

# Spatial awareness



## Craig Hayes on driving ROI through the power of intelligent planning

**T**he world of transport infrastructure is becoming an increasingly complicated one. Not only are modern transport networks more intricate and interconnected than ever, the digital transformation wave is also continuing to gather pace and the public is demanding innovation at a rapid rate. Consequently, transport planners, operators and organisations responsible for driving regional economic development are facing a huge amount of complexity.

Add to this the fact that all governments are under pressure to improve services in a cost-efficient and sustainable manner and it becomes clear that a new level of intelligence is needed when it comes to planning and executing transport infrastructure projects.

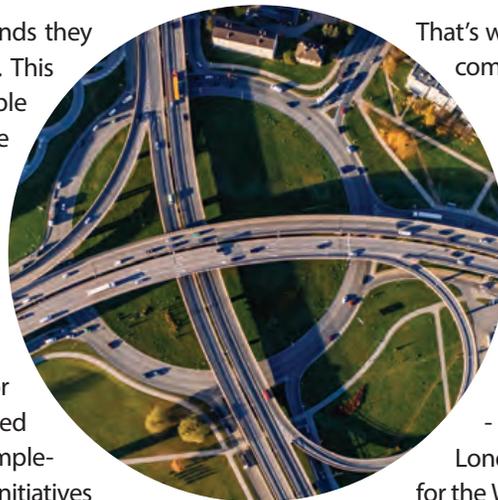
Various organisations across the public sector – such as combined authorities, regional transport bodies, transport operators and both central and local government – also have to take wider political and socio-economic factors into account, which further adds to the complexity.

What's more, they have to do all this with a limited budget, while also facing competing

demands for the funds they receive or generate. This means any available capital needs to be effectively prioritised and invested wisely to ensure they get the greatest return on their investment.

Public sector organisations involved in planning and implementing transport initiatives therefore cannot afford to adopt a siloed mindset. They have to be prepared to collaborate both internally and with partner organisations, to analyse where their investment will have the greatest impact across all modes of transport that serve the population (e.g. bikes, buses, rail etc., as well as cars) and to drive economic growth.

There is also a focus on laying down the foundations for future economic development by giving people across the country access to better jobs and better lifestyles.



That's where intelligent planning comes into play.

### GETTING FROM A TO B

The intricate nature of modern transport systems means data analytics is now a central aspect of any planning process. As such, several different organisations – including the Greater London Authority, Transport

for the West Midlands, West Yorkshire Combined Authority and Transport for London (TfL) – are now using Geographic Information Systems (GIS) to gain insights into the wider impact of projects geographically and over a long-term view.

This spatial approach to analysing data means prioritising the right investments and identifying clashes between projects, gaps in resources or opportunities to collaborate can quickly be visualised, increasing the likelihood that projects will deliver the greatest returns on the investments made.



For example, Transport for London (TfL) is using a City Planning Tool to deliver the Mayor's Transport Strategy and support the key priorities of easing congestion, reducing pollution and improving both safety and health by helping citizens become more reliant on public transport, walking or cycling. Two ways of approaching this are to improve the accessibility and quality of transport in the city, both of which require various enhancements to be made to existing and new transportation networks.

However, the many schemes and plans included within TfL's business plan generate a significant amount of data, all at varying levels of scale and complexity. This creates challenges when it comes to accessing, visualising and making sense of the data in order to inform decisions.

So, using the City Planning Tool to analyse a vast library of spatial data – consisting of over 200 TfL and third-party data sets – helps to inform scheme development and prioritisation related to the city's walking, cycling and public transport infrastructure. This, in turn, drives intelligent investment and decision-making, ensuring that TfL is making the best use of the data it has.

What's more, with the data segmented in a hexagonal-based analytical grid, individual 'neighbourhoods' or wider areas can be focused on and prioritised, depending on their infrastructure needs or outcomes aligned to the Mayor's transport strategy vision.

Planners can analyse data related to factors such as pollution, journey times and

traffic patterns, providing a single source of information which multiple parties can feed into. Users can also vary the significance of different types of data (e.g. bus travel patterns over cycling patterns) to highlight the impact and potential benefits of a given project.

Then there's the Greater London Authority (GLA) Infrastructure Mapping Application (IMA), which pulls together disparate datasets from many stakeholder organisations relating to London's project pipeline across housing, transport, energy, water, commercial and retail, civil and public projects up until the year 2050.

Pulling this project pipeline data together spatially in combination with growth and demand projections for London, presents opportunities to collaborate on projects across organisations and reduce the impact associated with delivering projects on citizens and businesses.

This practice isn't limited to London. Various organisations in the North of England – including the West Yorkshire Combined Authority and Transport for West Midlands – are looking at how they can use data to improve transportation infrastructure in a way that develops the economy. Rather than looking at individual cities or towns, they are taking a regional approach to identify where the biggest problems are and where new schemes are likely to show the biggest returns on investment.

Ultimately, it all comes back to making the most of their limited funding by investing money in the right areas, which is where lev-

eraging the power of location through intelligent planning plays a major role.

## DATA-DRIVEN INSIGHTS

With so many directions available for transportation infrastructure projects in the UK it can often be hard for organisations to identify exactly where they will see the biggest financial returns.

For example, projects could focus on increasing rail and bus efficiencies and service provision, reducing congestion or improving access to jobs and better lifestyles. They could also be designed to underpin economic development through regeneration, or attract inward investment from businesses to towns or cities where a reliable, cost effective transport system is key.

That's why the spatial approach using GIS is now so important in optimising return on investment (ROI). Up-to-date data made available to multiple different stakeholders in a way that can be easily visualised is saving valuable time and money across organisations. It brings an end to the current situation where data is disparate across many systems and stored in multiple different places, which adds a huge amount of complexity and creates additional work.

Using locational data as part of the intelligence planning process enables better decision-making across the entire project lifecycle. Hundreds of different data streams from multiple sources can be layered on top of each other, providing meaningful information that may otherwise go unnoticed and a level of insight that simply wouldn't otherwise be available.

From an ROI point of view, the key is to think holistically. Government organisations need to be sharing location data and using this information to understand how several different factors can fit together to provide the biggest return.

Such a strategy that optimises intelligent planning in this manner will not only have a direct impact on their bottom line but also on the wider UK economy and, ultimately, give people better access to jobs and improved lifestyles.

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