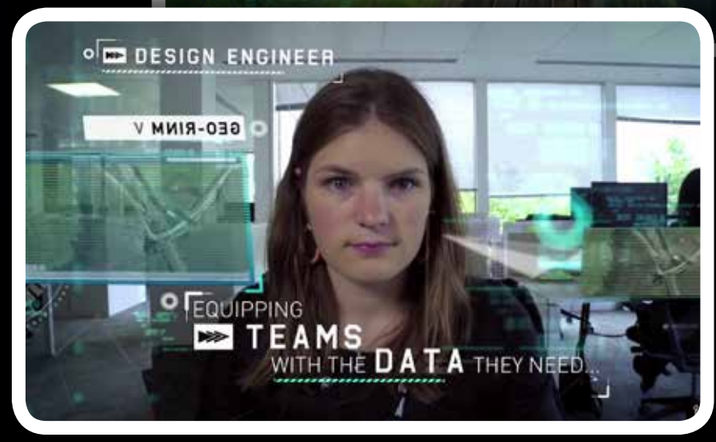
Network Rail

Intelligent Infrastructure update

Route Services

INTELLIGENT INFRASTRUCTURE
DELIVERING THE DATA-DRIVEN RAILWAY

Welcome to Intelligent Infrastructure



Thank you for your interest in Network Rail's Intelligent Infrastructure (II) programme.

II is a Control Period 6 (2019-2024) asset management transformation programme that is using technology to turn data into intelligent information – information that can be used effectively by our frontline teams to work smarter and safer to deliver improved services for passenger and freight customers.

By capturing and exploiting accurate data on Network Rail's assets across the entire 20,000-mile network, II is shifting work from traditional planning and maintenance schedules to a proactive 'predict and prevent' approach. It will allow teams to see where assets are, how they are behaving, how they are degrading, and when they are going to fail.

To meet the future challenges of Europe's busiest railway network, new and improved ways of working need to be developed. II will deliver the digital data the routes need to make better decisions on when railway assets should be maintained or renewed – fixing faults before they impact the railway.

This publication will give you the very latest news on the II workstreams across track, signalling, electrification and power, Ellipse, planning and civils.

Data holds the key to predictive maintenance

Ellipse

Network Rail's central asset register and maintenance work management system

+

Azure Cloud Platform

Provides virtual storage, high performance computing power and analytical tools

+

Workstreams

Their specific knowledge uses the analytical tools provided by the II cloud platform to turn large volumes of data into meaningful information

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Predictive maintenance

Together these three components break down data into meaningful insights enabling a predictive maintenance approach.

To unlock data's potential we must first understand how to manage it and discover what it's telling us

Unlocking data's potential

Ellipse

The Ellipse workstream consists of two elements:

Ellipse Foundations enables new and enhanced capability to the central asset register to support discipline workstream tools

Ellipse Foundations has introduced new governance controls to standardise the process of requesting and seeking approval for changes to the Ellipse system.

A new operating model has been defined, allowing for changes to Ellipse to be implemented quicker and more regularly with controlled releases. Testing has been automated, significantly reducing the amount of time it takes to test software updates and other substantial changes to the system, which has now been adopted by Route Services IT and will be used for next planned maintenance release.

Additional system input controls have been investigated and documented to improve data quality, vital to the use of asset data for predictive maintenance. The team are also making Ellipse easier to use, reflecting Network Rail's new regional structure and incorporating additional functionality needed by the discipline workstreams.

As the central asset register, the data within Ellipse feeds into the new tools built by II. The Ellipse Foundations team have been building new connections to allow data to be integrated across different tools such as insight and mobile applications.

The Ellipse framework portal was launched in April 2021, providing asset managers with access to all the information they need on how to use Ellipse and maximise its functionality in one place.

Ellipse Business Platform Service provides ongoing support to the discipline workstreams, with expert knowledge and a design implementation service

Subject matter experts have been embedded into the discipline workstreams to help maximise the systems use and help with requirements definition and design.

The platform service also provides an Ellipse implementation team, which receives new or amended designs from the discipline workstreams and deploys these into the production system.

Azure Cloud Platform

The Azure Cloud Platform team have continued to trailblaze the use of cloud computing and the analytics capabilities it unlocks by working in partnership with Route Services IT, Microsoft and our System Integration partner Cognizant. They have worked together to deliver a strategic cloud platform to meet the needs of II's analytical tools and to benefit the wider business.

By working together, they have established new ways of working and best practices for agile development and support of all our tools. The Azure Cloud Platform team now runs the cloud infrastructure as a business as usual service to the II Programme.

By working collaboratively on our platform designs, blueprints and implementations we have enabled Route Services IT to accelerate the wider Network Rail enterprise cloud platform capability, so that other projects from across the business can fast-track delivery using cloud technology.

At the start of year two of the programme, development of analytics tools was transferred to individual workstreams to support agile product development ahead of pilots starting. We now have integrated end-to-end teams, resulting in faster development and greater accountability within teams.

Coming up . . .

Two new workstreams to watch out for in year three

New Fault Management System

Currently in the detailed solution design phase, with build starting in May 2021 to replace the existing FMS system which is deemed at end of life.

New Mobile Works Management System

Following a review of how work orders are dispatched to frontline teams, the II programme has secured funding to replace the existing My Work app/ Field Data Manager (FDM) solution. Requirements gathering and wire-frame design started in spring 2021.

How insight turns data into intelligent information

Data and analytics

- Manual digital data capture
- Remote condition monitoring
- Measurement train data
- Passenger train data
- Aerial survey

Common data store and analytics tools for the whole network

Turning data into intelligence

- Predict time to failure
- Determine criticality
- Prioritise faults

+

Preventative maintenance

- Optimise work plan considering access and resource constraints
- Carry out preventative maintenance

=

Benefits

Putting passengers and freight customers first by reducing delays

Giving our teams the tools to work smarter and safer

Introducing insight

Network Rail's new holistic predictive maintenance tool

What is insight?

insight (formerly known as the Enhanced Decision Support Tool or EDST) is our new cross discipline tool aimed at helping frontline teams and engineers move towards a predict and prevent maintenance approach. insight will be able to warn maintenance teams when faults are likely to happen; this could be 28 days, 90 days or even a year before the repair is needed.

Working with the regions and our industry partners we use existing and emerging digital technology to monitor the network and collect, collate and analyse data on asset performance.

The insight tool presents all this information in one place to create a 'big picture' view of the railway and its condition so that frontline and supporting teams can work smarter and safely to deliver improved services for passengers and freight customers.

Data from measurement trains, helicopters and remote condition monitoring, plus other leading data sets will all feed into insight. This information will be presented in an easy-to-understand home dashboard tailored to individuals' roles to make it easy for colleagues to find the information they're looking for quickly.

What are the benefits of insight?

Confidence to plan work earlier
Predictions of when faults will occur give teams greater confidence to plan

Reduction in service-affecting failures
Fault predictions allow maintenance teams to plan interventions before they occur

Reduction in the number of repeat faults
Increased notice means a greater chance of carrying out the best fix first time

Increase optimal interventions
With more time to plan teams can line up access and resources to treat the fault first time

Increase access utilisation
insight gives teams the ability to identify low severity faults and fix these alongside existing defects; grouping faults reduces the need for repeat visits

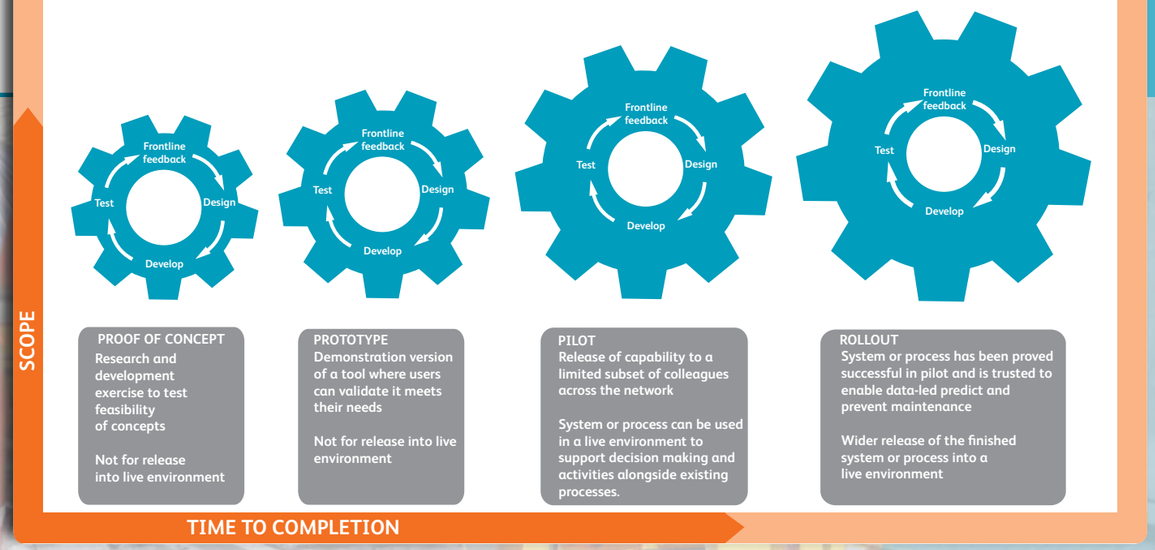
Frontline feedback is at the heart of insight's development

We have been working in close collaboration with frontline colleagues to build insight. So far we've held over 500 engagement sessions to find out how data can help our staff work smarter and safer.

The visual below shows that by starting with frontline feedback and then repeating the cycle of designing, developing and testing over several versions of the tool, frontline teams will help create a tool that's tailored to their needs.

By delivering capability in small chunks and not delivering the whole capability in one go, routes can start to test and validate the tool early on rather than only getting visibility of the tool at the end of the programme.

> I like the approach that the II programme is taking to developing the track insight tool. They've prioritised gathering feedback from users and I've found our feedback meetings to be frequent and purposeful. I've seen my comments incorporated into subsequent versions, so it's never felt like a tick-box exercise.
>
> **Dan Conway, route support manager for North West route**



> It gives me the evidence to predict where I should be taking action, why I should, and what I should be doing – backed by maintenance work bank history data. My goal is to keep trains running and to avoid putting in place speed restrictions.
>
> **Stu Gordon, track maintenance engineer**

insight entered pilot mid-April 2021

The first version of the insight tool incorporates track and signalling capability. Electrification and Power and Civils capability will follow by the end of FY 2021-2022.

insight first capability enters pilot

The first version of insight entered pilot in mid-April 2021. It incorporates track and signalling capabilities, and future releases will include Electrification and Power and Civils.

insight is being developed in collaboration with feedback from across the business. Users involved in development had the opportunity to test the homepage dashboard ahead of the tool entering pilot. The dashboard includes shortcuts such as an inbox flagging upcoming actions and backlog tasks in need of attention. After selecting a shortcut, users can drill down into the detail and history of individual assets with everything presented in one place, making it easy to find information quickly.

“Information is currently held on lots of different systems, each with their own log-in password. insight will be the place to go for all consistent and relevant information in an easy to navigate format. Plus being web-based means we don’t have to be connected to the Network Rail system for access, we can take it trackside.”

Scott Paterson, signal & telecoms maintenance engineer

“This is a massive breakthrough. We can now use trusted algorithms to convert trace and fault data, and by reviewing historic data in the tool we can then predict at what point we will have to intervene with a repair. Sounds simple but the benefits are huge.”

Dan Collins, Western infrastructure maintenance engineer

Signalling

At present, maintenance teams use multiple systems (such as Ellipse and Fault Management System) to access the information needed to manage signalling assets. insight will bring all this data together onto one platform for the first time.

insight will focus on supporting signalling maintenance staff (section managers, supervisors and assistants) by consolidating daily maintenance tasks into a single ‘to do list’, providing easy access to existing data on individual assets and generating specific KPIs in relation to their role to help them measure success.

Signalling maintenance staff will be able to view their action inbox with details of upcoming work plus understand work outstanding, missed maintenance tasks and backlog all in one place, saving them time by not having to download the latest reports.

By clicking on the asset, users will be able to drill down into more detail, understanding the asset profile and history by accessing all available data and presenting it in one place. And there are shortcuts to Ellipse and Fault Management System to ease integration between the tools.

Track

Analytics drawn from yellow measurement train data provide intelligence on track geometry and enables predictive maintenance. The tool aligns run-on-run track data (a digital representation of the track condition) taken over time and warns maintenance teams when faults are likely to happen – this could be 28 days, 90 days or even a year before the repair is needed.

This capability was achieved by using a new algorithm to align data collected over time and extrapolate deterioration rates. In the past, if maintenance teams wanted to try and predict when faults were going to happen they would have to print out each individual run of data and try to manually align the printouts; a time consuming and understandably frustrating process. Algorithms have also been deployed to determine fault criticality and help prioritise actions.

Accolade for insight developers

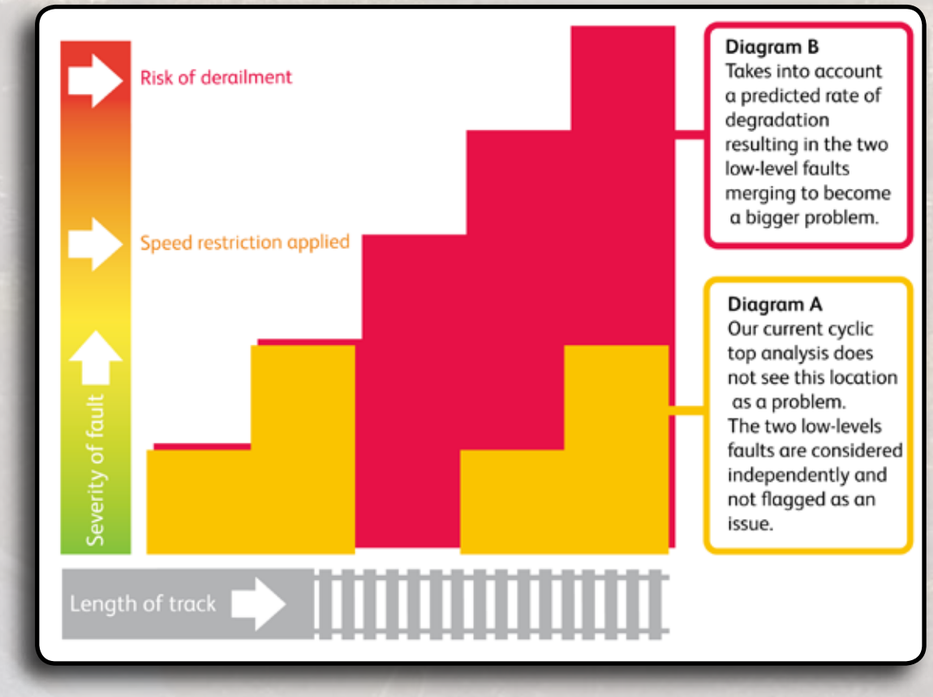
The team behind developing insight recently won the Technology and Innovation Award from the Chartered Institute of Logistics and Transport (CILT). As part of his award acceptance, Martin Mason, programme development manager for insight explained the tool and its potential to transform railway maintenance.

Global leader in cyclic top prevention

Global leader in cyclic top prevention

Over the past year the II team has established itself as a global leader in understanding, managing and predicting cyclic top faults and this capability has been integrated into insight's first capability drop.

In the past, cyclic top faults have been said to 'appear out of nowhere' triggering temporary speed restrictions and, in worst case scenarios, derailments. But this isn't quite true – engineers just didn't have the data to detect the early warning signs. This is about to change.



insight improves cyclic top analysis and enables preventative work to be planned

> On occasions as much as 50 % of all of our speed restrictions are linked to cyclic top faults. This tool will help us all understand how and why some cyclic top faults seem to emerge from nowhere, as most two dip cycles will have a third dip just below threshold limits and it is this that will give us the time to plan preventative works. Although these speed restrictions primarily impact freight trains, they can also have a knock-on effect delaying passenger trains affected by delayed freight paths.
>
> **Darren Ellis, route engineer track, East Coast route**

How new apps will transform signalling

Record cards go digital on MyWork app

Currently maintenance teams manually fill in paper cards to report on the state of signalling assets. Information can be easily lost or damaged and cannot be shared effectively to inform future decisions.

Digital record cards accessed on mobile devices via the MyWork app will improve data quality, increase visibility and make the process easier for all involved.

Assets are being digitised one asset at a time and Points Operating Equipment (POE) entered a six-month pilot in March 2021.

Handbook goes paperless

Currently the Signalling Maintenance Testing Handbook (SMTH) and log slips are in paper format, with the log slips being filled out as part of the signalling maintenance testing process.

A new app will digitise the process, and improve data quality and visibility of maintenance work progress.

The app will enter a pilot testing phase in April 2021, giving 140 colleagues the opportunity to suggest improvements facilitated by an in-app feedback tool.

> The SMTH app has been really well developed. The in-app instant feedback tool is a great idea. It's really helped to flush out small technical issues quickly.
>
> **Jude Parsons, route head of assets for Kent and Sussex**

The first national relay database

> A national relay database will give us the visibility to understand what relays we have and where they are. If we find a particular type of relay is failing, we can quickly and easily locate all of those relays and set about replacing them.
>
> **Tony Wright, senior engineer, technical authority**

Currently there are 82 systems of record keeping for signalling relays (mostly Excel spreadsheets) held locally at Delivery Unit or Depot level across the business.

Throughout 2020 the signalling team aligned and co-ordinated these separate databases to create a national relay database for the first time.

This will give Network Rail the visibility needed to create a national servicing plan for the first time, proactively plan maintenance and gain an understanding of the lifecycle of different types of relays and ease procurement of new units.

From mid-April 2021 the new national database and app will be released across five Delivery Units. All going well a national rollout will follow before the end of 2021.

Future enhancements include the ability to run national reports on the progress of relay renewals, audit relay re-servicing compliance, plan future relay replacement programmes and analyse relay failure trends.

Tapping into a wealth of talent

The Electrification and Power (E&P) workstream has been working with the wider business to understand what data and tools already exist within the regions to best leverage the data storage, processing and analytical power of the II programme.

By having these conversations, they found talented colleagues who have developed their own tools using their specialist railway knowledge and a keen interest in technology and innovation.

They have brought these colleagues together to form a Project Advisory Board to work together with developers and help build tools on a national scale to benefit the whole business.

> A number of tools have been created organically within the routes. Instead of trying to shut them down to install a national system, the II programme wants to cultivate the seeds of this creativity and ingenuity with the added assurance and resilience of a national system.
>
> **Karl Berlinka, asset engineer and member of the Project Advisory Board**

E&P gains an insight into data

From late-April 2021 E&P will release a prototype focusing on bringing together all overhead line (OLE), third rail and plant and distribution asset data into one place for the first time.

insight will pull in asset information data from Ellipse (Network Rail's asset register) and historical failure data from the Fault Management System. Users taking part in the trial will be notified of failures and be able to understand the history of that asset – for example, is it a first-time fault or a recurring issue that needs a different approach.

The release of this prototype has been brought forward by five months through working with the Signalling workstream and adapting their structure to meet the needs of E&P users.

Over the coming months the team will collect feedback on this early stage version to improve and refine the tool, with the aim of releasing a pilot version ready for use in a live environment by autumn 2021.

Stewart Thompson, principal engineer technical authority said: "The prototype lays the foundation for how E&P data will be acquired, consolidated and be easily accessible through one tool. Going forward there will be the opportunity to integrate additional data sources such as Train Bourne, II mobile applications, existing remote condition monitoring, in-service train data and predict and prevent capabilities."

> Following a series of temperature-related failures of OLE during 2019 the II team quickly responded with the OLE-T app. The app enables data collection of asset condition as well as allowing the business to visually map assets and flag non-compliances. The continuation and development of the app is at a stage where technical discussions for systems integration is under way which in my opinion is a great success.
>
> **Stewart Thompson, principal engineer technical authority**

OLE-T app takes the strain

Overhead line tension is affected by the weather. In the summer the lines can sag and get damaged, causing speed restrictions and delays. The OLE-T mobile app allows frontline staff to input survey data into a central database and gives recommendations on tension levels, taking into account the specific type of OLE infrastructure in place.

The prototype was released in April 2020 to seven Delivery Units (DUs). It's now in use across 12 DUs. The aim is for all DUs with OLE to have access ahead of summer 2021 to help inform tensioning tasks and reduce the possibility of speed restrictions or dewirements.

Additional app functionality includes integration with Ellipse (Network Rail's asset register) plus geographical and weather data via the Geotechnical workstream. The collection of this data in one place will help to explain the root causes of faults and help inform predict and prevent maintenance.

The end goal is for this app to be fully integrated into insight to inform a holistic view of the network.

Data at the heart of our future

The Civils portfolio mission is to improve asset management capability for Buildings and Civils disciplines across Network Rail.

To achieve this, we'll increase remote condition monitoring and introduce new tools and ways of working to drive improvements in safety and reliability.

The portfolio's pivotal second year saw great progress across seven discipline-based workstreams. The year began with a core team of six people and throughout 2020 grew into a fully mobilised team developing over 20 projects.

This year promises to be an exciting opportunity for our stakeholders, as the team looks to roll out a number of tools and solutions.

The first of these will capture structures examination data for the new Civils Examination Framework Agreement (CEFA) followed by several more projects entering testing before the end of 2021.

> **Over the past two years I've used the aerial high-definition imagery to cross-reference more than 10,000 drainage assets. I simply wouldn't have been able to deliver at this pace without the high-definition imagery and digital terrain modelling.**
>
> Alison Connolly, asset engineer for drainage and off track, Eastern region

Capturing the landscape

II completed surveying the network to update high-definition imagery and 3D LiDAR data. The imagery will be available in Geo-RINM viewer (GRV) – referred to as the Google Maps of the railway – in batches from April to October 2021.

Jump to pages 24-25 to find out more.

What are we delivering?

Structures workstream
- An application to support the new CEFA contract
- A fully integrated asset management tool for structures and tunnels
- An examination system solution (mobile and desktop)
- Integration with remote monitoring solutions

Mining and Tunnels
- New Tunnel Condition Marking Index (TCMI) tool
- Merged structures and tunnels asset management system
- Mining risk management system
- Remote condition monitoring –
  - Automated tunnel examination
  - Prometheus subterranean drone

Vegetation
- Data improvements in Ellipse and related systems
- Support for the R&D digitised lineside inspections project
- Visualisation tools

Geotechnics workstream
- Weather services platform
- Workbank prioritisation and planning tool
- Asset portfolio stability model
- Remote condition monitoring –
  - Aerial survey elevation change detection
  - Aerial survey elevation embankment/track quality indicators

Operational Property
- Replacement enterprise asset management system

Boundary Measures
- Data improvements in Ellipse and related systems
- Visualisation tools

Drainage:
- Ellipse and related system improvements
- Visualisation tools
- Remote condition monitoring

Tools in the pipeline

Tools in the pipeline for delivering a reliable future

Structures – CEFA Enabling Solution (CES)

Under the current Civil Examinations Framework Agreement (CEFA) contract, one supplier carries out all structures examinations and keeps some data on its own IT system.

The new CES tool – planned for release in June 2021 – will allow multiple suppliers to carry out examinations and transfer data into a central Network Rail system.

Updates on examinations, from planning through to sign-off, will be stored in one place, allowing end users to run reports to understand progress and ensure compliance against KPIs.

End users will benefit from spending less time entering and reviewing data from multiple systems plus have full visibility for managing task lists and undertaking risk assessments.

Geotechnical – weather services platform

This tool will link earthwork asset data with weather information – enabling engineers to better understand the impact of weather on the performance of earthwork assets and manage the risks and threats proactively.

Benefits include a greater understanding of short and longer-term meteorological and environmental effects upon earthworks to improve their long-term performance.

Linking weather information with asset management practices also presents cost-saving opportunities as frontline teams will have the insight to prioritise and group tasks as well as added visibility to respond quickly to fast changing extreme weather events.

Currently under development with a pilot due to start in winter 2021.

Drainage – mobile map app

The team is creating a mobile app to help frontline colleagues view all drainage assets on a map and directly input and edit drainage data including geospatial location whilst on site.

Improved data will allow for drainage to be managed as a 'system' by linking individual assets to understand and better manage water flow from inlets to outlets.

The app will integrate with work management functionalities currently on MyWork App and Fieldreach Data Manager.

The initial user testing is planned to take place towards the end of summer 2021, with the first release taking place early 2022.

Maximising Ellipse

The Ellipse Business Platform team has been working with the vegetation, boundary measures and drainage workstreams to help maximise the system's use.

They have reviewed requirements and will implement changes to Ellipse master data and any impacted transactional data while working in partnership with Asset Information Services, Route Services IT and routes.

These changes are enabling improvements to asset information structures and integrity of asset data. It's a pre-requisite before data can be integrated into tools currently under development.

The aim is to implement these changes by June 2021.

A clearer picture for planners

The II Planning workstream uses data and technology to make the planning of work safer and better on the railway. By creating the tools needed for a national planning system (locally configurable by routes and regions) the workstream will give the frontline workforce more time to plan and make decisions.

The problem

The lack of a national planning system and an end-to-end, cross-business planning process makes it difficult to get a consistent overview of where, when and how work is taking place. This absence of transparency and common tools can result in work clashes and a shortage of the right resources, as well as making it very difficult to re-plan work quickly when incidents occur.

The solution

An end-to-end system, comprising three tools, provides transparency from planning through to work on the ground:

Asset Lifecycle Planning

Schedules long-term work (up to eight years out) by prioritising and identifying what needs to be done and when by using asset data and regional objectives in addition to considering access, resources and equipment.
The first iteration of the tool will be released spring 2022.

Work Planning and Scheduling

Schedules maintenance work (up to two years out) in a joined-up way based on the availability of access, resources, materials and equipment. The first iteration of the tool will be released spring 2022.

Time Recording

Introduces a **digital timesheet** for maintenance teams to replace paper. This will provide crucial data to understand the true unit costs of jobs and reduce the administrative burden on front-line staff. This tool will be made available to a small team for prototype testing this summer (2021) followed by phase one rollout during winter 2021.

> We are very excited about the new planning tool. Giving our planners the right tools to undertake the task they need to do is the start of having a safe methodical plan for our teams to deliver. This is going to make their working environment so much better.
>
> **Donna Reigate, head of track workforce safety & planning**

The planning workstream has selected Arcadis Gen as its preferred delivery partner to develop tailored planning solutions suited to Network Rail's unique requirements. The Time Recording tool will be developed in-house using Microsoft Azure.

The benefits

- More time to plan and make decisions, making the planning and execution of work on the railway safer.
- A clear overview of work planned allows teams to maximise available access, plus people and plant resources.
- A prioritised workload by understanding the critical nature of tasks and the optimal time to carry them out.
- An improved ability to react to emergencies quickly and re-plan work easily and safely.
- Less time spent on admin such as logging hours or deconflicting work packages gives our staff more time to work on delivery.

Normal Ordanance Survey mapping

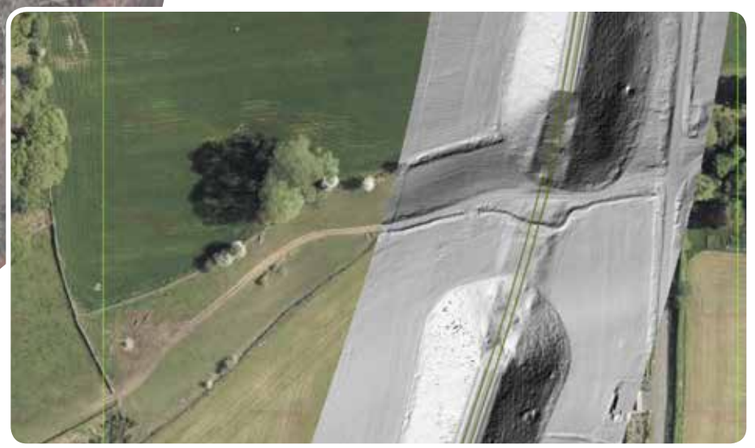
II digital surface model shows the height of any above ground features such as trees and buildings

We've got it covered

The most extensive railway survey of its kind is completed

II high definition aerial imagery – date stamped

II digital terrain model represents the bare ground, helping users to analyse embankments and cuttings



> When I get news of a failure or incident my first port of call is now the GRV. I know that all the information I need will be at my fingertips and the amount of time it saves is massive. It's also brilliant for pre-planning with colleagues and contractors. Collectively we can study a site and gather a huge amount of key information, whilst reducing site visits.
>
> **Adam Jordan, asset engineer (geotechnics), Scotland**

> The aerial survey and 3D LiDAR data has given us the ability to plan like we never have before. We'll be able to see every detail of an embankment – even the earth underneath the vegetation to identify slumps or tell-tale signs that a landslip could occur.
>
> **Johanna Priestley, project manager**

Did you know?

Our winter survey was completed 10 days ahead of schedule despite complications posed by the pandemic. This was only possible by working in collaboration with Air Operations, Route Services IT and Asset Information Services.

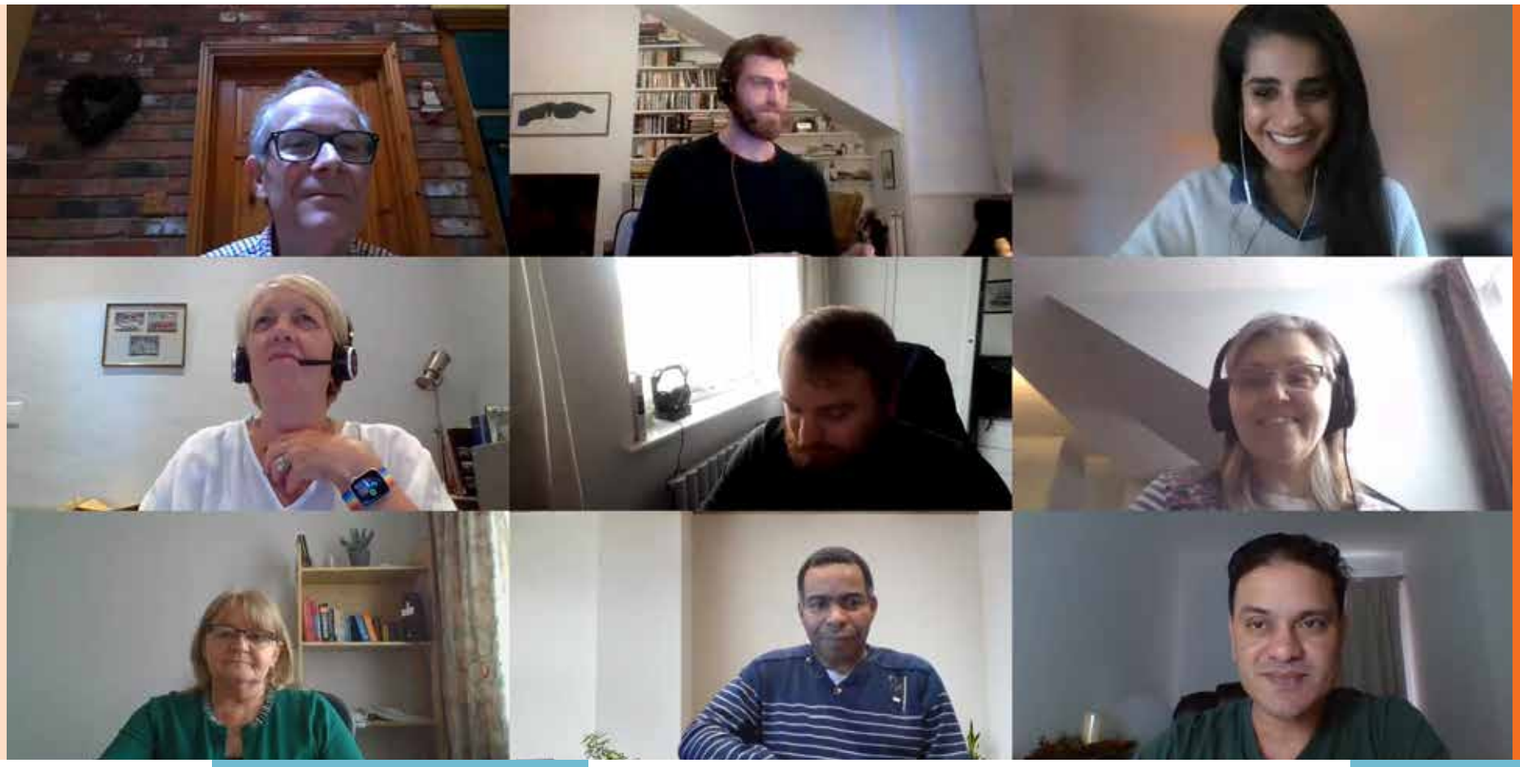
The latest survey capture totalled close to 15 terabytes of data. To put this into context the Hubble Space Telescope generates about 10 terabytes of new data a year.

Ordanance Survey imagery resolution is 25cm compared to 4cm provided by our high-definition imagery, allowing users to zoom in to see detail without the image becoming blurry. Ordanance Survey imagery is useful for looking at the surrounding areas but doesn't provide the level of detail needed for the railway.

16,850km of railway has been digitally mapped in high-definition imagery and 3D LiDAR

High-definition aerial imagery can be accessed by anyone within Network Rail. Over 11,000 colleagues currently have access to GRV. They use it for lots of different reasons such as to check the condition of assets, plan access to work sites and see if vegetation is encroaching onto the railway using the time slider to spot problem areas over time.

> II brings together a whole array of different people with different skills and different perspectives. This richness of diversity allows us to achieve better outcomes and work smarter as a team.
>
> **Jacqueline Young, programme director**



+25%
of our team has been trained on Supporting Mental Wellbeing

93%
of respondents to our January 2021 wellbeing survey agreed we had the correct level of support in place during the pandemic

Diversity drives innovation

What does diversity mean?
Diversity is a beneficial mix of ideas, cultures, races, genders, neurodivergent conditions and economic statuses necessary for promoting growth and learning within a team.

Why do we need a diverse team?
We embrace all kinds of diversity, including neurodiversity, because it gives us a competitive advantage, it allows us to build stronger and smarter teams. Diversity brings together different perspectives and a greater range of talent to our team. It gives us the cutting edge needed to create something that's never been done before.

How has the II programme promoted diversity?
One way is through our partnership with Renaisi who have helped us hire four talented refugee professionals. Their talents in analytics, project management and civil engineering have been harnessed by several teams within the programme. In addition, their stories of remarkable resilience inspire us to do better, think differently and spark innovation.

> We've had three talented refugee professionals within our team over the past year. They're highly educated individuals who just need a springboard into UK employment and we're very proud of the work we're achieving together.
>
> **Martin Mason, programme manager, research and development team**

How we support our team to achieve their best

From the very beginning of the programme there's been a realisation that for a team to achieve their best they need to feel supported, have access to the right tools and guidance, and feel part of a team.

There was an acceptance that not only is this the right thing to do but it's also been scientifically proven to contribute towards more effective and productive teams.

Drop-in daily Health and Wellbeing calls have been hosted by John Sidebotham since the beginning of the pandemic. They're open to anyone from across the business and provide a safe environment for people to share their worries or stresses and learn about practical tools and techniques that can help them to manage these issues during a difficult time.

Thelma Bryant, II Programme Manager said: "The Health and Wellbeing calls are a great reminder to me that just taking time, even just 30 minutes, is really important and it is a great way to connect and reflect. Many thanks go to John Sidebotham."

We have also set up a Social Responsibility Working Group with active involvement from the Senior Leadership Team and our delivery partners. They have created a Mental Health Charter with the aim of normalising conversations around mental health and to demonstrate that support is available for everyone within the programme.

> Kindness and caring for each other have helped us to be more open with each other, and our diversity enables us to look at the challenges of the programme from a broad selection of lenses, finding better solutions for our customers. Our diversity is our strength.
>
> **John Sidebotham, programme manager**

Leading the way

If you'd like to find out more about the II programme, our recent news articles and award wins are a great place to start. Just click on the panels here to find out more . . .

Tim Flower's podcast on Maintenance Management at Network Rail. Access the transcript here.

Kelley Quirk and Martin Mason spoke to Rail Technology Magazine to discuss how we're becoming a data-driven railway. You can access their podcast here.

Nick Millington, Head of Safety Task Force talks to Rail Staff Magazine about how II will improve safety for frontline staff.

Rail Engineer talks to Tim Flower to understand the power of intelligent infrastructure.

Rail Technology Magazine explores how we're delivering a data-driven railway.

Tim Flower explains to Global Railway Review how technology is transforming track maintenance.

Microsoft Global Awards – Government Partner – Analytics and Innovation award for II partnership with Cognizant.

Jacqueline Young talks to Tangent Rail Magazine about all the different ways we're using technology to improve decision making.

How to get in touch with the II programme Communications and Engagement Team

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Adapting to a new way of working

At the beginning of the pandemic the II team reprioritised workload to support routes and help them adjust to new ways of working and shifting demands on the network. The signalling team fast-tracked a digital version of the Signalling Maintenance Testing Handbook to reduce the need for staff to go into offices and be in close contact with other team members. As passenger numbers decreased and freight increased the track team investigated what this means for maintenance, fast-tracking cyclic top fault prediction and helping teams re-prioritise work. A MyConnect article demonstrated how the II team adapted to the challenges presented by the pandemic.