

# Cohesive

## Harness the Power of Your Data to Enable a New Vision for Multimodal Transportation



Creating a future multimodal smart transportation vision (Image from Dreamstime)

**P**assenger and freight activity will **more than double within the next 25 years**, based on current data projections and macro trends.

Such projected growth is suggestive of demographics, urbanisation and social and economic progress. This increase will result in a significant growth in energy demand and carbon emissions. These challenges are compounded by economic pressures, resource constraints and competition between and combinations of various modes of transportation ranging from user-

friendly bicycles to high-speed transit systems. This need for change and smart mobility must be viewed not only through the lens of new capital projects but also by making more efficient use of the existing transport infrastructure already in place.

If we want a future of hope for society, that is sustainable, reliable, and efficient, we must develop transportation systems that optimise operational performance while also being kind to our natural built environment. We must be radically harnessing data capabilities and making full use of connected infrastructure opportunities.



*Rennie Chadwick*  
 Director of Transportation, Cohesive

The reality is that this transformation is already happening and gaining momentum. Cohesive already enables customers to operate different outcome-driven business models that support both our economic, social and natural built environments. The promise of a future with shared digital twins, connected networks and artificial intelligence is already creating a seismic shift that will put transportation users at the heart of the decision-making process.

Rennie Chadwick, Director of our Transport Business sets out how Cohesive enables integrated and intelligent transport networks which pervasively measure operational performance and monitor the health of physical assets.

My first engagement with the railways was back in 2000, when I worked with Railtrack as it was known then, to develop their Structures Condition Marking Index. The primary objective was to transform a subjective and qualitative assessment into a consistent, objective one, with a quantitative output. As a result, digital photographs and a relational database for inspection findings transformed Railtrack's bridge inspection procedure.

Fast forward to the current day and things have continued to evolve, with increasingly sophisticated data capture methods. For example, using UAVs (unmanned aerial vehicles) for large-scale lidar (light detection and ranging), edge computing, and IoT (Internet of Things) for continuous monitoring and

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alarms of critical assets, and even robot-mounted devices to access areas too risky for human beings. The challenge today is not so much how to capture digital data, but how to put that data to use, supporting decisions that make the lives of owners, operators and users of transport infrastructure, simpler and better.

Throughout the entire asset lifecycle, Cohesive focuses on helping our clients extract more value from their data. One of the common problems we encounter is a lack of visibility of the data an organisation has, i.e., the people that need to use the data, don't always know what is available. This lack of visibility is then often compounded by a lack of trust: if users don't know the provenance of the data, or don't have some assurance as to its quality, they tend to ignore it and go and capture a set of data specific to their needs. This builds a patchwork of data over time, compounding visibility and data-quality issues and increasing operational costs.

Our approach is to help organisations build their data management strategy to match their business needs, now and for the future. This might be as straightforward as implementing a new asset management solution, or it could extend to defining and implementing a full digital twin capability.

Either way, the basics still apply, we need to work with our client to:

- establish clarity around their objectives, now and in the future
- understand the organisational design, now and for the future
- identify the data required to support the decision-making that helps achieve these objectives
- design processes and technology solutions that make it as easy as possible for decision-makers, everywhere in the organisation, to access the right data

- design a change programme that meets their needs

Consumers of transport networks increasingly expect to have access to information that fully informs their travel decisions from the perspective of the asset owner. This information is expected to cover door-to-door, not just discrete train, tram or bus services. Travellers want to know what their options are and what the impact of their decisions are (for example, how is this contributing to my personal carbon footprint, what are the costs, how long will it take, or what impact will the weather have?) across all the possible modes of transport.

Commercial models must keep pace with this new multi-modal transportation vision. Hoping for exciting, innovative outcomes when we are still procuring projects and services the way we always have is unlikely to yield the desired results.

Cohesive has been vigilant to ensure that all areas of the supply chain can interact with this intelligent transport network through the provision of common data environments and visualisations which enable the outputs to be the key target and therefore assimilate modern technologies and methodologies during this journey.

Understanding future operating aspirations at an early stage ensures that decisions are made early in the process to enable future innovation.

Solving problems like these is what computers excel at. What they need, to do this effectively, is quality data. Quality data is a consequence of a robust, well-designed and well-executed data strategy.

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**Does this leave the human component out of a job? Far from it.**

Our role is to use the outputs, together with our innate creativity, to continue to improve the way we deliver transport solutions, now and into the future.

Ask us how: [www.cohesivegroup.com](http://www.cohesivegroup.com)

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# Cohesive



# Sustainable operational excellence

with an integrated approach to digital enterprise asset management for the transportation industry.

Cohesive brings you the world's leading digital engineering, enterprise asset management asset delivery and asset service performance optimization solutions for transportation.

We're cutting your physical asset management costs by streamlining asset monitoring, management, and maintenance.

By leveraging IoT and AI technology, our offerings can help you meet regulatory standards, increase asset lifespan, and predict and prevent downtime!

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