



# Digital, Data and Technology Strategy

2023-2025

# Digital Services: Enabling journeys through technology and data

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## Background

Our focus for the remainder of the second road investment period is to ‘enable journeys with digital, data and technology’.

This is aligned with the National Highways Strategic Business Plan 2020 – 2025 and Connecting the Country, our long-term strategic plan to 2050.

The 2023-25 version of the Digital, Data and Technology Strategy updates our original document - published in 2020. A lot has changed over the past few years, and in such a fast-paced environment, it’s right that we review our plans so we can be confident of our direction as we look to the future.

This revised strategy focuses on what we will achieve over the next two years and the ambitions we’ll set in motion as we move to the third road period (2025-2030).

Our original strategy was centred on three core themes:

### 1. Transforming our services.

Transforming services across asset management, customer-focused and corporate functions.

2. Improving delivery. Adopting more efficient, flexible and streamlined approaches using cutting edge techniques.

3. Enabling our people. Providing the data and technology our people need to make better decisions to do their jobs safely and securely.

The three core themes remain valid today. They have evolved and are incorporated into five new strategic priorities.

# Our five strategic priorities



Over the next two years, we will focus our efforts on five new strategic priorities, they are:

- 1. We aim to better** inform our customers and provide them with trusted travel information, for example on road closures, ensuring that they feel safe and in control of their journeys. This goes beyond private road users. We must increase our offer to businesses, freight and hauliers who depend on our network to deliver for the UK.
- 2. We will continue to improve** the security, reliability and resilience of our digital, data and technology services that enable us to continuously operate the strategic road network (SRN) in accordance with the legal and regulatory frameworks that we operate within.
- 3. We will provide colleagues across** National Highways and within our supply chain with the right tools and services to enable them to be effective in their roles, for example operating the SRN or enabling the organisation to deliver.
- 4. We will invest in our** digital, data and technology people, processes and technical capabilities ensuring we are set up to deliver for National Highways and the country.
- 5. Digital, data and technology** will help us to deliver our net zero, sustainability and social value agendas, by mapping our biodiversity corridors and calculating carbon data.

## Measuring success

Over the remainder of this road period we will measure our success against our five strategic areas.

The mechanism for this will be through our quarterly business planning and review cycle which aligns to our performance goals set out in the National Highways [Strategic business plan](#).

# Our vision for the rest of RIS2

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## A Digital Future



**We have several key elements that we plan to deliver over the rest of the second road period.**

Digital Roads is one of our main programmes across National Highways. It covers how we will harness digital,

data and technology and connectivity to improve the way the strategic road network is designed, built, operated and used. It focuses on our customers' needs in a 'digital-first age', and on how we will build roads differently

**Digital Design and Construction** is one part of Digital Roads. It's focused on exploiting digital, data and technology during the design phase of construction, to improve safety, efficiency, and the environment.

It sets the foundation for how we will deliver the right data and technology that's critical to the safety of our people, supply chain, partners, communities and road users.

It relies on accurate data and the right technology to ensure that safety is central to everything we do. We will invest in information services to help us make informed, intelligent and timely decisions.

**Digital for Customer** - another part of our Digital Roads programme - brings together our Digital Roads and Customer Service strategies. Working with the wider industry - such as journey planning providers - we will make our data and technology services more readily available so that these companies can deliver improved services to road users.

As a result, our customers will receive travel information that is even more accurate, dynamic and consistent, on their preferred devices or apps.

Beyond our Digital Roads Strategy, we will continue to develop and grow our wider digital, data and technology services to enable us to operate even more efficiently and effectively. Examples of this include:

- **Growing our business insights** internally and externally by harnessing our data to continually improve what we do. We'll begin to anticipate the needs of road users and adapt to meet demand. A key part of this will be implementing our information and vision strategy, which sets out the framework for managing information.
- **Moving more quickly towards cloud-based infrastructure.** This will enable us to utilise live data from vehicles and assets across the network. This will help us to make informed decisions ahead of time so that we can improve predictive and real-time network management.
- **Developing our Transport Innovation Development Environment** - our testing centre. It mimics the network so that developments can be trialled in a life-like environment before being used in real-life settings.



## Building Lower Thames Crossing through digital design and construction

**The Lower Thames Crossing (LTC) is a proposed new motorway connecting Kent, Thurrock and Essex through a tunnel beneath the River Thames. It is the largest single investment in our road network since the M25, constructed 1975-86.**

We're using the LTC to drive improvements in the way we design and manage our construction projects. This programme strives to create the greenest road ever built, while leading in carbon reduction and hydrogen adoption.

We plan to replace diesel use across our supply chain. To make this possible, technology, data and digital integration is essential - and a dedicated digital team has been established on the programme.

We've successfully deployed a secure technology platform with over 25 software applications. These tools allow us to effectively manage the programme and they will play a critical role as we move into the next phase with our delivery partners. As part of refining our plans, we'll be undertaking digital construction rehearsals and looking at our performance data. It will help us optimise our construction cycles and logistics - and ensure we have a more positive impact on communities and the environment.

During construction, we will continue to support the successful delivery of the scheme by providing trusted data and information to ensure effective programme management. We will be focusing on digitising our plant, processes, workflows and interfaces, embracing automation to reduce error, repetition and risk.



# A resilient and reliable network

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**Ensuring our customers have a safe journey is our first priority. To enable this we need to maintain a resilient and reliable network.**

## We will:

- 1.** Maximise the benefits of digital, data and technology across our operational and corporate services.

Our critical services include:

- network and roadside telecommunications
- technology on motorways (ALR – all lanes running) and supporting safe movement of abnormal loads
- tunnels
- organisational tools and software (such as Microsoft365)

- 2.** Enhance the digital tools and services for our people by reviewing the current offering, consolidating where appropriate and providing new services and equipment where needed. For example, technology to help keep our traffic officers connected, and digital tools to enable us to manage our supply chain effectively.
- 3.** Invest in making our vital 24-hour operational services more resilient to improve the safety and reliability of everyday journeys for our customers.

## Testing our resilience with scenario-based exercises

**Digital, data and technology is integral to everything we do, from how we deliver and run the SRN, to how we measure our carbon impacts on the environment.**

Our data and connectivity must be secure and protected against potential threats, so that we can keep our network running and our colleagues, supply chain and customers safe.

During 2022, we carried out six scenario-based<sup>1</sup> exercises to test the resilience of our services. The exercises generated a series of recommendations and enabled us to develop ways to tackle these vulnerabilities and understand:

- our priority critical assets
- suppliers that need to improve their own resilience
- the interdependencies that exist across our organisation

These exercises helped us to create a digital resilience maturity framework. This enables us to assess our current cyber security maturity and create improvement plans.

This is a key priority for our business, and we have made significant investments to make our organisation more resilient.

We are now continuing to improve the security, reliability and resilience of our services.

1. Scenario testing is an experience-based group exercise where we pressure test our online service or processes to identify any vulnerabilities.

## People and partnerships

**By 2025, we will have introduced automation and new methodologies which will help our people complete tasks quicker and more reliably.**

We will also use virtual systems such as digital twins to design and inform improvements to the network in a way which is safe and causes least disruption.

We will continue to develop our strategic partnerships across our business, with our supply chain and increasingly with journey planning providers. We'll focus on exploiting opportunities, and bringing forward the best digital solutions to business problems whilst ensuring value for money.

We will grow our people's skills in line with our organisation's People Strategy which means continuing to build a 'digitally minded' organisation. We're moving towards a future that facilitates innovation, drawing on new developments and enhancing what we do through agile delivery.



## Agile Centre of Excellence

**Agile is a way of working and a broad term that typically Centres on flexibility, responsiveness and collaboration.**

It includes behaviours, concepts and techniques and is often viewed as a change of mindset and a different way of thinking.

Our Agile Centre of Excellence is ensuring that we have the capability and knowledge to adopt and exploit Agile approaches. We will support and coach colleagues to become Agile practitioners.

Since the establishment of our Agile Centre of Excellence, we have demonstrated the benefits that Agile brings to our team performances.

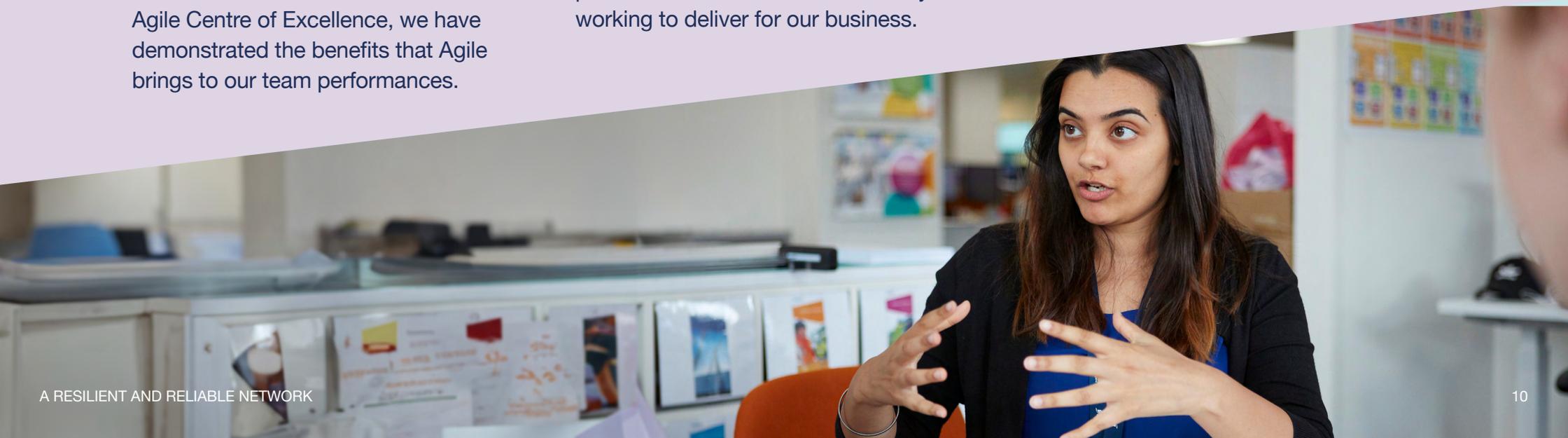
We recognise the importance of supporting our people on this journey. Prior to adopting an Agile approach, we trained 200 colleagues in Agile fundamentals with a cohort receiving Product Owner and Scrum Master certifications.

We have put structures in place for our teams to operate in - and maintain focus on - achieving key outcomes.

Our Agile delivery framework was launched in January 2022 and has provided our teams with a fresh way of working to deliver for our business.

A key adopter of this framework is our Enterprise Portfolio Management Office.

This team has started quarterly business planning and review cycles which have enabled us to understand our impact and make the best use of resources. This gives us the platform to begin prioritising the most important activities for Digital Services and start delivering them in the short, medium and long term.



# Our RIS2 success stories

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**In RIS2 we focused on transforming our services, improving delivery and enabling our people. There are a number of examples we can share.**

## **Intelligent asset management and digital operations**

Since the beginning of RIS2, we have explored opportunities to use digital tools to improve safety and efficiency on our network. Following a feasibility study of using digital asset management tools, we have demonstrated a reduced number of unplanned human interventions required on our network, improving our customers' experience.

We will continue to implement digital asset management technology across our road network throughout the rest of this road period.

## **Mobile phone and seat belt detection**

We want our customers to be safe and feel confident in their journeys.

We design and deliver safety schemes to meet the specific needs of each region.

For example, from spring 2022, we trialled the use of mobile phone and seat belt detection systems on our sensor test vehicle.

Our aim is to enable the systems to be used on several different road types, including roadworks sites. This will help us widen our understanding of compliance across our network.

## Abnormal loads

In June 2022, we were asked to support the movement of an abnormal load, a furnace section, which was part of a £45 million furnace project to be installed at Essar's Stanlow oil refinery.

We were involved in the last leg of the component's 6,000-mile journey, from the Port of Liverpool to the oil refinery. We used our digital twin of the SRN to consider several options before deciding it was best for the load to straddle the central reservation of the M53.

The new furnace section was one of the largest objects ever to be moved on UK roads and is a tangible example of our support for UK industry.

## Virtual agent – Digital Assist

Technology and data have provided opportunities to automate our corporate processes. We've improved our IT self-service support platform, Digital Assist, so that it is easier for people to request our support. It's simpler for them to identify and order the equipment they need. We are actively exploring other opportunities to improve our colleagues' experience.



# The next destination: Looking ahead to RIS3

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**The digital, data and technology landscape is set to revolutionise our industry and society in the future.**

At the same time, our customers' needs are constantly changing. We must ensure we have the right approaches in place to respond quickly and effectively within our available funding. We have taken clear steps to set us up for success in the third road period (RIS3). On the next page, we describe the areas we expect to focus on.



### **Maintaining and optimising our existing services**

We will continue to run existing services in order that we ‘keep the lights on’. Our priority is to ensure that our digital, data and technology infrastructure remains robust.

### **Legislative compliance**

We will stay up to date with relevant laws, regulations and industry standards that pertain to data protection, privacy, security, and ethical considerations. We will prioritise investment to address risks to our critical services.

### **Safeguarding our critical services**

We will identify and implement essential cyber security measures to enable National Highways to operate safely and protect the organization’s digital assets.

### **Keeping an eye on the future and acting proportionately**

We will adopt a pragmatic and risk-based approach to keep pace with changes that will impact the SRN, such as using connected services to create capacity on the network. We will continue to use our influence in working alongside industry to reduce the costs of developing new digital services

### **Net zero carbon ambitions**

We will continue to identify opportunities to reduce our own carbon footprint and that of our supply chain partners. This will contribute to our ambition of achieving net zero carbon emissions by 2050.

### **Digital, data and technology skills and capabilities**

We will build our digital expertise by attracting new talent and ensuring our people have the right knowledge and the skills needed to enable our ambitions for the future.

Digital, data and technology plays an integral role in the successful delivery of our business and our commitment to enabling safer and reliable journeys for our road users. We’re proud of the achievements we have delivered so far during RIS2 and we will continue to drive digital, data and technology forward as we close out this roads period and head into for RIS3.

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