

# Review of broadcast rules around major sporting events

- Changes would help ensure big moments such as the Olympics, FIFA World Cup and Wimbledon remain accessible on platforms such as BBC iPlayer, ITV Hub and Channel 4's on-demand service
- Comes as rising numbers of viewers tune in via digital platforms

Sports fans' access to watch the biggest global events on digital platforms could be guaranteed as the government reviews the rules which provide broadcasters access to major sporting contests.

The Digital Rights Review, launched today, will look at whether the government's free-to-air 'listed events' rules should be reformed so that public service broadcasters (PSBs) – including the BBC, ITV, Channel 4 and Channel 5 – are guaranteed the opportunity to show certain major events such as the Olympics and World Cup on their digital platforms rather than just focusing on traditional TV broadcasting as is the case today.

The listed events regime helps ensure the British public are able to tune into the biggest sporting moments at no additional cost by giving PSBs the opportunity to bid for the broadcasting rights. This has meant that more than 40 million people watched Euro 2020 on the BBC and 36 million people watched the Tokyo Olympics last year.

As more people tune in via catch-up and streaming services to watch sport, the review will assess whether including digital rights can ensure as many people as possible can continue to access events including Wimbledon, the Paralympic Games and the Grand National.

Currently if, for example, the Olympic 100m final was broadcast live in the middle of the night on the BBC, but all streaming and catch-up rights were sold to a different broadcaster and kept behind a paywall, a wide audience may not be able to watch this important event.

Digital Infrastructure Minister Julia Lopez said:

As we saw during the Women's Euros and with the FIFA World Cup just around the corner, we know that enjoying blockbuster sporting events together means so much to many people. Everyone should be able to watch these incredible moments of national unity, no matter how they choose to tune in.

As viewing habits shift online, it is right that we review our rules and consider whether updates are needed to ensure our brilliant public service broadcasters can continue to bring major events to the public at no extra cost.

The [Terms of Reference](#), which determine precisely what the review will cover, have been published today and marks the public launch of the review.

The Government believes that certain sporting events of national interest should be shown on free-to-air television so that they can be enjoyed by as wide an audience as possible.

However, it is also important that it is recognised that the current framework was decided in a different media landscape almost twenty years ago, when just four per cent of UK households had access to the internet.

As such, the review will take into consideration broader online distribution of sporting rights, including video sharing platforms and social media, which has increased exponentially since the current legal framework was established in 1996.

In doing so, the review will balance the desire from audiences to watch national sporting events at no additional cost with the ability for sporting organisations to generate revenues from sports rights to re-invest in their sports at all levels.

ENDS

Notes to editors

- This issue has been addressed by a number of key industry and parliamentary stakeholders, including in Ofcom's [Future of Public Service Media report](#) and in a [report from the DCMS Committee on Major Cultural and Sporting Events](#).
- The current list of listed events can be found [here](#). The inclusion of an event on the list does not guarantee the broadcast of that event on free-to-air television, nor does it guarantee the broadcast of that event in its entirety. No rights holder can be compelled to sell its rights, and no broadcaster can be compelled to acquire rights.
- The Government announced its intention to review whether digital rights should be brought in scope of the listed events regime in its [Broadcasting White Paper](#), along with its intention to make qualification for the benefits of the regime specific to public service broadcasters.
- The Government has no current plans to undertake a full review of the events on the list itself. It believes the current list strikes an appropriate balance between retaining free-to-air sports events for the public while allowing rights holders to negotiate agreements in the best interests of their sport.
- The Government is fully committed to the listed events regime and if there are any changes they would only be with regard to reflecting where audiences choose to watch sport.
- DCMS has already undertaken engagement with stakeholders from a range of groups likely to be interested in the review. The publication of the Terms of Reference today provides an opportunity for any further stakeholders with an interest to contribute to the review.
- Stakeholders with an interest in contributing to the review are asked to get in touch by emailing [listedevents-digitalrightsreview@dcms.gov.uk](mailto:listedevents-digitalrightsreview@dcms.gov.uk).

DCMS will provide a list of questions to support contributions. Those wishing to contribute should ensure their final response is received by 15/12/2022 so their thoughts can inform the review.

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## [British shipyard awarded £4.2 billion to build Royal Navy ships](#)

A British shipyard has been awarded a £4.2 billion contract to build the second batch of Type 26 frigates for the Royal Navy.

Delivering on ambitions laid out in the National Shipbuilding Strategy Refresh earlier this year, the contract awarded to BAE Systems will support 1,700 British jobs over the next decade at BAE Systems sites in Govan and Scotstoun, Glasgow.

As part of the contract, BAE Systems has committed to invest £1.2 billion in the UK supply chain, supporting a further 2,300 jobs with more than 120 suppliers all over the UK.

Leading the Royal Navy's anti-submarine warfare surface fleet, the five new City-class ships – HMS Birmingham, HMS Sheffield, HMS Newcastle, HMS Edinburgh and HMS London – will join the first three T26s already in build at Govan – HMS Glasgow, HMS Cardiff and HMS Belfast.

Construction of all eight frigates is expected to be completed by the mid-2030s, with the first, HMS Glasgow, entering service by the end of 2028.

### **Defence Secretary Ben Wallace said:**

We are investing in our fleet to ensure our Royal Navy maintains its world-leading capability to protect and defend our nation at sea. This design has already been successfully exported to Australia and Canada, its already proved itself as a world-class maritime capability, securing thousands of UK jobs and strengthening alliances with our allies.

Supporting thousands of high-skilled jobs in Scotland, and more across the wider UK supply chain, this contract will continue to boost our British shipbuilding industry, galvanising the very best of British engineering, manufacturing and design.

Replacing the bulk of the retiring Type 23 fleet, the Type 26 frigates will be flexible and advanced warships with the primary purpose of anti-submarine warfare, protecting the UK's continuous at-sea nuclear deterrent and Maritime Strike Group.

At just under 150m long – around the length of three Olympic swimming pools – and with a top speed of more than 26 knots and a range of more than 7,000 nautical miles, the vessels will be capable of countering piracy and delivering humanitarian aid and disaster relief.

Carrying the Sea Ceptor missile defence system – able to destroy airborne and sea surface targets – the vessels will also carry a five-inch medium calibre gun, an embarked helicopter for specific operations, radar and sonar for expert navigation and tracking adversaries.

A flexible mission bay means the vessels could also be adapted to carry specific Armed Forces and equipment tailored for operations. The Mk.41 vertical launch silo will be fitted to enable rapid-fire missile launches.

**BAE Systems Chief Executive Officer, Charles Woodburn, said:**

This contract secures a critical UK industry and allows us to build on our long history of shipbuilding on the Clyde as we continue to deliver cutting-edge equipment to the Royal Navy into the next decade. It underpins the ongoing investments we're making in the skills, infrastructure and technologies needed to stay at the forefront of the maritime sector and to support the UK Government's National Shipbuilding Strategy.

Improving build efficiency, BAE Systems has submitted a planning application for a new 175 metre long, 85 metre wide Shipbuilding Hall at Govan, which will allow two frigates to be built simultaneously under cover. This investment will be a major factor in the final five City-class ships costing less and being delivered faster than previous vessels.

In the manufacturing supply chain, £248 million worth of work has been committed to Scotland, with £16 million to Wales and £749 million to England.

**Vice Admiral Paul Marshall, DE&S Director General Ships, said:**

The award of the T26 Batch 2 manufacture contract is another key milestone in the United Kingdom's shipbuilding programme, reaffirming our commitment, alongside our industrial partners, to deliver a highly effective anti-submarine frigate fleet for the Royal Navy.

The vessels are designed to reduce environmental impacts, and are fitted with features – including a hydrodynamically designed hull – to optimise fuel efficiency and a diesel engine emissions abatement, which reduces nitrogen oxide exhaust.

Steel will be cut on the first of the next five vessels, HMS Birmingham, this winter, marking the start of the Batch 2 build phase.

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# [BBC media strengthening partnership project launched in Honiara](#)

World news story

The project will support media and journalists to continue the development of high-quality media for people of the Solomon Islands.



SIBC journalists, radio presenters and programmers attended the training.

The first ever BBC Media Action 'Media Strengthening in Solomon Islands Project' has launched in Honiara this week, a landmark engagement for the BBC in the Pacific. The project will support media and journalists across the Solomon Islands to continue the development of high-quality media for the people of the Solomon Islands.

Media training sessions started on Monday led by BBC's Senior Media Trainer Naomi Goldsmith, for journalists, programme producers and presenters at the Solomon Islands Broadcasting Corporation (SIBC) and will be conducted for members of the Media Association of Solomon Islands (MASI) later in the month.

Speaking to launch this engagement, Chief Executive Officer of SIBC, Johnson Honimae said:

We welcome the BBC back at SIBC and of to support the local media at large. The partnership will strengthen our media and benefit both our nations. The project culminated from discussions between the British High Commission in the Solomon Islands and Nauru, BBC Media Action and SIBC earlier this year.

British High Commissioner to the Solomon Islands and Nauru, His Excellency Thomas Coward said:

I am pleased we are rekindling this partnership between the SIBC and BBC. This is a busy time in the Solomon Islands, including as we move toward the 2023 Pacific Games. Quality media is important to engage the people of the Solomon Islands and keep them informed. There are great journalists in the Solomon Islands and we are grateful to work with them in partnership.

Country Director for BBC Media Action in Cambodia, Gemma Hayman said:

Whilst the BBC has worked with SIBC before, this short pilot is BBC Media Action's first project in the Pacific. We are thrilled to be working with SIBC and MASI and hope that this targeted training will be useful, alongside insights that will be generated from research we are undertaking on the media landscape and audience habits in the Solomon Islands.

BBC Media Action is the BBC's international charity. Through it, the BBC works to support a world where informed and empowered people live in healthy, resilient and inclusive communities. The UK Government funds the project.

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## [3,000 hectares of spectacular Lake District landscape becomes a new National Nature Reserve](#)

A new National Nature Reserve is being formally created today (15 November) by Natural England in Ennerdale, West Cumbria. It will be the largest nature reserve in the county and the 9th largest in England.

The new 'Wild Ennerdale National Nature Reserve' will cover over 3000 hectares of landscape comprising water, forests and mountains. This formal declaration is among the first 'Super NNR's' in England. Super NNRs are recognised for their landscape-scale approach to partnership working.

The Wild Ennerdale Partnership began 20 years ago and has a vision to allow natural processes to shape the ecology and landscapes within the valley. It brings together four organisations: Forestry England, National Trust, United Utilities and Natural England.

Work over almost two decades has significantly improved nature recovery in the Ennerdale landscape and sustainable grazing has been promoted across

grasslands, forests and open fells.

**Tony Juniper, Chair of Natural England, said:**

Wild Ennerdale is a diverse and varied landscape which supports some of our most unique and precious wildlife, including Red Squirrels, the Freshwater Pearl Mussels that dwell in the river there and which can live for 100 years, and the Arctic Charr – a fish that has hung on in the valley since the last Ice Age.

We have been working with partners for some years to improve this already amazing place and its declaration as a National Nature Reserve will enhance the spectacular landscape, wildlife and habitats, safeguarding them for the future while providing space for people to get close to wild Nature. National Nature Reserves are at the very centre of our ambition to create a vibrant national Nature Recovery Network comprised of bigger and better places for both wildlife and people. The Ennerdale partnership is a great example of what we have in mind and shows how working together can achieve that aim.

**Environment Minister Trudy Harrison said:**

Ennerdale Valley is a haven for fish, birds and insects and provides much treasured access to green space for local people. The declaration today strengthens our commitment to nature's recovery and our ambitions under the 25 Year Environment Plan to leave the natural world in a better state than we found it.

Support from local communities is essential for the success of National Nature Reserves, and it's vital that we work together to protect the future of these wildlife habitats. I hope the partnership will continue to build strong relationships with local landowners, communities and farmers – who are custodians of the countryside – to develop sustainable uses for these sites.

Ennerdale Water in the valley is home to the Arctic Charr – a fish that has survived here since the ice age – and the River Ehen, which flows out of the lake, hosts the biggest population of freshwater mussels in England.

The valley is encased by woodlands of Atlantic oakwood, rich with bryophytes, lichens, and conifers which are a vital habitat for red squirrels. As altitude increases out of the valley, woodlands are replaced by montane heath where nationally rare plants such as shrubby cinquefoil and alpine saw-wort can be spotted.

National Nature Reserves (NNRs) were established to protect some of England's most important habitats, species and geology, provide 'outdoor laboratories' for research and offer opportunities to the public, volunteers, schools and

specialist interest groups to experience wildlife and nature first-hand, along with learning more about nature conservation and benefits for nature and society.

**Rachel Oakley on behalf of the Wild Ennerdale Partnership said:**

We're delighted to achieve NNR status for this beautiful Lake District valley. We are constantly reminded of the nature and climate crisis we face now and for the future and this announcement (today) shows how working together and prioritising nature can reap rewards for us all".

These landscapes are constantly evolving and need to be 'fit for purpose' to adapt and respond to the many challenges we face. Nature can thrive if given space and a helping hand and we are seeing tangible results of that in Ennerdale. We are doing this through partnership working and today is very much about acknowledging and thanking the wide range of individuals and groups locally, regionally, nationally, and internationally who have supported this journey to date. NNR status is about prioritising nature recovery and will continue to do that at scale, along with many other great projects around the county".

It's fitting that Wild Ennerdale becomes the largest NNR in the county as we mark the 70th anniversary this year of the first NNR's back in 1952".

The announcement today demonstrates how the Government is delivering on the Environment Act – a key target of which is to halt the decline in our wildlife populations through a legally binding target for species abundance by 2030.

England's first Nature Reserve was created on 19 May 1952. Wild Ennerdale is the 221st site to be formally recognised, with sites spanning more than 106,000ha across England. These 'nature hotspots' are key to restoring nature across England and helping to bring green spaces and wildlife to everyone, including those who live in towns and cities.

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## **Cleaner, greener, self-charging trains of tomorrow to revolutionise British rail travel**

- self-charging trains and pioneering batteries among projects to be

funded by Department for Transport

- cutting edge innovation will create the trains of tomorrow leading to a greener, cost-effective railway
- government committed to supporting UK ideas and design, improving our railways and leading the world in innovation

Self-charging trains could make their way onto Britain's railways, transforming the future of transport after receiving government funding.

Top innovators and inventors have won prize money to bring their innovations to life, as part of the First of a Kind 2022 competition. This year's competition, in partnership with Innovate UK, focused on new concepts that will transform rail travel for passengers and decarbonising the network.

FOAK 2022 saw 24 innovators receive a share of more than £5 million with grants of up to £400,000 each. From technology making our railways greener than ever before by removing harmful emissions from train exhausts to research into powering our railways with renewable energy, this year's successful bidders will revolutionise the future of train travel for generations to come.

Transport Secretary, Mark Harper said:

The UK has a long history of leading the way in railway innovation and the First of a Kind competition is getting the great brains of today to create the trains of tomorrow.

Through millions of pounds worth of government funding, we are breathing life into ideas that will revolutionise our railways and make them greener than ever before.

This is just the beginning and, as Transport Secretary, I am determined to support British innovation and create a cutting edge, green rail industry that delivers even more benefits for passengers and freight.

Mike Biddle, Executive Director for Net Zero at Innovate UK, said:

The innovations funded through this competition will help to deliver a greener, lower-emissions railway carrying increasingly higher proportions of the UK's freight.

Delivered by Innovate UK, on behalf of the Department for Transport through the Small Business Research Initiative, it seeks the best and brightest ideas.

Companies from all over the UK have demonstrated the quality of their innovations in previous rounds of this scheme. Now we will support even more innovations to help deliver a greener railway that benefits passengers, employees and customers for rail freight.

This year's winners include:

Varamis who, working closely with DHL and Fedex, are revolutionising parcel delivery in the UK by repurposing former passenger carriages and putting rail right at the heart of the online shopping boom to create high-speed, non-letter delivery services.

Echion Technologies, another successful bidder, is developing batteries that will charge from overhead wires and use that charge to 'leapfrog' across unelectrified section of track and, effectively, create self-charging trains – truly, 'the first of a kind'.

Thales Ground Transportation Systems have developed new sensors which will detect people approaching tracks, pin down their location, and give an early warning to staff – lifesaving technology that will reduce disruption and could act as suicide intervention or even stop protestors getting on the tracks.

Other winning projects include:

- automatic systems that detect and stop track flooding
- cutting edge electric drivetrains that replace polluting diesel engines
- new tech to instantly relay track information to improve and modernise rail safety

Winners with a track record of success will have the opportunity to progress for further funding next year as projects move from concepts to realisation.

The First of a Kind competition has already helped launch over 100 projects that are having a transformative effect across the entire industry. Previous winners have included Riding Sunbeams, which power railways with sunlight, and 4Silence's sound bending walls which cancel out noise pollution from the railway.

## **Rail Freight winners**

### **Decarbonising Auxiliary Load in Freight Today**

Lead organisation: G-Volution Ltd

Project grant: £378,513

Working with COLAS Rail, the team will demonstrate high energy-density fuel cells and a carbon neutral bio-liquid petroleum gas fuel system to power auxiliary electric power requirements which account for up to 10-15% of the total power demand on freight trains, covering engine and traction motor cooling, safety and signalling systems and locomotive control systems. This will remove the need for diesel powertrains to remain powered up or idling during dwell times, which can cause up to 20% of freight locomotive fuel consumption and emissions.

## **Levelling up Freight**

Lead organisation: 3squared Ltd

Project grant: £393,271

Working with OpenTrainTimes, Pragmatex, Network Rail, Eddie Stobart and Solent Stevedores, an innovative freight planning solution (PathPlanner) will improve the planning process to reduce the time required to find new freight paths (slots in the timetable which can accept a freight train) into and out of their port at Southampton, thus increasing capacity and allowing the transfer of containers from HGVs to trains.

## **Transforming high-speed rail logistics**

Lead organisation: Varamis Ltd

Project grant: £396,467

Working with Steer, Eversholt Rail, FedEx, Network Rail and DHL, the team will transform high-speed rail logistics combining a repurposed all electric passenger unit with adapted containerised consignment devices to support the conveyance of parcels, which is new to rail. This technology, offering a new approach to using space at stations to create easily accessible city-centre distribution hubs, will enable the operation of a new high-speed non-letters parcels service.

## **Automating freight access rights management and spot bidding using novel and modern software to drive modal shift from road to rail**

Lead organisation: Hack Partners Ltd

Project grant: £322,420

Supported by Great British Railways Transition Team and Network Rail, the project will focus on giving freight teams a bespoke and novel system that will automatically calculate conflicts in access rights against the timetable and real-world operational working and enable freight operators to spot bid for access to the rail system.

## **“Freight Skate” a self-powered freight bogie and platform**

Lead organisation: TDI (Europe) Ltd

Project grant: £400,000

Working with LB Foster, GB Freight and Eversholt Rail Group (ERG), the team will design and manufacture a self-powered semi-autonomous bogie which will improve operating flexibility as it can move 1 or 20 containers, operated by 1 person, who can then divide and track the containers to different locations, saving time, reducing noise pollution, and improve air quality

both within the terminal and in the wider community.

## **A rapidly deployable rail stress sensor for next generation freight monitoring**

Lead organisation: Peak to Peak Measurement Solutions Ltd

Project grant: £264,749

With support from the University of Sheffield, UniPart Rail, KT Precision Engineering Ltd, PCB Train, Techni Measure Ltd and Murgitroyd, European Patent & Trade Mark Attorneys, National Research Council Canada, LB Foster Rail Technologies, the team aims to further develop and demonstrate a small under-rail sensor that reports key rail and freight vehicle operating parameters with system benefits such as reducing possession duration, reducing inspection/maintenance downtime and providing rail operators with easy access to the data streams.

## **Low emissions and a greener railway winners**

### **ECML Net Zero Traction Decarbonisation Demonstration**

Lead organisation: Siemens Mobility Ltd

Project grant: £59,983

Working with British Solar Renewables, University of York, Network Rail, DB Schenker, and East Coast Mainline operators, the project will provide the research, development and pilot for installation and testing of a prototype converter on the East Coast Mainline, making renewable energy compatible with powering UK railways.

### **UBER – Ultra-high power Battery for low Emission Rail**

Lead organisation: Echion Technologies Ltd

Project grant: £59,917

Supported by Transport Design International, Horiba Mira and DB Cargo, the team aims to demonstrate its XNO battery chemistry for certain classes of battery electric trains. Specifically, it aims to demonstrate its suitability for passenger trains that can be powered by the AC overhead electrification and charge a battery from the overhead wire (or another form of 'standard' trackside power, for example, third rail), to then run in battery-only mode on unelectrified sections of a route.

### **ZERRCI – Zero Emissions Repowering of Railway Construction Infrastructure**

Lead organisation: Eminox Ltd

Project grant: £59,852

Working with VoltSport, CLEC and HS2, the team's solution covers the development of an electric motor and battery system, with controller, using commercially available products, which can be retrofitted into existing construction plant, replacing the traditional diesel engine with a quieter, cleaner, zero emissions drivetrain. These pieces of plant and equipment will be used as direct replacements for diesel machines in the construction and maintenance of railway infrastructure.

### **Axle mounted motor for retrofit to diesel multiple units (DMUs) to enable zero emissions in stations**

Lead organisation: Wabtec UK Ltd

Project grant: £59,451

Working with the University of Nottingham, Atkins SNC Lavalin and Angel Trains, the team will provide a solution to substantially reduce emissions when diesel passenger trains are idling by developing and integrating a small, low mass, yet high peak torque and peak power, axle mounted motor, for retrofit and upgrade for passenger vehicle applications. This motor will enable kinetic energy recovery during braking and also provide power to the wheels whilst accelerating, reducing the emissions generated.

### **Zero Emission Powering of Auxiliary Loads in Stations**

Lead organisation: Wabtec UK Ltd

Project grant: £59,921

Supported by Angel Trains, the team will provide a solution to substantially reduce emissions when diesel passenger trains are idling by externally powering ancillary loads, such as heating, ventilation and air conditioning, door control and lighting with a low-cost, automated energy supply connected to the third rail.

### **ERiCS – Emissions Reductions in Closed Stations**

Lead organisation: Porterbrook Leasing Company Ltd

Project grant: £59,549

Working with Pendyne, Eminox and East Midland Railway, the team will develop a new exhaust gas heating solution with the capability to dramatically improve the effectiveness of the exhaust after-treatment system in covered stations. The technology is a development of an electrically heated catalyst which has been used in road applications but is entirely new to rail and could unlock the in-station benefits of after-treatment systems on diesel trains.

### **25kV Battery Train Charging Station Demonstration**

Lead organisation: Siemens Mobility Ltd

Project grant: £59,910

Working with the University of York, Network Rail, West Coast Mainline operators and Angel Trains, the team will install a novel charging solution enabling charging fed from existing standard local power supply cables. Compatible with all overhead line equipment (OLE)-powered trains, the small, low-cost design enables the removal of diesel passenger train operation on routes without continuous electrification.

## **Cost efficiency and performance priorities for a reliable railway winners**

### **EventGo – Intelligent Rail Service Demand Forecasting for Event-based Travel**

Lead organisation: You. Smart. Thing. Ltd

Project grant: £249,946

Working with Northern Trains, Leeds Rhinos Rugby League Club, West Yorkshire Combined Authority, Leeds City Council, In The Round and Avanti West Coast, the team will demonstrate a solution for accurately predicting rail demand for a series of large visitor events, generating advance insight on rail capacity, and enhancing the ability of train operating companies to optimally plan and deliver timetables and services.

### **NextGen Data-Driven Timetable Performance Optimisation Tool**

Lead organisation: Artonezero Ltd

Project grant: £157,826

Working with Network Rail, Transport for Wales and LNER, the team will develop a timetable analysis system that will aggregate observed train movements against a line or route and compare them to typical planned timings. It will use this to calculate an “achievability score”, which will indicate what proportion of trains could be expected to run on time to that timetable and calculate the minimum headway between consecutive services such that the following service does not have to slow down.

### **Protection and Resilience for OLE using Computer Vision Techniques (PROLECT)**

Lead organisation: One Big Circle Ltd

Project grant: £247,115

Supported by Angel Trains and Network Rail, this project will apply novel and innovative computer vision techniques to existing video footage to identify where extreme heat has affected the tension of overhead lines; and also install an ultraviolet camera to detect corona discharge as an early warning

of potential electrical equipment failure caused by weather conditions. Both can then enable action to prevent assets failing and impacts on service, safety and customer experience.

## **FEIDS – FOAS Enabled Intruder Detection System**

Lead organisation: Thales Ground Transportation Systems Ltd

Project grant: £223,659

Working with GTS, Focus Sensors and Network Rail, the team will demonstrate technology capable of delivering a persistent perimeter detection system that can detect persons approaching a site before they reach the perimeter boundary and alert railway staff to their precise location. This will support railway staff to respond effectively and reduce delay minutes, ensuring efficiency and cost benefits.

## **Rail Flood Defender**

Lead organisation: University of Sheffield

Project grant: £249,771

Supported by Network Rail, the team will explore the use of artificial intelligence and fuzzy logic powered real-time flow control to reduce flooding and associated damage. The Rail Flood Defender system uses low-cost sensors and valves to monitor and control the flow of water inside rail drainage systems. This will provide real-time data to Network Rail, enable the storage volume in upstream pipes to be utilised to reduce downstream flood risk/volume, and enable the periodic flushing of drainage systems to remove blockages.

## **Optimal Prediction of Sand for Adhesion**

Lead organisation: Govia Thameslink Railway Ltd

Project grant: £153,228

Working with Cranfield University and Network Rail, the team will develop an innovative algorithm to plan the route allocation of trains and schedule their maintenance, integrating a tool that can predict sand refilling (needed to aid adhesion to the track). This algorithm will be integrated into the scheduling software to plan train maintenance according to the need for replenishing sand.

## **Unauthorised Cable Removal and Fault Triage (CRAFT)**

Lead organisation: Focus Sensors Ltd

Project grant: £215,309

Working with Thales and Network Rail, the team will develop a technology solution, using existing trackside optical fibre cables, which can be used to

locate cable thefts instantly to within a metre. After a theft is reported or detected by other systems, automatic analysis will pinpoint the location of the acoustic signatures of the theft activity. The location of the theft will be instantly displayed, enabling police and security to be deployed sooner and more accurately.

## **Trains with Brains(R)**

Lead organisation: JR Dynamics Ltd

Project grant: £248,047

Working with Transmission Dynamics Poland and supported by Angel Trains, Network Rail and West Midlands Trains, the team aims to integrate data from a range of Transmission Dynamics' existing remote condition monitoring sensor solutions into Network Rail's monitoring and planning systems/processes, to enable more informed planning of infrastructure maintenance during possessions.

## **SBRI – FOAK 2022 Optimising Railway Possessions**

Lead organisation: Frazer-Nash Consultancy Ltd

Project grant: £232,226

Working with eviFile and Network Rail, the team will develop a product that will use optimisation and machine learning algorithms to identify potential optimal plans for possessions. Using wide-ranging railway possessions data, the team will research and adapt algorithms that will consider (for example) multiple scenarios, locations and types of work, and optimise and efficiently manage resources to ensure minimal impact to infrastructure traffic and capacity.

## **Portable Track Geometry Measurement System**

Lead organisation: Monirail Ltd

Project grant: £249,261

Working with the University of Birmingham, Eurostar, Network Rail (NRHS) and Analog Devices, the team aims to overcome delays to line reopening or removal of speed restrictions by providing track engineers with the first ever portable dynamic track geometry measurement system. They will modify a permanent solution into a portable one that can be temporarily fixed to vehicles along with a lineside sensor array that can provide additional safety critical track information to the engineer. This solution will provide immediate track information to support informed decisions about the safety of the track and to what extent speed restrictions can be lifted or lines re-opened.

## **State of the Railway Compiler Data Solution (SORC-lite): open access real-time signalling data.**

Lead organisation: Park Signalling Ltd

Project grant: £217,128

Working with Instrumental, Network Rail and Northern Trains, the team will provide standardised signalling asset sensor data to Network Rail in near real-time within an open commercial model, so that Network Rail will have ownership of the data, enabling them to implement new measures, identify bottlenecks within the network and target unexplained delay minutes in a way not currently possible. Data will also be available for use by train operators and the wider data analytics supply chain, removing some of the systemic blockers around access to data.