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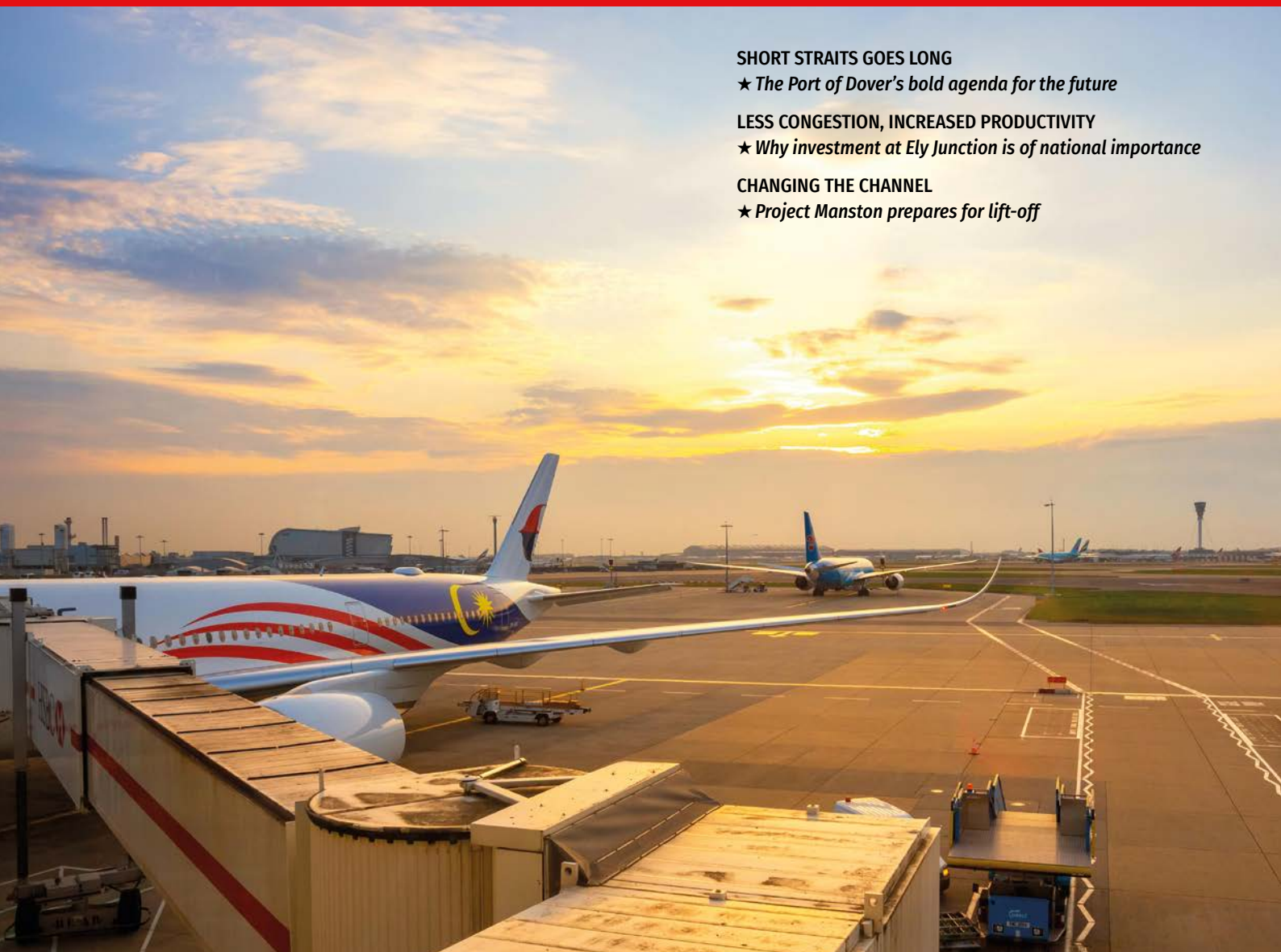
★ *The Port of Dover's bold agenda for the future*

LESS CONGESTION, INCREASED PRODUCTIVITY

★ *Why investment at Ely Junction is of national importance*

CHANGING THE CHANNEL

★ *Project Manston prepares for lift-off*



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Winter **2023**

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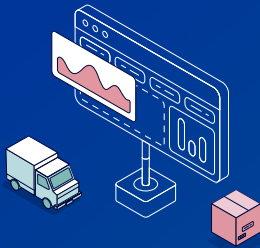
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Worry less, ship smarter

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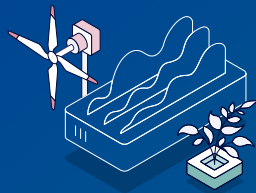
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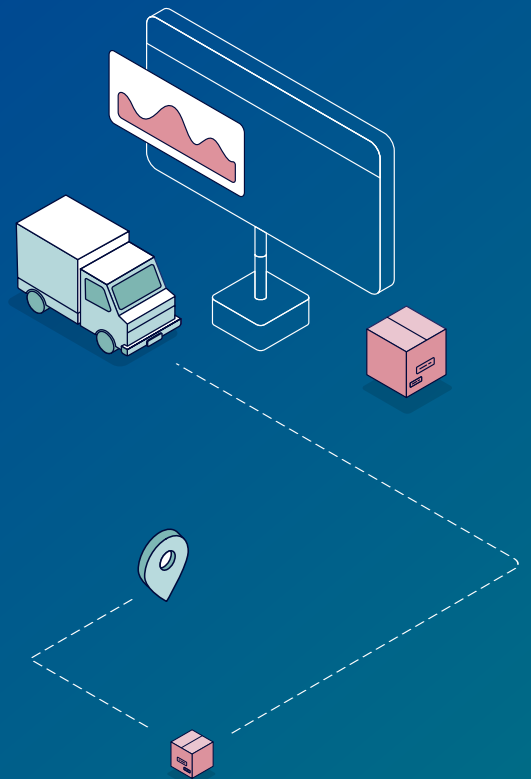
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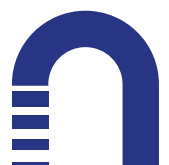


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David Wells OBE
Chief Executive, Logistics UK



Welcome

Decarbonisation is a priority across the entire logistics industry right now, with considerable – and rather complex – steps being taken across transport modes to reach impending net zero targets.

As an industry, it's absolutely imperative we make a modal shift to ensure vital further reductions on our net zero journey.

In this 32-page supplement, we'll explore some examples of how our sector is adapting to improve the movement of goods around the country and comply with increasingly green corporate objectives.

The UK is an island nation and 90% of everything we buy arrives at our shores by sea, ready for onwards transport via alternative modes.

We examine the progress of the UK's busiest port – £144 billion of trade in goods each year – overleaf on page 5 and document how GPS Marine embraced and overcame environmental challenges on page 22.

Air cargo is also a crucial sector of the logistics network and decarbonising the air industry is a huge challenge.

Encouraging progress is being made though, mostly through the use of Sustainable Aviation Fuel (SAF), which we discuss with Rob Griggs, Policy and Public Affairs Director at Airline UK on page 26, and via innovative projects such as that at Manston, which we unravel on page 12.

Rail freight produces significantly lower emissions than other modes, with each tonne of freight transported creating 76% fewer carbon emissions compared to road.

In this tome we discuss why investment at Ely junction really is of national importance (page 8), how Nestle has embraced rail for a more sustainable future (page 18) and how unblocking the Channel Tunnel really can deliver a faster future for the UK (page 24).

The UK logistics industry is once again rising to its many challenges and to see the progress being made across the modes should give everyone in the sector hope for a brighter, greener, better future.

Thank you to N-Shift for sponsoring the supplement and enjoy the read.

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SPONSOR'S MESSAGE



Johan Hellman

Vice President – Product & Carrier, nShift



Ecommerce across Europe is on a tear, with spending set to hit almost \$1 billion by 2027. As the market grows, logistics – particularly in the last mile – will become increasingly pivotal to the customer experience.

People expect to be able to choose when and how they receive their purchases. They expect to be able to return unwanted items just as easily. And they will shop elsewhere if retailers and carriers come up short.

Businesses are also under pressure to be more transparent about their carbon emissions. The European Union's Corporate Social Responsibility Disclosure regulations (CSRD) come into force from mid-2024, compelling some 50,000 businesses trading in and with the EU to report in detail on their emissions.

nShift works with leading retailers and brands to turn deliveries into a business growth enabler. Our software

solutions deliver an outstanding customer experience, reduce costs, and help business easily track and report on carbon emissions in the last mile.

We're proud to partner with Logistics UK for this timely assessment of multimodal logistics going into 2024.

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The Port of Dover's bold agenda for the future

Once described as 'the Haven between the Hills' by Julius Caesar, the Port of Dover – and its proximity to the continent – has long been a strategic asset for the United Kingdom.

Today, the Port of Dover is the busiest in the UK, handling more passengers and trade combined than any other port – approximately 11 million passengers and £144 billion of trade in goods each year. The port also houses a cargo operation that handles fresh produce, containers, project cargo, general cargo, grain and Ro-Ro traffic from a state-of-the-art terminal.

During summer 2023, the port saw a return to its pre-pandemic passenger numbers – one of the first major international travel gateways to do so, processing 2,390 miles of outbound traffic during the six-week period, a distance that stretches from Dover to beyond Cairo, Egypt. These volumes once again confirm Dover's position as Britain's premier trade and travel gateway to Europe, and continued confidence in the route.

However, the Port of Dover has ambitions to grow its value and efficiency even further to drive productivity for the UK. Through

its mission statement, to close the gap between the UK and the world, collaborating with local and international partners to create world-class travel, trading and visitor experiences. The Port of Dover works openly with all its stakeholders, customers and industrial and political partners to continuously improve and sustainably innovate to empower exchange.

Recently, several key developments were announced by the Port of Dover to achieve its vision, of a world where exchange is seamless, smart and sustainable. In October, it tabled its bold agenda for a bright and ambitious future for Dover and the UK, showcasing industry-leading partnerships with present and future governments at party conferences, and launched 'Port of Dover 2050', its strategic long-term master planning programme. The port is also leading the charge regarding decarbonisation, digitalisation, AI and port optimisation with its partners across academia and industry.

TABLING POLICY AGENDA AT PARTY CONFERENCES

At the recent Conservative and Labour party conferences, the Port of Dover hosted its popular ‘Great British Trade Reception’, attended by policymakers, industry colleagues and ministers alike, including Secretary of State for Transport Rt Hon Mark Harper MP and Trade and Economic Security Minister Nusrat Ghani MP in Manchester, and Shadow Trade Minister Gareth Thomas MP, Shadow Transport Minister Bill Esterson MP and Dover’s prospective parliamentary candidate Mike Tapp in Liverpool.

The Port of Dover showcased its ambitious policy agenda, championing Britain as a global trading power and Dover’s leading role within this, empowering one-third of the UK’s trade with its largest single trading partner, the EU, to an enthusiastic response from both conferences.

Alongside the plaudits of the political speakers for the critical role and dynamism of the port and the partnerships it is forging across government, industry and academia, Doug Bannister, Chief Executive of the Port of Dover, revealed the accelerating role Dover is taking in championing rapid decarbonisation, including plans to achieve the UK’s first high-volume shipping corridor as part of a rapid journey to net zero across key supply chains.

Mr Bannister also highlighted exciting work on harnessing digitisation to maximise UK productivity, as well as the need to work together with governments on a remote and digitally-led solution for the incoming EU Entry-Exit system, and its current work with best-in-class universities to drive innovation through AI and machine learning to enhance operations.

PORT OF DOVER LAUNCHES 2050 PROGRAMME

Alongside its ambitious agenda for the near term, the Port of Dover is also focused on securing long-term prosperity for the nation and, following such strong and wide-ranging political support, is also launching ‘Port of Dover 2050’, its programme to develop a strategic long-term master plan to become the UK’s most seamless, sustainable and tech-enabled port, and a symbol of national trade resilience and future growth.



“To achieve our vision, we need to understand where we need to be planning for change and investing for the future,” said Port of Dover 2050 programme Chief Executive, Doug Bannister. “Port of Dover 2050 is our comprehensive roadmap to the future, which will consider everything from transport and infrastructure, to how we use our land, how we grow as a business and importantly, how we as a port can best support the economic and social development of Dover, Kent and the UK as a net zero society.

“The way we travel, do business, live and work, shop, socialise and spend our time are all being influenced by changes in the way we live and work, technological advances, the nature of the economy, our climate and environment. Port of Dover 2050 will ensure that we are ready to take advantage of the opportunities these changes present and be resilient in the face of the challenges they may bring.

“Throughout the 2050 process, we’ll be engaging with national and local government, Dover and Kent residents, port users, customers and our community as well as harnessing the expertise of our own port employees.

“In spring 2024 we will be opening a public consultation, to hear the views of as many people as possible to inform our plans, so that Dover can remain an iconic strategic asset delivering significant local and national economic benefit. The final plan will be published in summer 2024 when we will report back on how feedback has influenced the development of the 2050 plan.

“As we kick things off this autumn, we’re asking people to visit our engagement page at portofdover2050.commonplace.is/ and pin a memory or aspiration for the port, and help us reflect on our heritage, look ahead to the future and shape the Port of Dover of 2050.”

PROGRESSING THE SHORT STRAITS GREEN SHIPPING CORRIDOR

As part of the ongoing Green Corridor at the Short Straits project, the Port of Dover and project partners gathered in Dover in September to present the latest updates of the work, part of the Clean Maritime Demonstration Competition (CMDC) by the Department for Transport and Innovate UK.

Since January 2023, 10 consortium partners integral to the advancement of decarbonisation of ferries that operate between the Port of Dover and its sister ports, Calais and Dunkirk, have collaborated during CMDC phase 2 to determine the feasibility of electrification and the route map for the journey ahead.

The work identifies the challenges ahead to overcome but paints a bright future for decarbonisation at the Port of Dover and secures the port’s position at the vanguard of maritime decarbonisation.

The Port of Dover facilitates 59% of all ferry journeys between the UK and Europe and handles more international passengers than all other UK ports combined, across a fleet of 13 ferries and up to 130 vessel calls every day. Achieving the decarbonisation of the Short Straits ferry route will, therefore, not only have a tangible impact on the overall carbon reduction of freight and passenger transport for the UK, but will mark a new age for clean transport via

spillover benefits for the entire short-sea sector, through the development of reproducible technology.

This work follows on from the first round of the Clean Maritime Demonstration Project, which comprised a seven-month venture in 2022 to determine the technical and economic feasibility of electric power solutions for the Port of Dover's ferries, and was the first to forecast the potential power demand of electrification of the route and identify supply solutions for energy generation and battery charging scenarios.

In January 2023, the second round of the CMDC commenced with the 10 operational partners, which, alongside the Port of Dover, included the University of Kent, WMG, Schneider Electric, SSE, Ikigai Capital, JG Maritime Solutions, ABB, DFDS, P&O Ferries and Irish Ferries.

Extending and advancing the work of the first round of the CMDC, the second has identified the business case for the green corridor and a delivery plan and route map (University of Kent), undertaken a full value chain identification and analysis (Ikigai Capital), identified viable energy pathways (WMG – the University of Warwick's arm for commercial partnerships – and Schneider and SSE) and reviewed the regulations and policy necessary to deliver the transition (JG Maritime Solutions).

Headline findings include:

- Despite the Port of Dover being over 400 years old, it's going to see the biggest ever change in its business model and operations through decarbonisation that is to come (alongside its sister ports in France).
- Decarbonisation of the route, due to the scale of the goods carried across the Short Straits, will save 8% of UK international marine emissions.
- Extensive knowledge growth in technical provision is required to deliver decarbonisation of ferries at the Port of Dover – including a mean power demand of 60MW for 13 fully electric ferries and a peak demand of 162MW.
- Though several potential pathways to zero-emissions operations exist, electrification, combined with a decarbonised national grid, will result in the lowest drop in emissions. This will require new vessels and has the largest infrastructure impact, with the requirement for fast, high-power and reliable electrical ship-to-shore connections.
- Though huge investment is needed, there is a strong business case for landside and marine-side decarbonisation and a viable pathway ahead.

"The Port of Dover is leading the charge for decarbonisation of the maritime industry, working in partnership with government, industry, academia and across the public and private sectors," said Vicki Beatty, Head of Environment at Port of Dover.

"We at the Port, alongside the nine other project partners of this work, are delighted to be sharing the findings of the latest phase of the Green Shipping Corridor at the Short Straits work; establishing the scale of the ambition required for the years ahead as we decarbonise one of the world's busiest shipping routes."

"Having already reduced our carbon footprint by 95% since 2007, the port is set to reach carbon net zero in our direct (scope 1 and 2) emissions by 2025, carbon net zero for defined scope three (certain indirect emissions) by 2030. This work by numerous project partners will be integral to delivering our collective carbon-zero ambitions through the creation of the Green Corridor beyond 2030.

"Our ambitions are strengthening every day and Dover's green future is drawing closer. The next step to progress this work is the design of the physical connection for the future electric ferries – which represents the challenge of needing to be compatible across the three sister ports of the route, and the three ferry operators who maintain it – and the optimisation of ferry schedules to enable the charging of vessels."

PORT OF DOVER SUPERCHARGES DIGITALISATION AND OPTIMISATION WORK WITH VANGUARD UNIVERSITIES

The Port of Dover has formed new partnerships with four best-in-class universities to develop next-generation technological solutions for the strategic and operational challenges facing the port of the future. The port has committed to cutting-edge research collaboration with the Universities of Manchester, Cranfield, Liverpool and Kent across an array of projects from port optimisation to AI, machine learning and physics-based deep learning.

These partnerships create reciprocal opportunities for the port to benefit from each university's world-leading researchers to resolve strategic challenges using pioneering digital solutions and enhance the journey of £144bn worth of UK trade, 11m passengers and 2.4m trucks every year, with huge dividends to be gained for UK productivity.

In turn, researchers will be able to employ a unique and world-leading operational testing ground for innovation in the Port of Dover and so stretch their knowledge of potential uses of AI further than ever before.

Work with the University of Manchester is focused on the development of a digital twin for the Port of Dover, utilising machine learning and physics-based deep learning. Meanwhile, workstreams with the Universities of Cranfield, Liverpool and Kent will drive operational efficiencies in resource management, traffic flow optimisation, logistics and the supply chain through the port and across the wider region.

"The Port of Dover's vision to become a smart, seamless and sustainable port is fast coming to fruition, but the only way this vision can be realised is through collaboration with first-class thinkers and researchers," said Christian Pryce, Chief Commercial Officer at the Port of Dover.

"These four universities form the first wave of a wide range of partnerships that the Port of Dover plans to establish to help us achieve our ambitions across all areas of our operation and we encourage potential partners to reach out to us with ideas if they think they can support our journey." ■

Why investment at Ely is of national importance

When most people think of Ely, images of its impressive cathedral may spring to mind. But the ninth smallest city in the UK also plays a crucial role in the moving of goods (and people) around Britain and to the rest of the world.

This is because Ely sits on the cross-country route of the ‘Felixstowe to the Midlands and the North’ (F2MN) freight corridor, which is the most intensively used and nationally important intermodal rail freight corridor on the network, connecting Felixstowe – the UK’s busiest container port – and key destinations across the Midlands and the North.

However, a mixture of single-track sections, restricted speeds, signalling limitations and level crossings in the Ely area act as a barrier to meeting increased demand for freight paths on the routes to and from the UK’s industrial heartlands.

In the ‘Network North’ announcement in October, government committed to delivering the Ely Area Capacity Enhancement Scheme (and Haughley Junction), which will boost network capacity from 6.5 trains per hour to 10 – an increase of nearly a third.

The announcement was welcomed by sub-national transport bodies England’s Economic Heartland and Transport East, which earlier this year produced a brochure, Keeping Trade on Track, detailing the benefits of upgrading Ely. They joined MPs, businesses, industry bodies, transport and port operators, local and combined authorities and LEPs, in advocating for the scheme’s delivery.

Jonathan Walker, Head of Cities and Infrastructure Policy at Logistics UK, was one of many industry representatives to provide a supportive quote for the brochure, stating: “Logistics UK supports the government’s plans for a growth target for rail freight, but to achieve this, we need to ensure that bottlenecks are removed from the network.

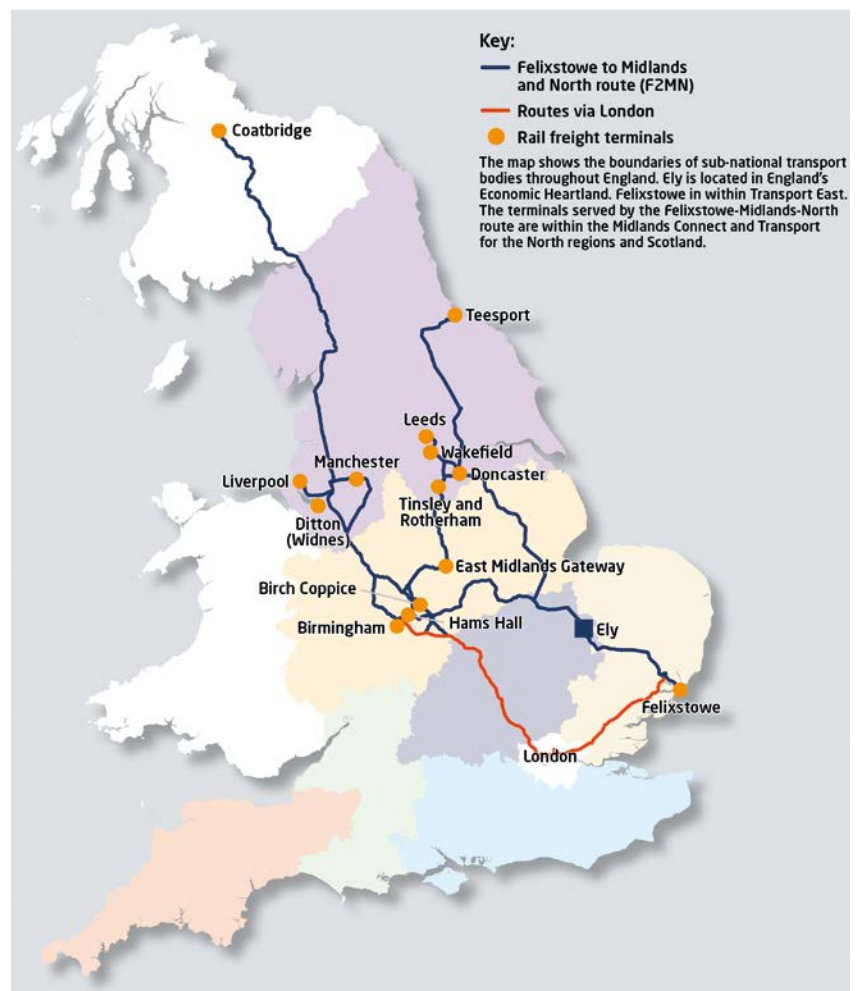
“We therefore strongly welcome the proposals to upgrade the railway in the Ely area. This is an important route for rail freight from the Port of Felixstowe to the Midlands and beyond, and members report that this is one of the most significant bottlenecks in the system. The proposed enhancements will free up capacity to enable more freight services.”

WHAT IS THE ELY AREA CAPACITY ENHANCEMENT (EACE) PROGRAMME?

The Ely Area Capacity Enhancement (EACE) programme covers the railway through Ely and a number of lines radiating across Cambridgeshire, Norfolk and Suffolk. It has been developed by Network Rail to boost network capacity from 6.5 trains per hour to 10.

Under Network Rail’s preferred service configuration (balancing freight and passenger rail needs) this will result in an extra six freight trains per day to and from the Port of Felixstowe – that is the equivalent of more than 450 lorries, stretching more than six miles on our motorways, every day!

The benefits are not just confined to freight. It will also see the doubling of passenger services on the Ely-King’s Lynn and Ipswich-Peterborough routes. In railway terms the cost of upgrading Ely – around half a billion pounds – is relatively low. However, its benefits are far-reaching.



Driving ecommerce success with delivery management

With ecommerce sales set to hit \$8.1 trillion by 2026, retailers have a golden opportunity to gain customers and build revenues¹. Logistics has a vital role to play, as Johan Hellman of nShift explains.

Effective delivery management is the beating heart of multichannel and ecommerce retail: stay in shape, and retailers can dispatch more parcels more productively, and delight customers every time. However, the business quickly feels the impact of any glitches in the system. Keeping deliveries at peak performance is vital for achieving ecommerce success.

Here are four ways retailers can ensure deliveries remain at peak performance during peak season.

1 MAKING DELIVERIES A MOMENT OF TRUTH FOR CUSTOMERS

Deliveries matter hugely to customers today – and when they go wrong, they are likely to take their custom elsewhere. According to Citizens Advice, 13 million UK shoppers experienced problems with deliveries, such as delays and items being left in insecure locations.

Retailers can avoid these issues and make deliveries a moment of truth by offering customers a choice – such as express, insured, and low-emissions options.

nShift offers more than 1,000 carriers and 450 other integrations with business, warehouse management and other systems, right out of the box.

2 KEEPING LOGISTICS AT PEAK EFFICIENCY

A third of logistics workers spend more than 50% of their time doing tasks like order management, paperwork preparation, and carrier booking – by hand.

This can lead to delays and holdups during peak season and other busy periods.

Automating delivery management, on the other hand, enables retailers to offer a better customer experience, respond more quickly to spikes in demand, and minimise errors.

nShift helps streamline order management, so teams achieve more. It automatically books and prints delivery labels and other shipping documents.

3 DECARBONISING DELIVERIES

Logistics teams can take the lead in measuring carbon emissions across the supply chain. Armed with real information about emissions across their delivery capability, retailers can quickly spot quick wins for reducing emissions.

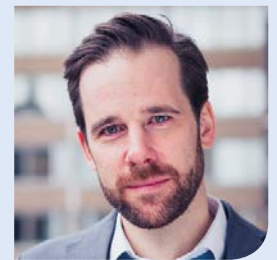
This will become a critical part of everyday business when in mid-2024 the Corporate Social Responsibility Directive makes it obligatory for 50,000 companies doing business in the EU to measure and report on their greenhouse gas emission.

nShift will be launching a market-leading emissions tracking solution in late 2023, to help fulfil their reporting obligations, and demonstrate their progress to customers².

4 MAKING RETURNS PAY

Online returns are on the increase, and fast becoming the silent profit killer for retailers. But if they introduce too many restrictions, they risk deterring customers.

Effective reverse logistics means retailers can minimise the returns revenue hit. Handled well, some 30% of returns can be converted into exchanges. They can also ensure more returned stock goes back onto shelves, more quickly, so it has a second chance at earning revenue.



Johan Hellman

Vice President – Product & Carrier, nShift

LEARN MORE ABOUT TRACKING EMISSIONS AT:

★ <https://bit.ly/3YXAYon>

¹ <https://www.businessgo.hsbc.com/en/article/global-ecommerce-top-trends-in-2023>

² Register here for more information: <https://bit.ly/3QvtrKY>

What regional transport strategies say about Ely and rail freight

Transport for the North

Freight and Logistics Strategy (2022): "Investment in Ely in Cambridgeshire will **enable the North to benefit** by improving access to a rail freight terminal that could result in extra freight trains from the South East to the North."

Transport East

Investment and Delivery Plan (2020): "To maximise the contribution of our ports to post-Brexit UK economic growth, in addition to relieving the road network of 750,000 lorries by 2030 and supporting decarbonisation, we need to significantly enhance rail capacity further on what is **Britain's premier rail freight corridor**. The Ely area and Haughley railway junction are the main focus of investment, serving both of these strategic corridors."

Midlands Connect

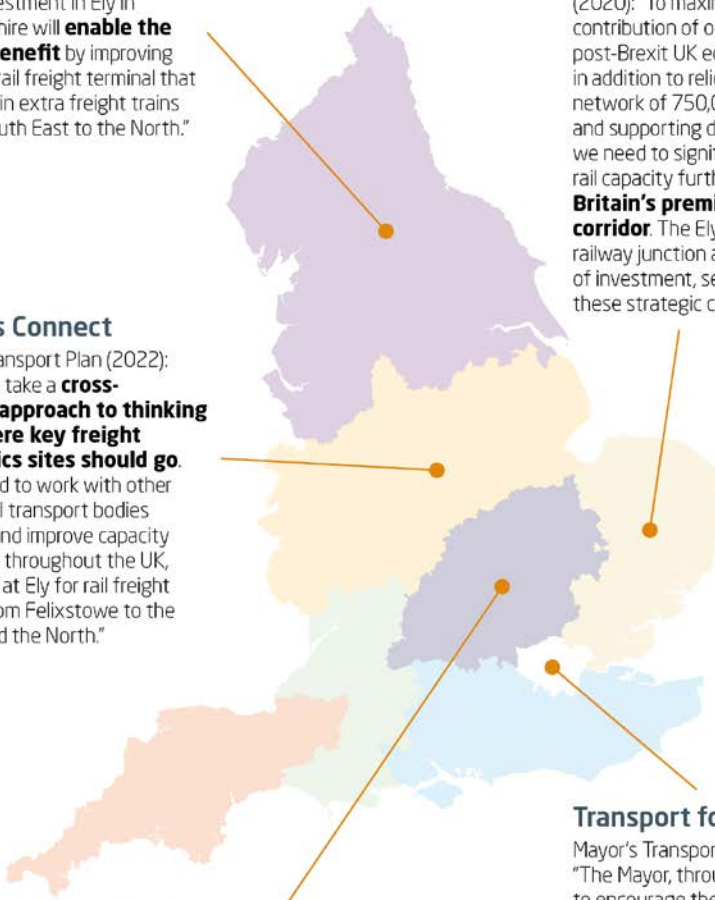
Strategic Transport Plan (2022): "We need to take a **cross-boundary approach to thinking about where key freight and logistics sites should go**. We also need to work with other sub-national transport bodies to identify and improve capacity pinch points throughout the UK, for example at Ely for rail freight travelling from Felixstowe to the Midlands and the North."

England's Economic Heartland

Transport Strategy (2021): "Demand for rail freight is forecast to grow exponentially in the long-term, driven by continued growth in deep-sea shipping markets, particularly at the Port of Felixstowe. Bottlenecks on the Felixstowe-Nuneaton line mean that a significant proportion of containerised freight travels south along the Great Eastern Main Line, across North London and onward to multiple destinations. This leads to conflict with the need to provide additional capacity for rail passenger services, particularly along the North London line. The constraints on rail connectivity between Felixstowe and the Golden Triangle of Logistics places additional pressure on our strategic road infrastructure, with consequential implications for their operation and carbon emissions. **Investment in rail freight will realise benefits on the strategic road network.**"

Transport for London

Mayor's Transport Strategy (2018): "The Mayor, through TfL, will work to encourage the DfT and Network Rail to **upgrade rail freight routes outside London** so that non-London rail freight can be taken around London, thereby freeing up rail paths through the capital for additional passenger services and freight trains that serve London."



2 It has a remarkably high benefit-cost ratio

The recently completed Ely Area Capacity Enhancement outline business case by Network Rail sees an extra six freight trains per day to and from Felixstowe and the Midlands/North, alongside doubling passenger frequencies on the Ely-King's Lynn and Ipswich/Peterborough routes. This represents a very high benefit cost ratio for a scheme of this scale.

3 It cuts emissions and congestion

Network Rail estimates that, under its preferred service configuration, the Ely Area Capacity Enhancement would take 98,000 lorry journeys off the roads every year. This would not only reduce emissions by 1.7m tonnes over 60 years, but also reduce congestion by 5.6 million hours per year. Given rises in demand, without intervention at Ely, volumes of freight to and from Felixstowe will be increasingly transported by road, further congesting critical routes like the A14 and the motorway network across the Midlands and the North.

4 Rail Freight is a national priority

The Felixstowe to Midlands and North (F2MN) route is considered the highest priority corridor for investment by the freight industry. Demand for rail freight has seen strong growth following the Covid pandemic. The Department for Transport's own 'Future of Freight Plan' restated the government's commitment to unlocking the economic and environmental benefits of rail freight and there was a commitment to prioritise strategically important corridors. Ely was referenced in the

'Williams-Shapps Plan for Rail'. The F2MN corridor also appears in the proposed UK strategic transport network produced as part of the 'Union Connectivity Review'.

5 It unlocks better passenger services

Network Rail's preferred service configuration would not only result in more freight paths, but the ability to run extra passenger services between Ipswich and Peterborough (from one train every two hours to one train per hour); and King's Cross-Ely-King's Lynn (from one train per hour to two trains per hour). Network Rail predicts that by increasing frequencies and making commuting more attractive, the new services will facilitate 277,000 extra rail passenger journeys every year and cut total journey times (due to the increase in frequency). Increasing services between Ipswich and Peterborough would significantly improve connectivity from East Anglia to the Midlands and the North.

THE KEEPING TRADE ON TRACK BROCHURE DETAILED THE FOLLOWING EIGHT REASONS WHY INVESTMENT IN ELY IS VITAL FOR THE UK:

1 It boosts economic growth in the Midlands, North and East
Investment in Ely supports economic growth in the Midlands, North and East and increases the productivity of businesses across the UK. Indeed, 70% of containers coming into Britain through the Port of Felixstowe are destined for a high-concentration belt of distribution hubs stretching across the Midlands and the North of England. The port serves the Golden Triangle of logistics: an area in the Midlands which is the epicentre of UK distribution. Whether it's the Midlands, North West, North East or South Wales, the origins and destinations of rail freight into and out of Felixstowe are spread right across the country.

In addition, improving service frequencies across the East of England will support the region's strong economic growth and sustain the range of high-value industries clustering in Cambridge. Extra capacity at Ely will also support the realisation of passenger services on the East West Main Line from Suffolk and Norfolk through to Swindon, Bristol and South Wales, and to Reading and Southampton. This maximises the opportunity unlocked by government's investment in East West Rail between Cambridge and Oxford.

6 It has an unprecedented level of support from across the UK

There is a remarkable level of support for increasing capacity for freight on the Felixstowe-Midlands corridor from across the country, public and private sectors and political spectrum. It is included in the strategies of four sub-national transport bodies – England's Economic Heartland, Transport East, Midlands Connect and Transport for the North – and supported by train operating companies, local authorities, local enterprise partnerships and the Cambridgeshire and Peterborough Combined Authority.

There is cross-party political support for the proposals. The East of England All Party Parliamentary Group led the regional political advocacy, making the case to the DfT and Treasury. The Eastern Powerhouse body has also – with the support of MPs and businesses – raised the importance of the scheme to ministers. The Ely upgrade enjoys public support: in Network Rail's public consultation in 2021, 76% of respondents supported the proposals.

7 It supports the government's Freeport East initiative

By providing improved links to Felixstowe, the EACE programme will help ensure the success of the government's freeports programme. Felixstowe and Harwich are part of Freeport East, one of eight new freeports created in England. The Ely area capacity enhancements will enable the freeport to take advantage of the new opportunities enabled by Brexit, support the new trade deals being struck with overseas countries and help drive innovation. By connecting the coastal communities of the East with the Midlands and North it will also contribute to the levelling up agenda at both ends of the route. Freeport East is expected to create 13,500 new jobs and generate £5.5bn over 10 years.

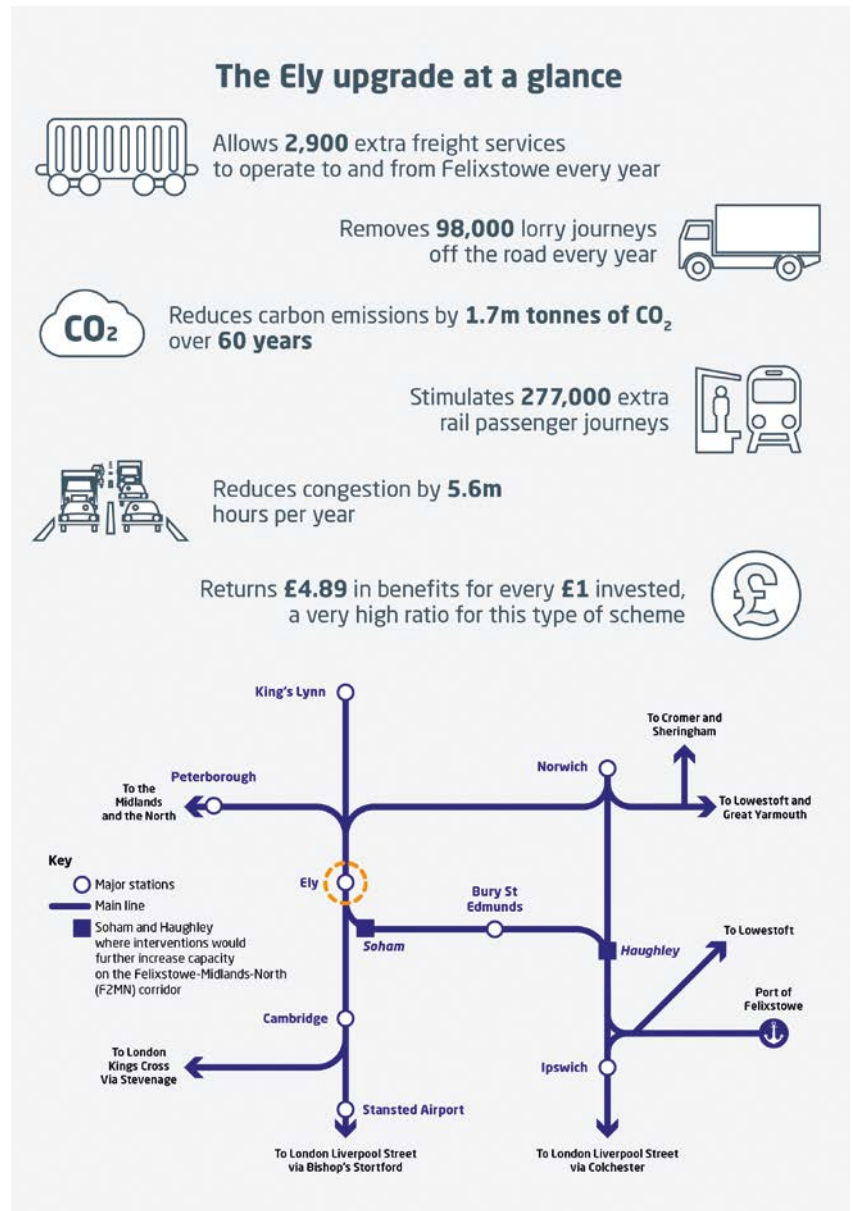
8 The time is now

The Ely upgrade will maximise the benefits of both past and future investment along the Felixstowe to Midlands and North corridor. Previous government and private investment in the Ipswich Chord, Trimley Loops and Bacon Factory Curve enabled the expansion of services between Felixstowe and the rest of the UK, however pinch points further along the line mean that not all this capacity can be utilised. Meanwhile, Network Rail identified interventions alongside Ely which would provide an increase in total paths on the F2MN corridor from 42 to 48. These are made up of Haughley Junction doubling and Soham Area Capacity Enhancement. Longer-term interventions would provide an increase in total paths from 48 to 60, with an average of 45 that run via Ely. Critically, due to the future proofing provided by the EACE programme, no more work would be required in Ely. Conversely, should these other interventions have been delivered without the Ely upgrade,

the capacity uplifts realised would have been far more modest and limited. Delivering Ely, Haughley, Soham and long-term interventions would prevent over 394,000 avoidable HGV journeys every year, and 3.9 million between 2029 and 2045; reducing rail freight demand forced onto HGVs over this period from 28% to 0%.

Haughley Junction

Alongside Ely, the Network North announcement also included funding for the Haughley Junction scheme, which provides additional track capacity at what is an important junction near Stowmarket. The scheme, backed by Transport East and Suffolk County Council, will see an existing single lead track junction replaced with a twin lead track arrangement principally to provide for additional rail freight services from Felixstowe to the Midlands and the North. The junction is already a performance constraint, leading to delays and reduced flexibility to restore normal running during disruption. It will also support the increased frequency of Ipswich to Cambridge and Peterborough services. ■





Project Manston prepares for lift-off

Operational since World War I and a base for the Battle of Britain, Manston Airport in East Kent has tracked the development of aviation across the past century acting, by turns, as both a military and civilian aerodrome – most recently operating as Kent International Airport, home to several low cost flyers, charter aircraft and cargo operators.

Closed and asset-stripped by previous owners in 2014, for almost 10 years Manston Airport has remained shuttered to the aviation sector.

It hasn't been completely idle during that time, though. Far from it. It has been used as an Operation Brock emergency lorry park and HMRC Inland Border Facility, a location for Sam Mendes' 2023 film, *Empire of Light*, a host for wartime re-enactment events and a stage for a myriad of aviation events – including the 2023 British Open Paramotor Championship and the Icarus Cup, which showcases human powered flight.

Of all the things Manston has been in the past decade, though, it has not been an airport – other than welcoming the occasional general aviation visitors or emergency search and rescue flights.

But, perhaps, not for much longer.

SUDDEN MOVEMENT

RiverOak Strategic Partners (RSP) has been interested in developing the site since 2016 and was finally able to acquire it in 2019, part way through a Development Consent Order application to the Planning Inspectorate to redevelop Manston as a 21st century global air freight hub for the south east of England.

In late September, Logistics Magazine spoke with Tony

Freudmann, Director of RSP, Gary Blake, Airport Operations Manager, and Dr Sally Dixon of Azimuth Associates, an aviation strategy and innovation consultant to RSP, to find out more about the plans.

It turned into quite the week for the project as, shortly after we spoke about the ongoing delays in the DCO process which have held up the plans by several years, there was sudden movement.

With less than 24 hours' notice, RSP received news that a High Court judge had dismissed a local resident's Judicial Review challenge to the government's decision to grant the DCO, potentially paving the way for work to begin on the site in 2025 with a potential opening date of late 2026.

SIGNIFICANT DEVELOPMENT

"We had two days of hearings at the High Court in July," explains Mr Freudmann, "and, after several months of deliberation, Mr Justice Dove dismissed the application on all grounds, in a 40 page judgement comprising 106 paragraphs – a highly significant and positive development towards our aim of turning Manston into a state-of-the-art air freight hub.

"Manston is the right proposition at the right time. Far too much of the UK's essential cargo – including food, pharmaceuticals and medical equipment – flies into northern European airports like Schiphol and is then



driven over to the UK, adding time, cost and congestion to the UK's ability to secure urgent, just-in-time resources for UK citizens or indeed to export its own goods to the global market.

"In addition to the environmental impact of trucking freight into and out of the UK, the increased friction at the border caused by Brexit has made trucking freight – that could be flown – extremely time-consuming and expensive too.

"As an island nation, the enduring need for aviation to connect the UK to the global market remains unarguable," added Mr Freudmann.

"70% of UK air freight is currently carried belly hold. This over reliance on belly hold puts the UK at odds with the rest of the world and renders our supply chain susceptible to disruption, such as we saw in COVID. Available slots on runways, space on stands, and other infrastructure such as warehousing are scarce, and cargo is fighting a losing battle against passenger traffic.

"At the same time, the COVID-19 pandemic accelerated the growth of e-commerce. However, just-in-time goods which pass through the global e-commerce market every day are being trucked through the Channel Tunnel, the UK's only road link to Europe – having first flown into airports on the continent."

DUE DILIGENCE

RSP commissioned three separate market studies as part of their DCO application. The first was Dr Dixon's research, which included numerous interviews with freight forwarders, cargo airlines and other organisations all keeping a keen eye on Manston as a solution to their growth ambitions.

The second, from Northpoint Aviation, assessed the shortfall between available capacity and demand at both a regional and national level – and concluded that there are no reasonable alternatives in terms of airports suitable to provide the kind of dedicated cargo service proposed for Manston.

The third report, commissioned from aviation consultants IBA, assessed the case for Manston in light of Brexit, the pandemic, and the growth of ecommerce, revisiting the findings of the previous two reports.

It concluded that the lack of air cargo capacity in the UK has caused cargo to be landed in continental Europe and trucked into the UK; that the UK has insufficient air cargo airport capacity to meet future demand; and that Heathrow, the airport upon which the responsibility for providing future capacity for air cargo has always rested, is incapable of meeting future air cargo needs.

"As an existing airport with a full length runway, located in the south east but outside the congested London and south east airspace system, and with access to the national motorway network and Thames Estuary, the conclusion of the other two independent reports was the same as mine: Manston offers the most logical, compelling and straightforward solution to the UK's cargo infrastructure challenges", says Dr Sally Dixon of Azimuth Associates.

REAL-WORLD APPLICATION

As Airport Operations Manager, Gary Blake is focused on the detailed planning for how the DCO proposals will translate into operations on the airport site.

"The global aviation industry has a plan to become net zero by 2050," he said. "Manston has its part to play, from

how ground operations are managed at airports to the development of sustainable aviation fuels and more effective flight path planning.

“Manston offers both a low carbon solution and one which mitigates against current carbon impacts elsewhere. For example, arguably, Manston can help to reduce overall transport emissions through reduced trucking of freight across the Channel and less time spent by aircraft in the congested London holding patterns.

“And without legacy infrastructure, a wide range of opportunities exist to eradicate greenhouse gas emissions from our airport ground operations. We essentially have a clean slate to invest heavily in state-of-the-art equipment and systems to continuously improve Manston’s operational performance. We are committed to net zero ground operations from day one, using technology such as green hydrogen and even wind turbines capturing the vortex from passing vehicles.

“We also have a unique opportunity to capitalise on Manston’s proximity to the Port of Ramsgate, the HS1 freight

rail line and the national motorway network to create a multimodal hub.

“We are engaged in discussions to utilise the Thames Estuary as a method for onward shipment into the new consolidated London markets at Dagenham and the proposed Thames Estuary Freeport, in line with the Thames Estuary Growth Board’s plans to increase freight moved on the river by 25% and 50% respectively over a five-year period.

“Beyond that, we are exploring the potential for unmanned flight operations with manufacturers of the latest drone technology.”

LOOKING TO THE FUTURE

A huge part of RSP’s plans for Manston also depends upon the ability to inspire and engage the next generation of airport workers.

RSP has collaborated with local colleges and schools for a number of years and, in 2019, created the Manston Skills and Employment Board (MSE-B) to consider the future employment and skills needs of the airport, from planning and construction through to operation. The airport includes representation from local education and training organisations, business, local authorities and other key stakeholders.

“It’s vital that Manston and associated businesses have access to well-trained and experienced potential employees across a diverse range of skillsets,” said Dr Dixon.

“As part of the MSE-B initiative, we have partnered with local schools, colleges, universities, business organisations and local authorities. We have given lectures, mentored students and hosted airport visits, offering business, logistics, engineering and data analytics students invaluable industry experience and learning as part of their studies.”

MAKING IT HAPPEN

As a result of its efforts over the past five years, RSP was recognised for its long-term commitment to supporting the East Kent community, with the Commercial Partner of the Year Award at the 2023 Canterbury Christ Church University Business and Community Impact awards.

Subject to any appeal that follows from the dismissal of the Judicial Review challenge, the focus of attention for RSP now moves to getting the airport open again. It’s clear from visiting the airfield and RAF museum that shares the site – and from talking to the team and the supporters in the local community – that this is far more than just another airport project.

“Manston has always played a strategic role for the UK, from its early beginnings as a Battle of Britain airfield more than 100 years ago,” concludes Mr Freudmann.

“It stands ready to do so again, to make a positive contribution to the UK’s economic competitiveness, reducing congestion in the air and on the ground and willing to be held accountable for its contribution to the work to reduce the UK’s impact on climate change. We just want to get on with it now.” ■





The future of air cargo transportation

There is no doubt we need, and will continue to need, to transport goods by air. Without aviation, perishable and time-sensitive products such as food, pharmaceuticals, medical equipment and critical engineering items would not arrive where and when they are needed. However, there is also no doubt that improvements to the way we move goods, the time in transit and the emissions generated can and should be made.

Aviation has something of a dirty reputation outside the industry, in part with reason. The sector has the benefit of some of the best engineering skills, ingenuity, and considerable financial resources. Maybe we should have previously made more progress to reduce carbon and other emissions, but this is now being rectified at incredible speed.

Improvements to airframes and engines continue, as does a radical overhaul of airspace procedures. Allowing continuous descent rather than 'stepping' aircraft down on approach to an airport, and wherever possible removing stacking over congested airports, will save fuel burn – a benefit in cost as well as emissions. Contrail management is also being considered.

The major foci of more radical and disruptive change are clean fuels, multimodal interfaces and the use of Advanced Air Mobility (AAM). The ultimate goal is to reduce climate impact whilst not increasing operating costs. The pros and cons of the use of sustainable aviation fuel (SAF) and hydrogen as energisers continues to be debated even while progress is being made on both.

SUSTAINABLE AVIATION FUEL

SAF is a 'drop-in fuel': it can be blended with up to 50% traditional aviation fuel and used with existing engines. It can be made from feedstocks such as oil seed plants and energy grasses; agricultural and forestry residue; organic



Dr Sally Dixon

Azimuth Associates

municipal solid waste; fats, oils, and greases from cooking waste and meat production; algae; and industrial carbon monoxide waste gas.

If SAF is made from a renewable hydrocarbon-based source, Airbus says it can reduce lifecycle carbon emissions by up to 80% compared to traditional fossil-based jet fuel. However, if SAF is to live up to expectations, it is vital to analyse and manage carbon emissions across the entire fuel lifecycle, create sustainable fuel supply chains, and not compete with precious food supplies.

HYDROGEN

Hydrogen is not a drop-in fuel: it cannot be combined with conventional aviation fuel and requires new engine, and probably airframe, designs. Hydrogen propulsion systems for aircraft will eliminate CO₂ emissions in flight, and, if the hydrogen is green (generated from renewable energy), will be clean across the entire life cycle. The use of hydrogen

aircraft will require major changes to airport infrastructure, something Manston can accommodate from reopening.

Whilst it is no easy task to predict whether the future of aviation will be SAF, hydrogen or electric, or whether fleets will be a combination of the three, there is no doubt that policy and taxation will make a huge impact on how we progress with clean flight.

A report for Brussels based not-for-profit Transport & Environment, which analysed the cost of hydrogen aircraft, finds that: "By 2035, the operating costs of a 1,000-nautical-mile flight for a hydrogen aircraft would be 7.7% higher than for a jet aircraft using an untaxed SAF/jet fuel blend, but 2.1% lower if the SAF/jet fuel blend is taxed."

UNDERSTANDING THE OPPORTUNITIES

It will be imperative for the UK government to address taxation and make clear policy so all stakeholders under-



stand the opportunities involved in decarbonising flight. For airports about to prepare a masterplan such as Manston, these decisions are crucial. I have been providing strategy and innovation consultancy to RSP, owners of Manston Airport, for almost eight years. Included among current work is putting together the business case for a hydrogen production plant at the airport.

The airport now has its DCO, and re-master planning will start soon. There have been many difficulties and delays getting to this point, but one of the immense joys has been the ability to suggest how radically different technologies and innovations can be incorporated. Manston's redesign will start from scratch, whereas airports with legacy infrastructure do not have the same freedom. They cannot wipe the slate clean but must introduce new ways of operating alongside existing set ups and without disrupting operations.

ADVANTAGES OF MANSTON

One example of a radical rethink for Manston is the potential to use the Thames to connect the airport, via the Port of Ramsgate, with London.

This will mean finding suitable marine vessels with clean propulsion that can make the journey around the Estuary and into the river, loading and unloading cargo where necessary in all tide and weather conditions. Since the use of the river presents a variety of challenges, and building on my long-standing relationship with local universities, it provides the opportunity for interesting, real-life projects for students.

"We believe the Manston Cargo Movement/Lifting project will be a remarkable learning experience for our students in their engineering and practical skills development for our BEng degree programme," says Stuart Lambert, Senior Lecturer in Product Design and Programme Director for Product Design Engineering at the School of Engineering, Technology and Design, Canterbury Christ Church University.

Students will research the project and consider as many issues as possible in relation to logistic and dockside equipment requirements and go on to develop a mechanical solution using sketches, 3D CAD development Concept and 3D print models.

To further enhance the students' engagement and understanding of the project, myself and my colleague, Gary Blake, Manston Airport General Manager, interact with our students, share insights and discuss the project in detail.

A new report from CAE's 2023 Aviation Talent Forecast says that global civil aviation will need around 1.3 million professionals over the next ten years, including 284,000 new pilots and more than 400,000 aircraft technicians. Since Manston will need to staff an entire airport from scratch, it is imperative that outreach to schools, colleges and universities is proactive and collaborative. Aviation as part of a multimodal system brings with it a raft of possibilities for students to engage with across multiple disciplines. AAM is one of the innovations in aviation that is attracting interest from professionals and students alike.

It has a myriad of applications, from passenger transport in urban and rural areas, flying doctors to critical incidents, and carrying cargo between airports or directly from manufacturer to customer.

IDEAL FOR DRONES

Manston is ideally located for a cargo drone operation, and this is another area where I am pressing ahead on behalf of RSP.

Working with Dr Alexandre Bradley, we have been developing and promoting the iCONiCARGO product. Fully or partially automated cargo processing facilities with drone capability can be rapidly deployed to airports and other facilities around the world.

Alex and I were at Cranfield University together, researching for our PhDs under the same supervisor. Whilst my background is strategy and innovation, Alex's thesis was on robotics. He is an expert in baggage handling systems and has worked at airports across the globe, and wrote the IATA airport development reference manual after the Lockerbie bombing. We got together at the start of the Covid pandemic to join my expertise in air cargo with his in robotics, baggage handling and security.

"Initially, the intention was to target airports who had realised during the pandemic they wanted to get involved with air cargo to help balance their income streams," he elaborates. "When we included fully automated cargo drone handling facilities in the design, interest came from outside the usual airport sector. We now have agreements in place with eVTOL operators to develop iCONiCARGO solutions. We hope Manston will be one of the first to exploit the huge potential for cargo carrying, unpiloted aircraft."

The iCONiCARGO duo work with Robson Handling Technology, a company long established in the sector, who will provide final designs and installation.

Stuart Westley, Technology Director, commented: "From a 117-year legacy in engineering to three decades revolutionising the aviation sector, Robson Handling Technology has consistently shaped global projects. As the dawn of Advanced Air Mobility breaks, we're thrilled to be involved in the future of cargo handling innovations."

One of the exciting aspects of a cargo drone operation at Manston would be a specialist training facility. Using the transferable skills of young people involved in gaming – their spatial awareness, hand-eye coordination and dexterity with their thumbs – may make them excellent remote pilots. Other skills requirements would be for engineers and specialist drone loaders and handlers.

SPEARHEADING THE JOURNEY TO NET ZERO

Although Manston has been receiving aircraft for more than 100 years, it will be the UK's first new airport since London City in 1987. The clean slate it provides means the current master planning exercise will be exciting as well as challenging. Government policy and support from all stakeholders will be vital if Manston is to be future-proofed and spearhead the journey to net zero in UK aviation. ■



Embracing rail for sustainable logistics



Niall McCarthy

Rail Development and Delivery Manager, Nestlé UK and Ireland

As the Rail Development and Delivery Manager at Nestlé UK and Ireland, I am proud to be part of the transformative journey towards achieving our ambitious 2050 net zero target. One crucial aspect of this endeavour is the development of a cleaner and more efficient logistics network, which plays a vital role in reducing our carbon footprint and contributing to the global effort of limiting global warming.

To achieve these goals, we have implemented various logistics plans, including route optimisation and transitioning to low-emission fuels. One key development in our sustainable logistics strategy is maximising the capacity of our vehicles by filling them more efficiently. This means fewer vehicles on the road, resulting in reduced traffic congestion, lower fuel consumption and, ultimately, lower carbon emissions.

But we knew we could achieve more through exploring alternative transportation options, so we recognised the potential environmental benefits of rail transportation. According to the Rail Delivery Group, it has been highlighted that a single freight train has the capacity to replace up to 76 heavy goods vehicles on the road. Evidence suggests that transporting one tonne of products via rail results in 76% less emissions compared to a diesel road journey¹.

INVESTIGATING OPTIONS

However, we questioned whether a rail container existed that could facilitate a larger capacity. After discussions with the rail industry, it became apparent that no suitable container was available, which led Nestlé to embark on

finding a solution. In the beginning, the project seemed largely aspirational. The vision of the project was to bring the innovation and efficiency we'd seen achieved on road transport to an even more sustainable transport option.

The idea was to create a specially designed freight container capable of accommodating double stacked pallets. Nestlé could then maximise the container's capacity, allowing for the transportation of up to double the number of products compared to conventional rail containers.

Nestlé partnered with Bootle Containers and Marine Container Test Services to design and build the container. Trials were carried out in partnership with Network Rail, Forth Ports, W H Malcolm Group and Direct Rail Services to contribute to the success of its development and cover safety precautions.

NEW CHALLENGES NEED NEW SOLUTIONS

One challenge Nestlé had to overcome was that our Hams Hall Distribution Centre was unsuitable for rear door loading of containers, therefore we currently load curtain-sided trailers. As a company that manufactures and distributes

¹ 2019-05_rail_freight_delivering_for_britain.pdf (raildeliverygroup.com) (page 5)

a wide range of products, including confectionery, water, cereal and pet food, Nestlé UK and Ireland naturally transports large quantities. We needed to find a solution that facilitated double stacked pallets which was both rail-compatible and curtain-sided.

That's where our bespoke unit comes in. We fitted a roof raising mechanism to the container, which provides a few extra centimetres of height. This allowed us to smoothly load double stacked pallets onto the container and then lower the roof just enough to fit comfortably on the UK railway's shared access network.

Sally Wright, Head of Logistics for Nestlé UK and Ireland, had the honour of unveiling the developmental rail container to the public at the 2022 Multimodal exhibition in Birmingham. She spoke about her ambition to develop the future transport strategy for Nestlé and established the profound impact this project could have on reducing the number of trucks that Nestlé puts on the roads.

SIGNIFICANT MILESTONES

It was in August 2022 when I joined the Nestlé team in a new role, Rail Development and Delivery Manager. The role's creation stemmed from this ambition to grow Nestlé's rail presence, with a focus on achieving a cleaner and more sustainable logistics network. It became my responsibility to carry through the roof-raising rail container's journey.

In August 2023, Nestlé achieved a significant milestone by completing the first groundbreaking trial. We delivered the first-of-its-kind container from Hams Hall distribution centre in North Warwickshire to the Tesco Thurrock distribution centre. The container was double stacked with a range of Nestlé Purina pet food products, including Felix and Gourmet pouches.

The trial was a success, though we see it as just the beginning. We view this as a valuable opportunity for further innovation and development, recognising that there are still adjustments to be made, feedback to be gathered and training to be done. Our objective is to ensure that the rail container meets both our own and our customers' needs.

CONTINUAL INNOVATION

Looking ahead, Nestlé is dedicated to refining the rail container to integrate it into our overall distribution strategy. By leveraging the potential of rail transportation, we envisage a distribution approach that is aligned with our commitment to sustainability. This shift towards rail transportation presents exciting possibilities for transporting more of Nestlé's well-known brands, from cereals to confectionery, across the country in a way that contributes to a greener distribution strategy.

In addition to our commitment to rail transportation, Nestlé is actively pursuing other routes to embrace sustainable logistics practices. Nestlé has made significant progress in transitioning its fleet of trucks to low emission alternatives. We have switched 75% of our owned truck fleet from diesel to Bio-LNG fuel, a renewable liquified gas derived from waste.

Nestlé food and drink is now delivered around the UK and Ireland by trucks which emit up to 95% less carbon.

This has been a complex undertaking, requiring careful planning and collaboration within our delivery network. However, we are actively working with our haulage partners to transition our fleet from diesel to alternative fuels, to achieve cleaner road transport.

Moreover, Nestlé is actively exploring the integration of yard shunters which use alternative fuels to diesel to streamline the movement of goods on our sites. By replacing traditional diesel shunters with those which use alternative fuels, we aim to reduce our carbon footprint across our full transport network.

We are currently in the process of trialling options to determine the final solution to yard shunter alternatives, to ensure operational efficiency and availability across our operational sites. Nestlé has already implemented one electric shunter vehicle at its cereals site in Bromborough, effectively facilitating the transportation of raw materials, packaging and finished goods.

Through these combined efforts, including the rail container development, the transition to low emission trucks and the adoption of alternative fuelled yard shunters, Nestlé is transforming its logistics operations. By continuously innovating, we hope consumers can enjoy their favourite Nestlé products with the knowledge that they are being transported more sustainably and, ultimately, contributing to a greener future for all. ■



NIALL MCCARTHY

Niall McCarthy joined Nestlé in August 2022 in a new role, Rail Development and Delivery Manager. The role was created with the vision to grow Nestlé's rail presence and deliver on sustainable logistics. Throughout Niall's career, he has worked predominantly within the transport and logistics sectors, having begun his rail career as a Maintenance Engineering Technician Apprentice. Niall's roles prior to Nestlé have seen him work in performance improvement, operations management as well as project delivery. In his current role, Niall works within the transport delivery team where he is focused on developing a rail solution to interface with the existing Nestlé transport network to support all Nestlé businesses across the UK and Ireland.

Greener skies ahead

Decarbonising the aviation sector

Heathrow is the UK's largest port by value and only hub airport, connecting businesses and passengers to over 200 destinations in 80 nations across the world. With 95% of the global economy within reach via a single flight from Heathrow, Heathrow's logistics sector is critical to supporting businesses from across the UK trade globally.

Last year, Heathrow handled 1.4 million tonnes, or £2bn worth of cargo, which included medicine, salmon and books. Heathrow continues to champion international trade, as exporting businesses support over 6.5 million jobs, including those within the logistics sector. However, the benefits of aviation cannot come at any cost; aviation must deliver for both the economy and the environment.

Heathrow has recently taken the ground-breaking step to incorporate sustainability into the airport's financing, through a Sustainability Linked Bond (SLB) launched in July, which links to 2030 carbon reduction targets in the air and on the ground. Heathrow is also leveraging its procurement role to deliver a net zero supply chain, shifting airport vehicles to zero carbon, and making sustainable improvements to infrastructure. In 2023, Heathrow became one of the first airports to trial lower carbon concrete, which reduces carbon emissions by 50% compared to conventional concrete.

ESSENTIAL DECARBONISATION

The aviation sector recognises that to protect the huge benefits of flying, it is essential to decarbonise aircraft emissions. Sustainable Aviation Fuel (SAF) is an alternative to traditional fossil-based aviation fuels, designed to reduce the environmental impact of aviation, delivering 70% lifecycle carbon reduction when compared to kerosene.

SAF can be made from a variety of sources, including waste, animal fat and cooking oil, and has the same chemical make-up as traditional kerosene. SAF can therefore be used as a drop-in with existing planes and infrastructure, replacing the need for fossil fuels. The technology is proven and already in use in commercial aircraft today, using what would otherwise be waste material.

SAF plays a pivotal role in achieving the UK's ambitious net-zero emissions goals whilst protecting the huge economic

benefits that aviation brings through trade and tourism. To increase the number of flights powered by SAF, Heathrow launched a world first in 2022 – an airport SAF incentive scheme to cover up to 50% of the premium cost of SAF, making the fuel more affordable for airlines to use.

INNOVATIVE PROGRAMME

Heathrow's innovative incentive programme marks the next step in the airport's plan for net zero flying. As a global SAF leader, Heathrow is committed to progressively increasing the SAF used each year, with the airport targeting 11% SAF usage by 2030.

This year alone the SAF incentive is expected to save approximately 81,000 tonnes of CO₂. But the sector could move more quickly and cut carbon faster if government injected necessary pace into the expansion of SAF with supportive policy making. High costs and low production volumes mean SAF remains in short supply, with few able to access it at commercially viable rates.

The appetite to invest into SAF and to decarbonise aviation is there, but investors want certainty in longer-term domestic use before pouring in capital. Government must act now to support a SAF industry for the UK, by introducing a price support mechanism and acting on the commitment for at least five commercial-scale SAF plants to be constructed by 2025.

GOVERNMENT NEEDS TO MOVE QUICKLY

A price support mechanism – necessary due to the lack of price certainty for SAF – has helped develop a world-leading renewable energy industry with on and offshore wind in the UK, which is now cheaper than the alternatives and has brought huge economic benefits. The US and EU are surging forwards in the race to create new SAF industries, and the UK has all the natural advantages to be able to join them – but the UK government needs to move quickly. A price support mechanism would de-risk and incentivise investment in domestic SAF production facilities and would help mitigate the “green premium” cost differential between traditional jet fuel and SAF.

The UK must be at the forefront of the global SAF race. A thriving SAF market in the UK and within Heathrow's route network would be felt across the UK; a domestic SAF market could support 60,000 jobs across all UK regions and nations and be worth £10 billion in GVA benefits by 2050. If government implements the necessary policies, the many benefits of aviation – connectivity, trade, tourism, and investment – can be protected. ■



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How GPS Marine embraced environmental challenges for the win



John Spencer

Director, GPS Marine

At GPS Marine we first became aware of the movement towards the maritime sector being encouraged to drastically improve its environmental performance in early 2019 as a result of attending a series of workshops organised by Port of London Authority pursuant to the launch of its clean air strategy.

As a business for which a significant part of its trade is moving goods by barge on the rivers Thames and Medway, the environmental benefits associated with water transport had long been an important marketing tool, and it came as something of a shock to be faced with the reality that we needed to up our game in order to be able to maintain the high ground in terms of the environmental benefits of transporting freight by water rather than by road (or rail). As with most challenges to the status quo, the important thing was to embrace the challenge and find a way to make it work for us.

The Port of London Authority workshops in 2019 set out not only the authority's aims and objectives, but also challenged vessel operators to join the journey and provided a significant amount of basic information about what was then technically possible to reduce emissions and environmental impacts resulting from the operation of vessels.

Much of what was put forward as purportedly being possible to reduce emissions from vessels was impractical due to factors such as the size and types of our vessels, lack of supporting infrastructure, the nature of our operations and, not least, the costs involved in implementing the technologies.

This applied to options such as the installation of exhaust gas scrubbers, electrification of our vessels, conversion to hybrid technology and, initially, the adoption of alternative fuels, with LNG, LPG, ammonia, hydrogen and bio-diesel being put forward as options. The remaining options put forward were selective and passive catalytic converters (SCR and CR), and diesel particulate filters (DPF).

MEETING THE CHALLENGES

We decided to investigate installing catalytic converters and diesel particulate filters as well as the possibility of using bio-diesel in place of marine gas oil. Although it soon became apparent that the capital costs associated with retrofitting post combustion technology across the fleet would be extremely challenging, we went ahead

and ordered an SCR system for one of our single engine 1200 BHP tugs, and subsequently we acquired a catalytic reducer for another 1200 BHP tug, with two 600 BHP main engines, the capital cost of the systems was £125,000 for the SCR system and £100,000 in total for the two catalytic converters. We also investigated installing DPFs in these vessels, but it was immediately apparent that there was insufficient space in the engine rooms for the catalytic converter systems and DPFs.

Whilst waiting for the SCR system to be delivered we began investigating bio-diesel because we were aware that while the SCR and CR systems would reduce NOx emissions, they could do nothing to reduce carbon emissions. We began by speaking to inland ship and tug operators in Europe who we knew had been using bio-diesel in their vessels and we were immediately made aware of numerous serious problems that they had all suffered whilst using it, such as a propensity for microbial contamination, filter clogging caused by the formation of carboxylic acid compounds, a tendency for the methyl esters in bio-diesel to absorb moisture from the air, a tendency for the fuel to stratify, short shelf life, poor cold flow characteristics and solvent-like properties that can cause the failure of nitrile seals and pipes.

We also learned that burning FAME in diesel engines often resulted in higher NOx emissions compared to when burning fossil diesel or fossil MGO. It was only through further investigation that we came to understand that bio-diesel is a generic term that covers both fatty acid methyl ester (FAME) and hydro treated vegetable oil (HVO). Effectively these are first generation and second-generation forms of bio-diesel.

LEARNING ON THE JOB

Upon making investigations into the differences between HVO and FAME, it became clear that HVO was a form of bio-diesel that suffered from none of the problems associated with the first generation bio-diesel known as FAME. We learned that at a molecular level, HVO molecules

are indistinguishable from molecules of fossil GTL (gas to liquid) fuel, a top of the range diesel like fossil fuel. Both GTL and HVO contain no aromatic molecules, but instead are comprised entirely of long chain paraffinic molecules, causing these fuels to have a higher cetane number than fossil diesel and so to burn much more readily and much more cleanly.

HVO has the added advantages of not being hygroscopic, not supporting microbial growth, having an almost infinite shelf life, and not affecting nitrile seals and pipes. We learned that HVO is a direct drop-in replacement for fossil diesel and MGO, and that when burning HVO particulates and NOx, components of diesel exhaust are significantly reduced, and that the SOx component is eliminated completely. Most importantly, however, is the fact that the carbon contained in HVO molecules was only removed from the atmosphere very recently (ie when the plant from which the HVO was produced was growing).

Therefore, when burning HVO instead of fossil fuels, we would not be adding to the net carbon in the atmosphere, effectively we would only be recycling carbon. The fact that Neste produced HVO is warranted to contain 0% palm oil and is produced from waste cooking oils was a further incentive to trial HVO in one of our vessels.

PUTTING NEW KNOWLEDGE INTO PRACTICE

In summer 2020, the decision was taken to trial the use of HVO in one of our tugs, the GPS Vincia.

This tug had been the subject of a complete overhaul, including the complete rebuilding of her main engine, which had included fitting a new crankshaft, all new crankshaft bearings, several new cylinder liners, pistons and cylinder heads, and this tug did not trade between the completion of the overhaul work and the start of the HVO trial.

The trial of HVO using the GPS Vincia was commenced in August 2020, and very soon the decision was taken to try to use HVO in the entire fleet of tugs operating on the Thames.

Using HVO in place of fossil MGO delivered all the benefits of the post-combustion technologies without any of the capital cost of the equipment, and without any of the huge costs associated with renewing exhaust systems in stainless steel, and completely rearranging the engine rooms of existing tugs to accommodate very large catalytic converters, Ad-Blue tanks and the electronics necessary to support an SCR type system.

OVERCOMING CHALLENGES

We had learned, however, from the trial with the GPS Vincia that loading fuel from trucks was a logistical nightmare. This was primarily because of the limited number of wharves that were prepared to allow truck to tug bunkering to take place, and the difficulty of ensuring that both tug and truck were at the same place at the same time.

In order to overcome this problem, a small self-propelled tank barge was purchased and completely refurbished to enable it to load HVO at the Stolthaven oil terminal and transport and deliver it to our fleet of tugs as and when required on the rivers Thames and Medway. When this



vessel entered service, in spring 2021, it was immediately possible to change the entire River Thames tug fleet to use exclusively HVO, and this was done during March and April.

Since changing the fleet to HVO we have not noticed any increase in engine repair and maintenance costs. The fuel has been used in small high-speed diesels, high speed mechanical and electronic injection engines as well as in medium speed four stroke and two stroke engines. Fuel consumption has either been unchanged or slightly reduced across the fleet.

The only challenge that we have faced following the change from MGO to HVO has been that clients have been unwilling to accept any increases in cost arising from our use of this low carbon alternative to fossil MGO.

Although it was possible to absorb the increased costs associated with using HVO in 2021 and 2022, the recent increases in interest rates and cost increases more generally which have been the result of high inflation, combined with a reduction in the volume of trade following the pandemic and the trend towards working from home, have all combined to make continuing to bear the full burden of increased costs associated with using low carbon fuel ourselves ever more difficult to justify and sustain. ■

Unblocking Channel Tunnel could deliver faster future for UK rail freight



Ellis Shelton
Policy Advisor,
Logistics UK

Since its opening in 1994, the Channel Tunnel has remained the quickest route for both passengers and freight looking to reach mainland Europe from Folkestone, Kent.

The tunnel provides a significant link between Great Britain and Europe, enabling the logistics industry to transport goods and services internationally via rail.

However, rail freight arriving from Europe is facing limited opportunities for onwards travel due to most of the rail network between Folkestone and London – which has not been updated since the early 1990s – being unable to accommodate standard European freight containers and wagons across its tunnels, bridges and station platforms.

INFRASTRUCTURE MODIFICATIONS

“Major issues that are currently hindering rail freight levels are loading gauges, restricted access to HS1, wagon availability and terminal capacity,” says Ellis Shelton, Policy Advisor at Logistics UK.

“Network Rail has set out a proposal to overcome this barrier by adapting the line from Folkestone, via Ashford and Maidstone in Kent, to Wembley in North London.

“To do this, modifications need to be made to the current infrastructure, including a mixture of track lowering, minor alterations to various structures and imposing speed restrictions in certain areas.

“Light track works will also be required to achieve the correct track gauge clearance of W9a, to enable overseas exchangeable freight containers to pass through.

“Once the cargo has arrived in Wembley there is a clear route to access the rest of the country, as most of the railway network beyond London already holds sufficient clearance – modified rail lines in the UK can accommodate shipping containers dispatched across the globe, including North America, arriving at ports such as Southampton and Felixstowe.”

HIGH SPEED 1 = HIGH SPEED COSTS

Presently, freight trains from across Europe can only reach London via Folkestone by using High Speed 1 (HS1), as it has the necessary gauge to accommodate them. However, there are weight restrictions and extremely high transit fees involved, meaning that only one freight train a day on HS1 is used.

As a result, cargo is often either transported via the Thames Estuary – at a greater cost than rail – or offloaded from trains onto HGVs and delivered via road.

“This process is not only time consuming and costly due to unstable fuel rates, but also impractical, as a large proportion of the cargo will be bulk materials in high volumes, unsuitable for both vans and HGVs,” continues Shelton.

“Road freight operators will need to travel through congested urban areas, and therefore miss the through tunnel rail opportunity.

“By modifying the current railway, including reconfiguring platforms and tunnels, it will allow for these freight containers to travel direct to their destination and encourage further modal shift to rail.

COUNTLESS BENEFITS

Network Rail’s plan is estimated to cost £10 million but could provide countless benefits for the logistics sector.

Upgrading the country’s railway network will increase rail capacity and allow for higher train frequency and larger freight volumes to be transported between the UK and Europe.

By supporting bigger load units on UK rail with minimal intervention, international cargo from across Europe can travel without limitations, creating more trade, business and job opportunities.

In addition, more efficient railways provide the resources necessary to achieve economic growth by stimulating cross-border trade and industrial activity.

“A modernised rail network will present to logistics businesses a more affordable, environmentally friendly alternative for transporting their goods and services,” says Shelton.

“Unlocking freight capacity through the Channel Tunnel will enable rail freight to remain competitive and efficient, alongside providing benefits that will bring economic value for the whole UK economy.”

IMPROVED DECARBONISATION

In addition to reducing costs, improved rail freight services will help to decarbonise the sector by removing 20,000 HGV journeys from the UK's roads every week, as estimated by The Times in July 2023.

This has the potential to draw further trade into the economy by attracting eco-conscious shippers who are looking to attain a low-carbon footprint.

Given the impending net zero deadline, increasing congestion on the road network in and around Kent in no way feels forward thinking, whereas reducing pressure on Short Straits ports and the road network through modal shift certainly does: switching from road to rail would reduce transit times and contribute towards business efficiency as 'just in time' deliveries can be maximised.

"The Short Straits are a vital, but fragile trade route," says Shelton. "During peak times, a contraflow system known as 'Operation Brock' is implemented, with the aim of reducing congestion across Kent and managing the freight flows to the Port of Dover and Eurotunnel.

"However, this is not a practical solution and will not be a long-term answer for the logistics industry as it is estimated to cost the economy up to £250 million a day.

"These figures highlight the increasing need for rail freight to be utilised between Folkestone and London, and Logistics UK is urging government to push forward with Network Rail's proposal."

SHORT STRAITS = BIG DEAL

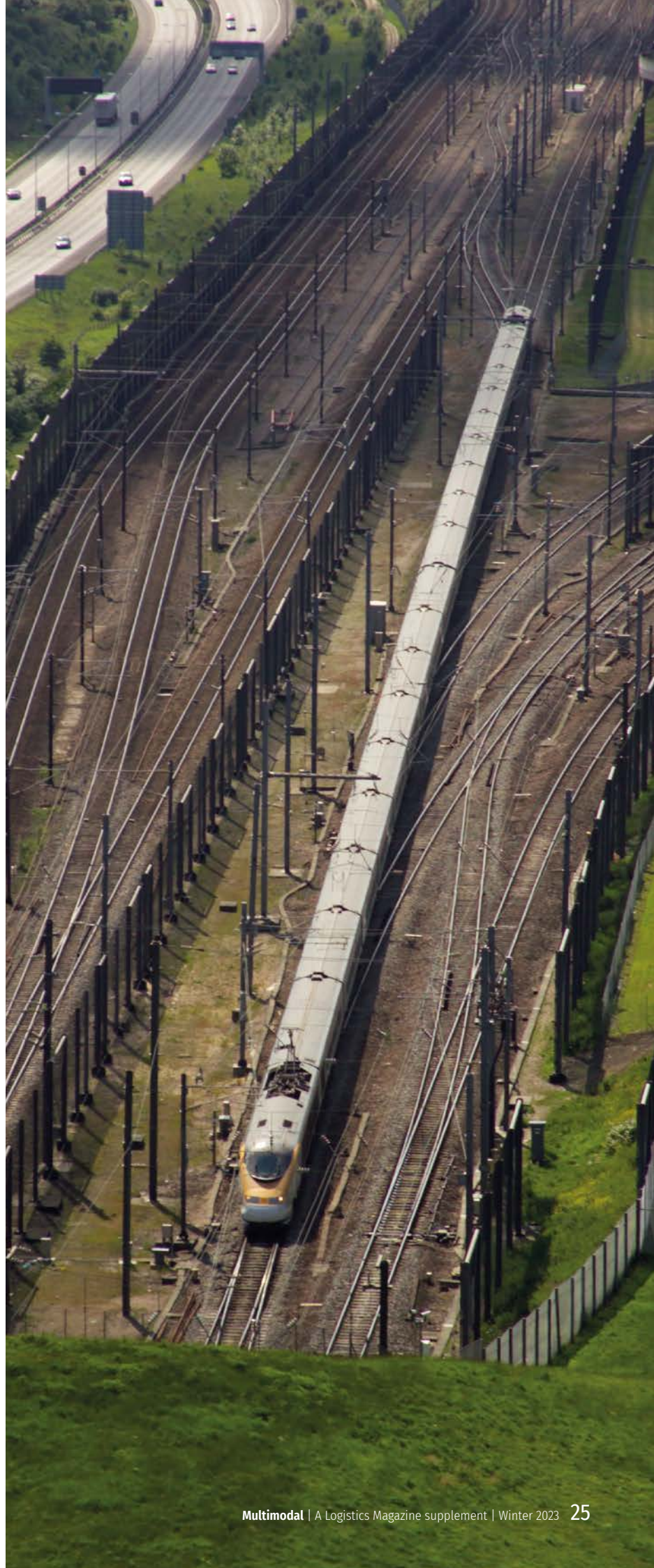
The Dover to Calais route by sea across the English Channel accounts for two-thirds of trade between Britain and Europe, with several thousand lorries crossing on ferries each day.

However, during the first quarter of 2022/23 international movements for rail freight accounted for just 1.6% of freight moved via the Channel Tunnel. This represents a decline of 1.9% when compared to the previous quarter and further suggests that unlocking the Channel Tunnel for rail freight is vital to the future of freight in the UK.

"Unlocking the Channel Tunnel has the potential to transform the rail freight industry through streamlined operations and reduced costs," concludes Shelton.

"Logistics UK recognises that there will be challenges facing the sector for implementing these modifications, and coordination amongst stakeholders will be vital to improve the market for Channel Tunnel rail freight."

Logistics UK will continue to communicate with its members and government to ensure all opportunities are maximised. ■



Sky's the limit for UK aviation



Rob Griggs

Policy and Public Affairs
Director, Airline UK

Airlines UK is the trade body for UK registered airlines, with members representing all sectors of the industry, employing in excess of 90,000 people, serving over 276 million passengers and carrying around 1.2 million tonnes of cargo. They work with governments, regulators and legislators to promote the interests of UK airlines, and with organisations across the sector to encourage long-term and sustainable growth in aviation.

We spoke to Robert Griggs, Airlines UK's Policy and Public Affairs Director, about aviation's ongoing transition to net zero, modernising airspace, night flights and the importance of air cargo.

One of your main policies is to help the aviation industry reach net zero. What are the main barriers to reaching net zero carbon for UK aviation by 2050? And how will the UK surmount them?

That's a huge question.

It's our industry's number one priority, I would say, and has become increasingly so over the last few years.

It's worth noting from the off that the UK aviation industry, not just the airlines but the whole sector, was the first national industry to commit to net zero by 2050. We did that as a sector in February 2020. Essentially, the world has followed our lead on that. There is now global commitment to reach net zero by 2050 and the world has recognised that that is what we need to achieve.

Sure, we often get pushback where people ask, "Is that even possible? Can you really decarbonise aviation?" And our answer to that is an increasingly confident, "Yes, we can!"

We have most of the technologies we need to reach net zero now. They're available. The problem comes down to one of scale and successfully bringing those technologies into use. Sustainable aviation fuel is a big factor, but also looking forward, you have hydrogen-powered aircraft and electric aircraft on shorter routes. Things like airspace modernisation whereby we can make flights more efficient by making routes more direct. There's a number of things we can already do and we have the technology.

What we really need is the political will and the investment to enable that to happen as quickly as possible.

How crucial is it that the UK is at the forefront of investment in green aviation fuels?

The UK has always been a pioneer of aviation and aerospace – the jet engine etc – so the aviation industry is genuinely a strategic advantage for the UK. We have a world-leading sector and are the third largest aviation market in the world behind only the USA and China. So aviation certainly has an outsized role for us.



What that means in practise for decarbonisation is that there are huge benefits if we lead the transition, because eventually it has to happen everywhere.

We've got the Aerospace Technology Institute, which is a partnership of industry and government, and can lead the way in developing zero-emission hydrogen-powered aircraft – working with the big manufacturers – which ultimately will become technologies that we can export and sell. So the benefits of developing those net zero technologies are for sure cutting carbon, but also the subsequent jobs the new technology creates.

We are part of the Sustainable Aviation Coalition, which represents pretty much the entire UK aviation industry, and we published our updated net zero roadmap in February this year explaining how we're going to get there as a sector. And the use of sustainable aviation fuels is absolutely key, the biggest single impactful technology on the journey to net zero.

Why is SAF so significant?

Essentially, SAF acts and looks and smells like kerosene. It works in contemporary engines, you can put it in a current aircraft and those aircraft are likely to be in service for the next ten or twenty years.

That's why it's so important. You don't need new infrastructure, boldly speaking, and you don't need to invent new aircraft: it works.

And what we know is that the UK has the feedstocks and the technology to specialise in the next generation of SAF. Essentially, that means fuel that can be made from

agricultural waste, household and commercial waste – and literally bin bag waste – can be made into SAF, as well as captured carbon from industry and those sort of things.

We have huge capacity to build SAF production plants in the UK over the next few years, which we think can meet the majority of demand expected over the coming years.

We're going to have a 10% mandate from government, so in 2030 10% of all aviation fuel will need to be SAF. And that number will gradually increase over time.

We think a huge amount of that can be met by UK production, which will be great, creating 10,000 jobs in the industrial heartlands of the UK, which in many cases have seen better days. These places are where these industries would live, so there are huge levelling-up and economic benefits, too.

The problem at the moment is that we don't quite have the policy mix that will help us to get those plants built and that supply online. That affects our ability to decarbonise because we'll be competing to get SAF in a world where there isn't enough of it yet. And if we aren't able to meet that mandate, there's a danger of a knock-on effect on things like ticket prices.

So addressing SAF production and SAF costs is a priority for us. It is a more expensive fuel right now compared to normal kerosene. But that price can come down if we get the scale and the right policy incentives.

How critical is modernising airspace on the road to net zero?

Modernising airspace is really important.

The first thing to say is that the UK's airspace is incredibly safe, but it was designed in the 1940s/50s and hasn't been fundamentally upgraded since. What that means is we've been putting more and more capacity into what are fairly inefficient routes through, across and around the UK and into our airports. Which, in turn, means there is a reasonable amount of inefficiency and wastage, with aircraft having to circle airports or take circuitous routes when they could just be entering at a point and leaving at another and completing their journey in the most direct way.

We have technology available that allows flights to be more carbon efficient and shorter, so everyone can benefit, but that requires essentially a redesign of our airspace for that to happen.

It sounds simple and it is already being rolled out and there's a programme to do that, but the complications are that we're relatively small geographically with a huge amount of aviation happening around that. There are a lot of inter-dependencies between airports that have got lots of overlapping airspace and all that sort of thing.

On the whole though, modernising airspace should give us more tools to things like noise impacts around airports. It should enable us to fly routes that are smarter and avoid built-up areas.

But inevitably when you have this number of changes, meaning some communities may encounter flights they hadn't encountered previously, there has to be a consultation process to make sure that it's done fairly, that impacts are understood and mitigated. It's a really important process.

However, it's also probably the cheapest and quickest way we can take a few percentage points out of our carbon usage over the next few years.

We don't need to invent anything new. But we do need to get through the complexity and we do need to put the effort in.

How much of a problem is air freight capacity in this country?

At Airlines UK we represent a number of clients who are important in the air cargo world. Not just dedicated cargo and logistics airlines, but also passenger airlines which carry a lot of international freight in their bellyhold.

We did a really important report years ago because we sensed that air cargo was increasingly becoming the Cinderella of the aviation world: it's really important, but people don't really appreciate just how important it is in what it does.

Paint the picture for us, please

Something like 40% of the value of our international trade is flown into the country in the bellyhold of a passenger aircraft. So in terms of enabling UK trade, allowing exporters to do their thing, but really for the whole economy in general, having air cargo capacity is really important.

Growth in air cargo hasn't matched what we've seen in other parts of the aviation sector – and there are questions

as to why that is and whether capacity is part of that. I think the thing that we've focused on, and that's been a real issue for us, is the importance of night flights. Again, this can be a contentious area, so we need to make sure any changes are carried out appropriately.

We need these type of flights for UK businesses to run efficiently, so we need to make sure the night flight programme works for communities, but also for the wider economy.

There's this thing called the 'balanced approach', which is internationally agreed guidance that should determine how you run night flights while minimising disruption to communities and maximising opportunity for the economy.

It's things like being sensible with where you plan houses. Unfortunately, we do still see a bit of a disconnect between parts of government that are working on housing policy and parts of government that are working on trade, so making sure planning is joined up as much as possible is really key here.

Air freight is certainly very important and must not be forgotten about when we're talking about capacity and night flights and doing all those things.

What was your reaction to Manston Airport being given the green light to re-open? (Full story, pg 12)

At Airlines UK we watch these things with interest. It'll be interesting to see what airlines would consider operating out of there, what they might need and how they might be supported.

I grew up next to Manston, so it loomed large in my childhood. It's a beautiful part of the world with a fascinating history, but also a congested area in terms of capacity and Manston's designed to give that much-needed extra capacity. So best of luck to them and we'll watch with interest.

Lastly, what have been the biggest advancements you've seen so far within UK air freight and how optimistic are you for a bright future for UK air freight?

I'm very optimistic. We're a pioneer in aviation. We've got great infrastructure. It needs to be improved and updated, but there are great opportunities.

In terms of air freight: the nature of its business model means you tend to use older aircraft that don't achieve the same carbon efficiencies as you would in the passenger world, who are buying new fleets that are 20-30% more efficient.

This further suggests why SAFs are going to be so important, because it's the fuel you're getting the decarbonisation benefits from.

In the UK we are on the pathway to SAF. When we get to the 10% mandate and start to see exponential growth, then you'll start to see some significant reductions in carbon emissions in aviation. ■

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Unlocking Northern Ireland's rail freight potential



Ellis Shelton
Policy Advisor,
Logistics UK

The railway network is an indispensable part of Great Britain's economy, transporting 10.48 billion net tonne miles of rail freight in 2022 – an increase of 11.3% from 2021.

And while rail freight is flourishing in many areas of Great Britain, Northern Ireland's rail network accommodates only passenger services; no freight is moved by rail currently.

"Logistics UK is calling for the rapid development of rail freight in Northern Ireland," says Ellis Shelton, Policy Advisor at Logistics UK.

"The expansion of rail freight services within Northern Ireland is essential to provide sustainable transportation solutions that align with the UK government's ambition of a net zero carbon economy."

ALL-ISLAND STRATEGIC RAIL REVIEW

In 2021, the governments of the Republic of Ireland and Northern Ireland launched the All-Island Strategic Rail Review (AISRR), to examine how the Island's railways are currently used, what role rail could play in the future, and how the Island's railway could better serve the people of both jurisdictions.

The final report was released in July 2023 and provided 30 recommendations as to how rail could be used effectively to contribute to decarbonisation, enhance regional accessibility, encourage sustainable mobility, achieve economic and financial feasibility, and improve All Island connectivity between major cities.

"The All-Island Strategic Rail Review provided a much-needed vision for expanding rail freight across the island of Ireland," says Shelton.

"Now, we need commitment and investment from governments to make it happen. Northern Ireland needs an Executive and Assembly to be reinstated and for it to work in partnership with the Irish government to take these transformative projects forward," continues Shelton.

CLIMATE ACTION PLAN

Northern Ireland's first Climate Action Plan, covering 2023 to 2027, is expected to be released for public consultation imminently.

"It is crucial that the implementation of rail freight networks is a clear focus for action within the plan," says Shelton.

"Road congestion is a key issue in Northern Ireland, especially in urban areas such as Belfast, as it relies heavily on road transport for most of its freight movements.

"Moving freight via rail instead of road holds numerous benefits. Emitting fewer carbon emissions than other modes such as road, its green credentials effectively align with the Assembly's net zero 2050 deadline.

"By shifting a significant amount of road freight to rail, it will reduce traffic congestion, air pollution and road maintenance costs in Northern Ireland," says Shelton.

CLEAR BENEFITS TO NORTHERN IRELAND'S ECONOMY AND BEYOND

"Northern Ireland holds untapped potential to facilitate the movement of goods between the UK and EU via rail due to its geographical location," says Shelton.

"An efficient rail freight network will enable Northern Ireland's businesses to connect with the rest of the UK more effectively and serve as a gateway to Europe and beyond.

"Implementing rail freight operations in Northern Ireland will help to foster economic development, increase trade opportunities, enhance connectivity and improve environmental sustainability; it is imperative that focus is placed on making this a reality," Shelton concludes. ■





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