

Freight matters

Insight into the UK freight industry's
key data, trends and issues

July 2019

Foreword

Welcome to AECOM's first Freight Matters report.

The freight sector is an important and growing contributor to the UK economy. At the same time, it is facing significant pressure responding to evolving environmental legislation and the costs and effects of the UK's changing relationship with the European Union.

Our *Freight Matters 2019* report provides expert analysis of the leading domestic and international freight statistics and research sources that matter, covering all modes of transport — road, rail, water and air.

It brings together, in one place, a high-level overview of industry trends with insight from AECOM's freight and logistics specialists.

We hope you find the information useful and stimulating.



Keyvan Rahmatabadi

Director,
Head of Transportation Planning, UK
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Contents

The UK Freight Sector	4
Road Freight	5
Air Quality Matters	8
Rail Freight	9
EU Matters	12
Water Freight	13
Safety Matters	16
Air Freight	17
Technology Matters	20
Sources	21
AECOM Freight and Logistics	22
Authors	23

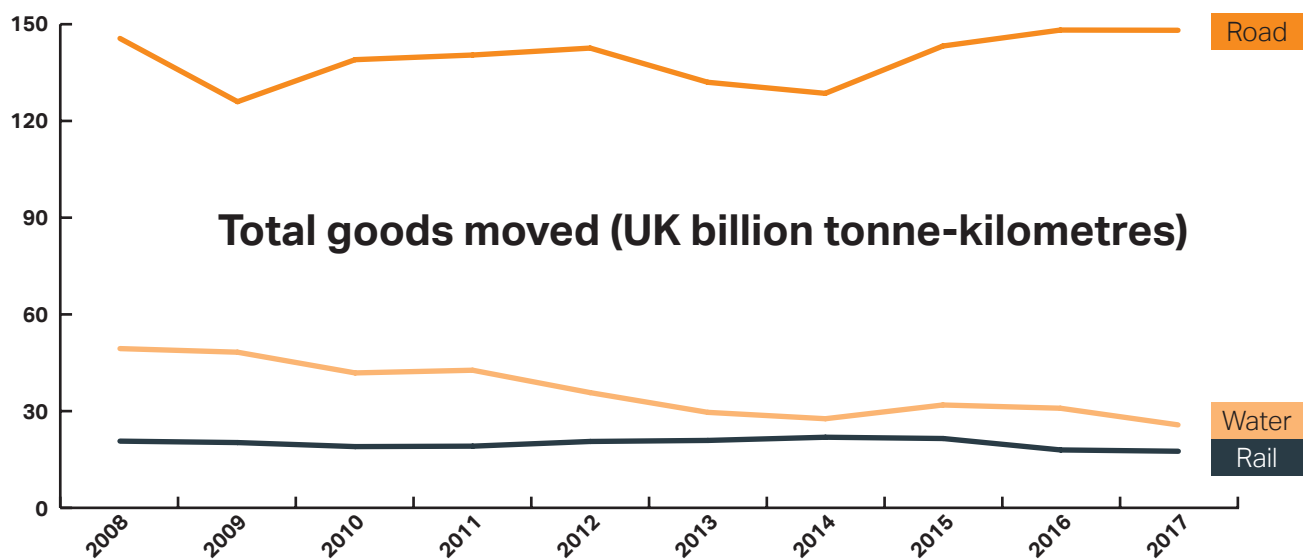
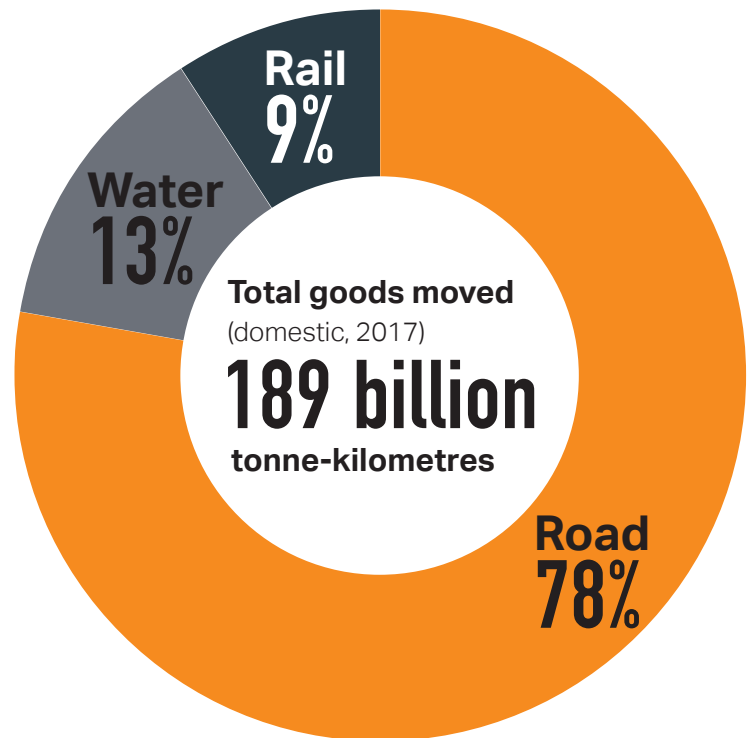


Freight in the UK

The freight sector is one of the UK's largest industries and plays a crucial role in the economy, contributing an estimated £62 billion Gross Value Added (GVA) yearly.

Domestic air freight represents a small portion of goods moved compared to the other modes.

Road freight is the predominant mode for the domestic movement of goods.



Road freight

In the twelve months ending March 2018, goods moved — which is a measure of freight that takes account of the weight of the load and the distance that it is hauled — in the UK by GB-registered heavy goods vehicles (HGVs) totalled 149 billion tonne-kilometres. This represents a 1 per cent decrease compared to the previous twelve months. Goods lifted — which is the quantity derived by adding together the weight of all the loads carried — decreased by 7 per cent, to 1.37 billion tonnes in the same period.¹

Similarly, international road freight activity for HGVs registered in the UK and transporting freight internationally decreased by two per cent from the previous period, with 7.7 million tonnes of international goods lifted.²

This decrease could be explained by different factors, such as pressure on price, driver shortage, the increase in the cost of diesel and the uncertainty over Britain's future relationship with the European Union (EU).

The top freight commodity transported by road in 2017, as a proportion of goods lifted, is food products.³ The UK food and drink supply chain depends heavily on road transport to service regional distribution centres and stores.

The following section provides up-to-date key statistics on domestic and international road freight activity in the UK.

ROAD FREIGHT JARGON

CAN bus

Modern vehicles use a CAN bus to transfer information between the various electronic vehicle components and devices. It helps register fuel consumption and driving style and streamline maintenance processes.

Cabotage

Cabotage is the transport of goods between two places in the same country by a transport operator from another country.

Direct Vision Standard

The Direct Vision Standard (DVS) for HGVs assesses and rates how much a driver can see directly from their HGV cab in relation to other road users. The DVS forms part of a proposed Safety Permit for all HGVs over 12 tonnes entering London.

Fleet Operator Recognition Scheme

The Fleet Operator Recognition Scheme (FORS) is a voluntary accreditation scheme that measures fleet performance and aims to drive up standards across areas, such as fuel efficiency, carbon emissions and road safety.



1 https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/748101/road-freight-statistics-april-2017-to-march-2018.pdf

2 Ibid.

3 https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/728840/rfs0104.ods

Road – Domestic

Contribution
to UK economy:

£12.4 billion

(up 4% on 2015)

Employment:

284,000

individuals

(up 15% on 2015)

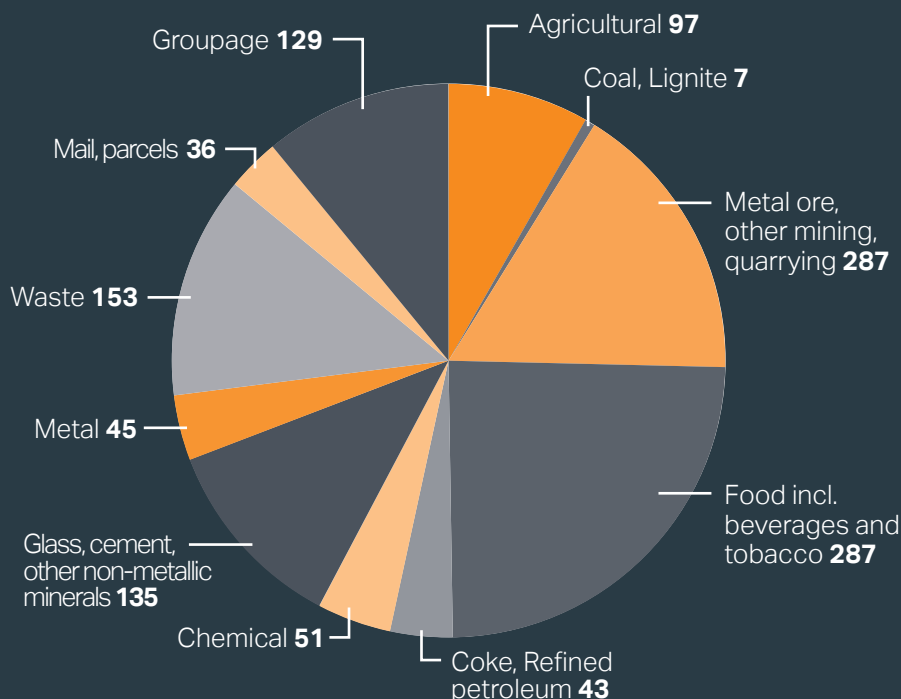


Licensed HGVs:

499,400

HGVs were licensed in Great Britain at the end of 2017, of which around **408,200** were taxed as goods vehicles.

Goods lifted by commodity 2017
(million tonnes)



GOODS MOVED

149 billion  **DOWN 1%**
tonne-kilometres

GOODS LIFTED

1.37 billion tonnes  **DOWN 7%**

Artic



Rigid

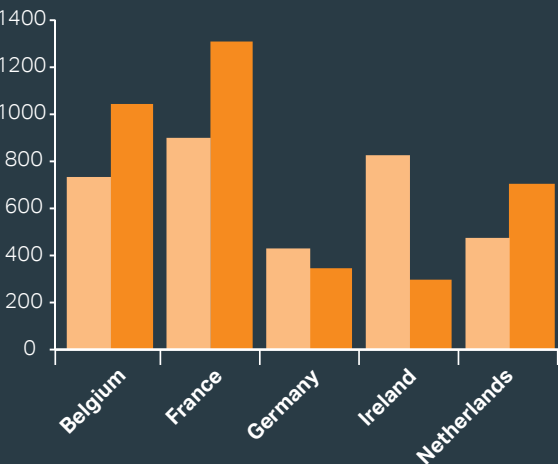


Road – International

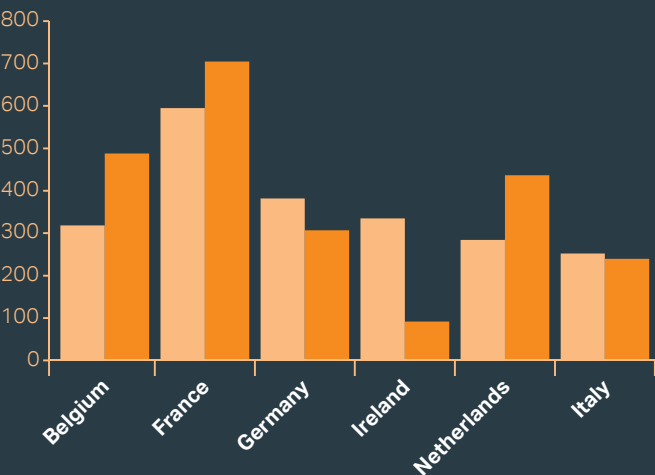
Top EU countries trading with the UK:

Imports to UK Exports from UK

Goods lifted by road 2016
(thousand tonnes)



Goods moved by road 2016
(thousand tonnes)



Air quality matters



Raj Sharma

Principal Consultant,
Freight and Logistics,
AECOM, UK and Ireland

There has been a growing trend of local authorities across the UK planning or implementing Low Emission Zones (LEZ) or, like Birmingham, Leeds, Nottingham, Derby and Southampton, being mandated by the Government to introduce Clean Air Zones (CAZ).

Reactive solutions

The Government expects 23 local authorities to reach illegal pollution levels by 2021. In response, they must all carry out a feasibility to determine whether a CAZ is required.

Nottingham City Council and Southampton City Council have recently rejected plans to implement a CAZ, because they feel the measures they already have in place to improve quality meet the legal requirement.

Nottingham City Council's existing projects to improve air quality include retrofitting 180 buses with clean exhaust technology, requiring every taxi and private hire vehicle in the city to be low emission, and the council replacing its own fleet of heavy vehicles — such as bin lorries — with electric or other low-emission vehicles.

Both LEZs and CAZs are reactive responses to combat poor air quality, but how successful can these initiatives be and what impact do they have on the freight industry?

Current impacts

Studies have shown that the introduction of LEZs and CAZs do indeed help reduce emissions in those areas. There is also evidence, however, showing that the level of air quality is significantly reduced outside these boundaries.

Many of these zones ban older freight and servicing vehicles, but operators will typically use their most polluting fleet outside of these zones, again decreasing the air quality beyond of the set boundaries. So, is the problem just being pushed from one area to another? It would be useful for policy development to monitor the air quality levels outside the zones before and after the introduction of these initiatives.

Making zero-emissions technology work

From an industry perspective, operators and manufacturers have to explore options to make zero-emission technology work for them.

For example, companies, such as Calor, have explored alternative fuels and schemes. This includes the 'Dedicated to gas' trial led by Air Liquide, under which operators

— such as Kuehne + Nagel, Wincanton and Asda — will trial the effectiveness of gas-powered heavy goods vehicles (HGVs) new to the UK market, as well as new cryogenic transport refrigeration units.

There are other solutions, including out-of-hours deliveries that move delivery and servicing activity out-of-peak hours, and last-mile deliveries that use electric vehicles or cycles, that involve minimal cost for the operator to implement and could even result in improved efficiencies.

The reality for most operators, however, is that, with charges of up to £100 a day for HGVs below the Euro VI standard, the only option will be to pass the costs on to their customers. Yes, it is true that these zones may encourage operators to upgrade their fleet, but the impact on smaller operators will be greater and they may find this difficult to achieve.

Rail freight

Rail freight activity contributes £870 million to the UK economy and employs approximately 6,300 individuals.¹

Overall, freight moved by rail has declined in 2018, with approximately 17 billion tonne-kilometres moved. This represents a 1.7 per cent drop from 2017, and 9 per cent of UK's total goods moved. This recent decline in freight moved by rail has been the result of a fall in coal moved.² This is due to the Government's energy policy phasing out coal-fired electricity generation in the UK by 2025.

Rail freight has contributed to reducing congestion and carbon

emissions, with 8.2 million lorry journeys avoided in 2017.³ Rail is also an increasingly safe form of transport, with a 54 per cent reduction in freight train accidents over the last ten-year average.⁴

Internationally, the value of trade transported via the Channel Tunnel — including Le Shuttle — was worth £121.92 billion in 2016, equivalent to 26 per cent of total UK-EU trade.

EU imports from the UK reached £61.05 billion in 2016 and exports accounted for up to £60.87 billion, with postal and carrier freight the largest category of both imports and exports.⁵

Rail freight trains through the Channel Tunnel offer the advantage of a Channel crossing without the need for modal shift, in an eco-friendly means of transport; and with a service quality independent of weather conditions and road networks. After a significant surge in traffic from 2010 to mid-2015, Channel Tunnel rail freight trains in traffic dropped by one-half due to disruption by migrants in the Calais area, before stabilising in 2016 and returning to strong growth, reflected by 2,077 freight trains running through the tunnel in 2018.⁶

The next section presents recent data on UK rail freight operations.

RAIL FREIGHT JARGON

Total Operations Processing System

The Total Operations Processing System (TOPS) is a computer-based program used to monitor the movements of all freight and passenger rolling stock and locomotives.

Rolling Stock

This is any stock that can run on the track. It includes locomotives, carriages, freight wagons and maintenance vehicles.

Loading Gauge

The maximum height and width for railway vehicles and their loads to ensure safe passage through bridges, tunnels and other structures.

Intermodal Transport

The transport of freight in an intermodal container/vehicle, using multiple transport modes, without any handling of the freight itself when changing modes.



1 https://www.unipartrail.com/assets/oe_report_ria2018.pdf

2 http://orr.gov.uk/_data/assets/pdf_file/0010/27919/freight-rail-usage-2017-18-quarter-4.pdf

3 Ibid.

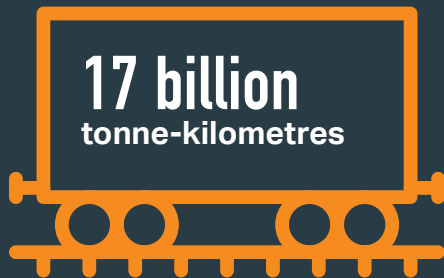
4 <https://www.rssb.co.uk/Library/risk-analysis-and-safety-reporting/annual-safety-performance-report-2017-18.pdf>

5 <https://www.getlinkgroup.com/uploadedFiles/assets-uk/the-channel-tunnel/180604-EY-Channel-Tunnel-Footprint-Report.pdf>

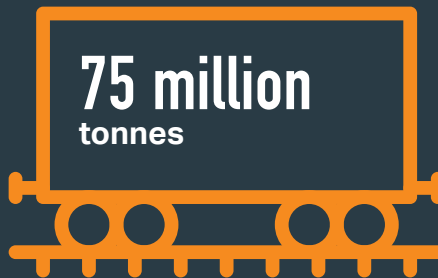
6 <https://www.getlinkgroup.com/uk/eurotunnel-group/operations/traffic-figures/>

Rail – Domestic

GOODS MOVED 2017–18



GOODS LIFTED 2017–18



LORRY JOURNEYS AVOIDED 2016–17



Total output of the
freight rail sector, 2016:

£0.9 billion

(up 4% on 2015)

Employment:

6,300

individuals
(2016)



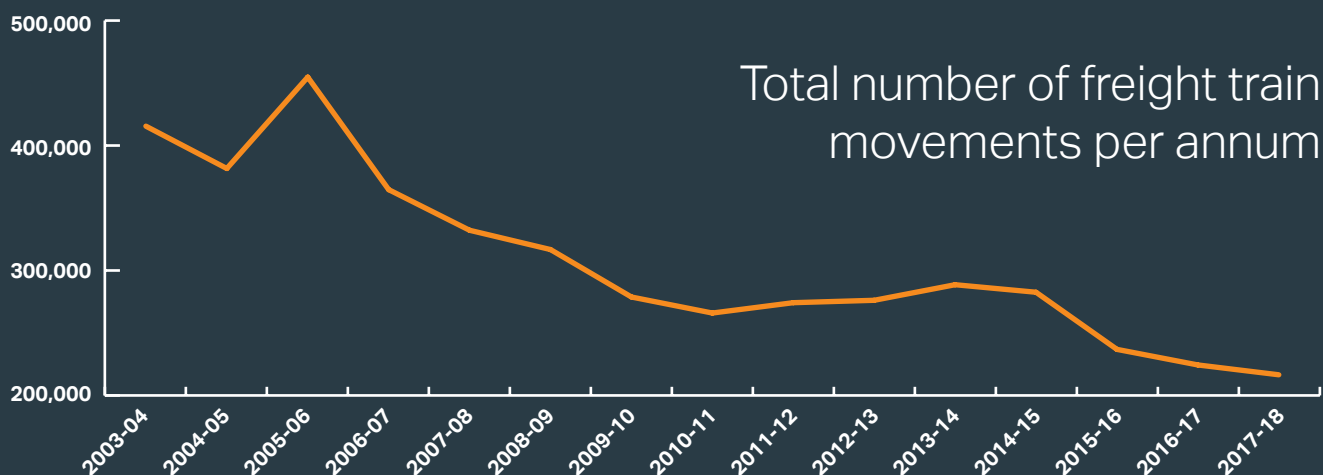
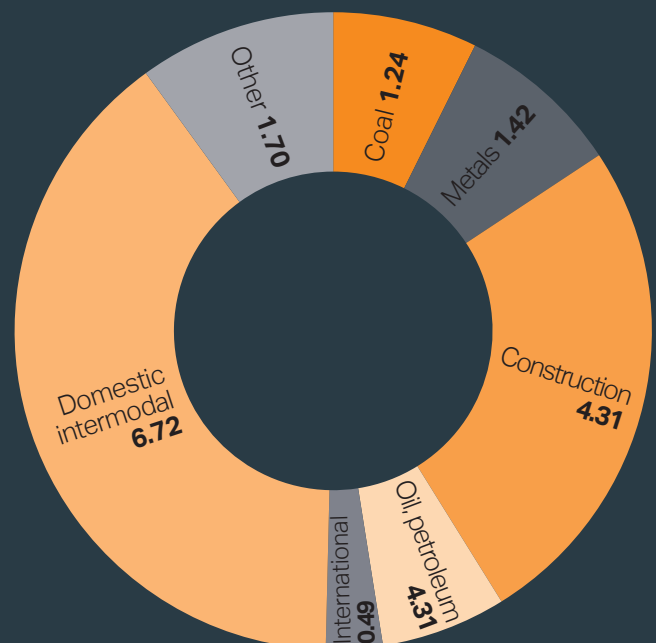
SAFETY



54% reduction in
freight train accidents

(from last ten-year average)

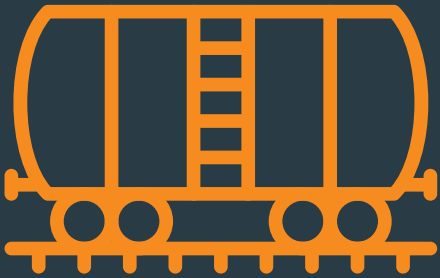
Goods lifted by commodity 2017 (million tonnes)



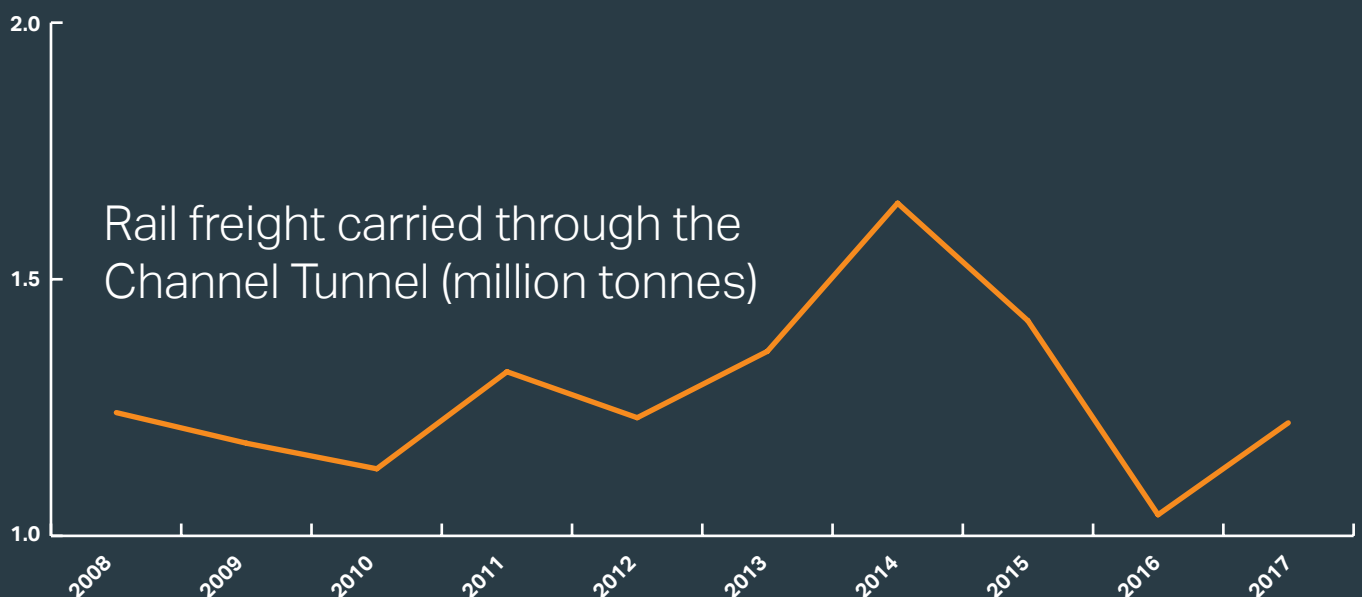
The linked sources for these figures are listed in Sources, page 21.

Rail – International

2,077 freight trains through the Channel Tunnel in 2018



UK trade through the Channel Tunnel — 2017



The linked sources for these figures are listed in Sources, page 21.

EU matters



Daniel Bowden

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In the year ending March 2018, 3.5 million road goods vehicles travelled from Great Britain (GB) to Europe; and in 2017, UK heavy goods vehicles (HGVs) made 261,000 trips from GB to mainland Europe and 83,000 trips from GB to the Irish Republic. Some 99 per cent of these journeys did not require customs checks.

EU hauliers operate over 80 per cent of the freight transported by heavy goods vehicles (HGV) between the UK and Continental Europe. Intra-EU aviation routes grew by 303 per cent between 1992 and 2015, and rail connections via the Channel Tunnel continue to provide a critical, high-speed Roll-on/Roll-off (Ro-Ro) connection between the UK and mainland Europe.¹

Maintaining the status-quo

The UK Government is keen to maintain the status-quo in terms of transport operators' rights and freedoms following the UK's exit from the EU. Aligning on safety, security and regulation will also be key, through a combination of bi-lateral agreements or as part of a wider free-trade deal.

As well intentioned as that may be, the practicalities of a deal with the

EU remain complex — namely how goods coming through borders will be managed. Even if the transport sector in the UK post-Brexit may not look wildly different to how it looks now, the big question is how UK transport providers and businesses will interact with the EU in the future.

Future interaction

In July 2018, the Haulage Permits and Trailer Registration Act 2018 received Royal Assent, providing for a registration scheme for trailers in international circulation. Coupled with additional arrangements around driving licences, trailer registration and potentially Driver Certificate of Professional Competence (CPC), the no deal scenario adds significant difficulty to an already heavily regulated sector, as well as challenges around borders, customs/security declarations, driver resourcing and traffic management.

Industry associations, such as the Road Haulage Association (RHA) and Freight Transport Association (FTA) continue to lobby government around the needs of the industry and the imperative to ensure 'frictionless borders' as well as holding them to account when they fall short of their expectations.

Flexible, resilient and responsive

While it is important not to play down the potential adverse impacts of a no deal Brexit, UK logistics operators have a reputation for being flexible, resilient and responsive. When faced with difficult situations, such as adverse weather or when industrial action occurs, the industry is praised time and again for its ability to adapt. While trade may not be frictionless, the logistic industry will face challenges, but certainly won't collapse.

Whatever the outcome, the freight transport sector, along with other sectors, will be affected by Brexit. The best way to prepare is to familiarise the industry with the possible outcomes, be aware of new requirements that may be imposed post-Brexit, and carefully consider the resilience of the industry towards a possible temporary disruption.

¹ https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/714676/Framework_for_the_UK-EU_partnership_Transport.pdf

Water freight

The freight maritime sector contributes over £14.5 billion per year to the UK's economy, with around 95 per cent of all imports and exports being transported by sea. It also supports directly 186,000 jobs.^{1,2}

The amount of waterborne freight moved has been steadily decreasing since its peak in 2000, with the 2008 recession resulting in the largest year-on-year decline recorded in the

last 30 years. In 2017, freight traffic through all UK ports accounted for 481.8 million tonnes.³ Liquid bulk and Roll-on/Roll-off (Ro-Ro) are the major cargo types to be handled.

Domestic water freight traffic accounted for 19 per cent of all tonnage through major UK ports. International water freight reached 383.6 million tonnes in 2017. The majority of this was with the EU,

accounting for 55 per cent of all international cargo moved.⁴ The UK continues to import more than it exports.

The water freight statistics provided in this report focus on the distribution of trade throughout UK ports, as well as key trade partners by both short and deep sea.

WATER FREIGHT JARGON

Roll-on/Roll-off

Roll-on/Roll-off (Ro-Ro) ships are vessels designed to carry wheeled cargo, such as cars, trucks and trailers, that are driven on and off the ship on their own wheels or using a platform vehicle.

Deep sea

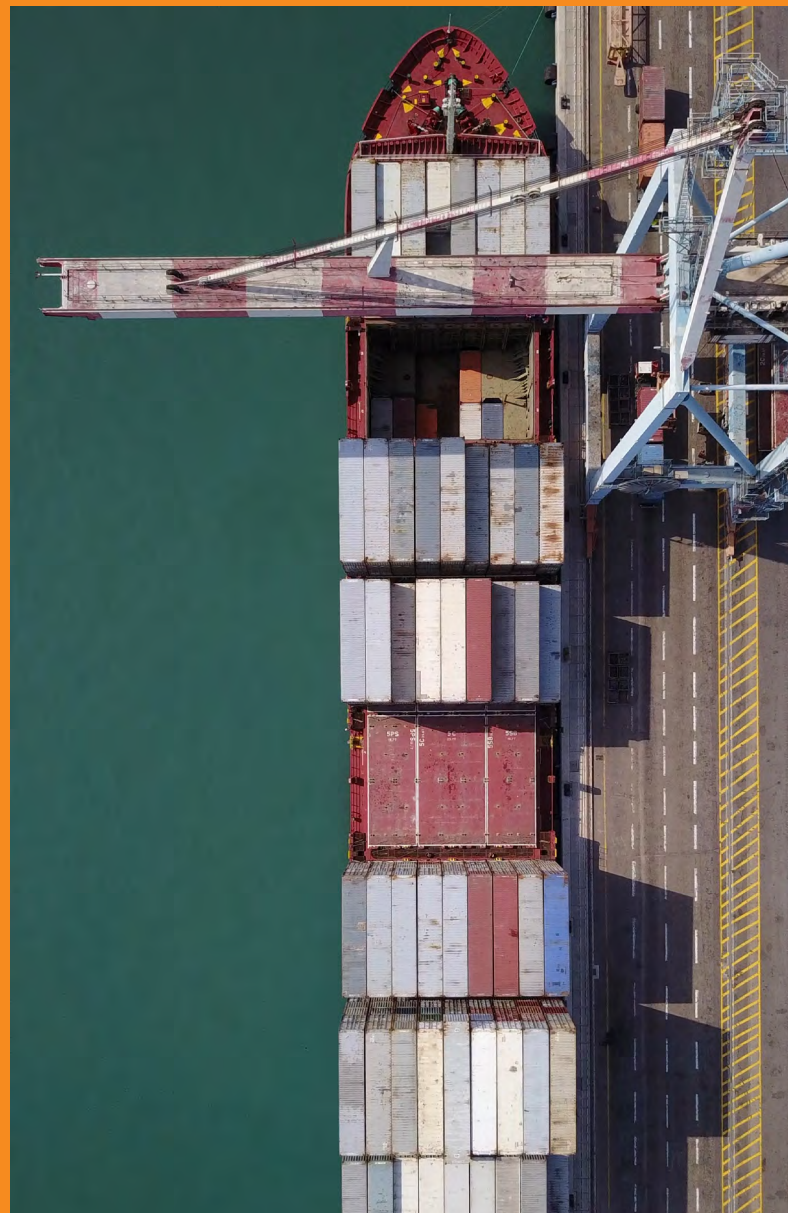
Deep sea is maritime traffic that crosses oceans, as opposed to short sea traffic that can move along a coast within a continent.

Lift-on/Lift-off

Lift-on/Lift-off (Lo-Lo) ships are cargo ships with on-board cranes to load and unload cargo.

Twenty-foot Equivalent Unit

Twenty-foot Equivalent Unit (TEU) is a standardised measure for the cargo-carrying capacity of a container ship. It allows for the different sizes of container boxes. One TEU is equivalent to a standard 20-foot container.



1 https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/725560/maritime-annual-report-2017-2018.pdf

2 https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/762200/port-freight-statistics-2017.pdf

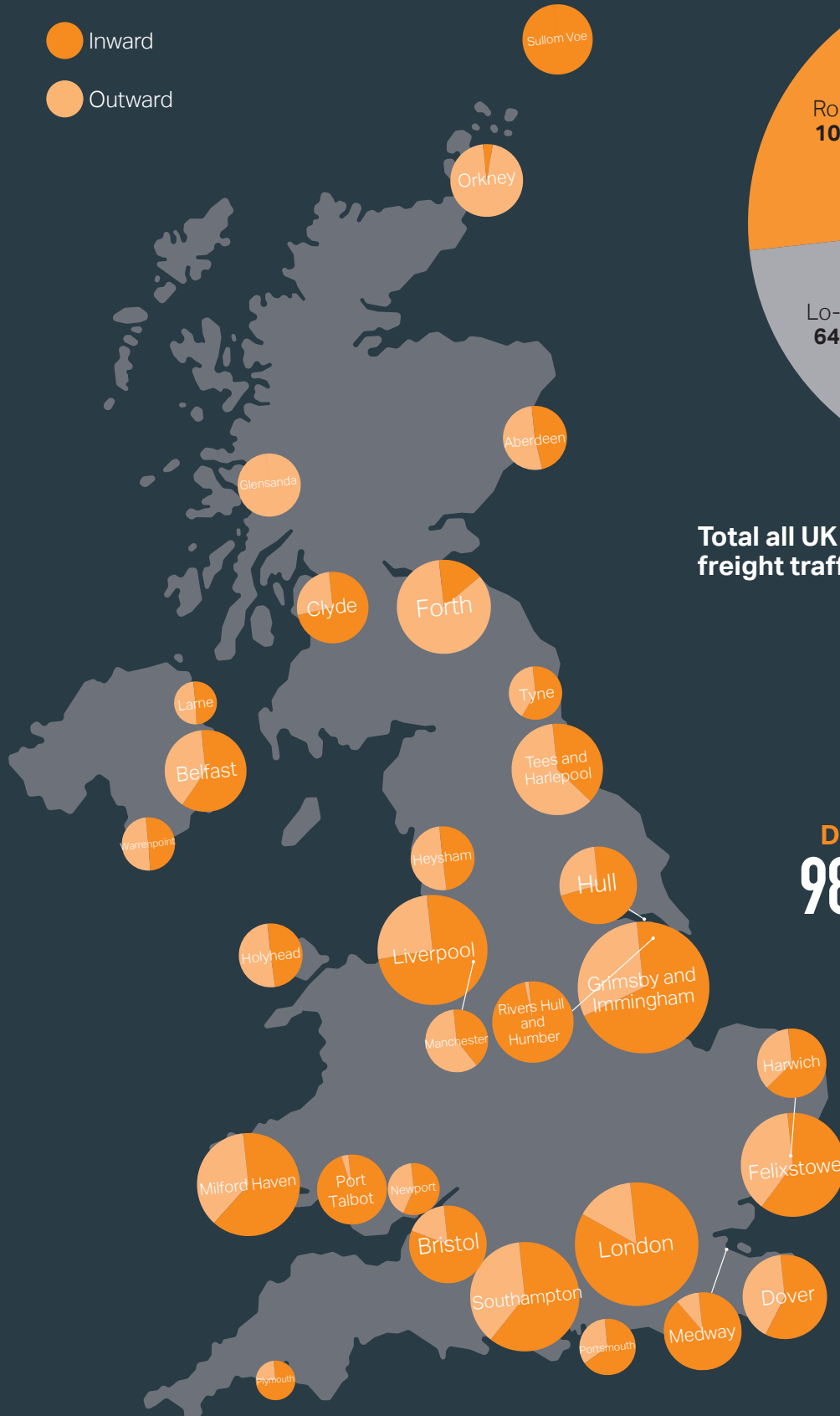
3 Ibid.

4 Ibid.

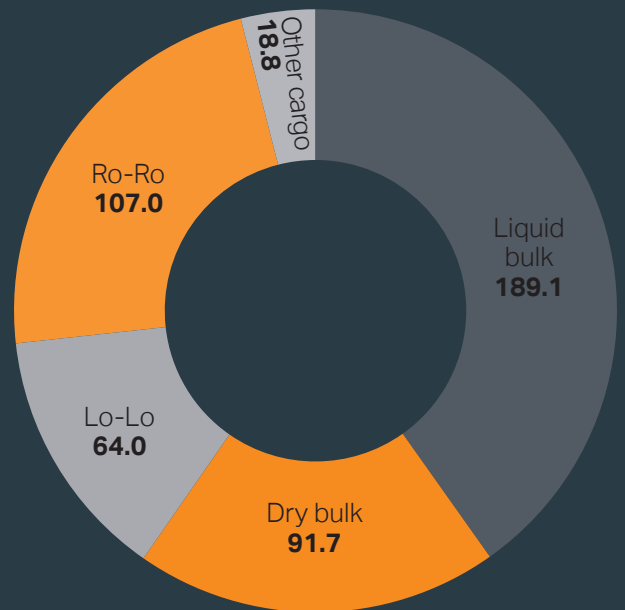
Water

UK major ports by traffic over 2 million tonnes 2017

- Inward
- Outward



UK major port freight by cargo type, 2017 (million tonnes / Mt)

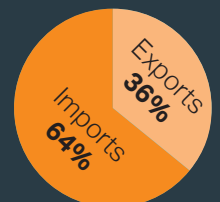


Total all UK port freight traffic cargo

481.8 Mt

Domestic
98.2 Mt

International
383.6 Mt

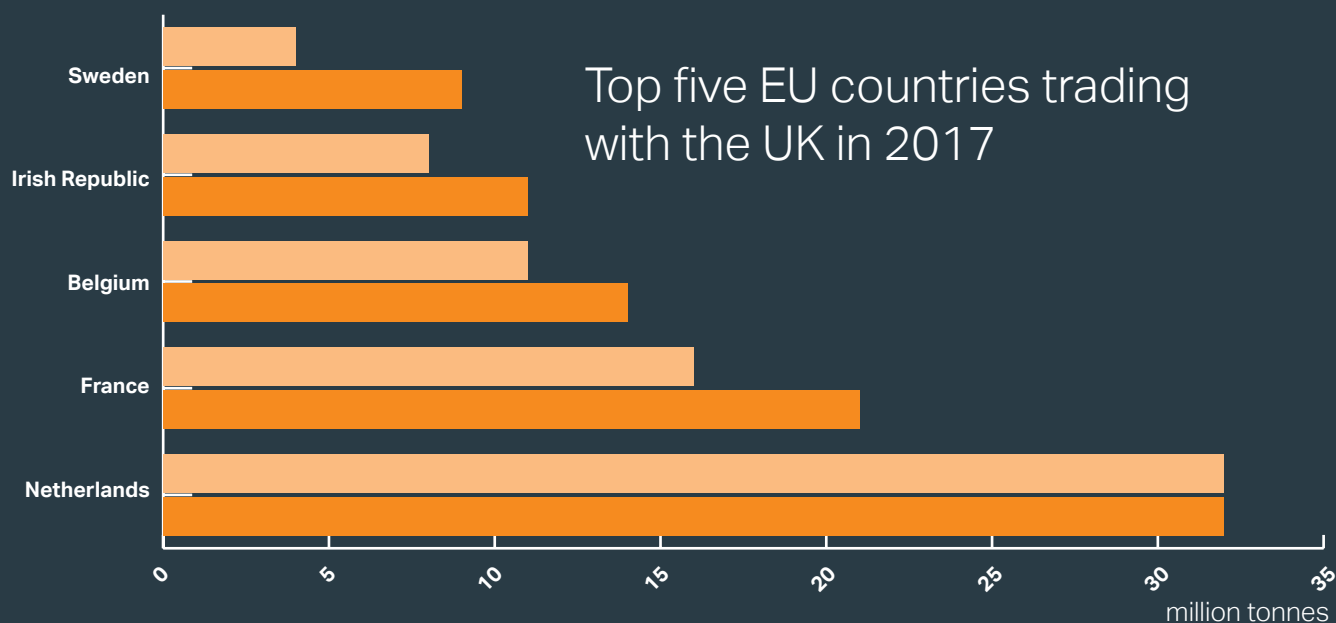




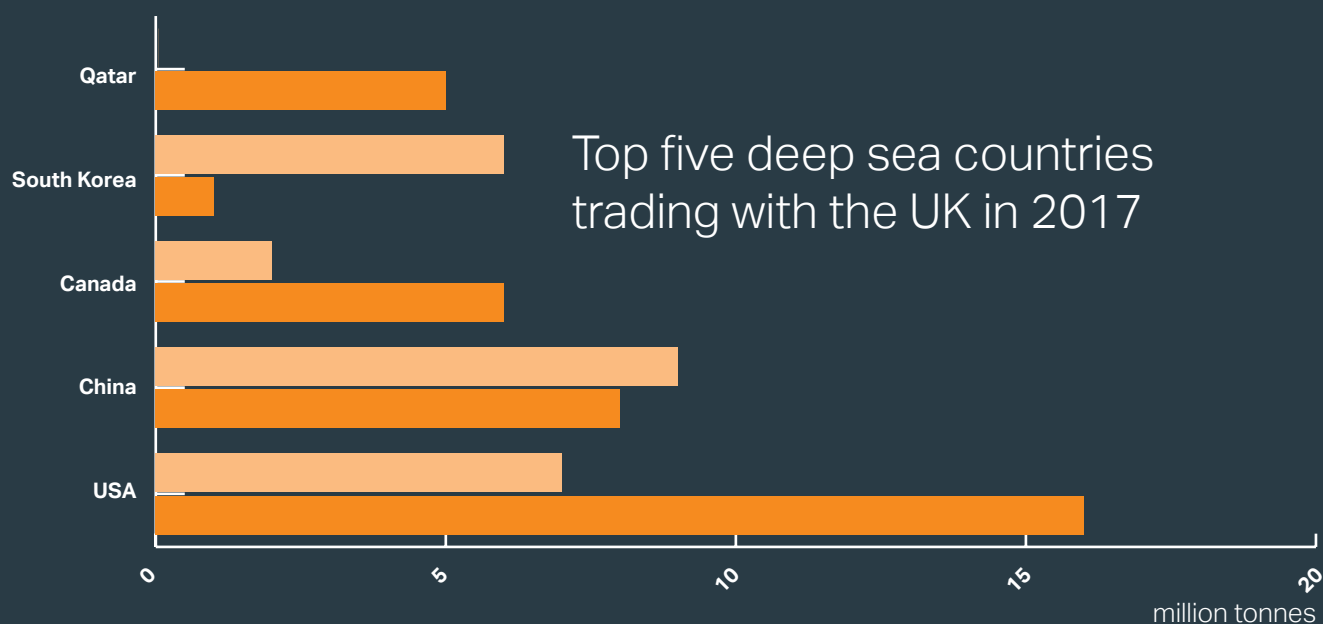
of international tonnage passing through major UK ports in 2017 was traffic with the EU.



Imports to UK Exports from UK



Imports to UK Exports from UK



Safety matters



Paul Wilkes

Associate Director,
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Road transport is a vital lifeline for the UK economy, with goods transported many thousands of miles every day to meet growing customer demands. Roads are becoming busier, and our evolving consumer lifestyles — with the rise of e-commerce — means commercial vehicle traffic is increasing. It is a tough environment for any fleet operator in a market where margins are kept low due to the high operational costs of vehicles, driver compensation and the highly competitive nature of the haulage industry.

Safety as a differentiator

Many fleets are focusing on safety as a key differentiator in the market. Schemes, such as the Fleet Operator Recognition Scheme (FORS), are used by many fleets as an independent benchmark of how they are operating. FORS and new requirements in London around the Direct Vision Standard (DVS) are mandating specific safety equipment for heavy goods vehicles (HGVs) to eliminate blind spots and increase

the amount of direct vision for a driver. The focus is on ensuring that the risks are minimised when these vehicles enter urban environments where they are most likely to meet vulnerable road users, such as cyclists and pedestrians.

The right skills and experience

Many fleets are also ensuring that their drivers have the correct skills and experience for the type of vehicle they are using.

For HGVs, this is a simpler process due to the requirements of the existing licensing arrangements.

For vans, however, this is more of a problem. The fact that drivers are able to operate vans with their car licence means that a driver may not be used to such a large vehicle, and may require some familiarisation training before taking to the roads.

Tackling driver fatigue

Another area that is becoming more of a focus related to HGVs and vans is

driver fatigue. Although, a driver may be operating within the legal number of hours they are able to work, this does not take into account lack of sleep or ill health that could lead to a driver being more at risk. Studies have shown that driver fatigue may be a contributory factor in up to 20 per cent of road incidents.¹

Fatigue monitoring devices appear to be an emerging solution, with the widespread use of wearable technology. The devices can monitor and detect changes in the driver's behaviour and activity, including eye movements, blink rates and head motion, to determine an accurate level of driver fatigue or drowsiness. Alerts and beeps are sent to inform the driver.

Whatever the technology, a well-rested driver is a safer one. It is both the responsibility of managers and drivers to protect themselves, their colleagues and other road users.

¹ <https://www.rosipa.com/road-safety/advice/drivers/fatigue/>

Air freight

Air freight only handles a small proportion of the total freight activity in terms of tonne-kilometres, focusing on high-value and time-sensitive goods. Although air is the mode that moves the least volume of goods within and outside the UK, air freight brings a Gross Value Added (GVA) of £87.3 billion to the UK annually, including a significant proportion of the GVA of several key industries, such as pharmaceuticals, transport equipment, machinery and equipment,

computer and electronics, among others.¹ In 2017, 2.6 million tonnes of freight was handled by air, a 10 per cent increase from 2016 and the largest amount on record.²

In 2017, air freight represented 49 per cent of the UK's non-EU exports by value, approximately £91.5 billion, and 35 per cent of imports, which accounted for £89.9 billion. For non-EU trade, air represents over 40 per cent of traded value, and only one per cent of volume.³

In the UK, the five London airports — Heathrow, Gatwick, Stansted, Luton and City — accounted for 78 per cent of freight. Heathrow is the main airport, both for domestic and international movements, handling a total of 64 per cent of freight traffic in 2017.⁴

The next section presents recent data on the air freight industry and its value to the UK economy.

AIR FREIGHT JARGON

Hub

A transport hub is a central location where cargo is transported to, and then consolidated with other freight going to the same destination.

Air Transport Movements

Air Transport Movements (ATMs) are all scheduled aircraft movements (whether loaded or empty) and loaded charter movements.

Unit Load Device

A Unit Load Device (ULD) is a device used to consolidate and move cargo being shipped onto an aircraft.

Chargeable weight

Chargeable weight is the amount that the carrier will charge to move a shipment. It is whichever the greater of the gross weight or the volumetric weight.



1 <http://airlinesuk.org/wp-content/uploads/2018/10/Assessment-of-the-value-of-air-freight-services-to-the-UK-economy-Final-Report-v22-Oct-2018-b-SENT.pdf>

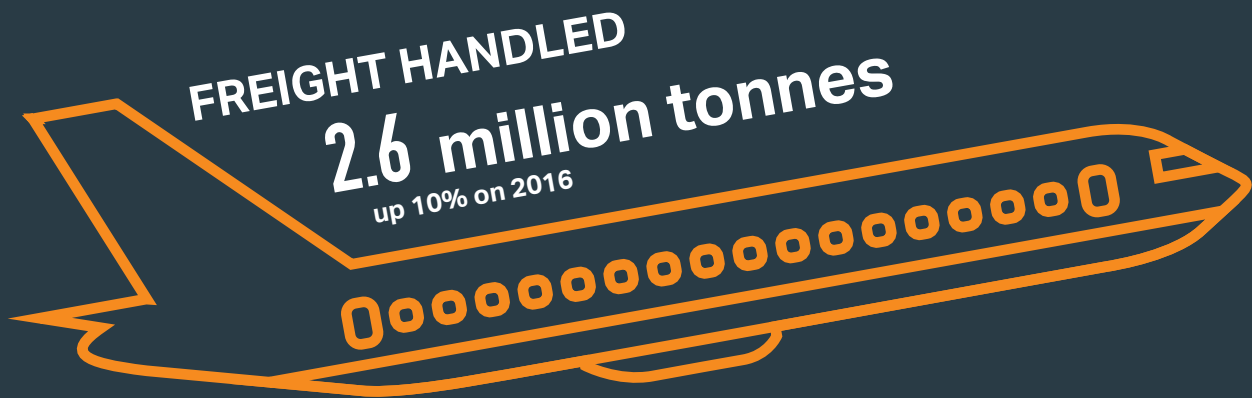
2 https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/762011/tsqb-2018-report-summaries.pdf

3 <http://airlinesuk.org/wp-content/uploads/2018/10/Assessment-of-the-value-of-air-freight-services-to-the-UK-economy-Final-Report-v22-Oct-2018-b-SENT.pdf>

4 https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/762011/tsqb-2018-report-summaries.pdf

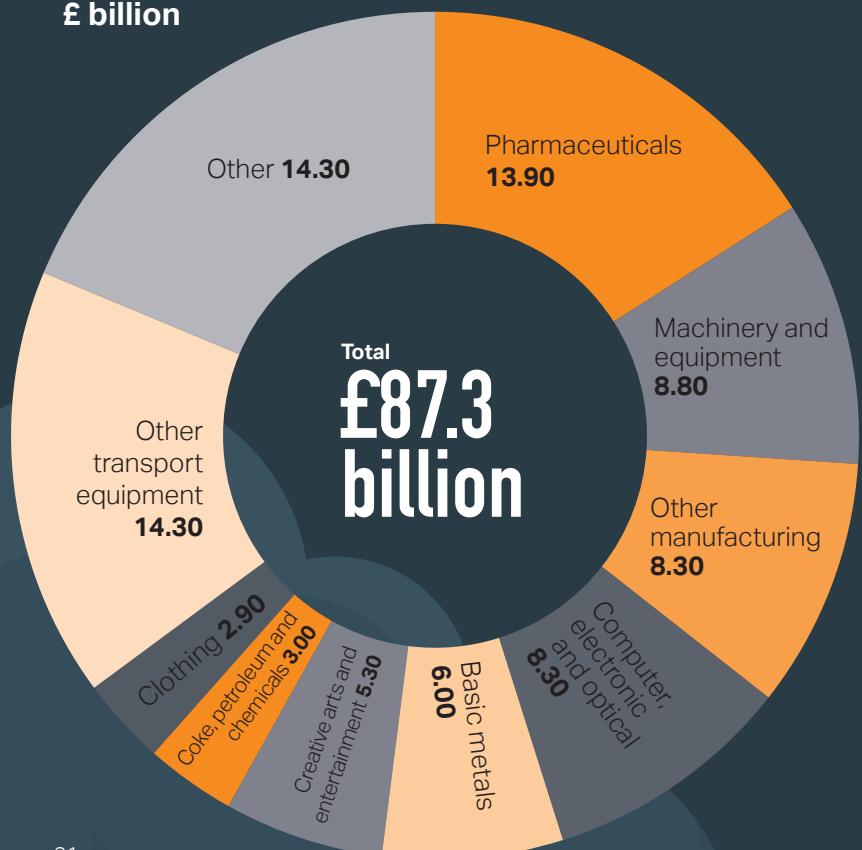
Air – Domestic

Freight traffic at UK airports 2017



Employment:
150,000
individuals
(2018)

Gross Value Added dependent on air freight by industry £ billion

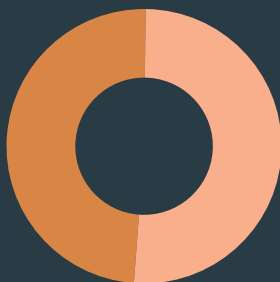


The linked sources for these figures are listed in Sources, page 21.

Air – International



Air
49%



Other modes
51%

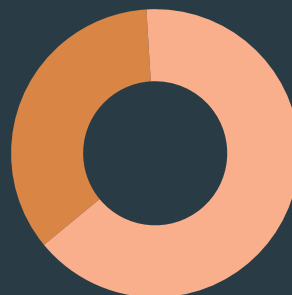
£185.5 billion

EXPORTS
non-EU

IMPORTS
non-EU

£253.7 billion

Air
65%



Other modes
35%

Technology matters



Prof. Geoff Clarke

Regional Director,
Freight and Logistics, AECOM, UK and Ireland

Technology is not only changing the way we live and work, but also fundamentally transforming the supply chain. With the rise in global sourcing, the effective use of cloud-based Information Technology (IT) provides transparency and efficiency. Notable changes are happening in the following key areas:

Communication and data

IT facilitates the seamless integration of end-to-end transport by enabling quick electronic data transfer between the freight carriers, facility providers and other parties in the supply chain. Paperless information flow saves handling time and provides real-time data transfer, enabling electronic transactions and data analysis, supported by the emergence of 5G Network communications. Price, agility and availability of emerging technologies within cloud platforms contribute to the rapid adoption of electronic data transfer across the globe.

Vehicles and systems

There are various trials of vehicle-based technology, including lorry platooning, and semi-autonomous and autonomous vehicles.

In Sweden, Volvo's first self-driving bin lorry is under trial and should be safer and more environmentally friendly. The lorries follow a programmed route, going from one wheelie-bin to the next, with no driver in the cab. If the trial is successful, the lorries could be among the first unmanned heavy goods vehicles (HGVs) on the road.



Operational efficiency

IT is used to monitor real-time traffic information and provides reliable estimates of arrival times, and thus improves operational efficiency. IT equipment, both in the control centre and on-board, facilitates the monitoring of real time positions by using satellite navigation. If incidents occur or congestion is detected, then intelligent re-routing is performed — leading to time and fuel savings.

People and productivity

Companies are reliant on a safe and efficient workforce. On-board diagnostics systems help managers to understand driver behaviour. Sensors record aggressive or poor driving behaviours with on-board cameras that capture the driver's eye view on the road/railway and provide evidence in the event of an accident. IT is used to assess driver skills and inform both the company and drivers of ways to improve their driving habits, saving fuel and money and improving safety.

New concept innovations

Aerial drones, robotic delivery agents, driverless trucks, Hyperloop, maglev (derived from magnetic levitation) trains, solar-powered planes, engineless flight and crewless automated cargo ships are all projects at different stages of testing. Time will tell which of these become mainstream.

At a time of uncertainty and ever-tighter margins for the freight transport sector, the successful implementation and use of new technologies can generate greater operational efficiencies.

Any innovation must be safe, affordable and secure industry and public acceptance to make a real difference. This, in turn, requires good business practice, organisational skill, and planning from across the UK freight industry to fully realise the potential benefits.

Sources

Freight in the UK, page 4

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- **Total goods moved (Domestic, 2017); Total goods moved (Domestic, 2008 – 2017):** https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/778713/tsgb-2018.pdf

Road | Domestic, page 6

- **Contribution to the economy; Employment; Licensed HGVs:** https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/728937/domestic-road-freight-2017.pdf
- **Goods lifted by commodity:** https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/728840/rfs0104.ods
- **Goods moved; Goods lifted:** https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/748101/road-freight-statistics-april-2017-to-march-2018.pdf
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Road | International, page 7

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Rail | Domestic, page 10

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Rail | International, page 11

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Water, pages 14 and 15

- **UK major ports by traffic; UK major port freight by cargo type; Total Freight Tonnage handled by all UK ports; Domestic; International; Imports and Exports; International tonnage through UK ports; Top 5 EU countries; Top 5 deep sea countries:** https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/762200/port-freight-statistics-2017.pdf

Air | Domestic, page 18

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Air | International, page 19

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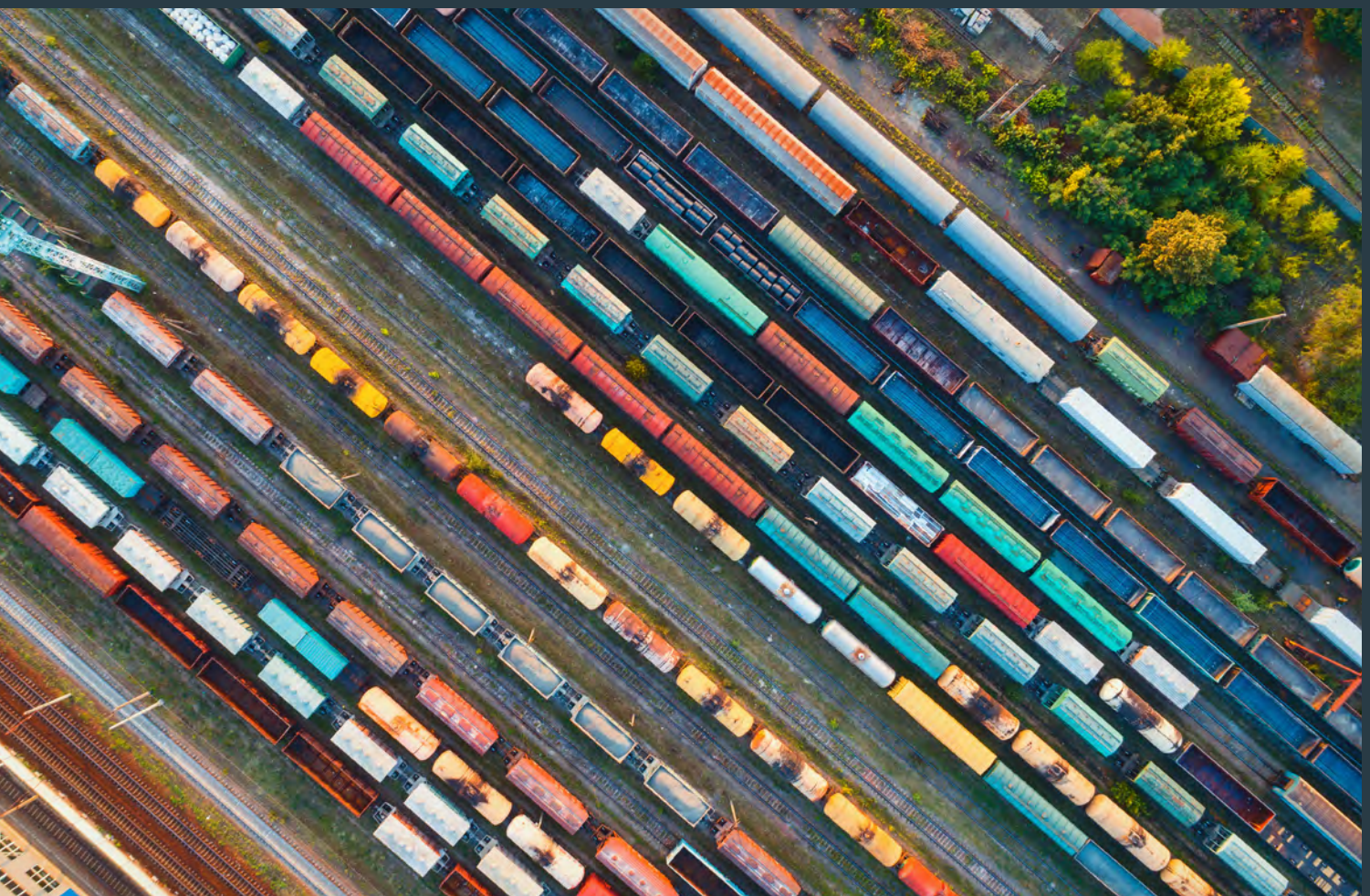
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- Carbon emission reduction



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