-hailing rides.

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

4.1. Much has already been made about how AI and analytics can improve service reliability, predict congestion, and enhance transport performance monitoring. It has, however, yet to make a significant impact; increased access to more data sources will significantly increase its impact

4.2. It would be possible, for example, to apply computer vision techniques to onboard bus cameras to identify bus lane/ bus stop parking contraventions, assist with asset management and identify the need for road repairs.

4.3. With consistent access to accessibility data it becomes possible to provide regional and national tools to enable people with disabilities to travel independently with confidence. In addition, it would enable tools to be developed which can identify the gaps and areas needing improvement in accessibility which will benefit an ageing population and reduce the need for more expensive tailored services.

4.4. The typical traffic signal will have its timings reviewed on an irregular basis - particularly where isolated and not connected to urban traffic control systems or technology such as MOVA. Wider use of connected traffic signals would allow timings to be reviewed more regularly, or automatically where AI is implemented. This will ensure that traffic control is optimised for the traffic flows being experienced rather than against historical data.

4.5. Improved on the fly and short-term transport planning solutions could be used to combine current separate transport networks to make them more cost effective, efficient and therefore sustainable. For example, in the identification of where there is demand for home to school transport as well as health care trips, or where there is a common demand for shared public transport and last mile logistics to parcel lockers.

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

5.1. We would encourage the use of data and technology in decision making to reduce the time between road and public transport network reviews. This would enable more timely responses to changing demand and to support new journey patterns - reducing congestion and increasing access to opportunities.

5.2. The use of tools which allow co-design with citizens and elected representatives can be used to provide better understanding of network design and the constraints and challenges which need to be addressed.

5.3. Decisions should be data-led but made with a thorough understand of where there are gaps in data - which journeys aren't being made due to a lack of good options and therefore opportunity for mode shift.

6. Any other comments?

6.1. Having a clear government road map for provision of data, and importantly which services or applications it will develop, will provide certainty for investors and developers. Government need to be mindful in any decisions to develop products already being provided by private companies, that this does not hinder private investment. For example, when Transport for London released their app many of the third-party small apps closed because the market disappeared. Since this decision there we have seen a much greater reluctance to invest in innovative public transport software developments based on open data.

6.2. There is a need for long term commitments to strategies and settlements to enable change to be planned and delivered. With an increased use of technology, particularly software-based solutions there needs to be an understanding that the funding needs to allow for the necessary ongoing revenue expenditure rather than just focusing on initial capital investment.

RTIG Inform

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