From: [redacted]
To: Manston Airport
Cc: [redacted]
Subject: Re: SMAa representation Matter 2
Date: 30 June 2021 18:16:22
Attachments: SMAa representation to the Secretary of State - Matter 2 - part 3.pdf

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For the attention of the Manston Airport Case Team :

TR020002 – SMAa representation to the Secretary of State for Transport – Matter 2 Part 3

Re-determination of the Application by RiverOak Strategic Partners Limited ("the Applicant") for an Order granting Development Consent for the reopening and development of Manston Airport in Kent.

SMAa has over 3,700 members who are in full support of the Development Consent Order to reopen Manston Airport, many wanting jobs for themselves, their family or other Kentish people. Thus, we wish to make further representations to assist in the re-determination of the DCO.

Statement of Matters

In the Department for Transport's Statement of Matters letter dated 11th June 2021 it invited Interested Parties to make further representations on 4 matters. This representation will look at:

"whether the quantitative need for the Development has been affected by any changes since 9 July 2019, and if so, a description of any such changes and the impacts on the level of need from those changes (such as, but not limited to, changes in demand for air freight, changes of capacity at other airports, locational requirements for air freight and the effects of Brexit and/or Covid)"

Please see below web file :

SMAa representation to the Secretary of State for Transport - Matter 1.pdf

From the SMAa Committee on behalf of the 3,700 members

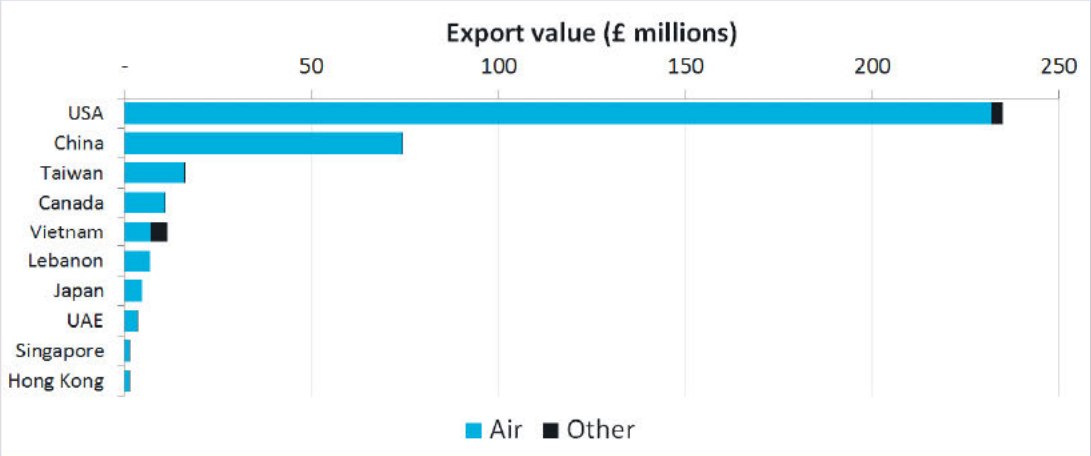
Dr Beau Webber (Chairman)

[redacted]

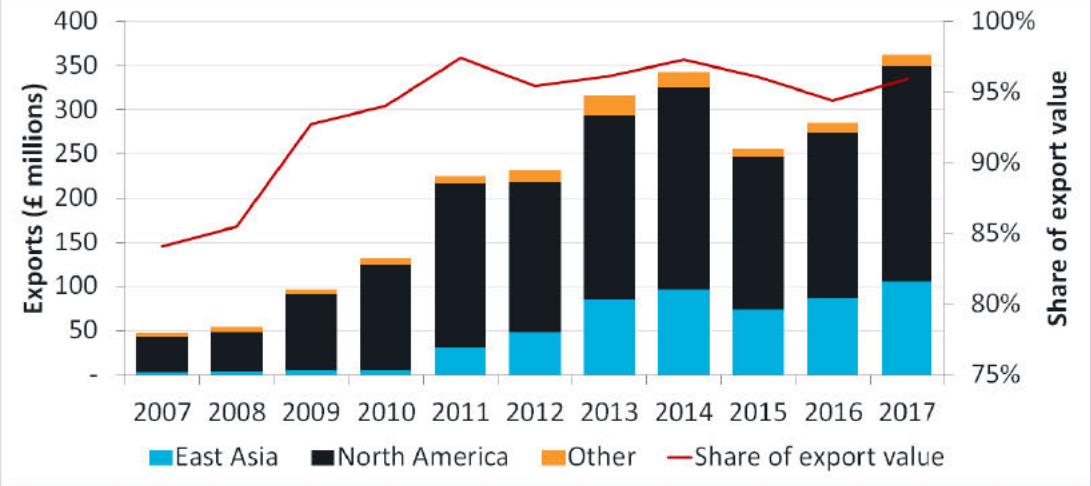
Case Study – Heathrow and the Scottish salmon industry

Scottish salmon exports were worth £600 million in 2017, up 35% on the previous year. In recent years, salmon has become one of the UK's most valuable food exports. Compared to other salmon sold worldwide, the Scottish industry has positioned itself as providing a higher quality product. Air freight is important for getting produce to market quickly to be sold as fresh as possible. Although the USA and France have remained the two largest markets, demand from East Asia has increased significantly in recent years. The share of salmon carried by air has increased with growing intercontinental demand.

2017 10 largest non-EU markets for salmon exports



2007-2017 value of salmon exports to non-EU countries

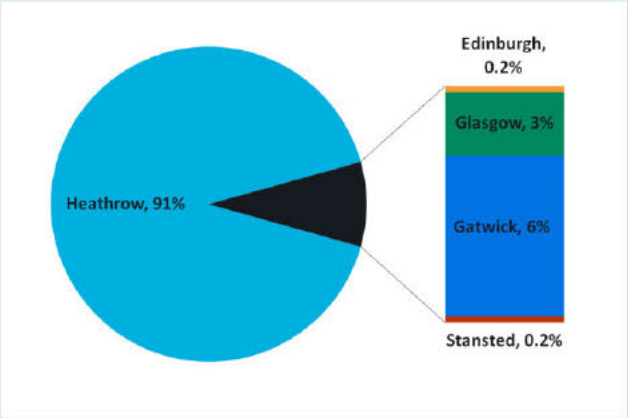


Source: HMRC

The vast majority (91%) of UK salmon is shipped internationally from Heathrow – produce is transported within the UK either by road or by air. While in transit, salmon is stored in temperature-controlled containers and may be stored at specifically designed facilities at Heathrow before being shipped. Outbound capacity must be pre-booked in advance and packing typically takes place 2-3 days before shipping.

While Heathrow is still by far the largest airport supporting the industry (see chart below), increased international connectivity at Scottish airports has given exporters other options – this year salmon was exported on the first direct flight between Scotland and China (from Edinburgh to Beijing).

2017 share of UK salmon exports by airport

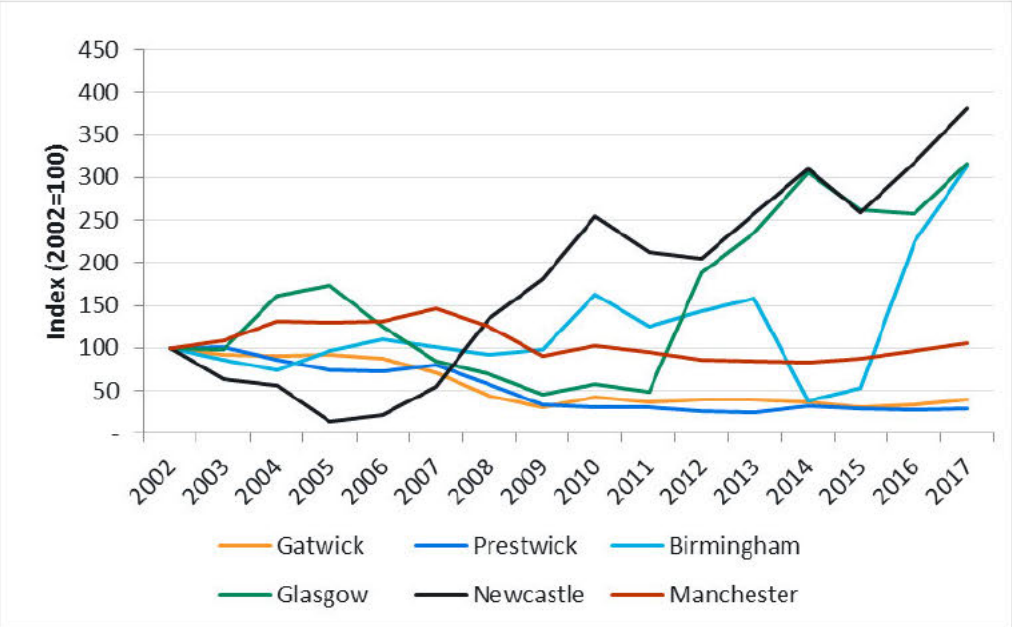


Source: HMRC

Volumes at regional airports

3.15 As discussed above, the +1.2% CAGR for total UK volumes between 2002 and 2017, shown in Figure 3.2, to some extent reflects the mixed performance of different UK airports. Figure 3.4 shows the development of total freight volumes at selected UK airports (not including the largest three freight airports: Heathrow, East Midlands and Stansted).

Figure 3.4: Indexed growth of freight volumes at selected UK airports, 2002=100 (2002-2017)



Source: CAA

3.16 Relatively significant freight operations at Gatwick and Prestwick (which in 2002 were respectively the second and sixth largest UK freight airports) have fallen to less than half of their pre-crisis levels. On the other hand, smaller operations at regional airports, such as Birmingham, Glasgow and Newcastle have increased significantly in recent years, as a result of new or increased frequencies on intercontinental passenger routes. Manchester has experienced a mix of these effects; driven by a reduction of freighter activity, total volumes decreased significantly since the financial crisis, but have grown in recent years as a result of new passenger bellyhold connections.

3.17 The figures below show, for selected regional airports, the number of departing frequencies to intercontinental destinations (represented by the stacked bars) and the total bellyhold freight volumes (represented by the red line). Charter and low-cost carrier frequencies have been excluded as these do not contribute materially to total freight volumes.

Figure 3.5: Glasgow: Departing frequencies and bellyhold freight volumes (2002-2017)

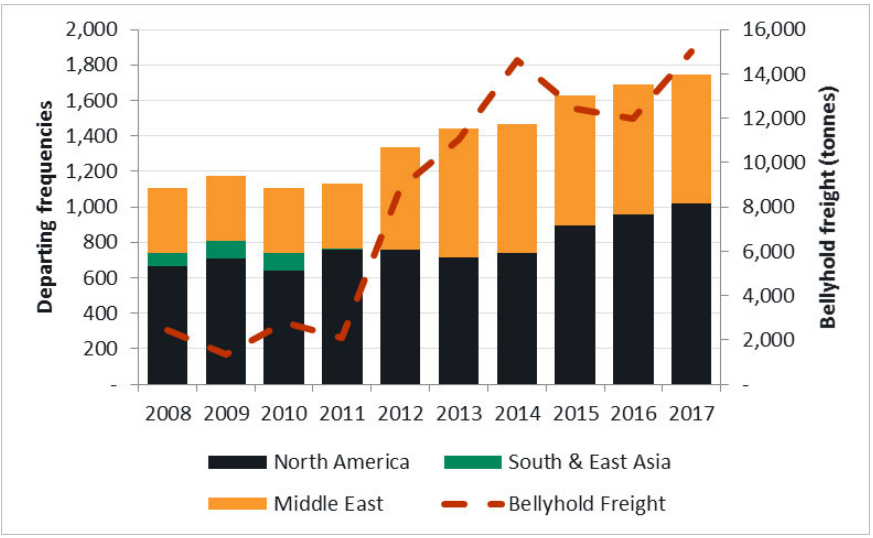


Figure 3.6: Birmingham: Departing frequencies and bellyhold freight volumes (2002-2017)

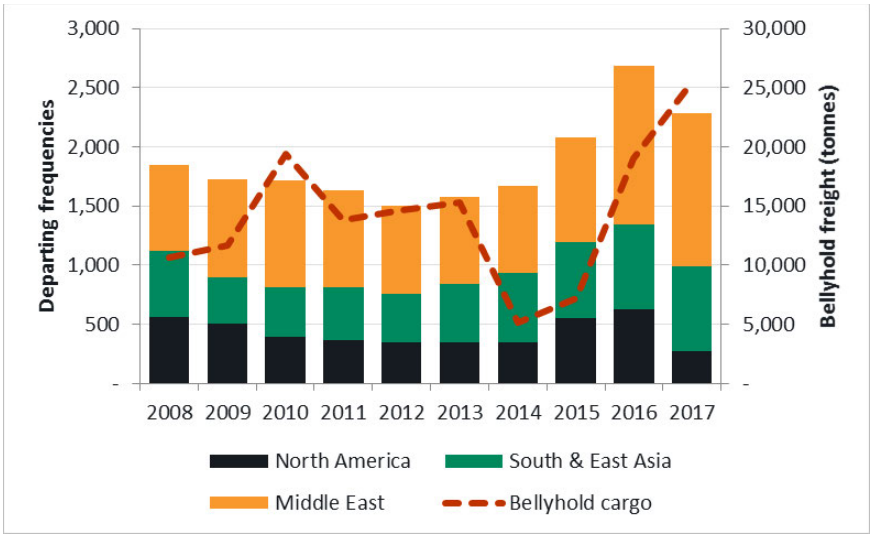
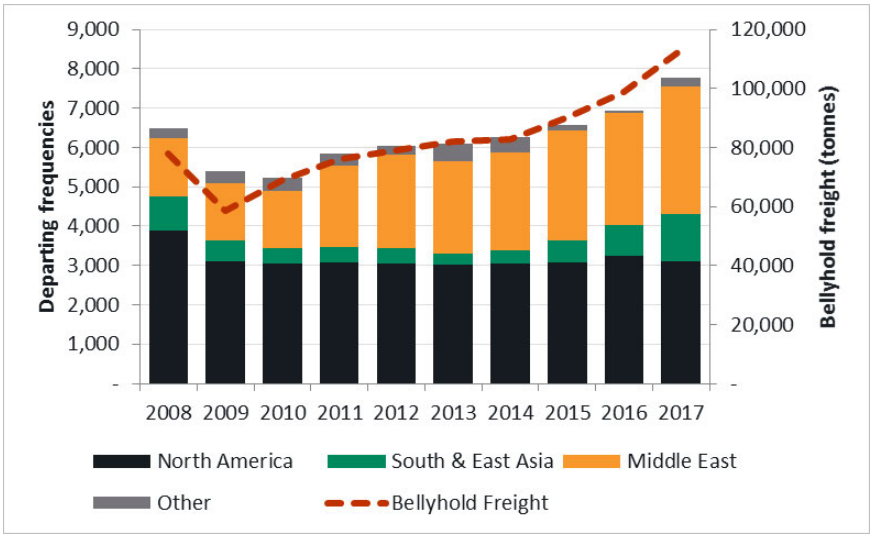


Figure 3.7: Manchester: Departing frequencies and bellyhold freight volumes (2002-2017)



Source: OAG, CAA

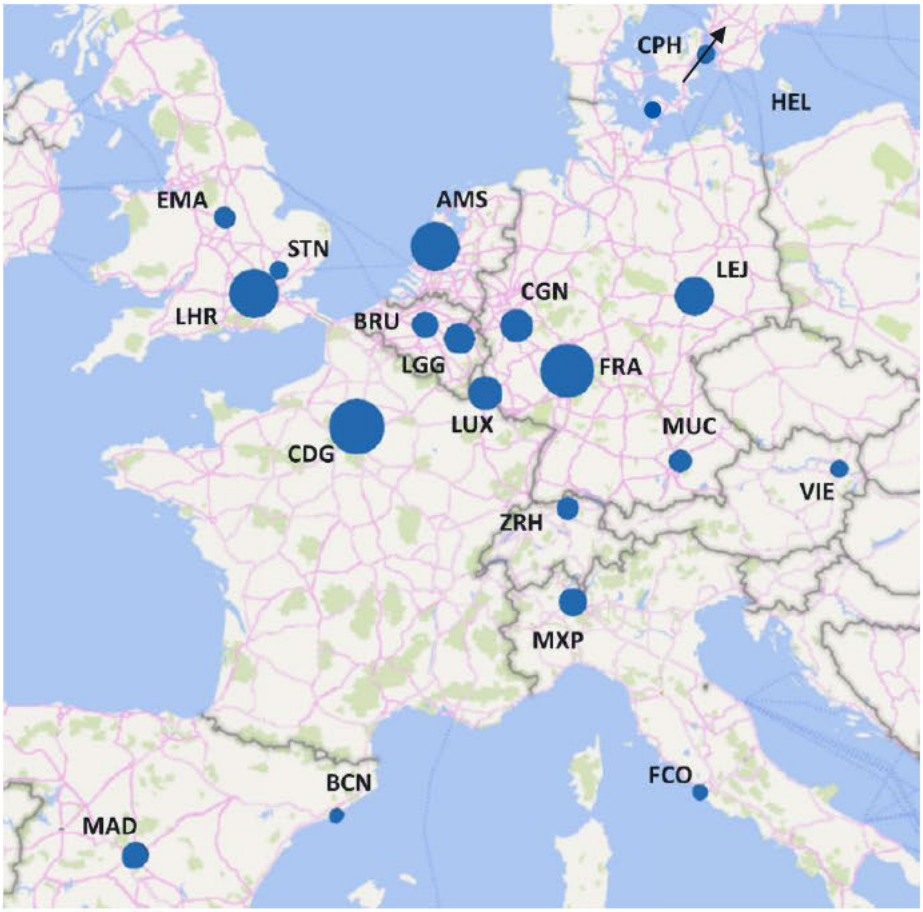
3.18 At the three airports shown in the figures above, increasing frequencies to the Middle East and Asia have significantly increased total bellyhold freight volumes. Although all three airports have had a sustained level of passenger connections to North America, as Figure 3.3 demonstrates, North America does not account for material amount of freight volumes at these airports. This is likely to be because of the large amount of North American bellyhold capacity available at Heathrow, which means shippers and forwarders have little incentive to utilise regional capacity on North American routes.

3.19 On the other hand, Heathrow has relatively less bellyhold capacity available on Asian and Middle Eastern routes, which means airlines have a greater incentive to utilise regional airports on these routes (although five new Chinese routes have started operations from Heathrow in 2018). Other airports' freight volumes have also benefited from their own new connections to East Asia. Direct passenger connections have recently started at Manchester (2016) and Edinburgh (2018) and, given the capacity constraints at Heathrow, it is likely that other airports' freight volumes will continue to benefit from the rapidly growing Asian economies.

International comparisons

3.20 Figure 3.8 shows 20 largest EU airports in 2017 based on total freight volumes.

Figure 3.8: Relative freight volumes at 20 largest EU airports (2017)



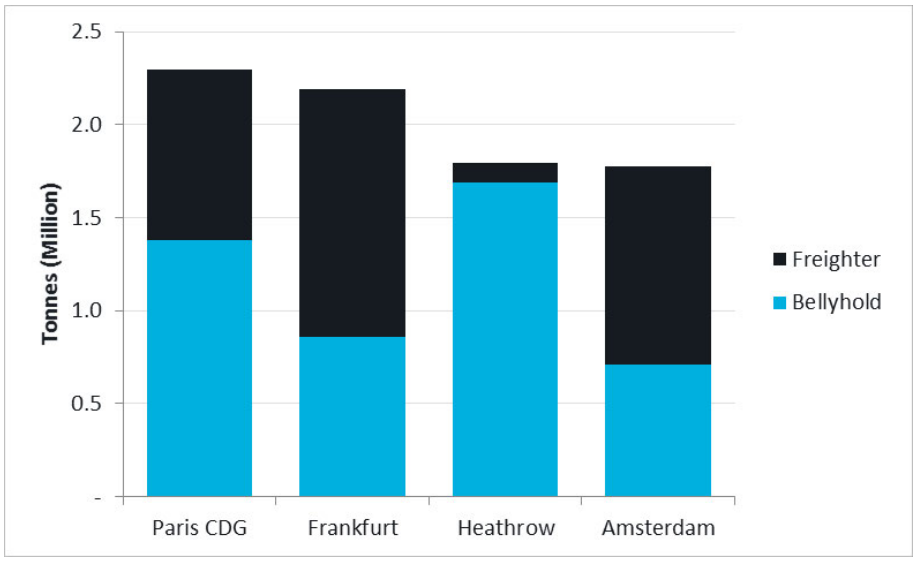
Source: Eurostat

3.21 Many of the largest freight airports in the EU are concentrated in North-West Europe, which is relatively well off and densely populated (therefore generates demand for imports), and is the home of a lot of European industry (therefore produces a large amount of goods for export). The close proximity of many large freight airports to the UK may also to some extent explain why so much air freight is flown to continental Europe and trucked to the UK, as there is much greater capacity available to continental North-West Europe than to the UK.

3.22 In terms of total freight volumes, Heathrow is the third largest airport in the EU (based on Eurostat data) and handles a similar magnitude of freight to that handled by Europe's other three major hub airports (Amsterdam, Frankfurt, Paris). Although East Midlands and Stansted are two of the twenty largest freight airports in the EU, they are significantly smaller than many of the freighter-orientated airports in Europe (including Cologne, Luxembourg, Liège and Leipzig).

3.23 Although Heathrow is one the largest airports in the EU in terms of freight volumes, due to its slot and operating constraints described above, it has a significantly lower amount of freighter activity compared to many major European airports. Figure 3.9 shows the share of total freight volumes carried by freighter and bellyhold capacity at the four major European hub airports.

Figure 3.9: Freighter and bellyhold volumes at four largest European airports, Million Tonnes (2017)

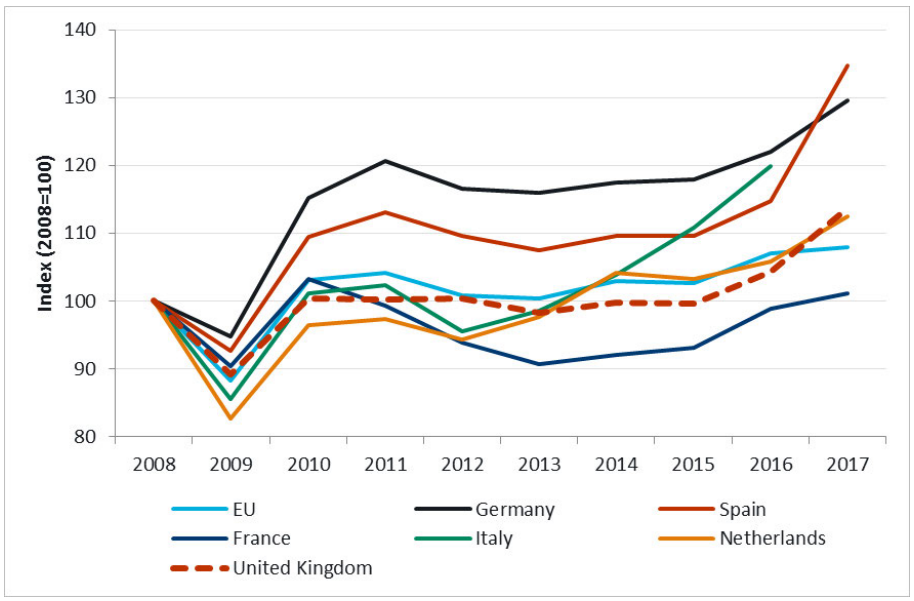


Source: Eurostat, CAA, individual airport traffic statistics (Paris CDG shares based on 2016/17)

3.24 At Heathrow in 2017, 6% of total freight volumes were carried by freighter aircraft compared to between 40% and 60% at Amsterdam, Frankfurt and Paris. Although Heathrow and Amsterdam carried very similar levels of freight in 2017, there were around 3,000[4] freighter air traffic movements at Heathrow compared to just under 17,800 at Amsterdam.

3.25 Figure 3.10 shows the indexed growth of total air freight volumes in the UK against comparable EU countries, as well as the EU as a whole, from 2008 to 2017 (and 2016 for Italy).

Figure 3.10: Indexed growth of selected EU countries freight volumes, 2008=100 (2008-2017)



Source: Eurostat. Note: France's growth prior to 2014 has been adjusted with ADP statistics to account for a change in measurement at CDG

[4] 2,971 non-passenger movements (source: CAA)

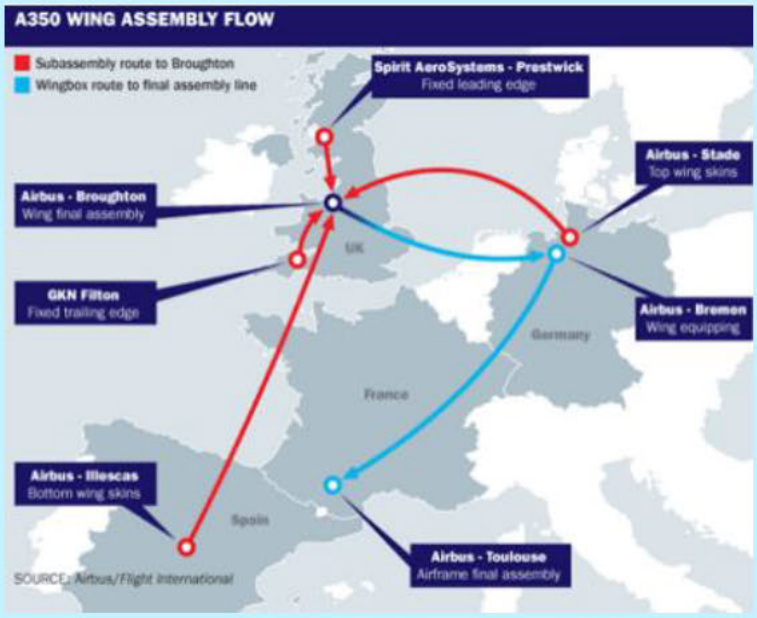
3.26 Although, like many of the countries shown, the level of growth in the UK appears to have picked up in the last couple of years, over the period shown, growth in the UK air freight volumes appears to have been lower than the growth in many other major European economies (with the exception of France).

Case study - Aerospace

The UK aerospace sector is one of the largest in the world which, according to ADS (a UK Aerospace trade organisation), had a total turnover of £45 billion in 2017 and supported 123,000 direct jobs. ADS also states that nearly 90% of final demand for UK aerospace products comes from exports. However, a large volume of goods are also imported, as aerospace supply chains are often located in several different countries, and as much of the UK's aerospace industry focuses on manufacturing aircraft parts, large quantities of components need to be regularly transported in and out of the UK.

In 2017, non-EU trade in aircraft and associated equipment[5] was worth £17.2 billion, equivalent to a little over 48,000 tonnes of equipment. In addition, trade in engines[6] (a large proportion of which are aircraft engines) was worth £28.4 billion, equivalent to a little over 32,000 tonnes of equipment. Air transport accounted for 76% of trade value in aircraft and associated equipment and 89% of trade value in engines. For both these product types, the value of imported and exported goods flown by air was very similar, reflecting the international nature of the production process and the flow of goods between countries. Some the world's most important aerospace firms are UK-based (BAE, Rolls Royce) and many of the world's largest aerospace manufacturing firms (Airbus, Boeing, Bombardier) have significant operations in the UK. For example, UK manufacturing sites are an integral part of the production process for the wings of Airbus aircraft (see map below).

Airbus wing assembly production flow



Source: HM Treasury (via Airbus/Flight International)

[5] SITC code 792
[6] SITC code 714

Airbus's assembly line for its A350 wings demonstrates air freight's role in these international production processes. Composite front spars are produced in the USA by Spirit and flown to its facility in Prestwick for assembly; these are then trucked to Airbus's facility in Broughton and are combined with other parts trucked from Filton (UK), flown from Stade (Germany) and from form Illescas (Spain). Completed wings are then flown to Bremen (Germany) for equipping, before being flown to Toulouse for final assembly.

As well as aircraft manufacturing, air freight is also important for facilitating aircraft maintenance and repair operations (MRO).
The figure below shows, on a £/kg basis, the top five UK airports with the most valuable cargo. With the exception of London City (which handles large amount of jewellery and diamonds), all are airports used as a base for aircraft manufacturing plants (Bombardier at Belfast City and BAE at Warton) or MRO (IAG at Cardiff and Marshall at Cambridge). Compared to other imports and exports, this demonstrates the high value of goods and components transported by air within the aerospace sector.

Value of airport cargo - £/kg basis (2017)

Policy considerations

3.27 The analysis in this chapter shows that air freight has started to grow again after several years of stagnation. The increasing volumes and longhaul connections at major airports outside the South East of England as well as the prospect of the third runway bringing additional capacity at Heathrow, give rise to a number of policy issues for consideration, including:

- how to make best use of existing infrastructure and unlock more capacity through investment in air freight facilities at UK airports;
- how to manage the air freight implications of the third runway at Heathrow; and
- how to support the air freight sector to grow sustainably.

4 International Trade

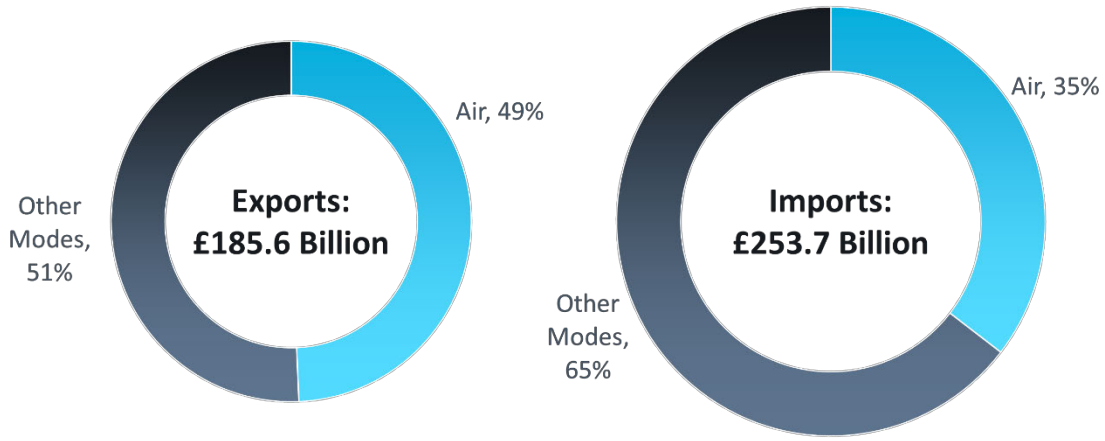
4.1 This chapter examines the breakdown of air freight flows in terms of the commodities flown and their value. We firstly compare the value of imports and exports by air in comparison with the total by all modes, then go on to examine the key product and geographic markets. We also provide a comparison of UK trade with that of other major European markets.

4.2 The analysis of UK trade presented in this section is based on import and export data within HMRC's data downloads, and therefore relates only to trade with non-EU countries. Although HMRC does provide estimates of arrivals and dispatches to and from EU countries, the level of detail provided is insufficient to undertake the analysis presented in this section for non-EU trade.

Role of air freight in UK trade

4.3 In 2017, non-EU trade classified as being transported by air accounted for over 40% in terms of value but under 1% of total trade in volume terms (with sea accounting for over 98%). Air as a proportion of total exports and imports in 2017, in value terms, is shown in Figure 4.1.

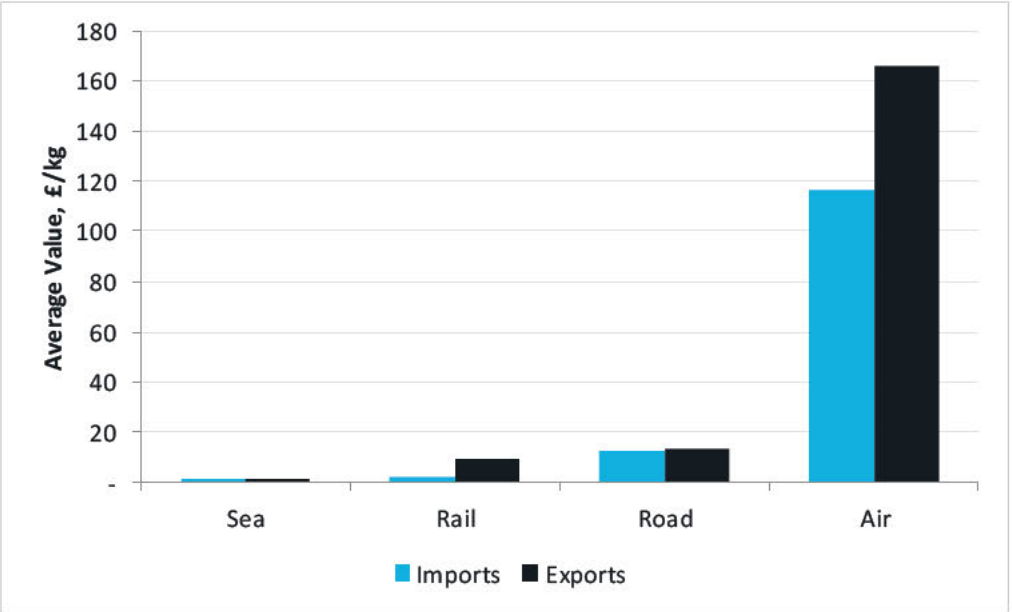
Figure 4.1: Air transport's share of total export and import value, £ Billion (2017)



Source: HMRC

4.4 Figure 4.2 shows the average value per kilogram, of exports and imports, for goods transported by sea, rail, road and air. Goods transported by air, on average, are significantly more valuable than those transported by other modes.

Figure 4.2: Average value of goods transported by each mode, £/kg (2017)

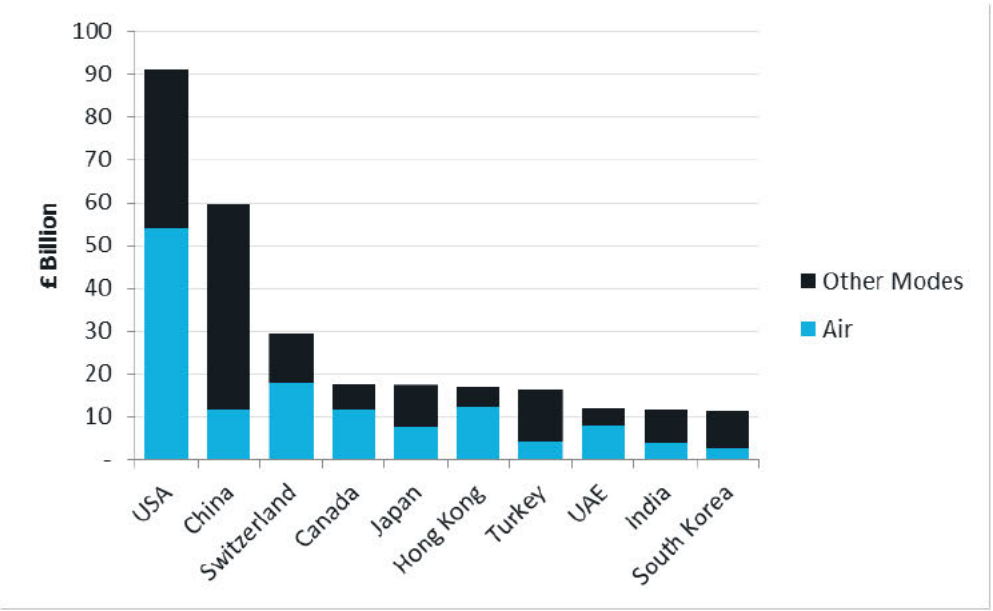


Source: HMRC

4.5 Similarly, for the UK's top ten non-EU trading partners, in volume terms, air accounted for under 1% of trade in most cases (but 1.3% with the US and 1.5% with India). Only with the USA (1.3%) and India (1.5%) did air account for over 1% of trade in volume terms. However, air accounted for a much higher proportion of trade with the UK's top ten trading partners in value terms.

4.6 Figure 4.3 shows the proportion of trade by value transported by air with the UK's top ten non-EU trading partners. Air generally accounts for a higher proportion of trade value with other service and high-end manufacturing-orientated economies (such as the USA and Switzerland), and has lower share with Asian mass manufacturing-based economies (such China and India).

Figure 4.3: Air transport's share of trade value with largest non-EU trading partners, £ Billion (2017)



Source: HMRC

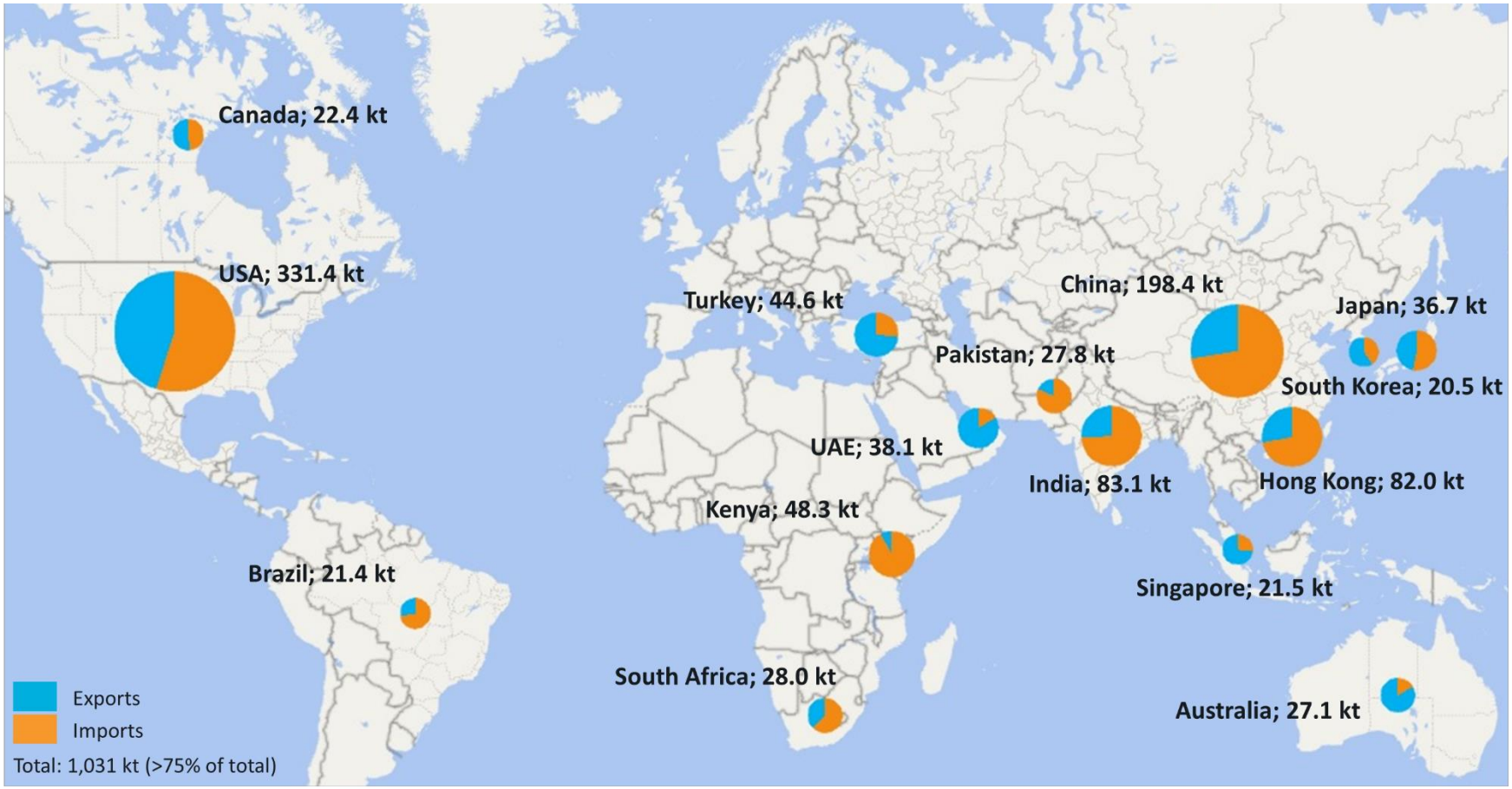
Geographical markets

4.7 The size of the import and export markets with the UK's top 15 non-EU trading partners, separately in volume and value terms are shown in Figure 4.4 and Figure 4.5, respectively. Note that although many countries feature within the UK's top 15 non-EU trading partners, in both volume and value terms, the two figures do not show the same 15 countries.

4.8 With its major trading partners, in volume terms, the UK's imports are characterised by a mixture of mass manufactured goods (such as clothing) from Asian countries including China, India and Pakistan, and more high-value manufactured products (such as electronics and machinery) from countries including Japan and South Korea. The UK also imports a significant amount of food and raw materials from countries including Brazil, Kenya and South Africa. On the export side, UK volumes are characterised by high-end manufactured goods (such as transport or scientific equipment) and food, in particular salmon, to higher income countries.

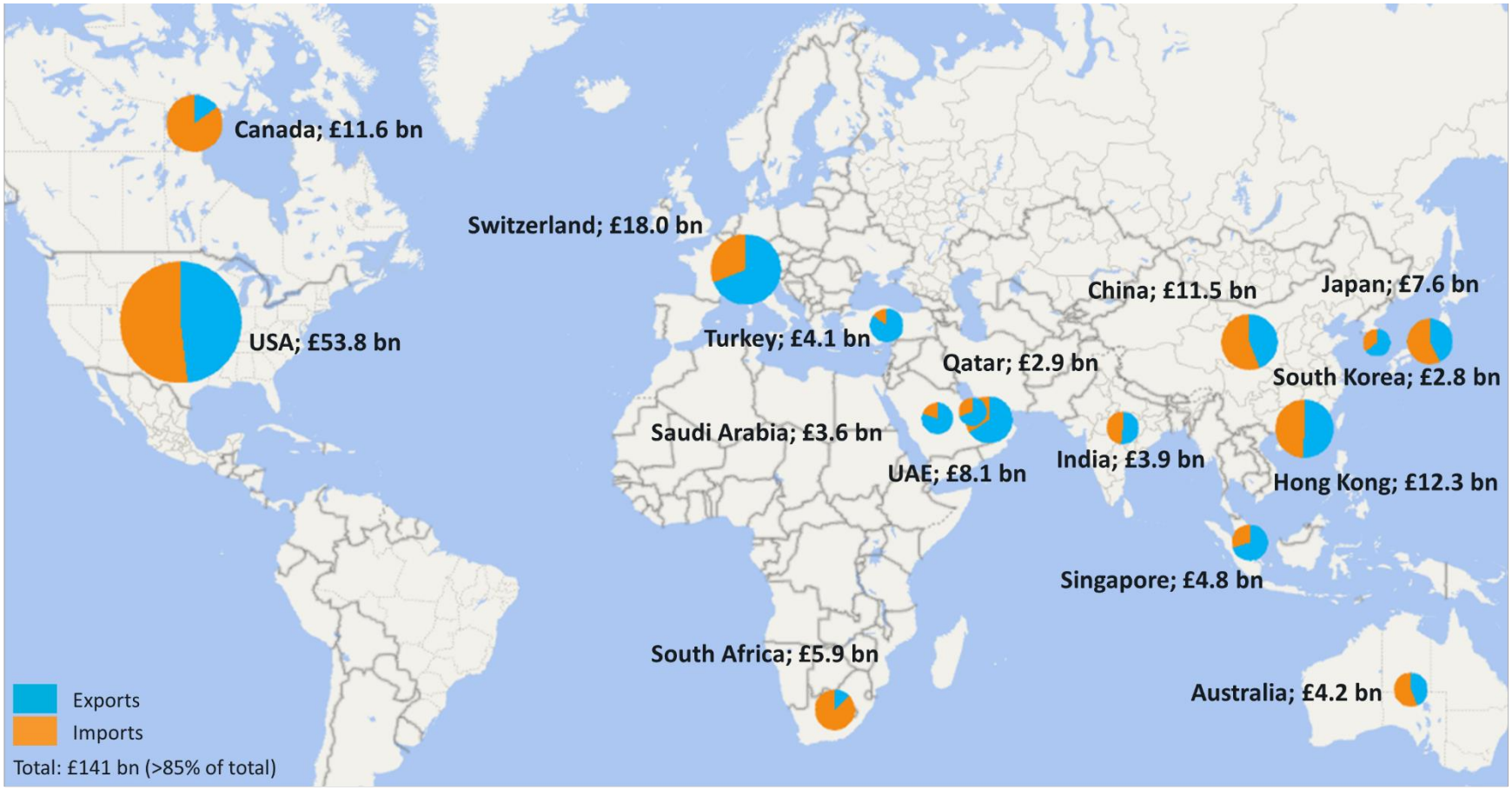
4.9 In terms of value, many of the UK's major trading partners in Asia and North America are also major trading partners in volume terms; however, in value terms UK exports account for a higher share of trade. As with volumes, much of the import and export value is accounted for by high-end manufactured goods (such as industrial machinery) as these goods are high value as well as high volume. Much of the trade with the UK's major partners, in value terms, is accounted for by precious metals and minerals (such as gold), which is high-value but low-volume. This includes imports from countries where these materials are mined, including South Africa, Australia and Canada, as well as Switzerland, which has a large gold refining industry.

Figure 4.4: Volume of air exports and imports with top 15 non-EU trading partners, 1,000 tonnes (kt) 2017)



Source: HMRC

Figure 4.5: Value of air exports and imports with top 15 non-EU trading partners, £ Billion (2017)



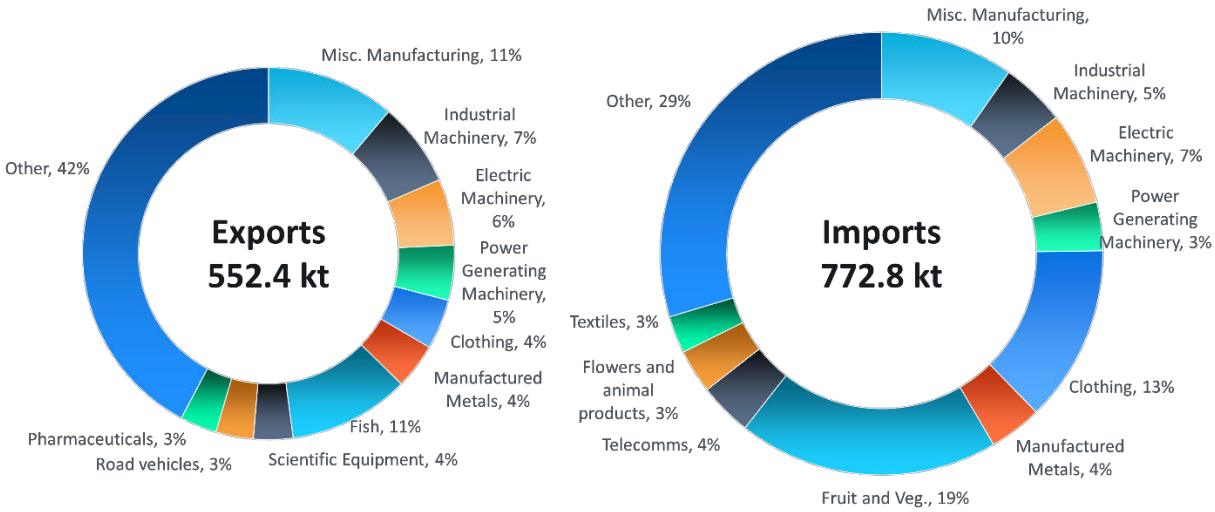
Source: HMRC

Product markets

Products shipped by air

4.10 The UK's exports and imports to all non-EU countries at a 2-digit Standard International Trade Classification (SITC) code level, in volume terms, are shown in Figure 4.6.

Figure 4.6: UK non-EU exports and imports at a 2-digit SITC code level, 1,000 tonnes (kt) (2017)



Source: HMRC

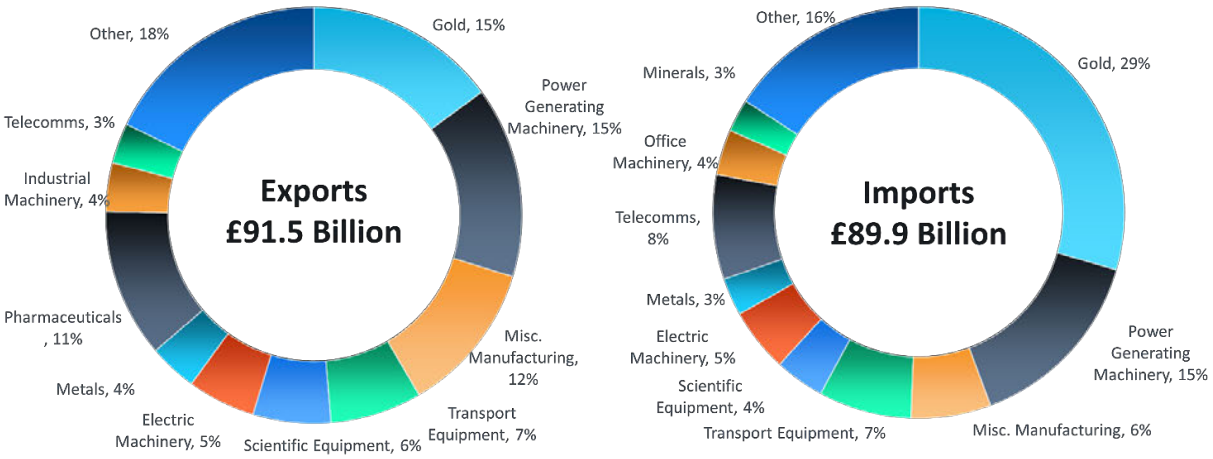
4.11 Clothing and fruit / vegetables are the two largest 2-digit SITC product groups imported by air. Fruit and vegetables are perishable and therefore need to be delivered quickly, while clothing is often shipped by air to enable retailers (particularly online retailers) to meet shifting demand of the latest fashion trends.

4.12 Other high-volume imports include business products including industrial goods, such as electric components and industrial machinery, and consumer goods including mobile phones, flowers and a range of manufactured products.

4.13 On the export side, most products with a high share of total volume are high-end manufactured goods, such as pharmaceuticals, cars, books and plane engines, or creative and knowledge industry-based goods such as books and high-end fashion. The notable exception to this is fish, in particular Scottish salmon, which accounted for over 10% of export volumes.

4.14 Figure 4.7 shows the UK's exports and imports to all non-EU countries at a 2-digit Standard International Trade Classification (SITC) code level in value terms.

Figure 4.7: UK non-EU exports and imports at a 2-digit SITC code level, £ Billion (2017)



Source: HMRC

4.15 Gold accounts for a significant proportion of import and export value, although it should be noted this is largely driven by the existence of the London Bullion Market, which, accounts for over 80%[7] of the global gold trade. This has a distorting effect on both the value of total imports and exports, as well as the value of trade with certain countries (such as Switzerland with its large gold refining industry).

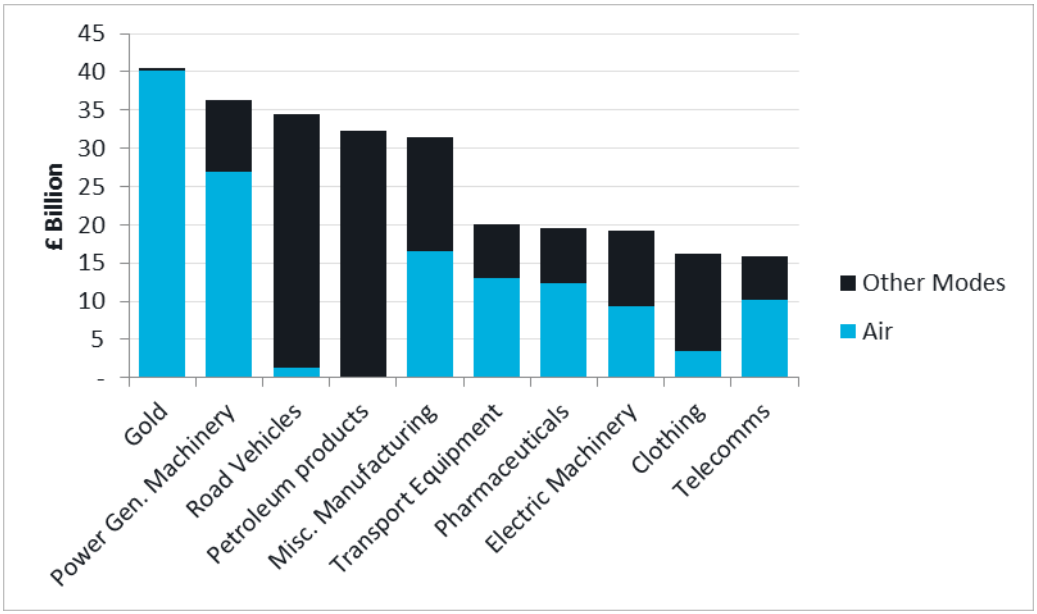
4.16 Many of the other products with a high share of UK trade value, such as aircraft engine parts and power generating machinery, have a high share of both import and export value, likely reflecting the global nature of these industries' supply chains and manufacturing processes. One exception is pharmaceuticals, which account for a significant proportion of export (but not import) value.

Products most dependent on air freight

4.17 Figure 4.8 shows, at a 2-digit SITC code level, the largest traded product groups by value and the proportion transported by air.

[7] Financial Times

Figure 4.8: Largest traded product groups at a 2-digit SITC code level, £ Billion (2017)



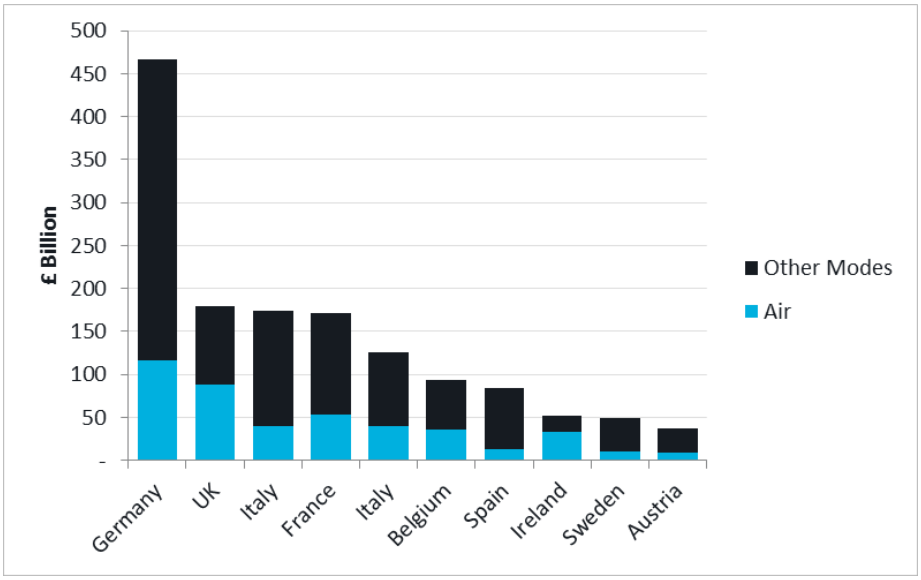
Source: HMRC

4.18 In all but three cases (petroleum products (oil), road vehicles and clothing), air accounted for over half of the value of each 2-digit product group. For some product groups, including miscellaneous manufactures, clothing and telecoms, air also accounted for a significantly higher proportion of exports (in value terms) than of imports.

International comparisons

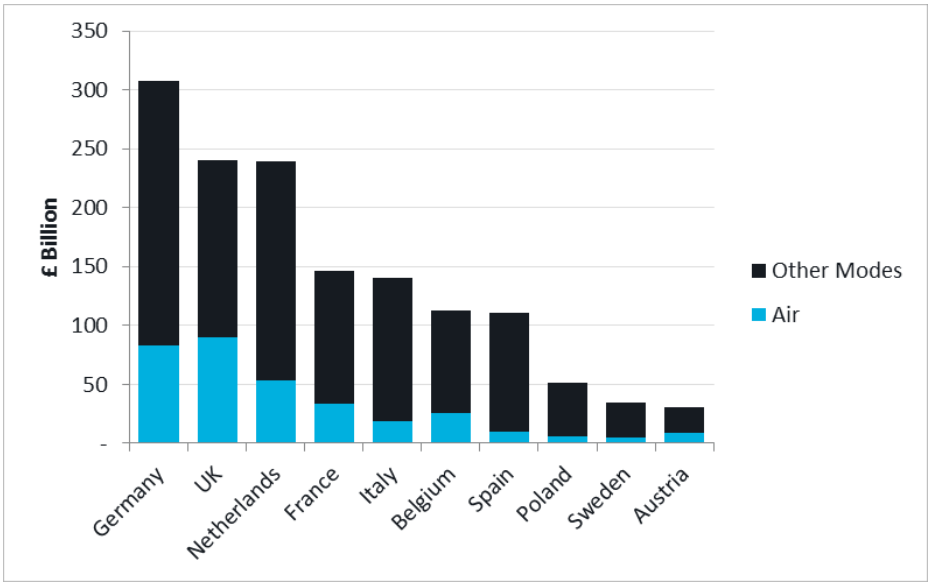
4.19 The size of the largest EU import and export markets to non-EU countries in value terms, and the shares transported by air, in 2017 are shown in Figure 4.9 and Figure 4.10 respectively.

Figure 4.9: Air transport's share of export value in top 10 EU export markets, £ Billion (2017)



Source: Eurostat – figures have been converted from Euros using an average 2017 exchange rate of €1: £0.88

Figure 4.10: Air transport's share of import value in top 10 EU import markets, £ Billion (2017)



Source: Eurostat– figures have been converted from Euros using an average 2017 exchange rate of €1: £0.88

4.20 Although Germany is by far the largest exporter to non-EU countries, only 25% of its goods by value are transported by air, whereas the UK, which is second largest total export market, ships a far higher proportion (49% by value) by air. Most of the other major EU economies ship between 20% and 40% of the value of their non- EU exports by air; only Ireland (64%) ships a greater share of its non-EU exports by air than the UK.

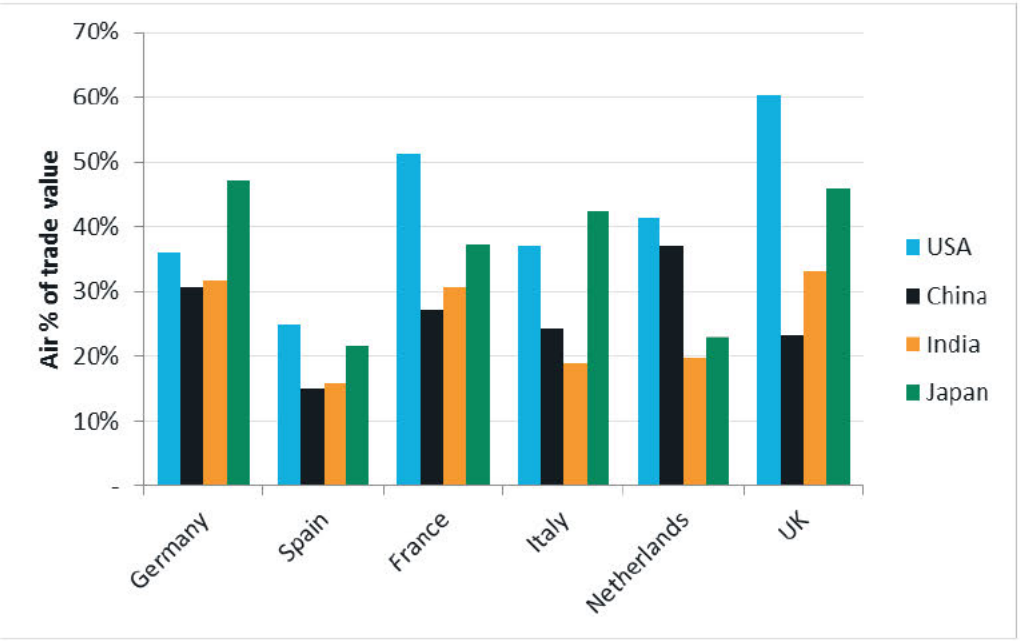
4.21 On the import side, the UK is second largest market in the EU and has the highest share (37%[8]) of imports transported by air, which makes its imports by air (£90 billion) the most valuable in the EU. Like the UK, most other major European economies ship lower proportion of their non-EU imports (compared to exports) by air, with most importing 10% to 30% by air in value terms.

4.22 The high share of air in non-EU trade for the UK (and Ireland) compared to other EU countries, is likely to be explained to some extent by the fact many countries on continental Europe can ship to some non-EU markets (such as Switzerland, Russia or Turkey) much more easily than UK without using air transport.

4.23 Figure 4.11 shows the proportion of trade value transported by air between some of the largest EU and non-EU economies in 2017.

[8] Difference from 35% shown in Figure 4.1 is likely due to slight difference between sources

Figure 4.11: Proportion of trade value transported by air between selected EU and non-EU countries (2017)



Source: Eurostat

4.24 The share of the UK's trade transported by air with India, Japan and the USA is either the highest (or close to the highest) compared to other major EU economies. In 2017, 60% of the UK's trade value with the USA was transported by air, compared to 51% for France and 36% for Germany. To a large extent, the proportion of trade value between two countries transported by air will be driven by the products the two countries trade, import demand preferences and the strength of each country's export markets.

4.25 However, it is likely that, to some extent, the proportion of trade value that is flown by air is linked to the level of air connectivity between the two countries. The UK has significantly more freight capacity to the USA than any other EU country, but has less capacity to China than Germany or the Netherlands. This may partly explain the low relative share of air in UK- China trade value; of the six EU economies shown, only Spain has a lower share of trade value with China that is transported by air.

Case Study – Pharmaceutical exports

In 2017, the UK exported £13.4 billion's worth of medical and pharmaceutical products[9], equivalent to just under 90,000 tonnes of goods. In 2017, 79% of the value these products were carried by air, which, as shown in Figure 4.7, represented over 10% of total air export value. Pharmaceutical products are key strategic knowledge-intensive industry for the UK, that benefits internationally from a reputation for high quality standards.

One company that has taken advantage of this reputation is Loughborough-based Morningside Pharmaceutical[10], which exports supplies to the developing world, to customers including NGOS, ministries of health and private sector clients including hospitals

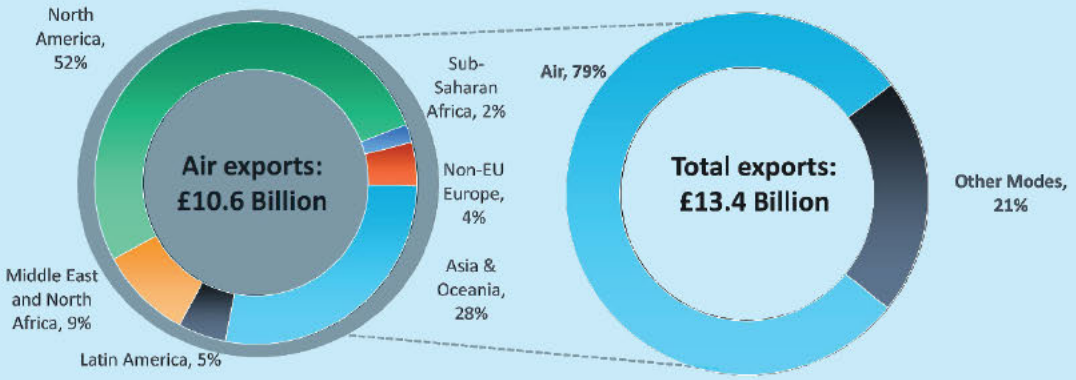
[9] SITC code 54

[10] Credit: East Midlands International Trade Association

and retailers. Shipping by air is more expensive than by sea, however, it enables supplies to delivered faster; shipments can be delivered to in-land locations in the developing world, such as Harare, within two to three days, compared to 45 to 50 days by sea and road. Many shipments are able to leave from East Midlands airport – 20 minutes away from Morningside's facility in Loughborough. Faster delivery is beneficial for Morningside as it facilitates faster payment.

Although companies like Morningside do most of their business in developing markets in Africa, the majority of UK pharmaceutical exports are to more developed economies, as shown in the figure below. In 2017, over half of air export value was shipped to the USA, while Australia, China and Japan were also important markets.

Medical and pharmaceutical supplies (SITC 54): Total and by air, £ Billion (2017)



Source: HMRC

Although it is beneficial for the drugs produced by Morningside to be delivered quickly, other pharmaceutical products are even more time critical. One pharmaceuticals manufacturer of diagnostic and therapeutic medical products, based in South-East England, supplies drugs from their facility, via Heathrow, to hospitals and medical facilities across the world. The drugs have a short life span and are therefore time critical; they must be shipped using express services before they start to degrade.

On the import side, the UK is also a world leader in clinical trials testing, therefore patient urine and blood samples from across the world are sent to the UK in order to develop world class drugs to treat illnesses. The global connectivity provided by Heathrow is therefore important for also facilitating this industry, as samples need to be delivered within 48 hours from collection so as not to compromise the sample integrity. Biological samples are imported (often on dry ice) from countries such as South Africa or Kuwait on direct commercial flights into Heathrow.

Policy considerations

This chapter demonstrates the importance of air freight to UK international trade, and in particular that the UK has a higher dependence on air freight than most other countries. This raises issues for consideration in the development of the UK Government's Aviation Strategy on the appropriate level of Government support for the air freight sector and how its importance should be reflected as part of the strategy for the aviation sector as a whole.

5 Economic analysis

Introduction

5.1 This chapter builds on the analysis earlier in the report to estimate the economic value of air freight to the UK economy. Economic value can be measured in different ways, but typically considers the impacts of an economic sector (or of a proposed project or intervention) on:

- employment (number of employees associated with the sector or intervention);
- income received as salaries by employees; and
- gross value added (GVA).

5.2 GVA is an important indicator which measures the revenues generated by an industry, after netting off the costs of its inputs, in particular its expenditure on the outputs of other economic sectors or on imports, hence the concept of "value added". GVA can be measured for both economic sectors and for geographical regions within a country, allowing for comparisons between each of these. When totalled to cover the whole economy at national level, GVA broadly equates to gross domestic product (GDP), the standard measure for national economic output (the difference is an adjustment for taxes and subsidies on products).

5.3 The analysis in previous chapters demonstrates the importance of air freight to the UK economy. As noted in paragraph 4.3 above, air freight is the transport mode used in UK external trade (to non-EU countries) for:

- 49% of exports by value;
- 35% of imports by value; and
- 41% of combined exports and imports by value.

5.4 However, while clearly demonstrating the significance of air freight, these figures do not automatically translate into the measures typically used by economists to estimate the economic value of the sector (employment, income and GVA), which are discussed below.

5.5 In this chapter, we consider two different, complementary, approaches to assessing economic value:

- the traditional measure of economic impacts on employment, income and GVA of the air freight industry and associated services, generally known as "direct", "indirect" and "induced" impacts (based on the activity in the sector itself and on upstream monetary flows between the air freight industry and other sectors in the economy); and
- the wider economic impacts of air freight, sometimes referred to as "catalytic impacts", which consider how air freight facilitates economic activity in other sectors (based, in this case, on estimating what proportion of GVA in those sectors is currently reliant on air freight services).

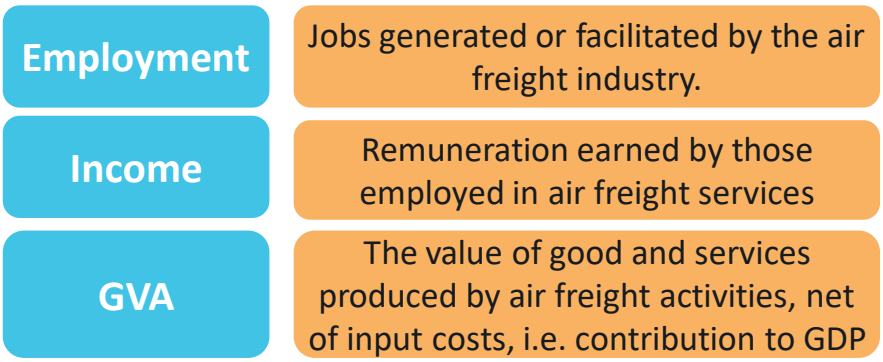
5.6 Our approach to the wider economic impacts of air freight also allows us to disaggregate these impacts both by economic sector (to illustrate which industries are most dependent on air

freight) and by the UK regions and constituent countries. This gives important insights into where the economic benefits of air freight are generated, as distinct from the localities from where or to which it is flown (concentrated at Heathrow and three other airports). These approaches are described in the sections below.

Direct, indirect and induced impacts

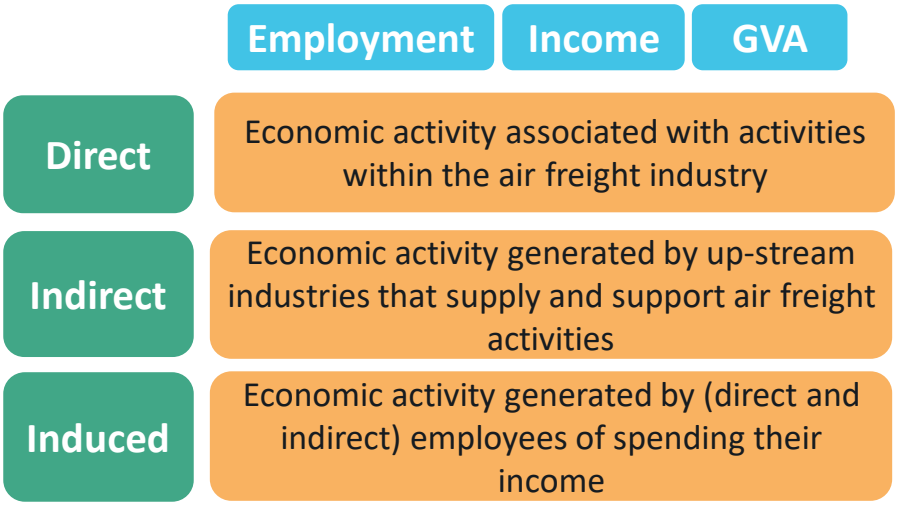
5.7 As noted above, the traditional approach to quantifying the economic impacts of an economic sector is to consider how its activity affects levels of employment, income and GVA, as shown in the diagram below.

Figure 5.1: Measures of economic impact



5.8 For each of these measures, it is possible to compute the "direct", "indirect" and "induced" impacts using a recognised methodology. In addition, wider, catalytic, impacts can also be estimated (see section below), although the approach for this is less standard. In this section, we focus on the direct, indirect and induced impacts, as shown in the diagram below.

Figure 5.2: Direct, indirect and induced economic impacts



Methodology

5.9 The calculation of direct, indirect and induced economic impacts is based on the use of Input-Output tables (I-O tables), produced by the Office for National Statistics (ONS), the latest available version being from 2014. I-O tables cross-tabulate what each industrial sector purchases from each other industrial sector (intermediate demand), and in addition include

data on household and government expenditure, employees' income and company profit, as well as taxes, capital investment, exports and imports.

5.10 However, I-O tables are only available at a high level of industrial aggregation. In order to isolate the air freight sector, it has therefore been necessary to break down the existing categories into their constituent parts, and then reconstruct the table so that it provides the best representation of the range of air freight-related activities taking place in the economy.

5.11 In order to capture the economic value of air freight, it is important to include all the economic activities relevant to the delivery of air freight services. However, the Standard Industry Classification (SIC) used by ONS classifies as "air freight" (SIC code 51.2) only the activities related to the scheduled and non-scheduled transport of goods by air, but does not include essential supporting activities such as ground service activities, cargo handling, warehousing and storage. We have therefore developed a wider definition of supporting air freight services, which also includes the following sub-sectors:

- Warehousing and storage facilities (SIC 52.10/2)
- Service activities incidental to air transport (SIC 52.23)
- Cargo handling for air transport act. (SIC 52.24/2)
- Other transport support activities (SIC 52.29).

5.12 Clearly, not all warehousing and storage, or other transport support activities relate to air freight (forwarding, brokerage, etc.), but we have made the assumption that such activities within a given distance of airports will be largely focused on such activities[11]. Based on this assumption and levels of employment in each of the above sub-sectors in wards within these airport "catchments", as compared with overall employment in the sub-sector, we have allocated a proportion of the economic activity in each sub-sector to air freight services. Although this will not capture all aviation-related activity (clearly there will be non-aviation related warehousing near airports, as well as aviation-related warehousing further away), on balance we consider that this approach is reasonable.

5.13 For "service activities incidental to air transport", which includes airport terminals and air traffic control, we have taken a proportion based on air freight's share of overall air transport GVA[12]. Cargo handling for air transport can reasonably be included in its entirety.

5.14 The table below shows the key components of the economic activity for air freight and its supporting services (these correspond to the "direct" impacts).

[11] Within 10km of Heathrow, within 5km of each of Gatwick, Stansted, Manchester, Birmingham and Glasgow, and within 3km of other airports

[12] 2.6%

Table 5.1: Air freight and supporting services

	Gross Value Added (£m)	Employment (000 jobs)	GVA per worker (£k)	Income generated (£m)	Income per worker (£)
Air Freight (SIC 51.2)	222	3	86	101	38,914
Supporting Air Freight Services	1,261	44	29	1,000	22,838
Total Air Freight Services	**1,483**	**46**	**32**	**1,101**	**23,739**

Source: ONS data, Steer analysis. 2014 data and prices.

5.15 With these adjustments to the ONS 2014 I-O table, we are able to create the underlying data to calculate the direct, indirect and induced economic impacts of air freight and its supporting services. As indicated in Figure 5.2, direct impacts relate to the employment, income and GVA generated by the sector itself, indirect impacts take account of the knock-on effects in the sector's supply chain, while induced impacts also include the impacts of employees' spending in the economy. These can be calculated from the I-O table, by inspection for for direct impacts and via standard techniques for the indirect and induced impacts[13].

Results

5.16 Undertaking the analysis described above allows "multiplier effects" to be calculated. These capture the extent to which changes to air freight services impact the supply chain (indirect impacts) and how the employee income generated by such changes generates knock-on economic activity as this is spent in the wider economy (induced impacts). Multiplier effects are initially calculated for an industry's output, and can then be converted into the corresponding effects on GVA, employment and income. The table below shows the relevant multipliers for (total) air freight services. Note that the multipliers are shown, as is customary, as the overall impact compared to the direct economic impacts (as shown in Table 5.1 above), hence can be considered to be cumulative. The multiplier for direct effects is, by definition, equal to 1.

Table 5.2: Air freight multiplier effects

Multipliers	GVA	Employment	Income
Indirect	2.21	1.81	1.97
Induced (including indirect)	4.88	3.25	3.69

Source: ONS, Steer analysis

5.17 Applying these multipliers to the direct impacts leads to the economic impacts shown in the table below.

Table 5.3: Economic impact of air freight services

Impacts	GVA (£m)	Employment ('000s)	Income (£m)
Direct	1,483	46	1,101
Indirect	1,800	38	1,067
Induced	3,949	66	1,891
Total	**7,232**	**151**	**4,059**

Source: ONS, Steer analysis. 2014 data and prices.

[13] Using Leontief I (indirect) and Leontief II (induced) matrix inversions

5.18 Overall, air freight services support GVA of **£7.2 billion**, **151,000** jobs and associated income of **£4.1 billion** (2014 data and prices) in the UK economy. Note that this result only relates to activities and expenditure either within the air freight and supporting industries, its supply chain and spending by its workforce. It does not include "downstream" effects, i.e. the effect on the industries purchasing air freight services, or the wider, catalytic, impacts on the whole economy. These are discussed in the next section.

Wider economic impacts

5.19 Traditional economic impact assessments are based on the monetary interactions between each sector of the economy with other sectors, as well as with its workforce (salaries), the government (taxation), owners (dividends) and interactions with suppliers and purchasers outside the country (imports and exports).

5.20 However, air freight is a low margin business where the actual revenues earned from supplying air freight services (whether the actual flying or support activities such as ground handling and warehousing) do not fully represent either the value of what is being flown, or the value of timely delivery. In terms of the value of what is flown, air freight imports and exports, between them, were worth £181 billion (2017 values and prices)[14], or close to 25 times more than the economic added value (GVA) calculated using the direct, indirect and induced methodology of the previous section.

5.21 Additionally, beyond the value of the goods transported by air, some products are worth considerably more to the shippers/consignees of the goods than the value of the item itself. This explains why so much machinery and equipment, as well as contractual and legal documents, are delivered using air freight. The items themselves may not be particularly valuable, but a key component may allow a production line to continue to operate rather than being shut down while the component is delivered by surface transport. Similarly, key original signed documents may allow deals worth billions of pounds to go ahead.

5.22 While the value of goods flown (exports and imports) cannot be directly compared with an economic value measure such as GVA, because their worth is not "added value" in the same sense that the activities of an industry add value, the two concepts are linked. We have therefore developed an approach to identify how much value added across the economy is associated with the value of products moved by air.

Methodology

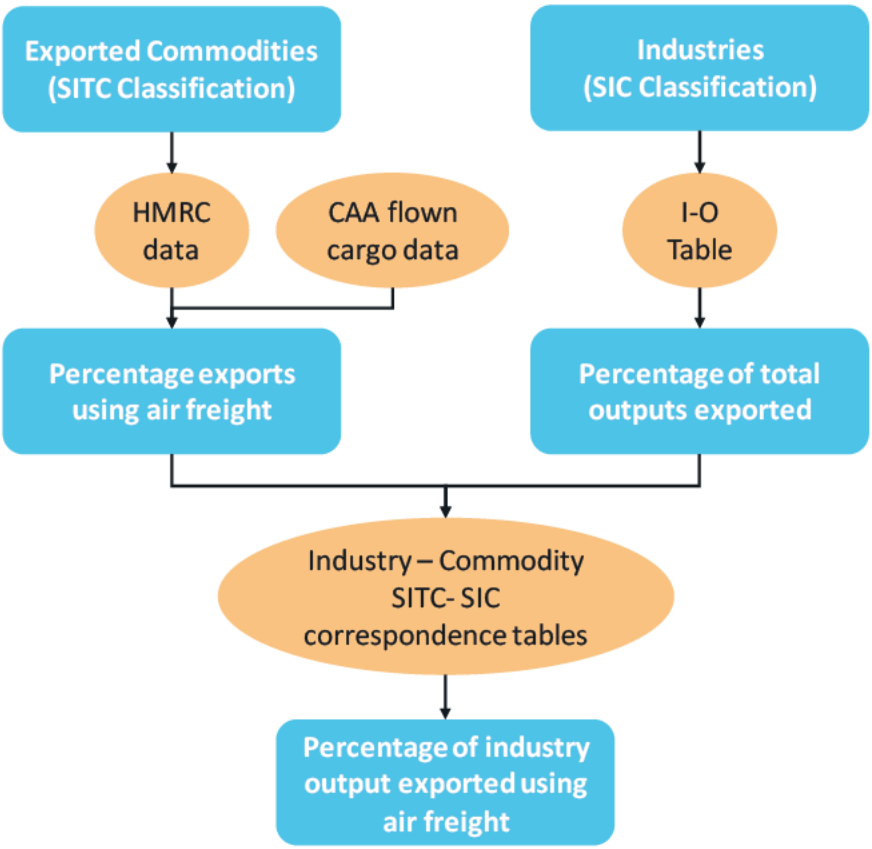
5.23 Each sector of the economy produces outputs for which customers are willing to pay. While service industries produce largely intangible outputs, primary and secondary sectors produce physical products such as food, machine parts, cars and so on. For these sectors of the economy, their outputs equate to particular commodities so that, for example, farms produce agricultural products while automotive plants produce cars and trucks. Hence, there is a correspondence between each industry and its outputs[15].

[14] See Figure 4.7 above

[15] This correspondence is formally available using tables provided by Eurostat RAMON relating Standard International Trade Classification (SITC) commodity codes and Standard Industry Classification (SIC) codes, together with mappings between different versions of each set of codes provided by ONS and UNSD.

5.24 As identified in Chapter 4 and illustrated in Figure 4.8 above, for a number of commodities air freight plays a significant role in delivering exports of the product (the majority for pharmaceuticals and power generating equipment, for example), as identified by HMRC data on transport mode used for trade. Using the HMRC data, we can therefore identify what proportion of such industries' exports are transported by air. Furthermore, for each industry, the I-O table developed by ONS and described from paragraph 5.9 above, identifies the value of exports produced by each industry in relation to the total value of its output. Bringing these together by using the correspondence between industries and the commodities those industries produce, we can therefore establish, for each industry which produces physical outputs, what proportion of those outputs is represented by exports transported using air freight services. The approach is illustrated in the figure below.

Figure 5.3: Estimation of industry output exported using air freight



Source: HMRC data downloads, ONS weighted correlation tables, Eurostat RAMON, UNSD SITC Rev. 4, CAA airport data, Steer analysis

5.25 Note that because HMRC data covers only non-EU exports, an adjustment needs to be made to account for EU exports by air. In volume terms (tonnage), air freight flown to the EU represents 18.3% of total air freight from the UK, based on CAA flown volumes data[16], so total

[16] CAA 2017 airport data (Table 14)

air freight export values can be estimated from non-EU exports by uplifting the value of non-EU exports by 22.3%[17].

5.26 An industry's output represents the value of the goods (or services) that it sells, while its value added (measured by GVA), broadly represents the value of outputs net of the cost of inputs[18]. For this reason, GVA, summed across the whole economy, with an adjustment for product taxes and subsidies, represents the whole national economic output (whereas adding all industries' outputs together would double-count the portions of output sold from one industry to another).

5.27 It is reasonable to make the assumption that all output contributes equally to the GVA generated by an industry. For example, based on the 2014 I-O Table, SIC 26, the "Manufacture of computer, electronic and optical products" generated £20.6 billion in output (sales) and its GVA was £7.9 billion. We therefore assume that each £1 million of output from these industries generate a GVA of £383,000.

5.28 We have also made the assumption that, since its exports represent a component of an industry's output and also contribute directly to the value added (GVA) of that industry, that:

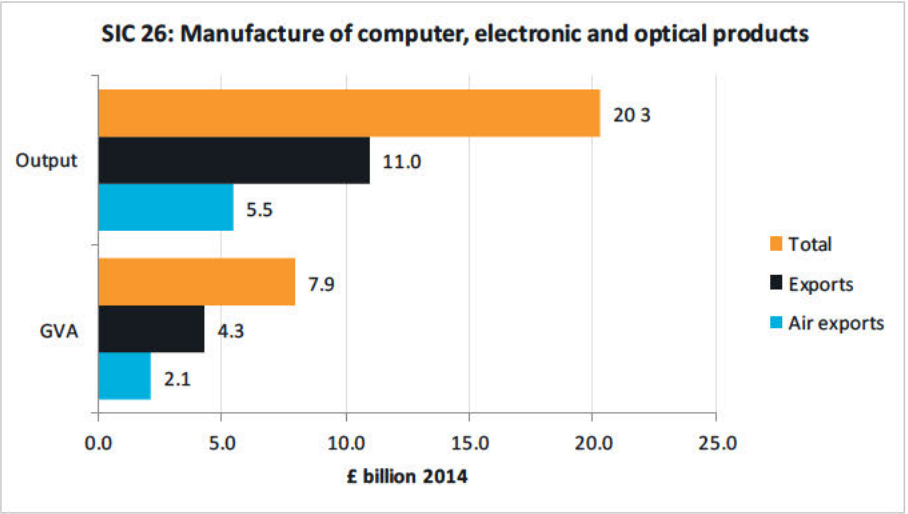
- The proportion of an industry's GVA supported by air freight services is equal to the proportion of its outputs which are exported by air.

5.29 In the case of computer, electronic and optical products, using the analysis based on the approach in Figure 5.3, 54.2% of the value of the relevant industries outputs are exported, and of these, 49.5% are exported by air (EU and non-EU combined). Therefore 27.3% of the industries' outputs, or £5.5 billion's worth of sales, are exported by air. Using the assumption that each unit of output generates the same level of GVA, we can therefore deduce that 27.3% of the GVA generated by the industries producing computer, electronic and optical products is, currently, dependent on the use of air freight services. This equates to 27.3% of the industries' combined GVA of £7.9 billion, or £2.1 billion. Note that this represents the "direct" GVA of the industries themselves, and not any knock-on effects on their supply chains. This direct GVA to output relationship is illustrated in the figure below.

[17] The 22% uplift is calculated from [1 / (100% - 18.3%)] - 1, and by making the assumption that the commodity value per kg of EU exports using air freight is similar to the value per kg of non-EU air freight.

[18] Some adjustments are made for consistency across industries which sell different proportions of outputs to other industries rather than to consumers or the public sector, so GVA for an industry is actually calculated as the sum of employees' compensation, taxes on production and its gross operating surplus. At a national level, the two approaches are equivalent.

Figure 5.4: Illustration of relationship of industry output and GVA related to exports by air, £ Billions



Source: ONS, HMRC, Eurostat, CAA, Steer analysis

5.30 The final step in this analysis is to recognise that, if a portion of an industry's GVA is dependent on air freight services, then the suppliers who provide inputs to that industry are also dependent on the air freight services. This is the same "knock-on effect" described in paragraph 5.15 above. Following this logic, it is reasonable to apply the industry multipliers for indirect and induced impacts generated from analysis of the ONS I-O table. While Table 5.2 above shows the relevant multipliers for the air freight sector, each different industry sector has its own multiplier[19]. The multipliers are shown, for each sector with air exports, at the single-character industry section level, in the table below.

Table 5.4: Industry sector induced effects multipliers

Code	Industry sector	Induced multiplier
A	Agriculture, Forestry and Fishing	3.3
B	Mining and Quarrying	2.4
C	Manufacturing	3.9
E	Water Supply; Sewerage, Waste Management and Remediation Activities	3.0
H	Transportation and Storage	4.0
J	Information and Communication	3.0
M	Professional, Scientific and Technical Activities	3.0
R	Arts, Entertainment and Recreation	2.8

Source: ONS, Steer analysis

5.31 In the example of the industries manufacturing computer, electronic and optical products, the application of the multiplier for manufacturing (code C), which is 3.9, increases the estimate of GVA dependent on air freight exports from £2.1 billion to £8.3 billion.

[19] These are estimated by the same Leontief matrix inversion approach on the I-O table used to find the air freight multipliers

5.32 This approach leads to analysis that implies that a very significant proportion of some industries' GVA is dependent on air freight. While this is factually true at the current time, it is also necessary to consider the possibility that the exports currently transported by air could be transported by other modes (i.e. land or sea), and hence that this dependency is purely contingent, because substitute transport options exist. In the absence of air freight, some products might be transported via other modes and could not, therefore, be considered "dependent" in the strictest sense.

5.33 However, while it is true that all products which are currently transported by air could, in principle, be transported by surface modes, air transport is qualitatively very different in its characteristics, because:

- transit times are very much faster (e.g. one week for bulk air freight from the Far East, vs. six weeks by sea); and
- prices are very much higher (in a range of four to six times more expensive for bulk air freight, and higher still for express freight).

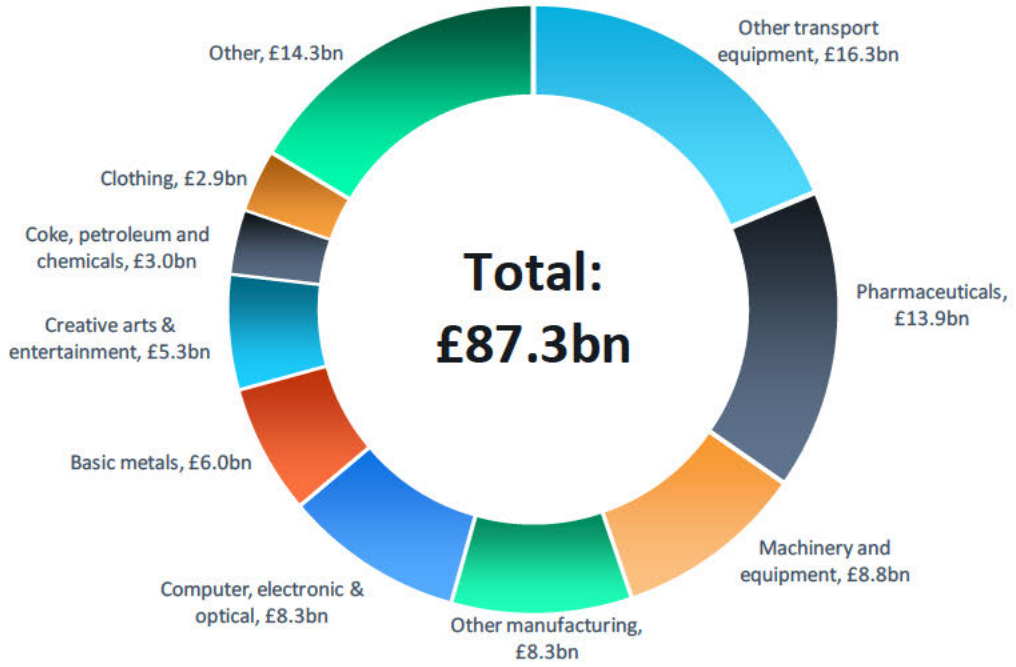
5.34 Therefore, surface modes would appear to be poor substitutes for air freight. Clearly, if air freight became less available and/or more expensive, some users would switch to surface transport. However, it is likely that they would become less competitive by doing so as, if not, they would already have made the switch. Therefore, in the longer run, such industries would tend to migrate away from the UK to other locations where air freight was more readily available and/or cheaper. For example, manufacturing plants which depend on air freight for their supply chains, and particularly to ensure continuous operation when parts fail, would be less efficient if surface transport had to be used, and hence corporations would be less likely to invest in such plants located in the UK.

5.35 For this reason, while the proportion of GVA dependent on air freight estimated using this approach may be reduced through the substitution of other modes, we consider that much of the GVA currently dependent on air freight is likely to remain so in future. Hence, any factors making air freight less convenient, less available or more expensive, are likely to have a negative impact on the industries generating this portion of GVA.

Results

5.36 Using the approach above, we have estimated the level of GVA currently dependent on air freight across the economy. Figure 5.5 below shows the industry sectors with the highest level of GVA currently dependent on air freight exports (including the contribution of their supply chains). The GVA figures are based on ONS' latest release (2016) of figures disaggregated at an industrial and regional level.

Figure 5.5: GVA currently dependent on air freight by industry, £ Billion



Source: ONS, HMRC, Eurostat, CAA, Steer analysis, 2016 values and prices

5.37 The chart shows that £16.3 billion of the GVA generated by the industries producing "Other transport equipment" (SIC 30) is currently dependent on air freight exports (including the contribution of their supply chains). Similarly, £13.9 billion of the GVA of the pharmaceutical industry (and its supply chain) is currently dependent on air freight exports. Across all sectors of the economy, **£87.3 billion of GVA is currently dependent on air freight exports**. This represents **5% of the total GVA measure of national output** (£1,747 billion in 2016).

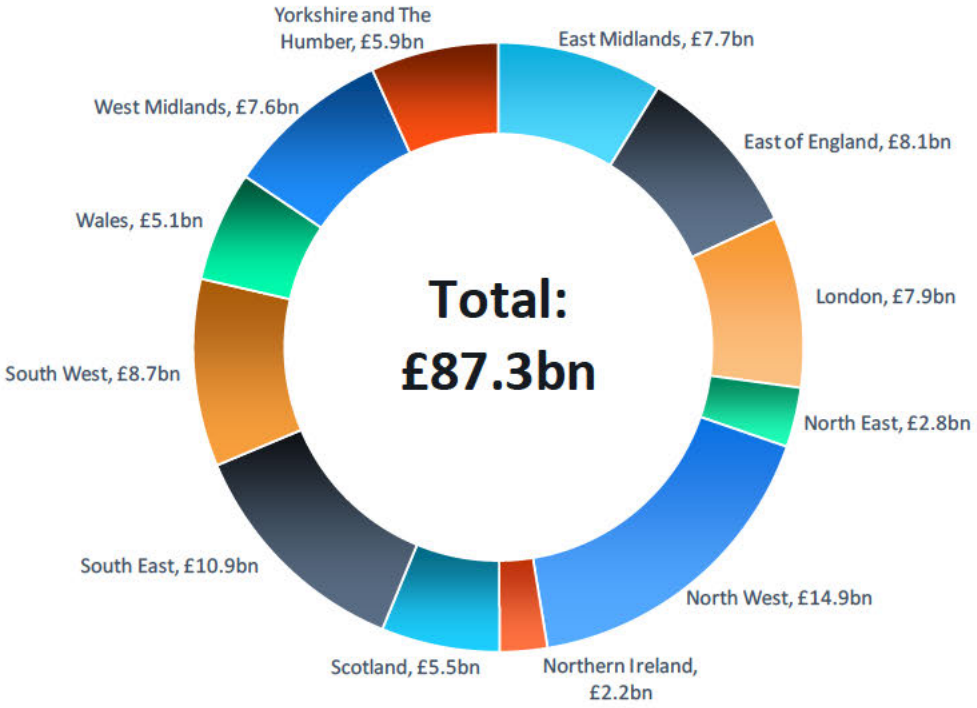
5.38 While the level of GVA currently dependent on air freight might potentially be reduced through the use of alternative modes of transport, the fact that such alternatives are generally poor substitutes for air freight indicates that the level of GVA dependent on air freight is likely to remain significant. This indicates that air freight is a very important service supporting a significant fraction of national economic activity.

Regional economic impacts

5.39 The analysis of the level of industries' and their supply chains' added value (GVA) which is currently dependent on air freight, enables us to estimate the regional importance of air freight services, by considering the regional distribution of output for each industry (and making the reasonable assumption that the proportion of air freight exports, compared with outputs, is the same for each industry across the different regions).

5.40 Figure 5.6 below shows the distribution of the £87.3 billion of GVA currently dependent on air freight exports across the UK's regions. Note that, unlike flown cargo data statistics, this data represents the origin of the air freight (i.e. where it is manufactured) rather than the region of the airport from which it is flown.

Figure 5.6: GVA currently dependent on air freight by region, £ Billion

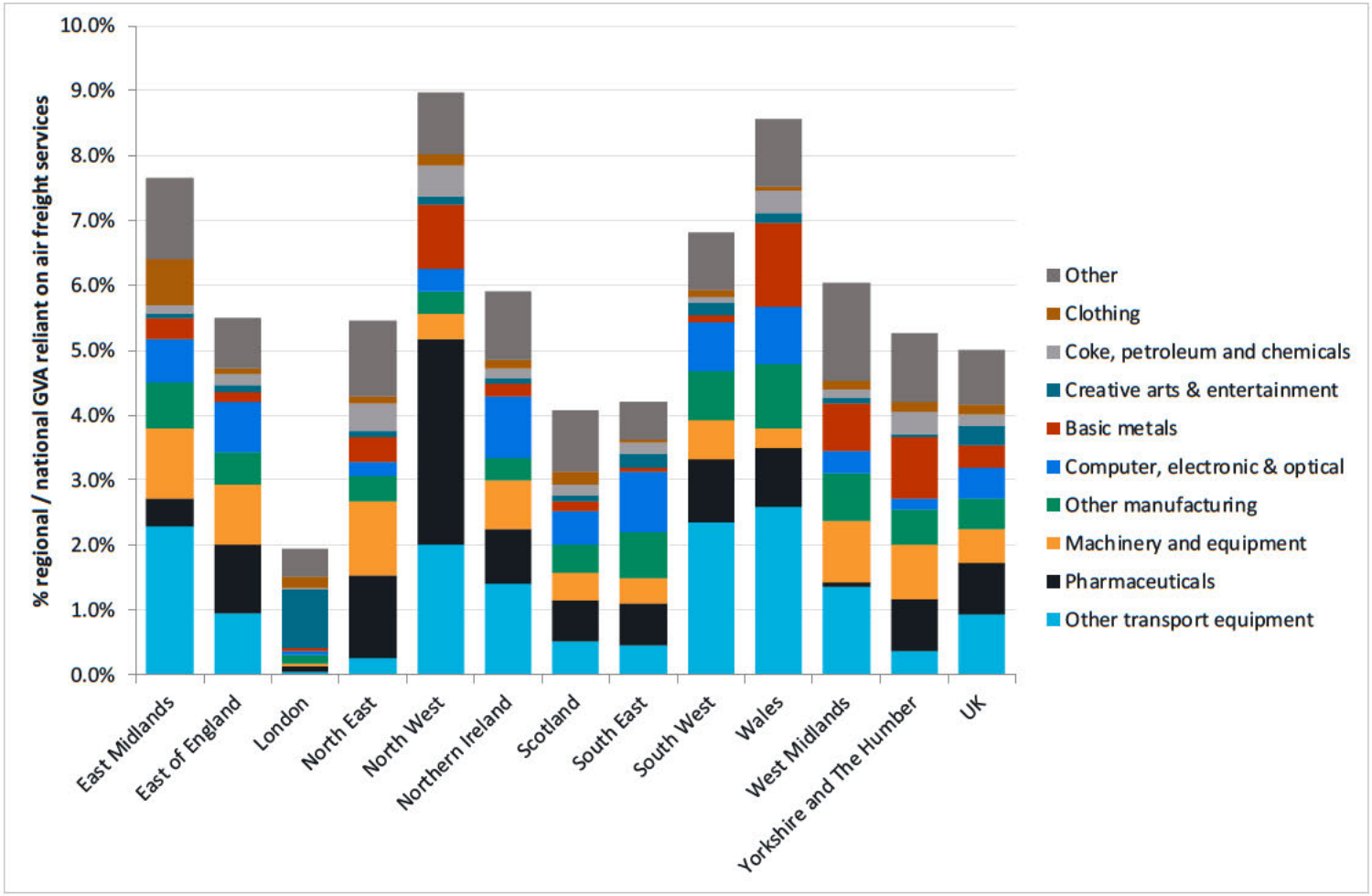


Source: ONS, HMRC, Eurostat, CAA, Steer analysis, 2016 values and prices

5.41 Figure 5.6 demonstrates the importance of the air freight industry in the North West, where £14.9 billion GVA is currently dependent on air freight, representing 9.0% of the whole economy of the region. Similarly, air freight supports very significant proportions of economic activity in many UK regions and nations, including 8.6% in Wales, 7.6% in the East Midlands, 6.8% in the South West, 6.0% in the West Midlands and 5.9% in Northern Ireland. Note that some of these regions have insignificant levels of actual air freight volumes flying from their airports, despite the importance of air freight to their economies, implying a reliance on surface transport to reach airports located elsewhere in the country.

5.42 Taking a combined view of both regions and the industries within them whose GVA is currently dependent on air freight provides some interesting insights, as illustrated in Figure 5.7 below.

Figure 5.7: Proportion of GVA currently dependent on air freight by region and industry



Source: ONS, HMRC, Eurostat, CAA, Steer analysis, 2016 values and prices

5.43 Figure 5.7 highlights the importance of air freight to transport equipment producing industries in the East Midlands, the North West, the South West and Wales, while pharmaceutical manufacturing in the North West makes very significant use of air freight as well as (to a lesser extent) in other regions. Machinery, equipment and other manufacturing in many regions are supported by air freight, while basic metal industries in Wales, the North West, West Midlands and Yorkshire are also dependent on it.

5.44 Air freight does not support much of the production of the London region, which is unsurprising since it is in general not a manufacturing region, but London's large creative arts sector is seen to be strongly dependent on air freight services.

5.45 The contrast between the importance of London and the South East in terms of providing air freight services (focused on Heathrow), compared with the relatively low dependence of their economies on the sector in comparison to regions such as the North West, Wales, the East Midlands and the South West, is stark.

Case study – Connectivity at Manchester Airport

Several stakeholders consulted as part of this study have stated that, due to the concentration of air freight activity at Heathrow, UK air freight would benefit from greater utilisation of regional capacity. The recent growth in freight volumes at Manchester, enabled by increased intercontinental connectivity, have demonstrated how utilisation on regional capacity can benefit UK air freight and regional exports.

Prior to the financial crisis, freighters accounted for a significant amount of volume at Manchester. Although freighter volumes have fallen away since the financial crisis, increased intercontinental frequencies on passenger aircraft have driven a significant increase in bellyhold freight volumes since 2009. Bellyhold volumes at Manchester have increased with a CAGR of +8.5% between 2009 and 2017.

Bellyhold freight volumes have grown in line with the number of annual departing frequencies to the UAE and Qatar, which have more than doubled since 2009. In more recent years, bellyhold volumes have also been boosted by new direct connections to Hong Kong (2014), Saudi Arabia (2014), Singapore (2016), China (2016) and Oman (2017).

Connections on these new routes accounted for over 15% of freight volumes in 2017. The wider benefits of the China connection were explored in a recent report[20].

As well increasing freight volumes, these new connections have also facilitated exports flown from Manchester Airport. Although some of the routes are to global freight hubs, such as Hong Kong and Singapore, and have therefore not materially affected exports to these countries, other routes have significantly increased the value of exports shipped from the airport. The figure below shows the value of exports to China flown from Manchester Airport as well as the number of annual departing frequencies. The value of exports flown to China from Manchester Airport increased by close to £300 million in the two years since direct frequencies to Beijing were introduced. The exports to other countries have also increased; the value of exports to Oman increased 5-fold by over £40 million the year direct frequencies were introduced.

Manchester: Departing frequencies and value of exports to China, £ Millions (2013-2017)

Source: OAG, HMRC

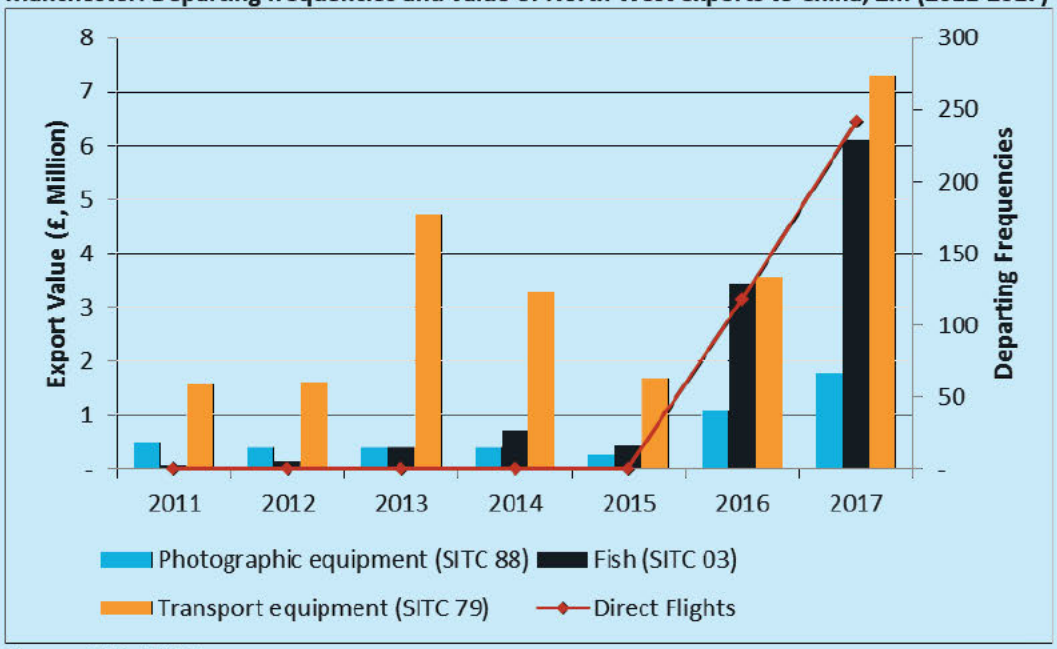
The direct connection to Beijing in some cases also appears to have aided exporters in North-West England. Although total exports to China from the UK grew strongly in 2016 and 2017 (recovering from a slump in Chinese trade in 2015), the value of some products exported to China have grown especially strongly since 2015. HMRC's Regional Trade Statistics (RTS) do not disaggregate exports by transport mode; but there has been strong growth in the value of some exports from the North West, in some products that are transported predominately by air.

The figure below shows the growth in export value from the North-West region to China, for selected product groups that have over a 70% share of air exports nationally, and the number of departing direct flights from Manchester Airport to China. The value of exports

[20] *The China Dividend: Two Years In,* Steer Economic Development, at: https://mediacentre.manchesterairport.co.uk/new-report-shows-manchester---beijing-service-is-a-major-catalyst-for-the-northern-economy/

to China from the North West, in these product groups, have increased significantly in the years since the direct flight to Beijing was introduced.

Manchester: Departing frequencies and value of North West exports to China, £m (2011-2017)



Source: OAG, HMRC

Direct connections to other countries also appear to have benefited local exports; after a new direct connection to Muscat in 2017, the value of exports flown from Manchester Airport to Oman increased 5-fold by over £40 million with export values of flown products from the North West also increased significantly.

The increased freight volumes and export values flown from Manchester demonstrate that long-haul connections served by non-UK carriers, can be a catalyst for the utilisation of regional airport capacity, can help mitigate the decline in freighter activity and can boost exports from regional airports. Given the capacity constraints at Heathrow and that, as of 2017 compared to other major European countries, the UK has relatively few connections with China and the Far East, these markets represent significant opportunity to grow freight capacity.

Policy considerations

5.56 This chapter demonstrates the importance of air freight to the UK economy as a whole, as well as to particular economic sectors and to certain UK regions and nations. Taking account of the analysis of the industry in previous chapters, this raises particular issues relevant to the formulation of national aviation policy as the UK Government develops an aviation strategy towards 2050, including:

- how to protect and develop the significant share of the UK economy currently dependent on air freight services; and
- how to support UK regions and nations whose economies are heavily dependent on air freight services, particularly where local airports do not currently benefit from strong air freight services.

Control Information

Prepared by

Steer
28-32 Upper Ground
London SE1 9PD
+44 20 7910 5000
www.steergroup.com

Prepared for

Airlines UK
25 Southampton Buildings
London
WC2A 1AL

Steer project/proposal number

23348601

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Author/originator

Mark Scott

Reviewer/approver

Peter Wiener

Other contributors

Cameron Ades, Daniyal Labib, Jake Cartmell

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E-commerce and ICT activity, 2019: Published 5 February 2021

Statistical contact: Cecil Prescott, Office for National Statistics.
Telephone number: +44 (0)1633 456767
email: ecommerce@ons.gov.uk

Table 1: UK e-commerce sales, 2009 to 2019

£ b on

		Sa es over a webs te	Sa es over EDI	**Total e-commerce sales**
Bus nesses w th 10 or more emp oyees	2009	110.6	264.5	**375.1**
	2010	118.5	300.5	**419.0**
	2011	147.8	341.2	**489.0**
	2012	172.9	300.7	**473.6**
	2013	198.0	346.8	**544.7**
	2014	210.4	284.1	**494.5**
	2015	218.1	257.2	**475.4**
	2016	230.4	255.0	**485.4**
	2017	275.4	279.9	**555.2**
	2018	322.3	317.3	**639.7**
	2019	334.9	334.0	**668.9**
A bus nesses nc ud ng m cro-enterpr ses	2014	227.4	286.1	**513.5**
	2015	236.6	259.6	**496.2**
	2016	247.9	260.9	**508.8**
	2017	296.7	285.5	**582.2**
	2018	354.4	323.4	**677.8**
	2019	356.4	336.6	**693.0**

Coverage of m cro enterpr ses (those w th ess than 10 emp oyees) was ntroduced for the 2014 survey. To a ow compar son w th ear er years, est mates for 2014 to 2019 are presented on the or g na bas s of 10 or more emp oyees and the new bas s nc ud ng m cro enterpr ses.
Est mates from 2017 onwards have been rev sed as a resu t of updated survey data.
D fferences may occur between tota s and the sum of the r ndependent y rounded components.

Source: Off ce for Nat ona Stat st cs
Cec Prescott
+44 (0)1633 456767
ecommerce@ons.gov.uk

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Table 2: UK e-commerce sales, by size of business, 2009 to 2019

£ billion

		0 to 9 employees	10 to 49 employees	50 to 249 employees	250 to 999 employees	1000 or more employees	**10 or more employees**	**All businesses**
Website sales	2009	-	7.8	11.4	31.5	59.9	**110.6**	-
	2010	-	10.2	12.8	31.2	64.3	**118.5**	-
	2011	-	12.4	17.3	33.8	84.3	**147.8**	-
	2012	-	18.4	17.6	40.1	96.7	**172.9**	-
	2013	-	18.7	19.9	49.5	109.9	**198.0**	-
	2014	17.1	20.7	21.7	40.4	127.6	**210.4**	**227.4**
	2015	18.5	21.7	29.1	36.9	130.4	**218.1**	**236.6**
	2016	17.5	26.4	28.3	34.7	141.1	**230.4**	**247.9**
	2017	21.3	33.1	41.3	40.4	160.6	**275.4**	**296.7**
	2018	32.1	42.5	50.9	52.6	176.3	**322.3**	**354.4**
	2019	21.5	35.6	47.8	55.3	196.2	**334.9**	**356.4**
EDI sales	2009	-	6.4	31.2	105.8	121.0	**264.5**	-
	2010	-	8.6	31.4	127.9	132.5	**300.5**	-
	2011	-	10.7	34.0	149.8	146.8	**341.2**	-
	2012	-	9.1	37.9	117.6	136.2	**300.7**	-
	2013	-	10.5	33.9	163.3	139.1	**346.8**	-
	2014	2.0	8.7	29.3	117.7	128.4	**284.1**	**286.1**
	2015	2.3	9.5	32.9	79.7	135.2	**257.2**	**259.6**
	2016	5.9	10.2	36.4	73.2	135.2	**255.0**	**260.9**
	2017	5.6	13.9	42.0	87.1	136.9	**279.9**	**285.5**
	2018	6.1	13.9	48.8	101.3	153.3	**317.3**	**323.4**
	2019	2.6	14.4	47.0	100.3	172.2	**334.0**	**336.6**
Total e-commerce sales	2009	-	14.2	42.6	137.4	180.9	**375.1**	-
	2010	-	18.8	44.3	159.1	196.9	**419.0**	-
	2011	-	23.1	51.3	183.6	231.1	**489.0**	-
	2012	-	27.5	55.5	157.7	232.9	**473.6**	-
	2013	-	29.1	53.8	212.9	249.0	**544.7**	-
	2014	19.0	29.4	51.0	158.1	256.0	**494.5**	**513.5**
	2015	20.8	31.2	62.0	116.6	265.6	**475.4**	**496.2**
	2016	23.4	36.6	64.7	107.9	276.3	**485.4**	**508.8**
	2017	27.0	47.0	83.3	127.5	297.5	**555.2**	**582.2**
	2018	38.2	56.5	99.7	153.9	329.6	**639.7**	**677.8**
	2019	24.1	50.0	94.8	155.6	368.5	**668.9**	**693.0**

Coverage of micro-enterprises (those with less than 10 employees) was introduced for the 2014 survey. To allow comparison with earlier years, estimates for 2014 to 2019 are presented on the original basis of 10 or more employees and the new basis including micro-enterprises.
- denotes figures unavailable.
Estimates from 2017 onwards have been revised as a result of updated survey data.
Differences may occur between totals and the sum of their independently rounded components.

Source: Office for National Statistics
Cec Prescott
+44 (0)1633 456767
ecommerce@ons.gov.uk

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Table 3 UK e-commerce sales, by industry sector, 2009 to 2019

£ billion

		Sales over a website	ED Sales	Total e-commerce sales
Manufacturing (Division 10 to 33)				
Businesses with 10 or more employees	2009	5 3	111 6	**116.9**
	2010	6 5	118 6	**125.2**
	2011	16 3	134 6	**150.9**
	2012	18 1	121 0	**139.2**
	2013	29 3	119 9	**149.2**
	2014	30 9	125 7	**156.6**
	2015	32 1	121 3	**153.4**
	2016	37 1	125 0	**162.1**
	2017	38 7	130 0	**168.7**
	2018	46 2	137 7	**183.8**
	2019	48 0	138 0	**186.0**
All businesses including 0 to 9 employees	2014	31 8	125 9	**157.7**
	2015	33 6	121 6	**155.2**
	2016	37 9	125 2	**163.1**
	2017	40 0	130 1	**170.1**
	2018	47 3	137 7	**185.0**
	2019	49 9	138 2	**188.1**
Utilities (Division 35 to 39)				
Businesses with 10 or more employees	2009	6 7	6 6	**13.3**
	2010	7 0	8 1	**15.1**
	2011	9 8	5 4	**15.2**
	2012	9 5	6 8	**16.2**
	2013	9 6	3 6	**13.2**
	2014	13 6	4 1	**17.7**
	2015	15 2	4 6	**19.8**
	2016	9 3	2 9	**12.2**
	2017	13 4	3 2	**16.6**
	2018	10 5	3 3	**13.7**
	2019	14 9	3 9	**18.8**
All businesses including 0 to 9 employees	2014	13 6	4 1	**17.8**
	2015	15 2	4 6	**19.8**
	2016	9 4	2 9	**12.3**
	2017	13 5	3 3	**16.8**
	2018	10 5	3 3	**13.8**
	2019	15 0	3 9	**19.0**
Construction (Division 41 to 43)				
Businesses with 10 or more employees	2009	0 7	2 7	**3.4**
	2010	0 2	3 1	**3.3**
	2011	0 5	3 6	**4.2**
	2012	0 8	3 0	**3.8**
	2013	0 5	3 9	**4.4**
	2014	1 4	4 1	**5.5**
	2015	1 2	6 6	**7.8**
	2016	0 6	7 6	**8.2**
	2017	1 9	6 0	**7.9**
	2018	2 5	6 4	**9.0**
	2019	2 3	9 3	**11.5**
All businesses including 0 to 9 employees	2014	2 2	4 1	**6.3**
	2015	2 0	6 8	**8.8**
	2016	1 4	7 6	**9.0**
	2017	2 3	6 1	**8.4**
	2018	4 3	6 5	**10.8**
	2019	3 4	9 8	**13.2**
Wholesale (Division 45 to 46)				
Businesses with 10 or more employees	2009	38 6	106 1	**144.7**
	2010	42 1	125 4	**167.5**
	2011	40 1	143 4	**183.5**
	2012	48 2	125 7	**173.9**
	2013	59 6	168 5	**228.1**
	2014	53 9	116 8	**170.7**
	2015	55 4	84 3	**139.7**
	2016	53 4	77 7	**131.1**
	2017	67 4	92 2	**159.6**
	2018	87 8	110 3	**198.2**
	2019	91 0	117 7	**208.7**
All businesses including 0 to 9 employees	2014	61 2	118 4	**179.6**
	2015	60 5	84 6	**145.0**
	2016	59 3	82 5	**141.8**
	2017	74 6	96 4	**171.1**
	2018	103 8	115 3	**219.1**
	2019	96 0	118 7	**214.7**
Retail (Division 47)				
Businesses with 10 or more employees	2009	11 7	1 9	**13.6**
	2010	12 9	1 8	**14.7**
	2011	17 9	3 1	**21.1**
	2012	22 0	1 1	**23.1**
	2013	24 0	2 4	**26.3**
	2014	26 8	1 7	**28.5**
	2015	27 9	2 0	**29.9**
	2016	32 2	2 3	**34.5**
	2017	42 8	2 7	**45.4**
	2018	45 2	4 8	**49.9**
	2019	45 7	7 8	**53.5**
All businesses including 0 to 9 employees	2014	29 4	1 8	**31.3**
	2015	32 0	2 5	**34.5**
	2016	36 4	3 0	**39.4**
	2017	47 1	2 7	**49.8**
	2018	52 9	4 9	**57.7**
	2019	52 2	8 2	**60.4**

		Sales over a website	ED Sales	Total e-commerce sales
Transport and storage (Division 49 to 53)				
Businesses with 10 or more employees	2009	20 1	19 9	**40.0**
	2010	16 5	22 5	**39.0**
	2011	21 8	22 2	**44.0**
	2012	24 8	17 0	**41.8**
	2013	24 5	20 4	**44.9**
	2014	34 8	14 0	**48.8**
	2015	30 5	23 9	**54.4**
	2016	34 2	22 8	**57.0**
	2017	35 9	27 5	**63.4**
	2018	40 4	33 5	**73.9**
	2019	40 7	36 9	**77.6**
All businesses including 0 to 9 employees	2014	35 0	14 0	**49.0**
	2015	30 6	23 9	**54.5**
	2016	34 6	22 8	**57.4**
	2017	37 2	27 5	**64.8**
	2018	40 8	33 8	**74.6**
	2019	41 5	36 9	**78.4**
Accommodation and food services (Division 55 to 56)				
Businesses with 10 or more employees	2009	4 4	0 9	**5.3**
	2010	4 5	0 7	**5.3**
	2011	4 9	0 9	**5.8**
	2012	8 3	0 8	**9.0**
	2013	8 8	1 6	**10.4**
	2014	8 3	2 3	**10.6**
	2015	8 8	1 2	**10.1**
	2016	10 1	1 6	**11.8**
	2017	12 7	1 3	**14.0**
	2018	12 0	1 4	**13.4**
	2019	15 5	1 9	**17.4**
All businesses including 0 to 9 employees	2014	8 9	2 3	**11.2**
	2015	9 7	1 2	**10.9**
	2016	11 3	1 6	**12.9**
	2017	13 4	1 3	**14.7**
	2018	13 0	1 5	**14.4**
	2019	15 9	2 0	**17.9**
Information and communication (Division 58 to 63)				
Businesses with 10 or more employees	2009	14 9	9 1	**24.0**
	2010	16 4	13 4	**29.8**
	2011	19 3	18 5	**37.8**
	2012	22 3	20 3	**42.6**
	2013	22 2	20 1	**42.3**
	2014	20 9	9 7	**30.7**
	2015	24 0	5 8	**29.8**
	2016	25 6	6 2	**31.8**
	2017	31 9	8 2	**40.1**
	2018	43 9	11 7	**55.6**
	2019	46 7	10 8	**57.5**
All businesses including 0 to 9 employees	2014	22 0	9 7	**31.7**
	2015	25 9	6 2	**32.0**
	2016	26 6	6 2	**32.8**
	2017	33 7	8 6	**42.3**
	2018	45 1	11 9	**57.1**
	2019	49 7	10 8	**60.5**
Other services (Division 68 to 74, 77 to 82 and 95.1)				
Businesses with 10 or more employees	2009	8 1	5 9	**14.0**
	2010	12 4	6 8	**19.1**
	2011	17 2	9 5	**26.7**
	2012	18 9	5 1	**24.1**
	2013	19 5	6 3	**25.8**
	2014	19 8	5 6	**25.4**
	2015	23 0	7 6	**30.6**
	2016	27 9	8 9	**36.9**
	2017	30 6	8 9	**39.5**
	2018	33 9	8 3	**42.2**
	2019	30 2	7 6	**37.9**
All businesses including 0 to 9 employees	2014	23 3	5 7	**29.0**
	2015	27 2	8 2	**35.4**
	2016	31 0	9 2	**40.2**
	2017	34 8	9 5	**44.3**
	2018	36 8	8 6	**45.4**
	2019	33 0	8 0	**41.0**
All				
Businesses with 10 or more employees	**2009**	**110.6**	**264.5**	**375.1**
	2010	**118.5**	**300.5**	**419.0**
	2011	**147.8**	**341.2**	**489.0**
	2012	**172.9**	**300.7**	**473.6**
	2013	**198.0**	**346.8**	**544.7**
	2014	**210.4**	**284.1**	**494.5**
	2015	**218.1**	**257.2**	**475.4**
	2016	**230.4**	**255.0**	**485.4**
	2017	**275.4**	**279.9**	**555.2**
	2018	**322.3**	**317.3**	**639.7**
	2019	**334.9**	**334.0**	**668.9**
All businesses including 0 to 9 employees	**2014**	**227.4**	**286.1**	**513.5**
	2015	**236.6**	**259.6**	**496.2**
	2016	**247.9**	**260.9**	**508.8**
	2017	**296.7**	**285.5**	**582.2**
	2018	**354.4**	**323.4**	**677.8**
	2019	**356.4**	**336.6**	**693.0**

Source O ice or National Statistics

Cecil Prescott
+44 (0)1633 456767
ecommerce@ons.gov.uk

Coverage o micro-enterprises (those with less than 10 employees) was introduced or the 2014 survey o allow comparison with earlier years estimates or 2014 to 2019 are presented on the original basis o 10 or more employees and the new basis including micro-enterprises
Estimates rom 2017 onwards have been revised as a result o updated survey data
Di erences may occur between totals and the sum o their independently rounded components

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Table 4: Proportion of UK businesses making e-commerce sales, by size of business, 2009 to 2019

%

		0 to 9 employees	10 to 49 employees	50 to 249 employees	250 to 999 employees	1000 or more employees	**10 or more employees**	**All businesses**
Website sales	2009	-	12.3	20.3	24.6	38.7	**14.0**	-
	2010	-	12.8	22.6	21.9	41.1	**14.7**	-
	2011	-	14.7	22.9	25.2	44.2	**16.4**	-
	2012	-	16.5	22.3	29.8	46.5	**17.8**	-
	2013	-	16.2	22.9	29.9	45.5	**17.7**	-
	2014	9.6	18.2	23.1	31.2	45.2	**19.3**	**10.7**
	2015	9.0	17.7	21.9	27.0	43.5	**18.7**	**10.0**
	2016	7.9	17.2	23.8	28.2	45.2	**18.5**	**9.0**
	2017	8.7	17.0	25.4	27.9	45.2	**18.6**	**9.7**
	2018	11.9	21.0	28.7	32.3	46.1	**22.5**	**12.9**
	2019	9.1	25.0	26.1	31.1	48.2	**25.4**	**10.7**
EDI sales	2009	-	4.3	14.0	26.9	32.9	**6.5**	-
	2010	-	5.3	12.1	23.8	31.4	**7.0**	-
	2011	-	5.5	14.1	27.5	34.1	**7.4**	-
	2012	-	3.7	11.0	23.7	32.0	**5.4**	-
	2013	-	4.2	10.1	23.5	30.1	**5.6**	-
	2014	0.9	3.8	12.6	23.4	30.3	**5.6**	**1.4**
	2015	1.4	3.3	10.6	23.7	27.8	**5.0**	**1.7**
	2016	0.8	3.5	10.3	24.5	29.0	**5.1**	**1.3**
	2017	1.2	3.5	10.5	22.4	27.2	**5.1**	**1.6**
	2018	1.3	4.2	12.2	22.5	25.7	**5.9**	**1.7**
	2019	1.2	5.8	11.5	20.0	27.2	**7.1**	**1.8**
Total e-commerce sales	2009	-	14.2	27.4	40.0	51.2	**17.1**	-
	2010	-	15.9	30.1	36.1	53.7	**18.8**	-
	2011	-	17.3	30.4	41.0	56.9	**20.0**	-
	2012	-	18.4	28.9	42.0	57.7	**20.7**	-
	2013	-	18.3	29.0	43.4	56.3	**20.6**	-
	2014	10.1	20.3	30.4	44.3	56.6	**22.5**	**11.5**
	2015	9.7	19.5	28.6	41.3	54.5	**21.5**	**10.9**
	2016	8.5	19.3	30.0	43.3	57.3	**21.5**	**9.7**
	2017	9.5	19.1	31.5	42.2	57.1	**21.6**	**10.7**
	2018	12.7	23.2	35.5	45.3	56.3	**25.7**	**14.0**
	2019	9.8	27.2	32.8	42.1	59.2	**28.6**	**11.6**

Coverage of micro-enterprises (those with less than 10 employees) was introduced for the 2014 survey. To allow comparison with earlier years, estimates for 2014 to 2019 are presented on the original basis of 10 or more employees and the new basis including micro-enterprises.
- denotes figures unavailable.
Estimates from 2017 onwards have been revised as a result of updated survey data.
Discontinuity in data in this table For 2018 there was a change in the data collection method from a paper questionnaire, to an online electronic questionnaire. This change had an impact on the results for businesses with 0 to 9 employees, causing a discontinuity in this sizeband's results. This also impacted on estimates

Source: Office for National Statistics
Cec Prescott
+44 (0)1633 456767
ecommerce@ons.gov.uk

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Table 5: Proportion of UK businesses making e-commerce sales, by industry sector, 2009 to 2019

		Sales over a website (%)	Sales over EDI (%)	Total e-commerce sales (%)
Manufacturing (Division 10 to 33)				
Businesses with 10 or more employees	2009	12.8	10.8	**19.4**
	2010	12.5	12.8	**21.9**
	2011	17.7	11.2	**24.2**
	2012	17.0	8.8	**22.7**
	2013	17.3	11.3	**24.6**
	2014	16.5	10.3	**24.0**
	2015	18.0	12.4	**27.0**
	2016	18.2	10.1	**25.0**
	2017	17.0	11.3	**24.7**
	2018	20.4	10.2	**27.4**
	2019	16.7	8.4	**22.8**
All businesses including 0 to 9 employees	2014	12.8	4.0	**15.5**
	2015	15.5	4.7	**19.0**
	2016	10.4	3.5	**13.1**
	2017	13.2	4.4	**16.3**
	2018	16.0	3.8	**18.3**
	2019	17.8	4.1	**20.1**
Construction (Division 41 to 43)				
Businesses with 10 or more employees	2009	3.7	3.6	**6.7**
	2010	2.5	4.7	**6.3**
	2011	3.7	4.6	**7.8**
	2012	6.0	2.1	**8.1**
	2013	2.7	2.0	**4.5**
	2014	4.9	2.9	**7.8**
	2015	5.9	1.5	**6.8**
	2016	5.2	4.5	**9.7**
	2017	5.4	1.0	**6.3**
	2018	5.8	2.1	**7.9**
	2019	3.6	1.9	**5.5**
All businessess including 0 to 9 employees	2014	4.0	0.2	**4.2**
	2015	3.2	1.3	**3.9**
	2016	4.2	0.3	**4.5**
	2017	3.3	1.5	**4.1**
	2018	5.3	0.9	**5.5**
	2019	3.1	1.1	**4.1**
Wholesale (Division 45 to 46)				
Businesses with 10 or more employees	2009	21.8	13.9	**29.2**
	2010	24.5	13.3	**32.2**
	2011	24.1	16.7	**33.1**
	2012	30.0	15.1	**37.8**
	2013	31.0	11.0	**37.5**
	2014	31.4	12.4	**38.2**
	2015	30.5	13.8	**37.7**
	2016	29.7	12.1	**36.4**
	2017	29.4	12.8	**35.2**
	2018	32.8	14.8	**38.2**
	2019	35.4	16.7	**44.1**
All businesses including 0 to 9 employees	2014	20.0	4.0	**22.0**
	2015	17.7	3.7	**19.7**
	2016	18.2	5.3	**21.2**
	2017	16.5	4.4	**18.7**
	2018	25.2	4.0	**27.2**
	2019	16.2	4.9	**19.1**
All Businesses with 10 or more employees	**2009**	**14.0**	**6.5**	**17.1**
	2010	**14.7**	**7.0**	**18.8**
	2011	**16.4**	**7.4**	**20.0**
	2012	**17.8**	**5.4**	**20.7**
	2013	**17.7**	**5.6**	**20.6**
	2014	**19.3**	**5.6**	**22.5**
	2015	**18.7**	**5.0**	**21.5**
	2016	**18.5**	**5.1**	**21.5**
	2017	**18.6**	**5.1**	**21.6**
	2018	**22.5**	**5.9**	**25.7**
	2019	**25.4**	**7.1**	**28.6**
All businesses including 0 to 9 employees	**2014**	**10.7**	**1.4**	**11.5**
	2015	**10.0**	**1.7**	**10.9**
	2016	**9.0**	**1.3**	**9.7**
	2017	**9.7**	**1.6**	**10.7**
	2018	**12.9**	**1.7**	**14.0**
	2019	**10.7**	**1.8**	**11.6**

		Sales over a website (%)	Sales over EDI (%)	Total e-commerce sales (%)
Information and communication (Division 58 to 63)				
Businesses with 10 or more employees	2009	26.1	7.9	**28.9**
	2010	26.2	6.2	**28.7**
	2011	25.2	4.4	**26.5**
	2012	26.8	3.7	**27.7**
	2013	25.1	7.4	**27.2**
	2014	24.1	6.5	**26.0**
	2015	16.2	2.3	**17.8**
	2016	20.5	3.2	**22.1**
	2017	25.7	3.6	**28.0**
	2018	23.6	5.2	**25.7**
	2019	23.0	3.0	**24.4**
All businesses including 0 to 9 employees	2014	7.5	0.4	**7.6**
	2015	7.7	1.8	**8.8**
	2016	10.8	0.3	**11.0**
	2017	8.1	1.6	**9.4**
	2018	8.2	1.5	**9.4**
	2019	5.4	0.2	**5.4**
Other services (Division 68 to 74, 77 to 82 and 95.1)				
Businesses with 10 or more employees	2009	9.6	2.8	**10.8**
	2010	7.3	2.1	**8.4**
	2011	8.4	1.9	**9.6**
	2012	10.7	2.3	**12.0**
	2013	11.1	1.9	**12.5**
	2014	13.8	3.8	**15.4**
	2015	12.3	1.8	**13.2**
	2016	12.1	2.3	**14.1**
	2017	12.5	1.9	**14.1**
	2018	13.1	4.0	**15.9**
	2019	16.4	4.1	**18.4**
All businesses including 0 to 9 employees	2014	7.0	1.0	**7.8**
	2015	8.2	1.3	**8.6**
	2016	3.7	0.4	**4.0**
	2017	6.5	0.9	**7.2**
	2018	6.6	1.0	**7.5**
	2019	6.3	0.8	**6.7**
Retail (Division 47)				
Businesses with 10 or more employees	2009	25.2	3.2	**25.8**
	2010	30.6	4.6	**31.3**
	2011	32.4	6.9	**33.6**
	2012	33.4	4.6	**33.9**
	2013	36.0	6.6	**36.6**
	2014	34.2	1.4	**34.5**
	2015	38.9	1.3	**39.5**
	2016	32.4	1.9	**32.5**
	2017	33.8	3.0	**33.8**
	2018	46.1	3.7	**48.3**
	2019	46.5	8.9	**48.3**
All businesses including 0 to 9 employees	2014	26.5	1.9	**27.1**
	2015	22.9	1.9	**24.6**
	2016	27.5	2.8	**28.5**
	2017	26.9	1.0	**26.9**
	2018	36.6	2.2	**37.9**
	2019	35.4	2.6	**36.1**

Coverage of micro-enterprises (those with less than 10 employees) was introduced for the 2014 survey to allow comparison with earlier years. Estimates for 2014 to 2019 are presented on the original basis of 10 or more employees and the new basis including micro-enterprises. Estimates from 2017 onwards have been revised as a result of updated survey data.

Estimates for the Utilities, Accomodation and food services and Transport and storage sectors are not included in this table due to concerns about data quality.

Discontinuity in data in this table - For 2018 there was a change in the data collection method from a paper questionnaire to an online electronic questionnaire. This change had an impact on the results for businesses with 0 to 9 employees, causing a discontinuity in this sizeband's results. This also impacted on estimates relating to all businesses.

Source: Office for National Statistics
Cecil Prescott
+44 (0)1633 456767
ecommerce@ons.gov.uk

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Table 6: UK website sales by type of customer and industry sector, 2012 to 2019

		Sales to private customers	Sales to businesses/public authorities	**Total website sales**
Manufacturing (Division 10 to 33)				
Bus nesses w th 10 or more emp oyees	2012	2.6	15.5	**18.1**
	2013	2.7	26.7	**29.3**
	2014	2.8	28.2	**30.9**
	2015	2.8	29.3	**32.1**
	2016	3.5	33.6	**37.1**
	2017	3.3	35.4	**38.7**
	2018	3.5	42.6	**46.2**
	2019	5.0	43.0	**48.0**
A bus nesses nc ud ng 0 to 9 emp oyees	2014	3.3	28.5	**31.8**
	2015	3.8	29.8	**33.6**
	2016	4.0	34.0	**37.9**
	2017	4.3	35.7	**40.0**
	2018	4.3	43.0	**47.3**
	2019	6.4	43.5	**49.9**
Utilities (Division 35 to 39)				
Bus nesses w th 10 or more emp oyees	2012	7.3	2.2	**9.5**
	2013	8.6	1.0	**9.6**
	2014	11.8	1.8	**13.6**
	2015	11.9	3.3	**15.2**
	2016	8.5	0.8	**9.3**
	2017	11.9	1.5	**13.4**

		Sales to private customers
Transport and storage (Division 49 to 53)		
Bus nesses w th 10 or more emp oyees	2012	17.4
	2013	15.5
	2014	20.4
	2015	16.1
	2016	19.3
	2017	21.5
	2018	26.2
	2019	27.0
A bus nesses nc ud ng 0 to 9 emp oyees	2014	20.5
	2015	16.2
	2016	19.6
	2017	21.7
	2018	26.6
	2019	27.7
Accommodation and food services (Division 55 to		
Bus nesses w th 10 or more emp oyees	2012	6.1
	2013	6.2
	2014	6.1
	2015	6.0
	2016	7.5
	2017	8.7

Table 7: UK website sales by type of customer and size of business, 2012 to 2019

		0 to 9 employees	10 to 49 employees	50 to 249 employees
Sales to private customers	2012	-	10.0	10.0
	2013	-	9.7	9.5
	2014	11.7	11.4	10.6
	2015	12.1	11.5	12.2
	2016	11.6	16.1	13.3
	2017	14.9	18.0	17.6
	2018	23.9	26.6	20.5
	2019	15.5	23.9	22.4
Sales to businesses/public authorities	2012	-	8.4	7.6
	2013	-	9.0	10.4
	2014	5.4	9.4	11.1
	2015	6.4	10.2	16.9
	2016	5.9	10.3	15.0
	2017	6.4	15.0	23.7
	2018	8.2	16.0	30.3
	2019	5.9	11.8	25.4

Coverage of micro-enterprises (those with less than 10 employees) was introduced for the 2014 survey. To comparison with earlier years, estimates for 2014 to 2019 are presented on the original basis of 10 or more and the new basis including micro-enterprises.
- denotes figures unavailable.
Estimates from 2017 onwards have been revised as a result of updated survey data.
Differences may occur between totals and the sum of their independently rounded components.

£ billion

250 to 999 employees	1000 or more employees	**10 or more employees**	**All businesses**
15.8	64.4	**100.2**	**-**
10.5	65.1	**94.8**	**-**
11.4	74.3	**107.7**	**119.3**
12.4	70.3	**106.4**	**118.5**
14.7	78.6	**122.5**	**134.1**
17.5	91.4	**144.6**	**159.4**
22.3	95.1	**164.5**	**188.3**
25.4	109.9	**181.6**	**197.1**
24.4	32.3	**72.7**	**-**
39.1	44.7	**103.2**	**-**
29.0	53.3	**102.7**	**108.1**
24.6	60.1	**111.7**	**118.2**
20.0	62.5	**107.9**	**113.8**
22.9	69.2	**130.8**	**137.2**
30.3	81.3	**157.8**	**166.1**
29.8	86.4	**153.4**	**159.3**

Source: Off ce for Nat ona Stat st cs

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Cec Prescott
+44 (0)1633 456767
ecommerce@ons.gov.uk

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Table 8: Website sales by UK businesses, by geographical area and industry sector, 20

Manufacturing (Division 10 to 33)	Businesses with 10 or more employees All businesses including 0 to 9 employees
Utilities (Division 35 to 39)	Businesses with 10 or more employees All businesses including 0 to 9 employees
Construction (Division 41 to 43)	Businesses with 10 or more employees All businesses including 0 to 9 employees
Wholesale (Division 45 to 46)	Businesses with 10 or more employees All businesses including 0 to 9 employees
Retail (Division 47)	Businesses with 10 or more employees All businesses including 0 to 9 employees
Transport and storage (Division 49 to 53)	Businesses with 10 or more employees All businesses including 0 to 9 employees
Accommodation and food services (Division 55 to 56)	Businesses with 10 or more employees All businesses including 0 to 9 employees
Information and communication (Division 58 to 63)	Businesses with 10 or more employees All businesses including 0 to 9 employees
Other services (Division 68 to 74, 77 to 82 and 95.1)	Businesses with 10 or more employees All businesses including 0 to 9 employees
All sectors	**Businesses with 10 or more employees** **All businesses including 0 to 9 employees**

Coverage: A bus nesses (nc ud ng m cro-enterpr ses).
~0 Data too sma to d sp ay.
D fferences may occur between tota s and the sum of the r ndependent y rounded components.

19

£ billion

Orders received from UK	Orders received from EU	Orders received from rest of the world	Total
21.1	1.9	24.9	**48.0**
22.7	2.1	25.1	**49.9**
14.8	~0.0	~0.0	**14.9**
14.9	~0.0	~0.0	**15.0**
2.3	0.0	0.0	**2.3**
3.4	0.0	0.0	**3.4**
82.2	5.1	3.8	**91.0**
86.4	5.6	3.9	**96.0**
41.9	2.1	1.6	**45.7**
47.5	2.8	2.0	**52.2**
31.8	4.7	4.3	**40.7**
32.5	4.7	4.3	**41.5**
13.1	1.2	1.1	**15.5**
13.4	1.3	1.2	**15.9**
29.4	8.5	8.8	**46.7**
30.8	9.0	9.9	**49.7**
25.5	2.9	1.8	**30.2**
27.7	3.2	2.0	**33.0**
262.0	**26.5**	**46.4**	**334.9**
279.2	**28.8**	**48.4**	**356.4**

Source: Off ce for Nat ona Stat st cs

Cec Prescott
+44 (0)1633 456767
ecommerce@ons.gov.uk

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Table 9: Proportion of UK businesses making website sales, by geographical are and 2019

%

		Orders received from UK	Orders received from EU	Orders received from Rest of the world
Manufacturing (Division 10 to 33)				
Bus nesses w th 10 or more emp oyees	2010	12.5	4.6	3.7
	2012	16.6	7.0	5.5
	2014	16.5	6.8	5.2
	2016	18.0	9.1	7.2
	2018	20.2	7.4	5.9
	2019	16.4	6.3	4.7
A bus nesses nc ud ng 0 to 9 emp oyees	2014	12.5	5.4	4.6
	2016	10.4	4.1	3.4
	2018	16.0	6.4	4.6
	2019	17.7	7.0	6.3
Construction (Division 41 to 43)				
Bus nesses w th 10 or more emp oyees	2010	2.5	0.0	0.0
	2012	6.0	2.0	1.5
	2014	5.0	1.1	0.6
	2016	5.2	0.1	0.1
	2018	5.8	~0.0	~0.0
	2019	3.6	0.0	0.0
A bus nesses nc ud ng 0 to 9 emp oyees	2014	4.0	0.3	0.2
	2016	4.2	0.0	0.0
	2018	4.6	0.4	1.2
	2019	3.1	0.0	0.0
Wholesale (Division 45 to 46)				
Bus nesses w th 10 or more emp oyees	2010	24.3	9.9	6.8
	2012	29.6	10.3	6.9
	2014	31.6	13.2	8.3
	2016	29.7	13.8	9.6
	2018	32.8	10.6	6.8
	2019	35.4	16.6	10.8
A bus nesses nc ud ng 0 to 9 emp oyees	2014	20.0	10.7	7.2
	2016	18.2	6.2	4.8
	2018	25.0	9.0	4.9
	2019	16.2	6.1	3.0
All Businesses with 10 or more employees	**2010**	**14.6**	**6.2**	**5.0**
	2012	**17.6**	**7.8**	**6.8**
	2014	**19.4**	**8.5**	**6.9**
	2016	**18.5**	**8.1**	**6.5**
	2018	**22.3**	**7.6**	**5.8**
	2019	**25.2**	**9.9**	**7.3**
All businesses including 0 to 9 employees	**2014**	**10.6**	**4.4**	**3.7**
	2016	**9.0**	**3.7**	**2.7**
	2018	**12.5**	**4.8**	**3.7**
	2019	**10.6**	**4.4**	**3.3**

Coverage of m cro enterpr ses (those w th ess than 10 emp oyees) was ntroduced for the 2014
Est mates pr or to 2014 are a based on bus nesses w th 10 or more emp oyees.
To a ow compar son w th ear er years, est mates for 2014 to 2019 are presented on the or g na emp oyees and the new bas s nc ud ng m cro enterpr ses.
Est mates for the Ut t es, Accomodat on and food serv ces and Transport and storage sectors about data qua ty.
Est mates from 2017 onwards have been rev sed.
~0 Data too sma to d sp ay.
Discontinuity in data in this table - For 2018 there was a change n the data co ect on method e ectron c quest onna re. Th s change had an mpact on the resu ts for bus nesses w th 0 to 9 e

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ea and industry sector, 2010, 2012, 2014, 2016, 2018

%

		Orders received from UK	Orders received from EU	Orders received from Rest of the world
Information and communication (Division 58 to 63)				
Bus nesses w th 10 or more emp oyees	2010	26.2	14.7	12.1
	2012	26.8	14.3	12.3
	2014	23.9	11.3	9.9
	2016	20.5	10.3	9.0
	2018	23.0	14.2	12.0
	2019	22.8	14.0	11.7
A bus nesses nc ud ng 0 to 9 emp oyees	2014	7.5	3.9	3.9
	2016	10.8	2.5	1.8
	2018	7.0	5.8	4.0
	2019	5.3	3.1	3.1
Other services (Division 68 to 74, 77 to 82 and 95.1)				
Bus nesses w th 10 or more emp oyees	2010	7.3	2.6	2.4
	2012	10.7	3.1	3.1
	2014	14.3	5.0	4.5
	2016	12.0	5.2	4.5
	2018	13.0	5.4	4.2
	2019	15.7	6.9	6.1
A bus nesses nc ud ng 0 to 9 emp oyees	2014	7.1	2.3	2.2
	2016	3.6	1.9	1.5
	2018	6.6	1.2	1.0
	2019	6.2	3.3	2.4
Retail (Division 47)				
Bus nesses w th 10 or more emp oyees	2010	30.6	13.8	11.0
	2012	32.9	19.7	18.4
	2014	33.1	16.5	13.9
	2016	32.4	14.8	9.8
	2018	46.1	15.7	10.9
	2019	46.4	20.9	17.5
A bus nesses nc ud ng 0 to 9 emp oyees	2014	26.4	13.2	11.2
	2016	27.1	15.9	10.5
	2018	35.5	20.1	15.5
	2019	35.0	16.4	12.4

Source: Off ce for Nat ona Stat st cs

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Cec Prescott
+44 (0)1633 456767
ecommerce@ons.gov.uk

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are not nc uded n th s tab e due to concerns

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Table 10: EDI sales by UK businesses, by geographical area and industry sector, 2019

Manufacturing (Division 10 to 33)	Businesses with 10 or more employees All businesses including 0 to 9 employees
Utilities (Division 35 to 39)	Businesses with 10 or more employees All businesses including 0 to 9 employees
Construction (Division 41 to 43)	Businesses with 10 or more employees All businesses including 0 to 9 employees
Wholesale (Division 45 to 46)	Businesses with 10 or more employees All businesses including 0 to 9 employees
Retail (Division 47)	Businesses with 10 or more employees All businesses including 0 to 9 employees
Transport and storage (Division 49 to 53)	Businesses with 10 or more employees All businesses including 0 to 9 employees
Accommodation and food services (Division 55 to 56)	Businesses with 10 or more employees All businesses including 0 to 9 employees
Information and communication (Division 58 to 63)	Businesses with 10 or more employees All businesses including 0 to 9 employees
Other services (Division 68 to 74, 77 to 82 and 95.1)	Businesses with 10 or more employees All businesses including 0 to 9 employees
All sectors	**Businesses with 10 or more employees** **All businesses including 0 to 9 employees**

Coverage: A bus nesses (nc ud ng m cro-enterpr ses).
D fferences may occur between tota s and the sum of the r ndependent y rounded components.

£ billion

Orders received from UK	Orders received from EU	Orders received from rest of the world	**Total**
112.7	20.8	4.6	138.0
112.9	20.8	4.6	138.2
3.9	0.0	0.0	3.9
3.9	0.0	0.0	3.9
9.3	0.0	0.0	9.3
9.8	0.0	0.0	9.8
111.9	3.9	1.9	117.7
112.9	3.9	1.9	118.7
7.4	0.2	0.2	7.8
7.7	0.2	0.2	8.2
29.6	3.6	3.7	36.9
29.7	3.6	3.7	36.9
1.5	0.2	0.2	1.9
1.6	0.2	0.2	2.0
5.8	2.5	2.5	10.8
5.8	2.5	2.5	10.8
6.6	0.8	0.3	7.6
6.9	0.8	0.3	8.0
288.7	**31.9**	**13.4**	**334.0**
291.1	**32.1**	**13.4**	**336.6**

Source: Off ce for Nat ona Stat st cs

Cec Prescott
+44 (0)1633 456767
ecommerce@ons.gov.uk

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Table 11: Proportion of UK businesses making EDI sales, by geographical area a 2016, 2018 and 2019

%

		Orders received from UK	Orders received from EU	Orders received from Rest of the world
Manufacturing (Division 10 to 33)				
Bus nesses w th 10 or more emp oyees	2010	11.6	4.3	2.1
	2012	8.2	3.1	1.4
	2014	10.6	3.2	1.5
	2016	9.5	3.5	2.3
	2018	9.5	3.3	1.8
	2019	7.8	2.3	1.3
A bus nesses nc ud ng 0 to 9 emp oyees	2014	3.7	1.4	0.9
	2016	3.3	0.8	0.6
	2018	3.7	0.9	0.6
	2019	4.0	0.7	0.5
Construction (Division 41 to 43)				
Bus nesses w th 10 or more emp oyees	2010	4.7	0.5	0.0
	2012	2.1	0.0	0.0
	2014	2.9	0.0	0.0
	2016	4.5	0.7	0.0
	2018	2.1	~0.0	0.0
	2019	1.9	0.0	0.0
A bus nesses nc ud ng 0 to 9 emp oyees	2014	0.4	0.0	0.0
	2016	0.3	0.0	0.0
	2018	0.9	~0.0	0.7
	2019	1.1	0.0	0.0
Wholesale (Division 45 to 46)				
Bus nesses w th 10 or more emp oyees	2010	13.2	2.9	1.5
	2012	15.1	3.4	2.1
	2014	12.8	2.2	1.2
	2016	11.5	3.7	1.4
	2018	14.6	3.8	1.4
	2019	16.7	4.5	1.7
A bus nesses nc ud ng 0 to 9 emp oyees	2014	4.0	1.2	0.7
	2016	5.3	1.1	0.2
	2018	3.7	0.5	0.4
	2019	4.6	1.5	0.5
All Businesses with 10 or more employees	**2010**	**6.7**	**2.0**	**1.2**
	2012	**5.3**	**1.5**	**1.0**
	2014	**5.7**	**1.4**	**0.8**
	2016	**4.9**	**1.5**	**0.9**
	2018	**5.7**	**1.5**	**0.9**
	2019	**7.0**	**1.2**	**0.7**
All businesses including 0 to 9 employees	**2014**	**1.4**	**0.4**	**0.3**
	2016	**1.2**	**0.2**	**0.1**
	2018	**1.6**	**0.2**	**0.3**
	2019	**1.7**	**0.3**	**0.2**

Coverage of m cro enterpr ses (those w th ess than 10 emp oyees) was ntroduced for the 2014
Est mates pr or to 2014 are a based on bus nesses w th 10 or more emp oyees.
To a ow compar son w th ear er years, est mates for 2014 to 2019 are presented on the or g na emp oyees and the new bas s nc ud ng m cro enterpr ses.
Est mates for the Ut t es, Accomodat on and food serv ces and Transport and storage sectors about data qua ty.
Est mates from 2017 onwards have been rev sed.
~0 Data too sma to d sp ay.
Discontinuity in data in this table - For 2018 there was a change n the data co ect on method e ectron c quest onna re. Th s change had an mpact on the resu ts for bus nesses w th 0 to 9 e

s zeband's resu ts. Th s a so mpacted on est mates re at ng to a bus nesses.

and industry sector, 2010, 2012, 2014,

%

		Orders received from UK	Orders received from EU	Orders received from Rest of the world
Information and communication (Division 58 to 63)				
Bus nesses w th 10 or more emp oyees	2010	6.1	3.1	2.9
	2012	3.1	1.8	1.5
	2014	5.9	2.5	1.0
	2016	3.2	0.5	0.5
	2018	5.2	1.0	1.0
	2019	3.0	1.2	1.7
A bus nesses nc ud ng 0 to 9 emp oyees	2014	0.3	0.1	0.1
	2016	0.3	0.2	0.0
	2018	1.0	0.5	0.1
	2019	0.2	0.1	0.1
Other services (Division 68 to 74, 77 to 82 and 95.1)				
Bus nesses w th 10 or more emp oyees	2010	2.1	0.2	0.1
	2012	2.3	0.2	0.3
	2014	3.8	0.6	0.8
	2016	2.1	0.9	0.7
	2018	3.9	0.5	0.6
	2019	4.0	0.5	0.5
A bus nesses nc ud ng 0 to 9 emp oyees	2014	1.0	0.1	0.1
	2016	0.4	0.1	0.0
	2018	1.0	0.1	0.1
	2019	0.8	0.1	~0.0
Retail (Division 47)				
Bus nesses w th 10 or more emp oyees	2010	4.6	1.6	1.6
	2012	4.6	2.3	1.7
	2014	1.5	0.4	0.4
	2016	1.8	0.2	0.4
	2018	3.7	1.2	1.0
	2019	8.9	0.2	0.1
A bus nesses nc ud ng 0 to 9 emp oyees	2014	1.9	1.2	1.2
	2016	2.8	0.4	0.0
	2018	1.8	0.5	0.8
	2019	2.6	0.5	0.5

Source: Off ce for Nat ona Stat st cs

l survey.

Cec Prescott
+44 (0)1633 456767
ecommerce@ons.gov.uk

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are not nc uded n th s tab e due to concerns

from a paper quest onna re, to an on ne
mp oyees, caus ng a d scont nu ty n th s

Table 12: Proportion of UK businesses receiving orders for goods or services via a website or 'app', by size of business, 2016 to 2019

%

		0 to 9 employees	10-49 employees	50-249 employees	250-999 employees	1000+ employees	**10 or more employees**	**All businesses**
Received orders for goods or services via:								
Their own website or 'app'	2016	6.9	16.2	22.8	27.0	43.6	**17.5**	**8.0**
	2017	7.0	15.9	23.2	26.8	43.4	**17.3**	**8.0**
	2018	9.7	18.1	26.7	29.5	44.0	**19.7**	**10.7**
	2019	6.9	21.8	24.2	28.3	46.2	**22.4**	**8.4**
An e-commerce market place website or 'app'	2016	2.8	5.9	7.9	8.3	15.9	**6.3**	**3.2**
	2017	3.7	7.0	10.0	10.0	17.0	**7.5**	**4.0**
	2018	5.2	8.6	11.1	11.5	16.5	**9.1**	**5.6**
	2019	3.4	7.7	6.3	7.5	12.7	**7.6**	**3.8**

Source: Off ce for Nat ona Stat st cs

Coverage: A bus nesses (nc ud ng m cro-enterpr ses).

Discontinuity in data in this table - For 2018 there was a change n the data co ect on method from a paper quest onna re, to an on ne e ectron c quest onna re. Th s change had an mpact on the resu ts for bus nesses w th 0 to 9 emp oyees, caus ng a d scont nu ty n th s s zeband's resu ts. Th s a so mpacted on est mates re at ng to a bus nesses.

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Table 13: Proportion of UK businesses with a website, by size of business, 2007 to 2019

%

		0 to 9 employees	10 to 49 employees	50 to 249 employees	250 to 999 employees	1000 or more employees	**10 or more employees**	**All businesses**
Website, own or third party	2007	-	65.8	89.3	94.4	97.6	**70.0**	**-**
	2008	-	70.6	91.3	95.2	97.9	**74.5**	**-**
	2009	-	72.0	91.9	96.9	98.3	**75.7**	**-**
	2010	-	75.3	92.3	96.0	98.7	**78.5**	**-**
	2011	-	78.7	93.6	96.2	98.6	**81.4**	**-**
	2012	-	77.6	92.9	95.7	98.7	**80.3**	**-**
	2013	-	76.4	94.7	95.8	98.2	**79.5**	**-**
	2014	43.5	77.7	95.1	96.3	97.3	**80.6**	**47.6**
	2015	46.4	80.6	94.1	97.1	97.3	**83.0**	**50.1**
	2016	40.4	81.5	94.7	94.6	98.1	**83.7**	**44.7**
	2017	42.1	79.3	95.1	94.5	97.5	**81.9**	**46.1**
	2018	44.6	81.9	94.1	94.1	96.8	**84.0**	**48.4**
	2019	41.1	81.4	92.2	95.4	96.9	**83.4**	**45.2**

Source: Office for National Statistics

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+44 (0)1633 456767
ecommerce@ons.gov.uk

Coverage of micro-enterprises (those with less than 10 employees) was introduced for the 2014 survey. To allow comparison with earlier years, estimates for 2014 to 2019 are presented on the original basis of 10 or more employees and the new basis including micro-enterprises.

- denotes figures unavailable.

Estimates from 2017 onwards have been revised as a result of updated survey data.

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Discontinuity in data in this table - For 2018 there was a change in the data collection method from a

Table 14: Proportion of UK businesses with internet access and type of connection, by size of business, 2007 to 2019

%

		0 to 9 employees	10 to 49 employees	50 to 249 employees	250 to 999 employees	1000 or more employees	**10 or more employees**	**All businesses**
Internet access	2007	-	87.4	98.0	98.3	99.6	**89.3**	**-**
	2008	-	89.7	98.7	98.0	99.5	**91.3**	**-**
	2009	-	89.3	98.6	99.4	99.6	**91.0**	**-**
	2010	-	94.3	98.3	98.8	99.5	**95.0**	**-**
	2011	-	92.9	99.6	99.3	99.4	**94.1**	**-**
	2012	-	93.9	99.5	98.5	99.6	**94.8**	**-**
	2013	-	94.2	99.9	99.1	99.6	**95.1**	**-**
	2014	81.4	95.1	99.3	99.6	99.2	**95.8**	**83.0**
	2015	81.6	94.7	99.1	99.8	99.0	**95.5**	**83.0**
	2016	82.4	93.9	99.2	98.6	99.7	**94.7**	**83.7**
	2017	82.5	93.1	99.1	99.5	99.2	**94.1**	**83.7**
	2018	87.6	95.0	99.0	99.2	98.7	**95.6**	**88.4**
	2019	89.7	95.5	98.7	98.9	99.0	**96.1**	**90.3**
Broadband (DSL and/or other fixed internet connection)[1] [2]	2008	-	82.2	94.9	97.0	99.4	**84.6**	**-**
	2009	-	85.3	95.9	98.1	98.9	**87.3**	**-**
	2010	-	91.1	97.1	98.6	99.3	**92.2**	**-**
	2011	-	91.1	99.2	98.9	99.0	**92.5**	**-**
	2012	-	92.4	98.6	98.2	99.4	**93.4**	**-**
	2013	-	94.0	99.9	99.1	99.6	**94.9**	**-**
	2014	80.0	94.7	99.3	99.6	99.1	**95.5**	**81.7**
	2015	79.2	93.2	98.8	99.6	99.0	**94.2**	**80.7**
	2016	78.4	92.9	98.7	98.1	99.3	**93.8**	**79.9**
	2017	77.2	91.6	98.4	98.1	98.8	**92.7**	**78.8**
	2018	83.7	94.3	98.8	98.6	98.1	**95.0**	**84.8**
	2019	86.0	94.6	98.1	98.2	98.4	**95.2**	**86.9**

Coverage of micro-enterprises (those with less than 10 employees) was introduced for the 2014 survey. To allow comparison with earlier years, estimates for 2014 to 2019 are presented on the original basis of 10 or more employees and the new basis including micro-enterprises.
- denotes figures unavailable.
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+44 (0)1633 456767
ecommerce@ons.gov.uk

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Table 15 Proportion of UK businesses by maximum contracted internet connection speed, by size of business, 2010 to 2019

%

		0 to 9 employees	10 to 49 employees	50 to 249 employees	250 to 999 employees	1000 or more employees	**10 or more employees**	**All businesses**
Less than 2Mbps	2010	-	11 9	5 6	5 3	2 0	**10.8**	-
	2011	-	7 9	5 0	3 3	0 1	**7.3**	-
	2012	-	8 4	5 1	1 2	0 4	**7.8**	-
	2013	-	5 8	4 3	2 6	0 8	**5.5**	-
	2014	8 6	7 4	4 0	1 7	0 6	**6.8**	**8.4**
	2015	6 9	6 7	5 4	1 4	0 1	**6.4**	**6.9**
	2016	4 4	4 9	2 2	0 2	0 2	**4.4**	**4.4**
	2017	6 5	4 5	0 5	0 2	0 2	**3.9**	**6.3**
	2018	4 4	2 5	1 1	0 5	0 3	**2.2**	**4.2**
	2019	2 3	2 8	0 6	0 7	0 1	**2.4**	**2.4**
2Mbps or more but less than 10Mbps	2010	-	46 4	49 1	47 0	24 8	**46.7**	-
	2011	-	45 9	44 3	33 9	17 8	**45.1**	-
	2012	-	44 9	39 7	26 0	13 3	**43.5**	-
	2013	-	35 2	32 4	19 4	9 1	**34.3**	-
	2014	24 5	30 5	24 8	14 7	7 0	**29.3**	**25.0**
	2015	22 8	29 3	17 3	11 6	5 9	**27.1**	**23.2**
	2016	19 7	19 5	11 5	6 8	4 5	**18.0**	**19.5**
	2017	15 2	18 7	8 7	5 0	2 9	**16.9**	**15.3**
	2018	15 2	11 9	6 6	3 8	1 8	**10.9**	**14.8**
	2019	9 3	9 8	4 3	2 7	1 7	**8.8**	**9.3**
10Mbps or more but less than 30Mbps	2010	-	20 7	23 4	22 2	28 4	**21.2**	-
	2011	-	23 9	27 6	31 5	28 5	**24.7**	-
	2012	-	22 6	30 1	33 1	25 2	**23.9**	-
	2013	-	25 5	29 6	30 2	20 8	**26.1**	-
	2014	18 2	23 8	26 9	23 9	15 9	**24.2**	**18.8**
	2015	19 0	22 3	25 2	18 9	10 8	**22.5**	**19.4**
	2016	20 4	24 7	21 4	16 6	7 3	**23.9**	**20.7**
	2017	19 6	21 8	18 4	13 7	7 6	**21.0**	**19.7**
	2018	21 2	26 5	16 5	10 5	6 5	**24.6**	**21.5**
	2019	19 8	17 5	12 1	7 6	3 9	**16.4**	**19.5**
30Mbps or more but less than100Mbps	2010	-	4 4	6 9	11 0	19 8	**5.0**	-
	2011	-	6 4	10 2	14 3	20 0	**7.3**	-
	2012	-	8 9	11 3	18 9	23 1	**9.5**	-
	2013	-	13 5	16 3	22 5	24 9	**14.1**	-
	2014	12 4	14 9	24 6	23 7	25 5	**16.4**	**12.8**
	2015	16 5	19 8	25 8	25 2	24 6	**20.8**	**17.0**
	2016	22 2	26 7	33 0	33 1	23 7	**27.7**	**22.8**
	2017	21 6	28 0	33 3	30 8	22 4	**28.8**	**22.3**
	2018	28 6	35 5	38 9	27 4	18 0	**35.6**	**29.2**
	2019	33 9	37 6	34 0	18 7	17 0	**36.4**	**34.1**
100Mbps or more	2010	-	3 4	9 7	11 5	23 1	**4.6**	-
	2011	-	4 5	8 7	14 2	31 6	**5.6**	-
	2012	-	4 3	9 5	17 8	36 6	**5.5**	-
	2013	-	5 8	12 2	22 3	42 8	**7.3**	-
	2014	4 7	5 7	14 9	31 4	47 8	**7.8**	**5.0**
	2015	5 4	6 4	21 5	40 0	55 9	**9.6**	**5.9**
	2016	5 8	10 2	27 1	38 8	61 8	**13.5**	**6.6**
	2017	6 5	11 7	33 3	45 3	64 8	**15.8**	**7.4**
	2018	9 3	14 3	33 0	52 4	70 4	**18.2**	**10.2**
100Mbps or more but less than 500Mbps	2019	12 5	16 2	31 0	44 0	41 5	**19.1**	**13.2**
500Mbps or more but less than 1,000Mbps	2019	2 9	2 1	3 9	7 2	8 6	**2.5**	**2.8**
1Gbps or more	2019	1 4	5 1	9 7	15 3	24 0	**6.1**	**1.8**

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Cecil Prescott
+44 (0)1633 456767
ecommerce@ons.gov.uk

Coverage o micro-enterprises (those with less than 10 employees) was introduced or the 2014 survey o allow comparison with earlier years estimates or 2014 to 2019 are presented on the original basis o 10 or more employees and the new basis including micro-enterprises
- denotes igures unavailable

Estimates rom 2017 onwards have been revised as a result o updated survey data

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Discontinuity in data in this table - For 2018 there was a change in the data collection method rom a

Table 16: Proportion of UK businesses with website facilities, by size of business, 2014 to 2019

%

		0 to 9 employees	10 to 49 employees	50 to 249 employees	250 to 999 employees	1000 or more employees	**10 or more employees**	**All businesses**
On ne order ng or reservat on/book ng	2014	19.0	21.8	26.2	30.9	48.9	**23.0**	**19.7**
	2015	17.7	20.9	27.5	29.4	48.1	**22.4**	**18.5**
	2016	17.1	21.0	27.6	32.0	49.1	**22.5**	**18.1**
	2017	19.4	24.0	27.3	31.8	49.6	**25.0**	**20.4**
	2018	23.4	27.0	30.6	33.5	49.6	**27.9**	**24.2**
	2019	19.3	29.4	27.8	32.8	49.4	**29.2**	**21.0**
Descr pt on of goods or serv ces, pr ce sts	2014	63.2	67.0	67.0	63.3	67.8	**66.9**	**63.9**
	2015	66.3	73.1	67.7	64.9	71.2	**72.0**	**67.3**
	2016	67.5	73.1	68.7	67.1	77.4	**72.3**	**68.4**
	2017	69.7	69.9	72.3	66.8	79.2	**70.2**	**69.8**
	2018	78.5	81.5	81.4	72.3	79.0	**81.2**	**78.9**
	2019	74.4	74.6	69.9	64.9	75.6	**73.6**	**74.3**
Order track ng ava ab e on ne	2014	5.6	5.2	9.2	14.9	24.1	**6.3**	**5.7**
	2015	5.3	5.7	8.5	15.7	27.3	**6.6**	**5.5**
	2016	7.1	6.5	9.6	15.5	29.4	**7.4**	**7.1**
	2017	7.9	9.3	12.0	16.6	30.2	**10.1**	**8.3**
	2018	6.4	5.8	10.4	17.0	29.9	**7.0**	**6.5**
	2019	6.1	6.8	7.1	13.7	31.2	**7.2**	**6.3**
Poss b ty for v s tors to custom se or des gn the goods or serv ces on ne	2014	4.4	4.0	6.0	8.8	12.7	**4.5**	**4.4**
	2015	3.1	4.6	5.6	9.4	16.9	**5.0**	**3.4**
	2016	4.5	4.1	7.7	11.6	16.7	**4.9**	**4.6**
	2017	4.2	5.2	7.3	10.4	18.2	**5.8**	**4.5**
	2018	4.6	4.6	5.5	10.9	18.8	**5.0**	**4.6**
	2019	3.0	4.4	5.4	9.3	17.8	**4.8**	**3.3**
Persona sed content for reg ar/repeat v s tors	2014	7.9	9.0	8.7	15.6	24.6	**9.3**	**8.1**
	2015	6.8	7.9	9.8	17.1	26.7	**8.6**	**7.1**
	2016	5.7	9.6	9.9	16.9	30.2	**10.0**	**6.5**
	2017	6.7	7.7	12.6	18.5	33.3	**8.9**	**7.1**
	2018	6.6	8.1	11.6	18.0	33.1	**9.2**	**7.0**
	2019	7.5	9.5	11.6	15.6	31.4	**10.1**	**7.9**
L nks or references to bus ness' soc a med a prof es	2014	39.9	48.4	56.6	66.3	75.2	**50.4**	**41.8**
	2015	41.9	59.0	62.0	71.4	80.7	**60.0**	**44.9**
	2016	48.2	60.2	65.5	74.6	85.2	**61.6**	**50.7**
	2017	50.5	60.9	68.6	77.5	87.2	**62.8**	**52.6**
	2018	48.3	57.3	71.2	77.2	86.0	**60.2**	**50.4**
	2019	48.0	55.8	69.2	76.5	85.5	**58.7**	**49.9**

Source: Off ce for Nat ona Stat st cs

Coverage: Bus nesses who use the r own or a th rd party webs te

Est mates from 2017 onwards have been rev sed as a resu t of updated survey data.

Discontinuity in data in this table For 2018 there was a change n the data co ect on method from a paper quest onna re, to an on ne e ectron c quest onna re. Th s change had an mpact on the resu ts for bus nesses w th 0 to 9 emp oyees, caus ng a d scont nu ty n th s s zeband's resu ts. Th s a so mpacted on est mates re at ng to a bus nesses.

Cec Prescott
+44 (0)1633 456767
ecommerce@ons.gov.uk

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Table 17: Proportion of employees using computers and the internet for their work, by size of UK business, 2007 to 2019

%

		0 to 9 employees	10 to 49 employees	50 to 249 employees	250 to 999 employees	1000 or more employees	**10 or more employees**	**All businesses**
Used computers	2007		50.2	52.5	55.3	51.8	**52.1**	-
	2008		51.8	58.5	60.5	53.8	**55.3**	-
	2009		51.8	58.8	63.4	50.1	**54.2**	-
	2010		53.4	58.7	61.8	52.1	**55.1**	-
	2011		57.7	62.3	64.0	52.5	**57.3**	-
	2012		58.3	61.4	65.4	54.4	**58.3**	-
	2013		56.9	62.7	65.9	54.8	**58.4**	-
	2014	65.4	58.4	64.1	68.9	54.7	**59.4**	**60.7**
	2015	67.1	57.8	62.9	65.9	60.4	**61.1**	**62.5**
	2016	66.6	59.5	63.9	66.2	60.6	**61.8**	**62.9**
	2017	67.6	61.4	66.7	65.7	62.4	**64.4**	**63.5**
	2018	68.2	60.5	66.6	69.8	62.8	**65.0**	**64.1**
	2019	69.4	62.0	67.3	70.6	63.2	**65.9**	**64.9**
Employees used computers:								
With internet access	2007		43.9	44.8	44.3	35.5	**40.7**	-
	2008		46.6	50.0	50.1	41.5	**45.5**	-
	2009		46.6	51.7	52.6	39.8	**45.4**	-
	2010		48.7	51.4	52.8	43.1	**47.4**	-
	2011		51.7	54.2	57.0	43.3	**49.3**	-
	2012		54.2	56.8	59.3	47.8	**52.7**	-
	2013		54.2	58.1	59.8	48.5	**53.3**	-
	2014	62.6	55.5	60.5	63.1	48.8	**54.6**	**56.3**
	2015	64.8	55.5	59.2	61.2	54.7	**56.7**	**58.5**
	2016	64.7	56.4	59.6	62.3	54.9	**57.2**	**58.9**
	2017	65.0	59.3	63.4	62.6	57.9	**61.1**	**60.0**
	2018	65.9	58.4	63.5	67.1	59.3	**62.2**	**61.1**
	2019	68.2	60.1	64.6	66.4	59.7	**63.3**	**61.8**
Without internet access	2007		6.3	7.6	11.0	16.3	**11.4**	-
	2008		5.2	8.5	10.3	12.3	**9.9**	-
	2009		5.2	7.1	10.7	10.3	**8.7**	-
	2010		4.6	7.3	9.0	8.9	**7.7**	-
	2011		6.0	8.1	7.1	9.2	**8.0**	-
	2012		4.1	4.6	6.2	6.6	**5.6**	-
	2013		2.8	4.6	6.1	6.2	**5.1**	-
	2014	2.9	2.9	3.6	5.9	6.0	**4.8**	**4.4**
	2015	2.3	2.3	3.7	4.6	5.7	**4.4**	**3.9**
	2016	1.9	3.1	4.2	3.8	5.8	**4.6**	**4.0**
	2017	2.6	2.2	3.3	3.2	4.6	**3.4**	**3.6**
	2018	2.3	2.0	3.1	2.7	3.5	**2.8**	**3.0**
	2019	1.1	1.9	2.6	4.2	3.5	**2.7**	**3.1**

Source: Office for National Statistics

Cec Prescott
+44 (0)1633 456767
ecommerce@ons.gov.uk

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. denotes figures unavailable.

Estimates from 2017 onwards have been revised as a result of updated survey data.

Publication date: 5 Feb 2021

Discontinuity in data in this table For 2018 there was a change in the data collection method from a paper

Table 18: Proportion of UK businesses employing, training and recruiting ICT/IT specialists, 2013 to 2019

%

		0 to 9 employees	10 to 49 employees	50 to 249 employees	250 to 999 employees	1000 or more employees	**10 or more employees**	**All businesses**
Employing ICT/IT specialists	2013		17.4	45.8	73.7	88.8	**23.1**	**-**
	2014	10.4	15.8	46.3	71.7	87.7	**21.7**	**11.6**
	2015	9.6	17.2	48.3	71.6	87.2	**23.2**	**11.0**
	2016	9.4	15.9	47.0	73.5	87.3	**22.0**	**10.7**
	2017	9.6	18.1	47.4	73.5	86.0	**23.9**	**11.0**
	2018	10.5	21.1	49.6	75.1	85.3	**26.8**	**12.1**
	2019	10.0	24.1	50.0	78.3	86.5	**29.5**	**11.9**
Recruit or try to recruit ICT/IT specialists	2013		8.6	23.3	46.2	72.7	**11.9**	**-**
	2014	2.7	8.0	21.4	45.5	73.8	**11.1**	**3.6**
	2015	2.0	9.6	23.1	47.5	72.6	**12.8**	**3.1**
	2016	1.5	6.5	20.3	44.0	71.7	**9.7**	**2.3**
	2017	1.8	7.1	19.9	45.7	71.1	**10.2**	**2.6**
	2018	1.9	6.9	21.0	46.8	71.9	**10.3**	**2.7**
	2019	1.9	7.4	20.9	50.6	71.9	**10.8**	**2.7**
Vacancies for ICT/IT specialists that were difficult to fill	2013		3.7	6.7	17.9	37.5	**4.7**	**-**
	2014	1.2	3.1	7.5	20.8	43.1	**4.4**	**1.6**
	2015	0.9	2.9	8.5	21.2	42.9	**4.3**	**1.2**
	2016	0.8	3.3	7.6	20.0	44.1	**4.5**	**1.2**
	2017	0.7	3.9	8.4	19.3	44.8	**5.1**	**1.2**
	2018	0.8	3.4	9.9	21.5	44.9	**5.0**	**1.2**
	2019	1.0	3.9	8.8	24.2	44.4	**5.4**	**1.4**
Providing training to develop ICT/IT skills of:								
ICT/IT spec sts	2013		5.9	25.7	54.6	73.5	**10.3**	**-**
	2014	2.8	6.2	27.8	53.0	75.2	**10.6**	**3.7**
	2015	3.0	5.9	26.6	55.3	75.9	**10.4**	**3.7**
	2016	2.9	6.1	28.0	53.4	76.9	**10.6**	**3.7**
	2017	3.5	7.7	27.6	55.4	74.5	**12.0**	**4.4**
	2018	3.1	7.0	26.7	53.6	75.0	**11.3**	**3.9**
	2019	3.4	7.8	23.8	55.3	73.6	**11.6**	**4.2**
Other emp oyees	2013		17.7	41.0	61.2	77.1	**22.3**	**-**
	2014	6.7	19.9	45.1	62.4	78.3	**24.7**	**8.7**
	2015	6.0	22.2	44.8	63.3	79.3	**26.7**	**8.1**
	2016	5.3	19.2	43.6	63.7	79.7	**23.9**	**7.1**
	2017	6.6	21.0	45.5	63.8	79.3	**25.7**	**8.5**
	2018	5.9	22.5	44.5	60.5	74.7	**26.8**	**7.9**
	2019	3.9	15.4	36.1	54.5	68.6	**19.6**	**5.5**

Source Office for National Statistics

Coverage All businesses (including micro-enterprises)

Cecil Prescott
+44 (0)1633 456767
ecommerce@ons.gov.uk

Discontinuity in data in this table - For 2018 there was a change in the data collection method from a paper questionnaire to an online electronic questionnaire This change had an impact on the results for businesses with 0 to 9 employees causing a discontinuity in this sizeband's results This also impacted on estimates relating to all businesses

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- denotes figures unavailable

Table 19: Proportion of UK businesses purchasing cloud computing services over the internet, by size of business, 2013, 2015, 2017 and 2019

%

		0 to 9 employees	10-49 employees	50-249 employees	250-999 employees	1000+ employees	**10 or more employees**	**All businesses**
Bought any cloud computing services	2013	-	20 8	36 5	51 5	64 5	**24.0**	-
	2015	19 0	32 1	45 4	58 2	70 7	**34.8**	**20.6**
	2017	22 4	38 6	54 7	69 9	78 5	**41.8**	**24.3**
	2019	29 8	50 2	65 7	69 6	81 6	**53.0**	**32.1**
Types of cloud computing services:								
Email	2013	-	10 7	18 4	25 2	27 6	**12.2**	-
	2015	12 6	20 5	25 7	32 4	39 7	**21.6**	**13.5**
	2017	14 4	28 3	37 1	47 6	54 8	**30.2**	**16.0**
	2019	22 1	40 0	49 6	52 7	64 4	**41.9**	**24.0**
Office software	2013	-	6 5	8 8	12 7	17 7	**7.1**	-
	2015	10 3	16 1	20 3	24 0	33 0	**16.9**	**10.9**
	2017	15 5	28 3	40 6	52 3	62 0	**30.8**	**17.0**
	2019	21 5	39 7	53 6	55 4	71 9	**42.2**	**23.5**
Hosting business' database	2013	-	9 1	15 9	22 7	32 8	**10.5**	-
	2015	8 2	13 1	17 9	25 0	36 4	**14.2**	**8.8**
	2017	8 0	18 6	28 1	34 7	47 9	**20.5**	**9.2**
	2019	8 3	20 7	30 7	39 0	51 3	**22.8**	**9.7**
Storage of files	2013	-	15 5	22 4	28 8	37 4	**17.0**	-
	2015	14 0	22 4	29 4	38 9	47 6	**23.9**	**15.0**
	2017	18 1	30 1	39 9	53 4	60 4	**32.2**	**19.5**
	2019	20 6	37 4	47 1	52 0	65 7	**39.3**	**22.4**
Finance or accounting software applications	2013	-	5 5	8 6	10 8	13 6	**6.1**	-
	2015	8 3	12 0	12 2	12 8	16 9	**12.1**	**8.6**
	2017	11 2	18 4	19 7	22 9	25 4	**18.7**	**12.0**
	2019	17 8	34 3	35 0	35 0	40 7	**34.4**	**19.4**
CRM software	2013	-	4 8	10 0	16 7	21 9	**5.9**	-
	2015	4 0	10 0	12 8	16 5	25 9	**10.6**	**4.7**
	2017	3 7	11 9	20 7	26 8	34 6	**13.6**	**4.7**
	2019	3 5	15 3	23 2	30 1	39 9	**17.0**	**4.8**
Computing capacity to run own software	2013	-	4 7	7 3	12 2	19 6	**5.3**	-
	2015	3 2	7 5	11 3	17 5	26 3	**8.4**	**3.7**
	2017	3 9	10 2	17 0	22 1	34 1	**11.6**	**4.6**
	2019	3 9	10 5	17 4	25 8	41 0	**12.0**	**4.6**

Source O ice or National Statistics

Coverage All businesses (including micro-enterprises)

- denotes igures unavailable

Estimates rom 2017 onwards have been revised as a result o updated survey data

Discontinuity in data in this table - For 2018 there was a change in the data collection method rom a paper questionnaire to an online electronic questionnaire his change had an impact on the results or businesses with 0 to 9 employees causing a discontinuity in this sizeband's results his also impacted on estimates relating to all businesses

Cecil Prescott
+44 (0)1633 456767
ecommerce@ons.gov.uk

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Table 20 Proportion of UK businesses purchasing cloud computing services over the internet, by industry sector, 2013, 2015, 2017 and 2019

			Email	O ice so tware	Hosting business' database	Storage o iles	Finance or accounting so tware applications	CRM so tware	Computing capacity to run own so tware	% Bought any cloud computing services
Manufacturing (Division 10 to 33)	10 or more employees	2013	9 6	4 7	6 6	11 8	4 8	3 4	2 2	**18.6**
		2015	18 7	12 7	10 1	20 9	7 9	5 8	5 1	**32.0**
		2017	25 8	26 3	10 6	26 5	12 2	7 6	6 2	**38.8**
		2019	35 4	37 2	15 7	29 3	26 5	11 6	7 1	**48.0**
	All businesses including 0 to 9 employees	2015	10 4	7 6	6 5	12 6	6 5	3 4	4 0	**17.5**
		2017	14 8	15 0	8 2	15 5	12 3	4 4	3 3	**23.7**
		2019	25 8	22 9	8 5	21 7	22 1	5 8	3 6	**35.5**
Utilities (Division 35 to 39)	10 or more employees	2013	12 7	4 0	11 3	26 3	3 5	3 3	8 3	**29.6**
		2015	17 4	9 4	8 6	13 5	9 7	6 2	3 6	**24.2**
		2017	17 8	17 0	10 3	17 0	9 6	5 4	3 8	**26.0**
		2019	41 7	46 3	19 4	35 1	38 0	13 8	9 3	**50.3**
	All businesses including 0 to 9 employees	2015	12 5	6 2	3 8	10 4	5 9	2 9	2 5	**17.6**
		2017	19 3	21 6	11 0	21 6	17 1	5 8	3 2	**29.3**
		2019	23 7	27 0	9 5	19 8	22 0	5 1	7 3	**33.2**
Construction (Division 41 to 43)	10 or more employees	2013	6 8	5 1	5 3	14 4	4 2	2 9	3 1	**18.3**
		2015	20 8	13 3	12 1	22 4	6 7	3 7	2 7	**30.3**
		2017	32 2	29 7	19 9	33 7	15 4	6 4	8 3	**43.6**
		2019	45 4	45 3	19 3	46 6	40 8	10 9	6 3	**62.3**
	All businesses including 0 to 9 employees	2015	7 2	5 8	2 9	8 1	4 4	1 4	0 4	**12.2**
		2017	10 4	12 5	4 4	12 7	5 9	0 4	0 5	**15.8**
		2019	14 5	15 8	3 6	16 0	13 6	1 2	0 4	**23.3**
Wholesale (Division 45 to 46)	10 or more employees	2013	12 3	6 5	8 4	13 3	6 1	6 8	4 8	**22.2**
		2015	19 9	13 7	12 4	21 6	7 2	8 9	5 0	**32.8**
		2017	31 9	31 3	17 8	32 2	15 9	11 1	10 9	**44.9**
		2019	41 2	40 1	16 6	34 3	24 8	13 2	9 2	**51.2**
	All businesses including 0 to 9 employees	2015	9 6	8 8	6 2	10 6	5 1	3 6	2 5	**16.2**
		2017	13 5	13 7	7 0	15 4	9 1	3 8	2 3	**20.0**
		2019	22 2	19 3	9 7	20 3	23 9	6 6	3 7	**36.4**
Retail (Division 47)	10 or more employees	2013	9 4	5 4	6 0	12 6	4 3	2 3	2 9	**16.3**
		2015	9 4	9 6	6 8	13 9	6 2	5 5	4 1	**21.1**
		2017	24 5	27 2	20 7	30 0	17 3	8 3	6 0	**34.9**
		2019	29 5	25 4	23 0	30 6	30 8	13 0	15 5	**43.2**
	All businesses including 0 to 9 employees	2015	9 0	5 6	6 4	8 3	6 4	5 1	3 3	**12.5**
		2017	11 8	10 7	7 7	13 0	8 1	3 5	2 9	**17.9**
		2019	17 2	14 1	8 9	11 4	13 7	4 4	5 5	**23.4**
Transport & storage (Division 49 to 53)	10 or more employees	2013	8 9	5 4	8 6	10 9	3 4	3 1	2 3	**15.3**
		2015	19 5	12 5	12 6	23 1	6 0	3 5	6 4	**29.6**
		2017	22 0	15 6	12 9	27 7	14 2	8 8	6 6	**36.8**
		2019	33 0	37 0	19 2	31 4	35 2	7 3	9 8	**50.2**
	All businesses including 0 to 9 employees	2015	9 7	8 5	4 4	7 5	8 2	0 4	3 2	**12.4**
		2017	3 1	2 5	2 2	3 7	2 4	1 7	0 6	**4.6**
		2019	8 1	3 8	2 6	4 3	7 4	0 6	1 3	**10.1**
Accommodation & food services (Division 55 to 56)	10 or more employees	2013	3 1	1 4	7 5	12 3	2 3	0 8	0 2	**15.2**
		2015	16 8	16 8	8 5	17 2	14 7	14 7	6 8	**28.2**
		2017	12 6	13 4	9 3	15 0	10 8	8 8	4 0	**18.6**
		2019	22 3	23 1	8 9	21 9	19 3	6 9	2 1	**24.9**
	All businesses including 0 to 9 employees	2015	6 2	4 0	2 5	8 0	5 2	3 5	1 6	**10.7**
		2017	4 3	5 5	4 4	7 0	4 8	3 3	2 2	**7.9**
		2019	8 5	8 7	2 2	6 9	10 9	1 7	0 5	**12.3**
Information & communication (Division 58 to 63)	10 or more employees	2013	40 6	26 4	39 8	49 2	21 0	29 8	31 5	**64.5**
		2015	48 8	45 1	41 3	54 1	26 8	35 0	35 0	**70.9**
		2017	62 4	69 7	54 7	73 1	43 8	44 6	46 8	**79.6**
		2019	72 9	76 0	56 0	73 0	57 9	52 2	43 4	**83.4**
	All businesses including 0 to 9 employees	2015	27 8	23 2	14 4	27 1	12 7	7 7	11 1	**37.3**
		2017	27 9	30 8	16 3	37 2	26 1	11 8	12 5	**41.7**
		2019	47 9	48 7	28 5	47 3	32 1	8 3	18 4	**57.8**
Other services (Division 68 to 74 77 to 82 and 95 1)	10 or more employees	2013	17 3	10 1	13 6	21 5	8 1	8 2	7 5	**31.8**
		2015	27 1	20 2	19 5	29 9	17 2	12 2	11 5	**42.1**
		2017	40 0	41 2	29 2	39 7	26 3	20 1	16 6	**53.3**
		2019	56 4	56 8	32 9	53 0	46 6	25 6	16 8	**69.5**
	All businesses including 0 to 9 employees	2015	16 8	13 9	13 0	19 9	11 8	6 3	3 8	**26.2**
		2017	20 9	21 9	12 2	25 4	14 9	5 7	6 5	**31.6**
		2019	28 7	29 1	9 9	27 4	21 8	6 2	4 1	**36.5**
All	**10 or more employees**	**2013**	**12.2**	**7.1**	**10.5**	**17.0**	**6.1**	**5.9**	**5.3**	**24.0**
		2015	**21.6**	**16.9**	**14.2**	**23.9**	**12.1**	**10.6**	**8.4**	**34.8**
		2017	**30.2**	**30.8**	**20.5**	**32.2**	**18.7**	**13.6**	**11.6**	**41.9**
		2019	**41.9**	**42.2**	**22.8**	**39.3**	**34.4**	**17.0**	**12.0**	**53.0**
	All businesses including 0 to 9 employees	**2015**	**13.5**	**10.9**	**8.8**	**15.0**	**8.6**	**4.7**	**3.7**	**20.6**
		2017	**16.0**	**17.0**	**9.2**	**19.5**	**12.0**	**4.7**	**4.6**	**24.3**
		2019	**24.0**	**23.5**	**9.7**	**22.4**	**19.4**	**4.8**	**4.6**	**32.1**

Coverage o micro-enterprises (those with less than 10 employees) was introduced or the 2014 survey o allow comparison with earlier years estimates or 2015 2017 and 2019 are presented on the original basis o 10 or more employees and the new basis including micro-enterprises
Estimates rom 2017 onwards have been revised as a result o updated survey data
Discontinuity in data in this table - For 2018 there was a change in the data collection method rom a paper questionnaire to an online electronic questionnaire his change had an impact on the results or businesses with 0 to 9 employees causing a discontinuity in this sizeband's results his also impacted on estimates relating to all businesses

Source O ice or National Statistics
Cecil Prescott
+44 (0)1633 456767
ecommerce@ons.gov.uk

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Table 21: Proportion of UK businesses issuing/sending invoices, by size of business, 2017 and 2019

%

		0 to 9 employees	10-49 employees	50-249 employees	250-999 employees	1000+ employees	**10 or more employees**	**All businesses**
Sent e-invoices in a format suitable for automated processing	2017	6.8	10.3	20.1	32.1	45.3	**12.4**	**7.4**
	2019	16.9	19.1	27.4	36.2	52.9	**20.9**	**17.3**
Sent invoices in an electronic format not suitable for automated processing	2017	58.7	66.2	86.6	87.0	88.1	**69.6**	**59.8**
	2019	50.9	54.3	71.2	74.0	75.6	**57.3**	**51.5**
Issued/sent paper invoices	2017	43.8	67.1	82.0	84.6	85.6	**69.7**	**46.4**
	2019	38.0	57.4	66.2	71.9	74.7	**59.1**	**40.0**

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Cec Prescott
+44 (0)1633 456767
ecommerce@ons.gov.uk

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Coverage: A bus nesses (nc ud ng m cro-enterpr ses).

Discontinuity in data in this table - For 2018 there was a change n the data co ect on method from a paper quest onna re, to an on ne e ectron c quest onna re. Th s change had an mpact on the resu ts for bus nesses w th 0 to 9 emp oyees, caus ng a d scont nu ty n th s s zeband's resu ts. Th s a so mpacted on est mates re at ng to a bus nesses.

Table 22: Proportion of UK businesses using big data analysis, by size of business, 2015 and 2019

%

		0 to 9 employees	10 to 49 employees	50 to 249 employees	250 to 999 employees	1000 or more employees	**10 or more employees**	**All businesses**
Business' own data from smart devices or sensors	2015	0.7	2.3	6.6	13.1	24.8	**3.3**	**0.9**
	2019	3.4	8.3	13.0	24.0	36.9	**9.6**	**4.0**
Geolocation data from the use of portable devices	2015	2.6	3.8	7.0	14.6	23.0	**4.6**	**2.8**
	2019	5.7	6.3	9.9	14.0	26.3	**7.2**	**5.9**
Data generated from social media	2015	3.8	9.1	16.0	17.0	30.8	**10.3**	**4.5**
	2019	6.2	11.8	17.5	19.6	33.2	**13.0**	**6.9**
Other big data sources	2015	1.6	4.0	8.2	11.9	20.8	**4.9**	**1.9**
	2019	4.6	6.9	10.0	15.0	24.0	**7.6**	**4.9**

Coverage: A bus nesses (nc ud ng m cro-enterpr ses).

Discontinuity in data in this table - For 2018 there was a change n the data co ect on method from a paper quest onna re, to an on ne e ectron c quest onna re. Th s change had an mpact on the resu ts for bus nesses w th 0 to 9 emp oyees, caus ng a d scont nu ty n th s s zeband's resu ts. Th s a so mpacted on est mates re at ng to a bus nesses.

Source: Off ce for Nat ona Stat st cs
Cec Prescott
+44 (0)1633 456767
ecommerce@ons.gov.uk

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Table 23 Proportion of UK businesses using big data analysis, by industry sector, 2015 and 2019

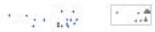
%

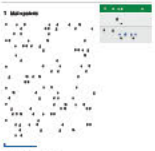
			Business' own data rom smart devices or sensors	Geolocation data rom the use o portable devices	Data generated rom social media	Other big data sources
Manufacturing (Division 10 to 33)	10 or more employees	2015	4 5	3 9	7 1	1 8
		2019	9 5	4 9	5 9	6 0
	All businesses including 0 to 9 employees	2015	1 2	1 2	3 5	1 0
		2019	4 7	3 7	7 5	3 8
Utilities (Division 35 to 39)	10 or more employees	2015	4 1	3 2	9 8	5 5
		2019	10 9	10 3	9 0	4 9
	All businesses including 0 to 9 employees	2015	4 5	4 7	3 6	4 7
		2019	9 8	5 2	2 3	3 5
Construction (Division 41 to 43)	10 or more employees	2015	1 4	5 1	3 0	3 5
		2019	2 6	8 1	6 6	4 4
	All businesses including 0 to 9 employees	2015	0 7	3 5	1 0	0 2
		2019	1 1	9 8	2 1	3 1
Wholesale (Division 45 to 46)	10 or more employees	2015	4 5	5 8	8 0	2 4
		2019	6 6	5 0	11 6	9 4
	All businesses including 0 to 9 employees	2015	1 7	1 6	4 2	1 6
		2019	2 3	4 1	7 3	6 1
Retail (Division 47)	10 or more employees	2015	2 4	2 3	12 6	4 8
		2019	9 8	10 8	16 1	5 6
	All businesses including 0 to 9 employees	2015	0 2	2 0	5 3	1 1
		2019	4 5	3 2	9 6	5 5
Transport and storage (Division 49 to 53)	10 or more employees	2015	3 8	9 8	2 9	1 1
		2019	19 9	13 7	4 9	5 1
	All businesses including 0 to 9 employees	2015	0 4	8 8	5 5	0 1
		2019	14 5	15 4	15 1	4 2
Accommodation and food services (Division 55 to 56)	10 or more employees	2015	0 6	2 5	17 6	4 3
		2019	7 8	4 1	17 3	4 4
	All businesses including 0 to 9 employees	2015	0 1	0 6	4 2	1 0
		2019	4 2	5 6	11 2	4 2
Information and communication (Division 58 to 63)	10 or more employees	2015	7 8	7 1	21 8	21 4
		2019	19 3	11 7	22 2	18 1
	All businesses including 0 to 9 employees	2015	1 9	3 2	5 6	5 8
		2019	5 9	3 6	5 6	9 2
Other services (Division 68 to 74 77 to 82 and 95 1)	10 or more employees	2015	3 8	5 2	9 1	5 8
		2019	10 5	7 5	14 8	10 0
	All businesses including 0 to 9 employees	2015	0 8	2 8	5 5	2 3
		2019	3 1	4 9	6 4	4 4
All	**10 or more employees**	**2015**	**3.3**	**4.6**	**10.3**	**4.9**
		2019	**9.6**	**7.2**	**13.0**	**7.6**
	All businesses including 0 to 9 employees	**2015**	**0.9**	**2.8**	**4.5**	**1.9**
		2019	**4.0**	**5.9**	**6.9**	**4.9**

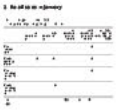
Coverage All businesses (including micro-enterprises)
Discontinuity in data in this table - For 2018 there was a change in the data collection method rom a paper questionnaire to an online electronic questionnaire his change had an impact on the results or businesses with 0 to 9 employees causing a discontinuity in this sizeband's results his also impacted on estimates relating to all businesses

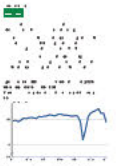
Source O ice or National Statistics
Cecil Prescott
+44 (0)1633 456767
ecommerce@ons.gov.uk

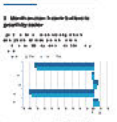
Publication date 5 Feb 2021

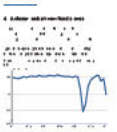


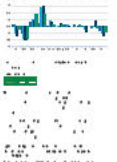


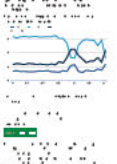


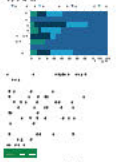


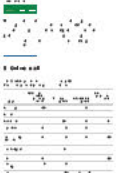


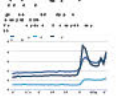












6. Retail sales data

Dataset | Released 19 February 2021

Dataset | Released 19 February 2021

Dataset | Released 19 February 2021

Dataset | Released 19 February 2021

7. Glossary

Value (amount spent)

Volume (quantity bought)

Seasonally adjusted

Non-seasonally adjusted

Non-store retailing

8. Measuring the data

Quality

Go to Sub-section

Seasonal adjustment

9. Strengths and limitations

Uses and users

Comparability with international data

End of EU exit transition period

10. Related links

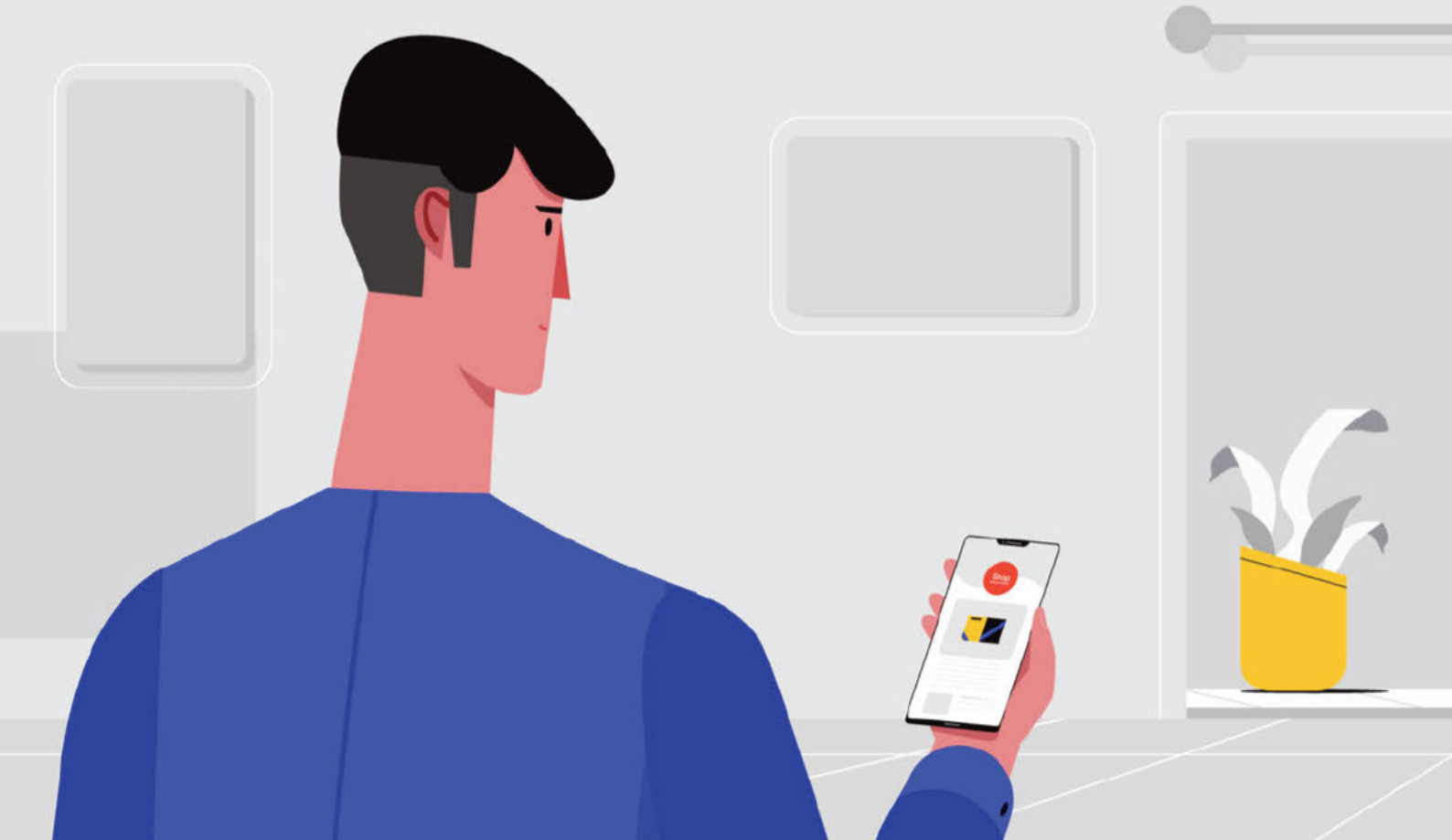
Blog | 18 December 2020

Article | 10 December 2019

Article | 20 September 2018

White Paper

Air cargo and e-commerce enabling global trade



Air cargo and e-commerce enabling global trade

Digital technologies are revolutionizing trade

Our industry is set to double in size by 2035. IATA's role is to facilitate the growth of civil aviation and cut airline costs by creating a better regulatory and business environment for our member airlines, and the stakeholders of the air cargo industry.

20%
growth
per year

IATA enables airlines, the broader value chain, and consumers to connect safely, securely, sustainably, and efficiently to all parts of the network, through global standards. We must add value for our members and enhance air transport, by providing services where we have a clear mandate and a distinctive capability.

IATA's member airlines, together with their partners, must prepare for the future growth of e-Commerce in the air cargo industry by transforming into a modern service provider and anticipating consumers' expectations.
The global economy is increasingly turning to e-commerce: whether for online shopping between consumers and businesses, from consumer to consumer, or business to business. Traditional and digital worlds are also tightly integrated with omnichannel solutions and business models mixing offline, online, and even virtual experiences.

Consumers in stores use more and more digital devices (their own or the ones provided by the retailer) to virtually try clothes and customize the goods they will then order, buy products that are either out of stock or not sold in stores, scan product labels to check availabilities, and arrange delivery and returns.

A not-to-be-missed opportunity

Since 2005, global internet retail sales have grown above 20% a year on average, according to Euromonitor International, much faster than traditional store-based sales. The International Post Corporation (IPC) even suggests that this percentage has now reached 25%.

In addition to rising domestic volumes sent by large and small e-retailers, the fast-growing cross-border e-commerce market remains a key growth driver. IPC expects cross-border e-Commerce to account for 22% of global online commerce (nearly twice the growth rate for domestic trade). They predict that between 2016 and 2021, e-commerce sales will grow by 141% and reach a forecasted global sales value of USD 4.8 trillion.

Despite these impressive figures, online retail is still relatively immature as it accounts for only 12% of total retail sales in 2018, according to IPC. Those figures show the vast potential of e-commerce in the near future.

E-commerce is a future growth driver for the air cargo industry, as online shopping boosts demand for parcel delivery services worldwide. On aggregation, the industry's parcel volume more than doubled over the last decade, growing at a rate far above economic growth.

$4,800,000,000,000

value of global e-commerce forecast for 2021

Cross-border e-commerce

Online shoppers are now buying more and more often, and cross-border e-commerce volumes are growing. According to IPC, in January 2019, 75% of online shoppers buy online at least once a month. Customers' expectations are no different for domestic and cross-border e-commerce. They want speed, predictability of delivery times, and visibility. Network coverage, frequency of flights, tracking capabilities, and flexible and varied final mile delivery solutions are therefore critical to serving e-commerce customers.

75%
of online shoppers buy online at least once a month

20%
buy online at least once a week

The same study also shows that currently, cross-border e-commerce is predominantly for low cost and light-weight products: 84% are below 2 kg, 40% cost less than 25 euros, and 8% are returned. It is therefore relevant to revisit the business models of the air cargo players, pricing structures, chargeable principles and align border regulations impacting traditional airlines, integrators and postal operators to ensure fair competition and interoperable solutions.

Another interesting fact is that footwear, apparel, and consumer electronics represent more than 52% of all online shopping, excluding services such as travel, entertainment, and financial products.

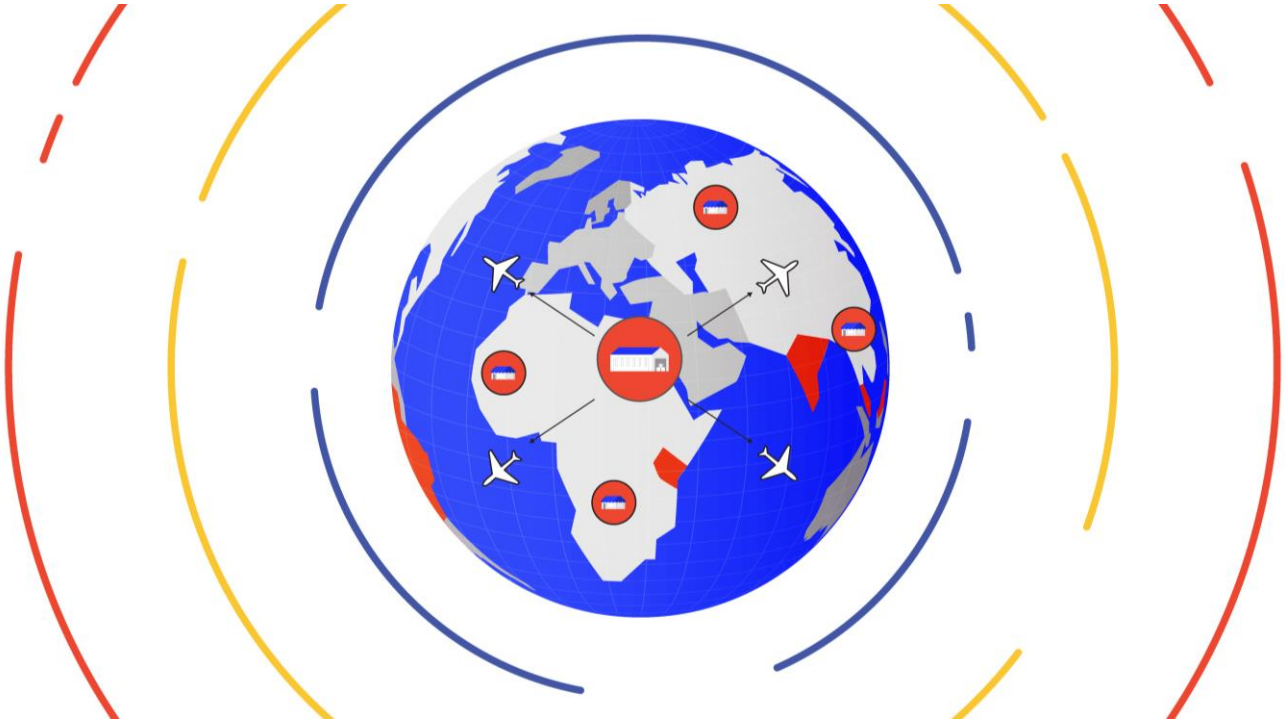
Educating online retailers will be essential to ensure safe packing, correct labeling and declaration of shipments with dangerous goods (specifically lithium battery shipments) and other regulatory compliance obligations.

New players, new rules!

Today's and tomorrow's e-commerce players expect innovation from their partners, and therefore, the complexity and out-of-date processes that are still in place in the logistics industry must evolve to meet their needs.

- They offer simplicity, smooth, and smart digital user experience to their own customers: they expect similar treatment from their logistics providers.
- They continuously innovate to survive the ever-growing competition and are therefore compelled to work with innovative partners.
- They embrace customer-centricity, often via instant comments on social media, and have to respond quickly to any deviation: they need reactivity from their supply chain partners.
- They invent new business models, create new rules: they are ready to be their own logistics provider if existing ones are not addressing their needs.

In the consumer to consumer scenario, there are no more traditional traders nor logistics experts. This means the air cargo logistics providers need to adapt to these individuals who do not necessarily have adequate expertise in trade and logistics.

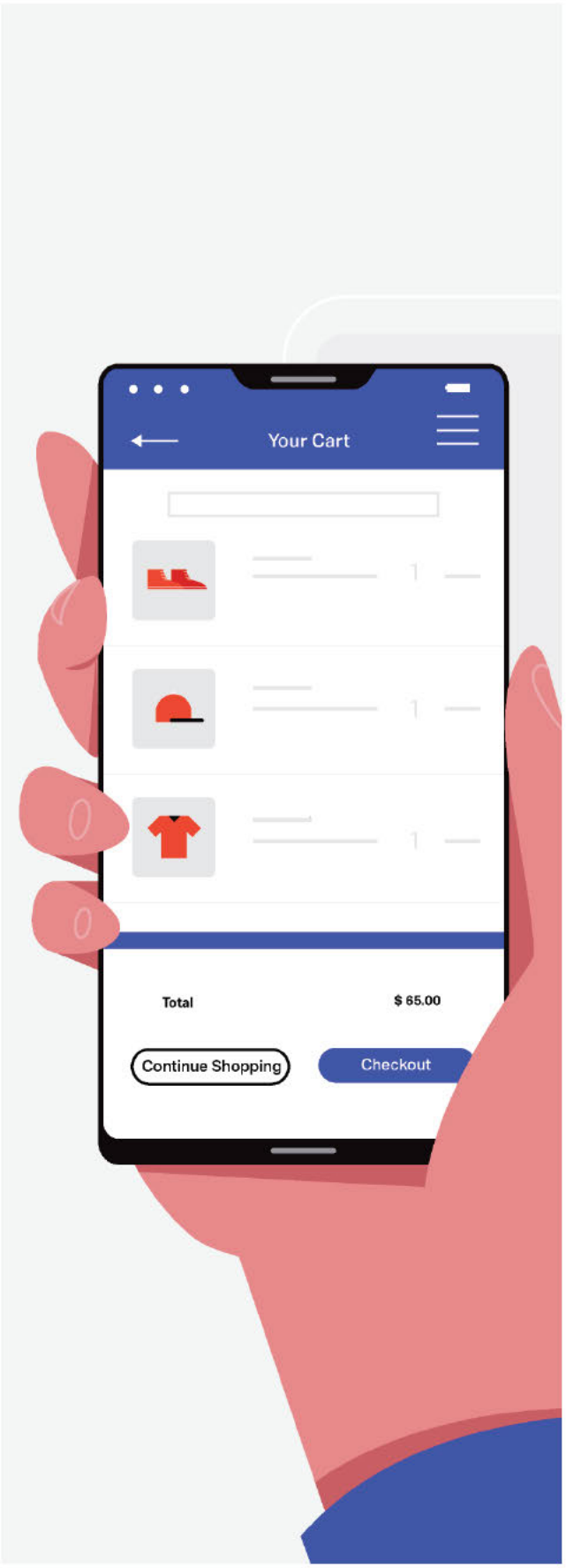


Linking what the online consumers want and what air cargo can deliver

The online marketplace offers visibility of inventory status and expected delivery dates, a variety of shipping options including free, tracking options, and easy returns are demanded by digital shoppers. To be able to offer free shipping, retailers need to get low-cost solutions from their logistics providers. Equally, to be able to propose fast, including same-day delivery options to their consumers, retailers need high-priority and totally reliable logistics services.

High priority	High visibility
• Faster delivery • Expedited Customs clearance • Customized final mile / delivery	• End-to-end tracking • Instant notification • Disruption alerts

Normal	Low cost
• Regular air cargo service • Basic final mile	• Deferred delivery • Low touch final mile



The increasing need for speed, visibility, and easy returns profoundly impacts the logistics chain

The significant growth of e-commerce has already had a profound effect on retailers and manufacturers' logistics needs as they seek to reach their customer as quickly and cost-effectively as possible while providing supply chain transparency. On top of the speedy and free delivery, facilitating quick, easy and often free returns has become an important criterion for online consumers and a high cost for retailers to handle unwanted used or damaged goods each year.

Shipping items can become very expensive, and managing supply chains, logistics, and reverse logistics involved in e-commerce is often tricky. E-commerce is a challenge for logistics providers who need to understand the newly emerging trends and patterns, better anticipate expectations and volumes, and adapts their network coverage, products, and service level agreements accordingly.

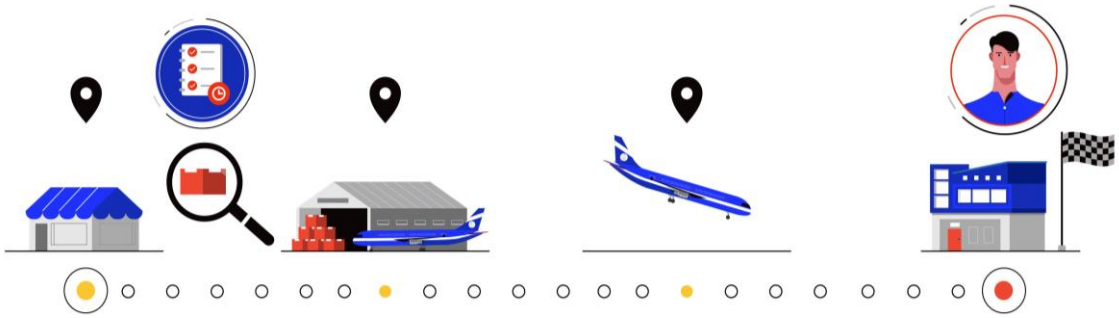
Is the air cargo industry ready to offer the right logistics solutions for the e-commerce retail industry supporting their business growth?

The global scale of the Internet means that online retailing can reach more prospective customers than brick and mortar, based competitors. To deliver to their customers, e-commerce players can choose a variety of logistics options: surface transport (such as road, rail, and sea) and air transport. As the world is their marketplace, air cargo is well-positioned to serve their needs and deliver their goods globally with speed, efficiency, and reliability.

Logistics by air are provided by the traditional model (freight forwarders, ground handlers, and airlines), integrators, and postal operators.

	Traditional air cargo	Integrators	Postal operators
Strengths	• All type of cargo • Security • Safety • Identification of dangerous goods • Airlines' network and schedule • Specialized supply chain partners	• Integrated supply chain solutions • Customs pre-clearance / speed • Security • Safety • Participants in trusted trader programs • Identification of dangerous goods • End-to-end tracking • First and last mile • Investments in new technologies • Airlines' network and schedule	• First and last mile • Pricing structure / chargeable principles (flat-rate convention from UPU) • Tracking on ground • Direct access to shippers and e-tailers
Weaknesses	• Fragmented • No end-to-end tracking • Slow adoption of digital • Limited investments in new technologies • No direct access to shippers and e-tailers • Undeveloped first-mile collection	• Costs • Reliant on traditional air cargo carriers for their enhanced network	• Fragmented • Security issues in airmail • Safety issues in airmail • Slow adoption of digital • No air/rail/sea network
Opportunities	• Airmail and cargo IT systems alignment • End-to-end optimization • Customs pre-clearance • End-to-end tracking and interactive cargo • Business diversification • Drones • Revised value model • Cooperation with other modes • Flexible final mile solutions • Inter-modality for blended supply chains	• Drones and other autonomous vehicles and robotics • Decrease in the taxation for online trade	• Alarm resolution concept • ACI & e-CSD for airmail • Airmail and cargo IT systems alignment • End-to-end tracking and interactive cargo • Drones and other autonomous vehicles
Threats	• Competition from integrators and postal operators • E-tailers becoming their own logistics providers (Amazon) • Future competition from drones operators • Innovations in surface modes of transport • Too slow to adapt to necessary changes • Inefficient and cumbersome regulations increasing costs and/or release times	• Postal operators pricing model • E-tailers becoming their own logistics providers (Amazon) • Future competition from drones operators • Innovations in surface modes of transport • Inefficient and cumbersome regulations increasing costs and/or release times	• Competition from integrators/express carriers • E-tailers becoming their own logistics providers (Amazon) • Future competition from drones operators • Lithium batteries in airmail • Too slow to adapt to necessary changes • Lack of control of what is being transported • Inefficient and cumbersome regulations increasing costs and/or release times

Air cargo responding to the e-commerce challenge: the industry action plan



Strengthen safety and security for air cargo and airmail

Safety and security must be further enhanced with stronger collaboration and compliance with programs related to training, trusted partner identification, and compliance with regulations and best practices. The e-commerce industry will benefit from these initiatives in terms of image and also in terms of efficiency and non-rejections of goods.

Simplify processes, optimize flows and speed up the transaction, introducing industry best practices

"We sell speed – we need to protect that speed." Strengthening the value proposition will be crucial for airlines, forwarders, and ground handlers to support and capitalize on e-commerce growth. What can the industry do to minimize stationary freight pre & post flight or to make the reasons for these temporary events more transparent?

Embrace new technologies that will ensure greater visibility, transparency, and efficiency

Accelerating digitization, developing real-time interaction, testing drones and robots, implementing sensors and data loggers, making sense of Big Data, developing new screening technologies will enable the air cargo industry to adapt, respond, and anticipate e-commerce needs!

Engage with e-commerce players to align understanding of air cargo safety and security matters

Stronger collaboration between commercial partners will benefit all! Interactive dialogue to transmit information like predictive and effective volumes, bookings, and allocations can help optimize capacity, load factors, routes, physical flows, and environmental footprint.

Challenge the status quo and reinvent business models

Evaluate and consider re-purposing excess capacity of the cargo warehouses into modular e-commerce logistics centers and distribution facilities. Forwarders and Ground handlers to consider entering the first and last-mile business with innovative solutions and new age vehicles such as drop boxes, multi-purpose lockers, or drones.

Call for and promote stronger industry coordination

An association of e-commerce vendors would facilitate discussions with international organizations representing airlines (IATA), freight forwarders (FIATA), postal operators (UPU), customs (WCO), etc

IATA's role in supporting air cargo capitalizing on e-commerce growth

IATA is the trade association representing approximately 275 commercial airlines worldwide, accounting for more than 83% of total air traffic. IATA's mission is to represent, lead, and serve the airline industry.

Air cargo represents more than 35% of global trade by value. When it comes to combined passenger and cargo airlines, the cargo business generates 9% of airline revenues on average, representing more than double the revenues from the first-class segment.

To support this critical business, IATA is committed to delivering enhanced value for the industry by driving a safe, secure, profitable, and sustainable air cargo supply chain.

IATA develops global standards and tools, offers financial services and industry solutions, drives transformation projects, creates partnerships, and runs campaigns as well as advocacy and outreach activities.

IATA is driving change in the air cargo industry by simplifying the business and helping make air cargo easier, faster, and smarter.

For e-commerce, our goals are to:

1. advise the industry and enhance understanding of the opportunities and challenges that exist and anticipate online consumer and e-tailer needs so airlines can capitalize on e-commerce growth;
2. ensure the air cargo industry has the right regulations, standards, and global framework to offer the right logistics solutions for the e-commerce retail industry supporting their business growth.

IATA's pipeline of initiatives supporting e-commerce

SAFETY AND SECURITY

Mail Safety Guidelines

Implementing Mail Safety Guidelines developed by IATA and the Universal Postal Union for airlines and posts to ensure that no dangerous goods and prohibited items are accepted in airmail.

e-CSD

Developing and implementing flexible solutions for the electronic exchange of security (e-CSD) related data for cargo and mail to comply with regulatory requirements in an efficient and automated way without disrupting the flow of goods.

Innovative screening technologies

Encouraging the development of new cost-efficient equipment and methodologies to automatically screen all types and all sizes of goods, including dangerous goods, which are simple to build into operation and complying with regulatory certification.

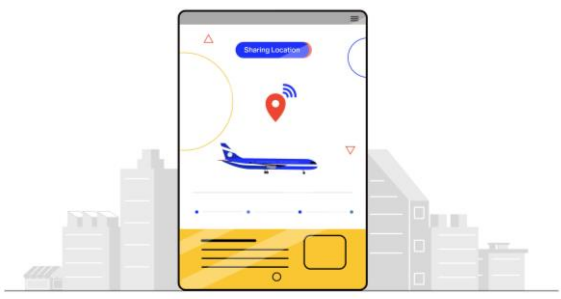
DIGITALIZATION

Cargo and mail IT systems mapping

Bringing together the two different systems for mail and cargo to allow visibility through bookings and allocations, planning through volumetric information, tracking through compatible messages.

Interactive Cargo

Developing the relevant standards and guidelines (piece level tracking, real-time notification, and use of connected devices) to enable cargo to talk!



ONE Record

Developing the relevant standards and guidelines to replace all existing paper and electronic documents by only one digital shipment record, including border formalities.

OPERATIONAL EFFICIENCY

Smart Facility

Driving excellence in air cargo handling by developing high-quality standards in cargo facilities, ensuring safe, secure, efficient and transparent cargo & mail handling. This will be verified through globally-accepted assessments and reinforced by identifying best-in-class cargo facilities using IATA's cargo handling standards

Cargo Facility of the Future

Developing a set of recommendations to modernize existing or build future facilities by making the best use of technologies, processes, and architectural developments.

Fast Cargo

Improving speed on the ground through smart regulations, efficient operations, and modern technologies

DATA

WCO Measurement and analysis

Big Data, review of work currently being undertaken by international bodies, research and analysis of various e-Commerce business models, measuring e-Commerce flows and economic benefits, capacity building, awareness and education

Cargo iQ

Shipment planning and performance monitoring for air cargo based on standard business processes and milestones. As part of that system, the Master Operating Plan (MOP) describes the standard end-to-end process of transporting cargo. Cargo iQ recently launched a strategic transformation to increase its value, positioning itself as the principal provider of quality standards and metrics for the air cargo industry.

STAKEHOLDER ENGAGEMENT

Trusted trader programs for e-commerce players

Promoting the use of existing trusted trader programs to recognize and differentiate the e-commerce players who are educated, trained, and compliant in the areas of safety and security.

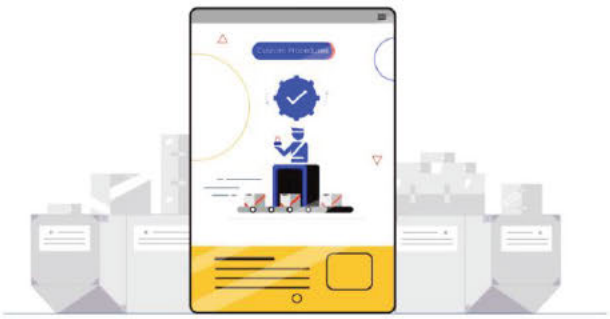
Collaboration

Develop partnerships and joint programs to enhance understanding of the requirements from various parties (UPU, IPC, Cainiao, JD)

BORDER PROCEDURES

Advanced cargo and mail information

Developing and implementing flexible solutions for pre-departure and pre-arrival risk assessments by customs for cargo & mail to comply with regulatory requirements.



Border efficiency

Lobby governments and national customs to collaborate in border efficiency to allow for faster clearance and delivery of e-Commerce goods.

SUSTAINABILITY

Seal of quality for e-commerce platforms

Developing a certification mechanism or a code of good practice for e-commerce platforms that sell lithium battery products to identify the trained ones complying with agreed sets of standards and safety programs.

Illegal Wildlife Trade

Collaborate with e-Commerce platforms and Logistics providers to raise awareness on the responsibility to be aware of endangered species and the necessity to train employees to combat illegal wildlife trade.

Environment

Strongly advocate the requirement to develop appropriate business models that will not impair the environment by taking care of waste, thinking of packaging efficiency and reverse logistics.

NEW BUSINESS ENHANCEMENTS

Drones for tomorrow's air cargo

Developing the relevant standards, guidelines, and partnership for the safe integration of this new branch of civil aviation into the commercial air space to open new opportunities for the air cargo industry.

PASS

Collaborate with the industry to develop an automated system allowing postal operators and airlines to speed up the billing and settlement process using a unique global platform

www.iata.org/ecommerce

e-Commerce Strategies for Air Cargo Airlines

Transforming the industry during the COVID-19 crisis

2020 wasn't an ordinary year for air cargo. While demand decreased by 10.6% compared to 2019, the most significant drop in year-on-year, cargo load factors, yields and revenues rose to record-high levels. After the low point in April, volumes have continuously recovered. The industry expects that they will return to 2019 levels next March.

Multiple factors drive this recovery: Operationally, as vaccination rolls-out globally, unlocking international passenger travel will ease capacity constraints. Financially, the global economic improvement and government aid packages will provide industry support. Finally, changes in shippers' behaviors (like the recent push for supply chain sustainability and reliability) will transform air cargo and e-commerce strategies moving forward.

With so many changing trends in motion, air cargo needs to work on rebuilding its industry now. Adapting their strategy to capitalize on e-commerce is critical for the re-start.

COVID-19 shifts the world online

The new variants of COVID-19 detected in different parts of the world are forcing governments to implement new restrictions and requirements, including the reinstatement of lockdowns in several countries. Like in 2020, this situation will again create an additional boost for e-commerce. Nowadays, even traditional "brick and mortar" businesses are shifting to digital, including their supply chain.

One year after the beginning of the pandemic, the consumers' behavioral change towards online retail is established, with shoppers choosing more often the convenience (and often necessity) of online purchases. E-commerce rose to 18% of the total retail sales in 2020, four points higher than forecast.

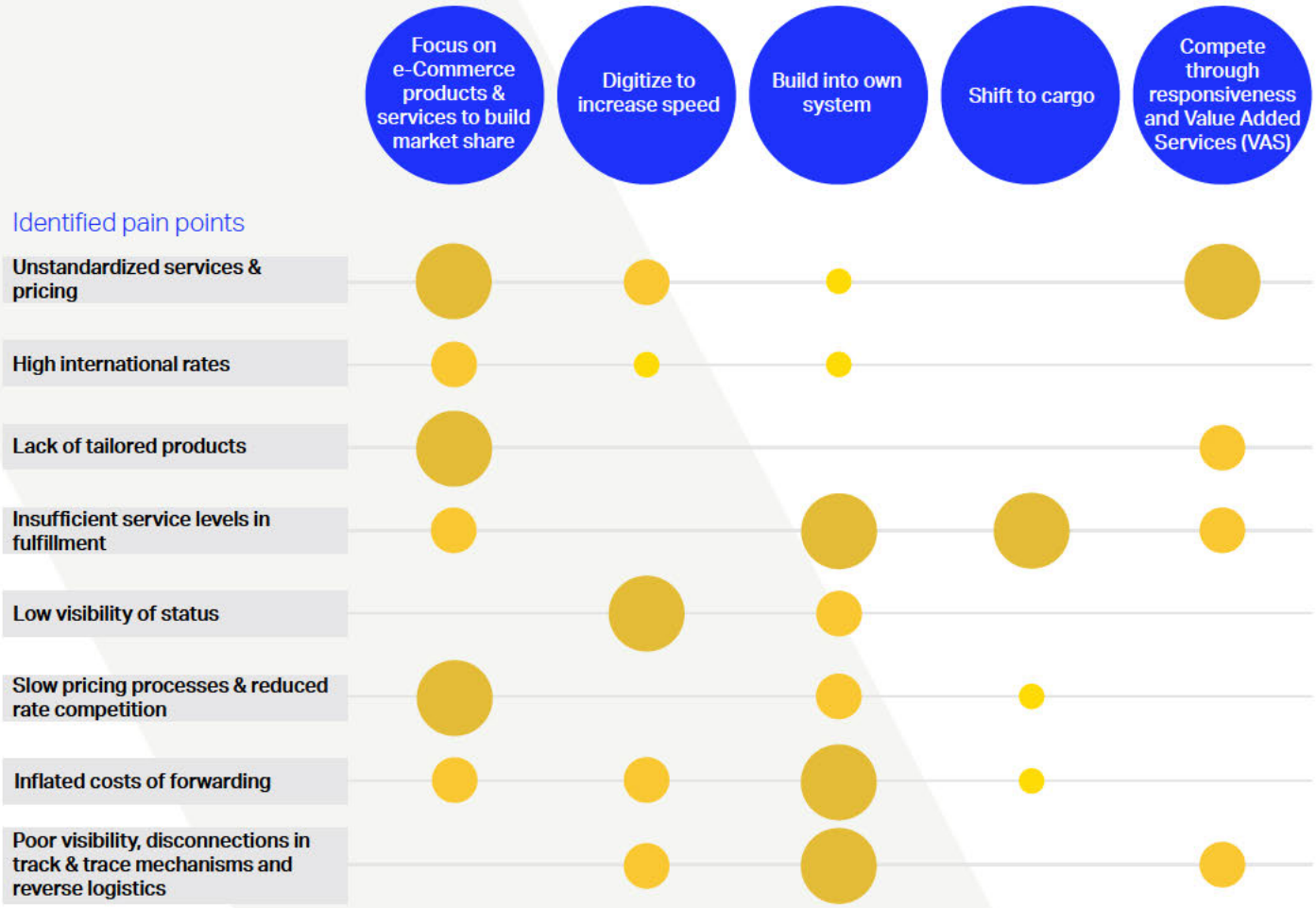
Addressing industry pain points

Cargo airlines face an "adjustment window" with regards to e-commerce. They should act today if they want to stay relevant in this digital shift.

As part of a research study with PwC, IATA identified the main pain points for airlines:

- Unstandardized services and pricing, leading to inflated pricing and consumer confusion
- High international rates
- Lack of products tailored for e-commerce increasing cost and time
- Insufficient service levels in fulfillment
- Low visibility of status for CEP (courier, express, and parcel) and e-commerce businesses
- Slow pricing processes, reduced rate competition
- Inflated costs of forwarding due to excessive labor
- Poor visibility, disconnections in track & trace mechanisms, and reverse logistics

Strategies impact in addressing identified air cargo pain points



Five strategies for airlines

As the air cargo industry adapts to e-tailers' needs, dedicated products and a new focus on processes are critical if airlines want to capture e-commerce volumes. Industry stakeholders must prioritize the digitalization of their air cargo operations. This will be the main game-changer if they are going to keep up with online retailers.

As part of our research, IATA engaged with many players in the e-commerce supply chain, from e-marketplaces to airlines. Based on the pain points and expected opportunities, we have identified how airlines wanting to capture e-commerce volumes need to transform. Depending on the degree to which they wish to enter the market, they will have to adopt one or more of these strategies.

1. Focus on e-commerce products & services to build market share

E-Commerce can be flown as general cargo and mail, allowing airlines to develop segment-specific products and services. They can integrate their operations into the e-tailers' activities and reassess their possibilities to repurpose their fleet from passenger to cargo (at least temporarily). They may also consider catering to the most prominent clients' demands at a larger scale through inorganic growth.

2. Digitize to increase speed

Airlines must support transparency by digitally integrating with their business partners. This includes the integration of data flows between airlines and other parties involved in shipment processes. They need to assess and develop multimodal forwarding platforms and provide transparency for consumers.

3. Build into own system

Airlines need to foster the transformation of their border processes to ensure smooth customs clearance. Compliance with common standards (e.g., trusted traders' initiatives, know shipper and authorized economic operators programs...) could reduce the time necessary for border controls. Expanding digital integration to customs authorities (over which e-commerce companies have little to no influence) will further enhance a seamless and efficient physical operation.

4. Shift to cargo

The COVID-19 pandemic has demonstrated air cargo's value, showing that the industry is essential for global and local economies and helps industries and populations worldwide. Airlines should consider new ways to address the risks related to crisis and capacity

shortage by investing in their air cargo products.

5. Compete through responsiveness and Value Added Services (VAS)

To reduce processing times, airlines need to optimize their air, border and customs operations processes and analyze how they handle cargo and mail. They should consider adding new value-added services to increase convenience, as well as adapt their process to provide the visibility their customers require, both at airline and at airport level.

Start your business transformation today.

As e-commerce becomes one of the leading new volume sources for air cargo, we start to see examples today of airlines capitalizing on the online market's opportunities. Several airlines are moving towards integrating their first and last-mile solutions for e-commerce under one brand. Creating and supporting start-ups to develop door-to-door specific products is the solution some of them developed. Others are integrating e-commerce marketplaces' platforms and creating digital tools for bookings and pricing.

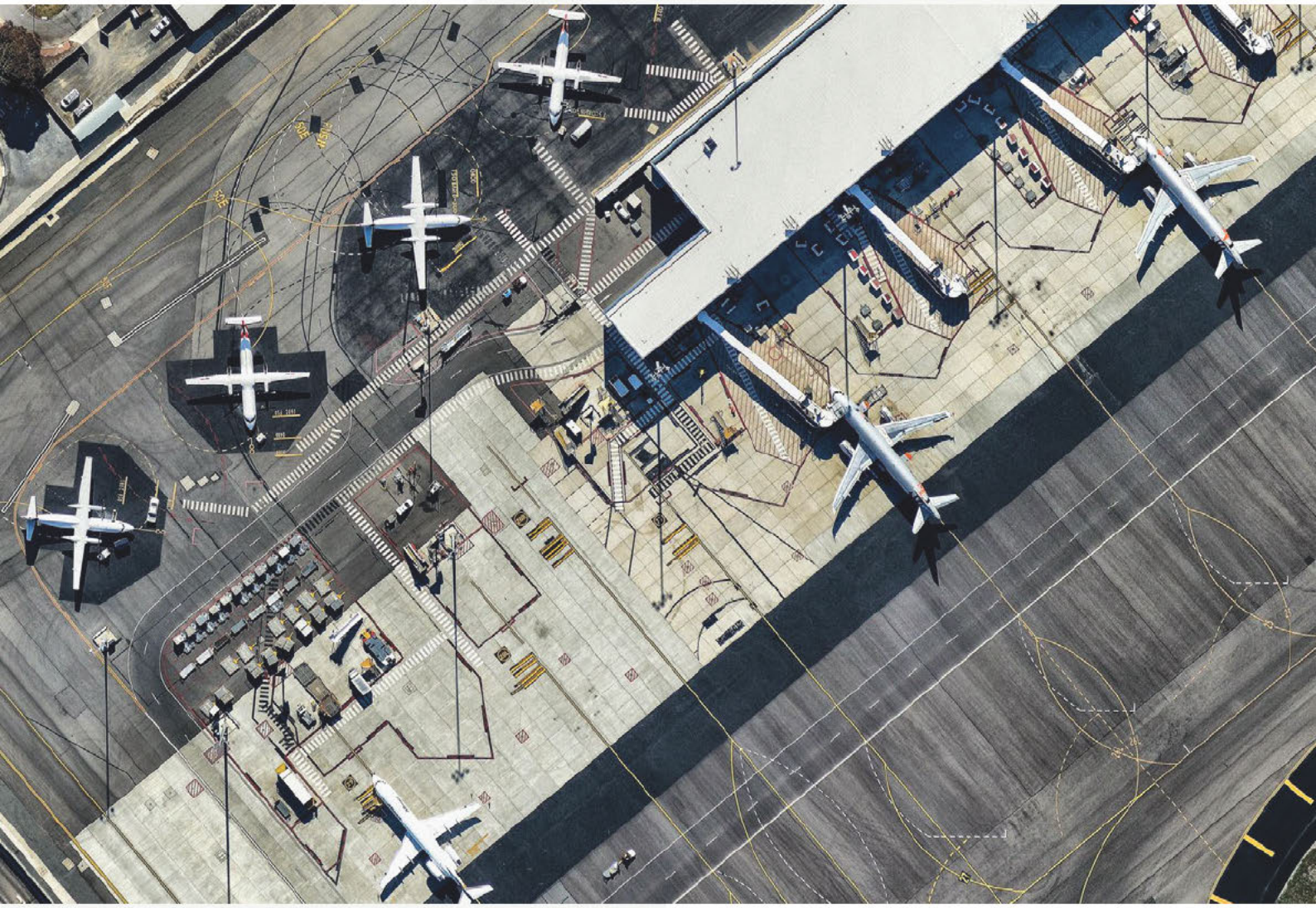
At the same time, e-commerce companies are constantly adjusting their strategies to tackle new challenges. They are not only putting the consumer in the center of their preoccupations. They are also looking at the challenges posed by their transport and logistics segment and taking decisions that affect their supply chains and their partners.

In a fast-changing e-commerce environment, the best moment to launch your business transformation is today. Positioning your company as an industry leader in innovation will bring success, revenue, and sustainability to your business ●

Do you want to know how e-tailers are addressing air cargo pain points? Stay tuned for the next e-Commerce Insights article.

Read all the e-Commerce Insight articles and learn how IATA helps the air cargo industry to capitalize on the growth of e-commerce on **www.iata.org/ecommerce**

Read the first IATA e-Commerce Monitor (December 2020)



Call for action: What next for UK air freight in a post-Brexit world?

Summary of policy recommendations arising from a joint webinar conducted in February 2021, with Logistics UK and AIPUT.

Foreword

Air freight currently accounts for 40% of UK imports and exports by value and is vital for the UK economy. UK airport capacity is a limiting factor for UK importers and exporters, air freight operators and the wider economy. Logistics UK and the Airport Industrial Property Unit Trust (AIPUT) are working closely with Government, members of our Air Council and other stakeholders to support sustainable growth for air freight while promoting a balanced approach to environmental issues.

Logistics UK is one of the UK's leading business groups, representing logistics businesses that are vital to keeping the UK trading, and more than seven million people directly employed in the making, selling and moving of goods. With COVID-19, Brexit, new technology and other disruptive forces driving change in the way goods move across borders and through the supply chain, logistics has never been more important to UK plc. Logistics UK supports, shapes and stands up for safe and efficient logistics, and it is the only business group that represents the whole industry, with members from the road, rail, sea and air industries, as well as the buyers of freight services such as retailers and manufacturers whose businesses depend on the efficient movement of goods.

AIPUT is an award-winning, long-term investor specialising in industrial property on or near the UK's major airports. Managed by Aberdeen Standard Investments, AIPUT is the only specialist airport-focused industrial fund in the UK for institutional investors. It currently holds 19 assets, including 2.1m sq ft at Heathrow Airport, making AIPUT one of the largest landlords serving the UK's global air freight hub. AIPUT aims to deliver a positive Environmental, Social and Corporate Governance (ESG) performance impact throughout its portfolio, with a strategic target to achieve carbon neutrality by 2025. The fund has successfully achieved GRESB Green Star status in each of the last five years.

Introduction

Aviation is vital for new opportunities and growth post-Brexit, and to the UK's economic recovery from the COVID-19 pandemic. Our air links, not least those with our largest trading partners including the US, are not a frivolous luxury. They connect Britain with the world and link British products and expertise with billions of potential buyers overseas. Pre-pandemic, some 49% of the total value of UK exports outside of the EU travelled by air, across a combination of dedicated freighters and onboard passenger flights.

In February 2021, Logistics UK together with AIPUT hosted a policy roundtable to discuss the future of air freight with representatives from across the aviation industry, including the warehousing sector, airlines, ground handlers, shippers and airports. Expert panellists included Nick Smith (AIPUT), Elizabeth de Jong (Logistics UK), Peter O'Broin (International Air Transport Association) and Stephen Harvey (Manchester Airports Group).

Inevitably, recovery from the pandemic is just as important an issue as ensuring the industry is well-positioned to make the best of Brexit. Throughout the pandemic and since the end of the Brexit transition period, air freight has contributed invaluable support to the economy and lives of everyone across the UK, facilitating both the rise in e-commerce and the movements of vital pharmaceuticals.

Despite questions remaining over the future of night flight provision, decarbonisation and the growth of aviation, air freight remains a cornerstone of the UK economy. It is vital that the Government and industry commit to a long-term partnership to support both investment and green growth. This paper outlines the steps that need to be taken to ensure the future of air freight in a post-Brexit world.

Fact and figures

- Air freight services contribute £7.2 billion to the UK economy and support 151,000 jobs[1].
- Across all sectors of the economy, £87.3 billion of UK gross value added (GVA) is currently dependent on air freight exports, including a very significant proportion of the GVA of some key industries and their supply chains:
  - Pharmaceuticals - £13.9 billion – of all pharmaceutical products produced in the UK, 41% are exported, 30% are for the UK market and the remainder (28%) are substances that are used in the production of other pharmaceutical products[2].
  - Computer, electronic and optical - £8.3 billion.
  - Creative arts and entertainment - £5.3 billion.
- In 2017, air freight represented 49% of the UK's non-EU exports by value (£91.5 billion) and 35% of non-EU imports (£89.9 billion) – over 40% of total trade by value but under 1% by volume of goods shipped[3].
- 60% of the UK's air freight travels via Heathrow, is the UK's hub airport.
- During the global pandemic, freight tonnage at Stansted was up by 30% year on year with East Midlands Airport seeing an increase of 18.7%[4].
- Germany ships just 25% of its non-EU export value by air, and most other major EU economies ship between 20% and 40%. Only Ireland ships a greater share of its non-EU exports by air than the UK.
- 9% of GVA in the North West (worth £14.9bn) is dependent on air freight service. Figures are 8.6% in Wales, 7.6% in the East Midlands and 6.8% in the South West.

Case study

A supplier of diagnostic and therapeutic medical products relies on air freight for their vital operations.

As a leading supplier of pharmaceutical products in the UK, a supplier of diagnostic and therapeutic medical products are heavily reliant on air freight operations and a comprehensive network of air routes from multiple origin points in Europe into the UK in order to service their customers across Great Britain and Northern Ireland.

They receive around 18,000 orders per annum from customers in the UK for short-lived pharmaceutical products which are used in the diagnosis of disease and treatments for patients. In many cases, owing to the short life of the products, delivery is required to hospitals in the UK on a next-day basis, with delays or longer transit times rendering them unusable and leaving clinicians frustrated and patients distressed. Many patients will have had long-standing courses of treatment suspended pending administration of the shipper's products, and failure to deliver within the prescribed time merely serves to cause added distress to the patients and create increased costs for the hospitals.

It is therefore essential that, for reasons of both timescale and capacity, adequate flights and connectivity into East Midlands, Birmingham and Belfast airports, remain unhindered and unrestricted. Without these services, it would be impossible to service the c.700 patients per day (175,000 per annum) in the UK, with a significant potential impact on healthcare across the UK as a result.

[1] 'Assessment of the value of air freight services to the UK economy', October 2018
[2] 'The UK Pharmaceutical Sector, an overview', December 2019
[3] 'Assessment of the value of air freight services to the UK economy', October 2018
[4] Manchester Airports Group, May 2021

Priorities

1. Positive perception of aviation

Air freight and aviation is a key driver of economic growth, both in terms of financial contribution and employment. The Government needs to give a clearer signal that it is supportive of and values air freight as a sector of national strategic importance. It is important the narrative surrounding the industry is positive and supported by Government at every juncture. Aviation is critical to the Government's 'Global Britain' objectives – in 2019, 65% of UK trade with Australia travelled through Heathrow. Aviation has a strong reputation for innovation and has supported the UK throughout the COVID-19 pandemic – now is the time to consider it as a crucial component of a Global Britain.

2. Joined-up approach – passenger and freight

It is widely known that passenger and freight operations work in tandem: prior to the pandemic, 95% of cargo at Heathrow was carried in the belly hold of passenger planes. Capacity in the air freight network is key, with freighter operations working alongside and complementing capacity provided by passenger services. Any assistance and support from Government needs to be targeted at aviation in general, without emphasising help for passenger services above freight, or vice versa; both rise and fall together.

3. Infrastructure

The UK needs to facilitate the timely delivery of the highest quality transport and real estate infrastructure serving its leading airports in order to underpin the future growth of a vibrant, sustainable and globally competitive aviation and air freight sector able to make its fullest contribution to the success of UK plc.

4. Funding

Air Passenger Duty (APD) and business rate holidays would be welcomed by the sector both to reinforce its recovery and signal Government support for the sector as strategically important for UK plc.

5. Brexit

The industry is calling for accelerated negotiations with the EU on improving traffic rights to open key markets and routes following the UK's departure from the EU. This will build on the sold foundations laid out in the Trade and Cooperation Agreement (TCA) and help ensure that air cargo can continue moving and operating efficiently.

We are seeking two priority changes. First, UK carriers are not currently operating on a level playing field owing to the Department for Transport (DfT) and Civil Aviation Authority's (CAA) liberal view on approval of traffic rights for EU operators which are not currently reciprocated. We call on the EU to grant equivalent rights to UK operators.

Second, we are seeking additional traffic rights beyond the first four freedoms of the air agreed in the TCA. The fifth freedom is vital for air cargo, as it enables a plane to take off in the UK, land in an EU member state, unload cargo and continue its journey onto a second country with additional cargo. We ask for a long-term sustainable plan for traffic rights.

6. Consumer behaviour

A healthy air freight sector is an essential part of the new digital economy. The UK is one of the top three online shopping nations. Consumer behaviour over the course of the pandemic and recent years has led to an increase in e-commerce. Just-in-time and next day deliveries are no longer an ambition but an expectation. Express freight airlines operate a significant number of services which support e-commerce – such as moving goods between working days (overnight), which accounts for £4 billion to the economy and just under 6,000

jobs[5]. We must continue to innovate, supporting flexible freight movements throughout the day and, where possible, at night to support this vital sector and growing market.

7. Innovation

Air cargo is a driver of innovation in logistics. Innovation can be seen in all aspects of the air cargo supply chain, from ground operations and aircraft technology, to warehousing solutions and security. The new generation of cargo warehouses, aircraft and equipment need to be fit for purpose, promoting safety and security, and designed to be as carbon neutral as possible, as well as future-proofed through the enabling of automation and digitisation. A long-term commitment to innovative solutions is the foundation of private investment and strategic planning for years to come. For its part, the industry must continue to drive innovation, strive to demonstrate its commitment to carbon reduction and its overall Environmental, Social and Governance (ESG) performance and enhance its 'licence to operate' with the communities it serves.

8. Freeports

While the industry has welcomed the Government's Freeport proposals, they need to deliver enhanced new opportunities for the air freight sector, as well as the maritime sector, in a post-Brexit world. Freeports must be structured in a way that will attract inward investment and job creation. They represent a once-in-a-lifetime opportunity for airports, maritime and inland ports, and other transport modes to work together. Freeports should also aim to play a major role in driving wider regeneration and spreading those benefits across the UK, while realising enhanced global trade routes and growth prospects.

9. Regulatory relaxations

For the air freight sector to succeed, the industry calls for targeted and appropriate regulatory relaxations in planning. Planning regulations are significant when planning for ambitious supply chains and connectivity. Appropriate planning flexibility at ports, for warehousing and connectivity infrastructure, will allow for continued investment and reactive supply chains in air freight. Specifically, we call for support for sustainable expansion at Heathrow and other regional airports where required.

10. Decarbonisation

There is a strong willingness from the air freight and wider aviation sector to meet decarbonisation targets. Many businesses are taking necessary measures to decarbonise as quickly as possible. This is the case across aviation, from warehouses and aircraft to ground operations. Carbon is the enemy, not flying, and low carbon Sustainable Aviation Fuel (SAF) will be key to decarbonisation. In addition, we call for a commitment from Government to support research and development in aviation, leading to new technologies for electric and hydrogen aircraft that are fit for the future and cargo handling.

11. Air freight growth

Alongside Government support, we need to put our vision into practice – leveraging our creative ideas, energy and innovation. Air Cargo should be a catalyst for growth. We need to be brave and more progressive, working with our competitors and working together rather than in silos. The trajectory of progress needs to accelerate and be driven by the challenges and opportunities we face. Air freight is a growing industry and will recover from the impacts of COVID-19 and Brexit, contributing millions to the UK economy and its position as a trading nation. However, the industry needs to know now more than ever that the Government is fully behind the sustainable growth of UK air freight.

Conclusion

Logistics UK and AIPUT would welcome the Government's commitment to the eleven priorities listed in this paper while working together with industry to realise the potential for UK air freight. New opportunities from Brexit, and recovery from COVID-19, present an unmistakable opportunity to consider the next steps for air

[5] Figures are for goods moved during the night-time Noise Quota Period. Source: 'The Economic Impact of Air Cargo – Night Flying', December 2016

freight. It is vital that a long-term partnership with the industry is developed and strengthened over time as we consider how best to enhance the UK's position as a global trading partner.

World news story

UK and Japan sign free trade agreement

The UK has officially signed an economic partnership agreement with Japan, marking an historic moment, as the UK's first major trade deal as an independent trading nation and offering a glimpse of Global Britain's potential.

From: British Embassy Tokyo
Published 23 October 2020

- The UK-Japan Comprehensive Economic Partnership Agreement (CEPA) is the first deal that the UK has struck as an independent trading nation.
- A British-shaped deal that goes beyond the existing EU agreement, securing bespoke benefits for British businesses and citizens.
- Important step towards joining the Comprehensive Trans-Pacific Partnership free trade area –which would result in closer ties with 11 Pacific countries.

The UK has officially signed an economic partnership agreement with Japan, marking an historic moment, as the UK's first major trade deal as an independent trading nation and offering a glimpse of Global Britain's potential.

The UK-Japan Comprehensive Economic Partnership Agreement was signed by International Trade Secretary Liz Truss and Japan's Foreign Minister Motegi Toshimitsu in Tokyo this morning (Friday 23 October).

The deal is tailored to both economies and has secured trade that goes beyond existing EU deals, with big benefits for digital and data, financial services, food and drink, and creative industries. The deal brings together 2 of the world's most technologically advanced nations, placing the UK at the forefront of shaping new global standards on digital trade. The estimated boost to trade between the UK and Japan is over £15 billion, with long term economic benefits that are crucial to 'build back better' from Covid-19, reshaping the UK economy so it is fit for the future.

The agreement also includes a strong commitment from Japan to support UK joining the Trans-Pacific Partnership (TPP), one of the world's biggest free trade areas, covering 13% of the global economy and more than £110 billion of trade in 2019. This will help strengthen trade ties between the UK and 11 Pacific countries and set new standards for global trade. This signing marks a new closer alliance between the UK and Japan, which will see our two like-minded democracies work together as the UK takes up the G7 presidency, where we will champion free trade.

International Trade Secretary, Liz Truss said :

" Today is a landmark moment for Britain. It shows what we can do as an independent trading nation, as we secure modern and bespoke provisions in areas like tech and services that are critical to the future of our country and the reshaping of our economy.

" Trade is a powerful way to deliver the things people really care about. At its heart, this deal is about creating opportunity and prosperity for all parts of our United Kingdom and driving the economic growth we need to overcome the challenges of coronavirus.

" The agreement also has a much wider strategic significance. It opens a clear pathway to membership of the Comprehensive Trans-Pacific Partnership – which will open new opportunities for British business and boost our economic security – and strengthens ties with a like-minded democracy, key ally and major investor in Britain."

Background

- The UK – Japan Comprehensive Economic Partnership Agreement was agreed in principle on 11 September 2020.
- It is the government's ambition to secure free trade agreements with countries covering 80% of UK trade by 2022.

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Press release

UK agrees historic trade deal with Australia

Prime Minister Boris Johnson agrees UK Australia free trade deal in meeting with Australian PM Scott Morrison in London.

From: Prime Minister's Office, 10 Downing Street, Department for International Trade, The Rt Hon Elizabeth Truss MP, and The Rt Hon Boris Johnson MP
Published 8 June 2021

- Prime Minister agrees UK-Australia free trade deal in meeting with Australian PM Scott Morrison in London
- British cars, Scotch whisky and confectionary will be cheaper to sell in the tariff-free agreement, boosting industries that employ 3.5 million people in the UK
- The deal also offers young people the opportunity to live and work in Australia and removes barriers for businesses
- PM hails 'new dawn' in the UK's relationship with Australia as leaders agree to intensify cooperation on security, climate change and science and tech

The UK has secured a trade deal with Australia eliminating tariffs on all UK goods and boosting jobs and businesses across the country, in the first major trade deal negotiated from scratch by the Government since we left the EU.

The main elements of the deal were agreed by Prime Minister Boris Johnson and Australian Prime Minister Scott Morrison at a meeting in Downing Street last night (Monday 14 June). A final Agreement in Principle will be published in the coming days.

The leaders reaffirmed the enduring partnership between the UK and Australia during their discussion and agreed to work closely together on defence, technology collaboration and tackling climate change – including through a future Clean Tech Partnership.

The new Free Trade Agreement means iconic British products like cars, Scotch whisky, biscuits and ceramics will be cheaper to sell into Australia, boosting UK industries that employ 3.5 million people across the country. The UK-Australia trade relationship was worth £13.9 billion last year and is set to grow under the deal, creating opportunities for businesses and producers in every part of the UK.

British farmers will be protected by a cap on tariff-free imports for 15 years, using tariff rate quotas and other safeguards. We are also supporting agricultural producers to increase their exports overseas, including to new markets in the Indo-Pacific.

Under the agreement, Brits under the age of 35 will be able to travel and work in Australia more freely, opening exciting opportunities for young people.

The Prime Minister Boris Johnson said:

> "Today marks a new dawn in the UK's relationship with Australia, underpinned by our shared history and common values.
>
> "Our new free trade agreement opens fantastic opportunities for British businesses and consumers, as well as young people wanting the chance to work and live on the other side of the world.
>
> "This is global Britain at its best – looking outwards and striking deals that deepen our alliances and help ensure every part of the country builds back better from the pandemic."

The Free trade deal will eliminate tariffs on Australian favourites like Jacob's Creek and Hardys wines, swimwear and confectionary – boosting choice for British consumers and saving households up to £34 million a year.

It will provide benefits across the whole of the United Kingdom, including:

- Scotland exported £128m of beverages to Australia in 2020 – this deal will help distillers by removing tariffs of up to 5% on Scotch Whisky.
- More than 460 businesses in Wales exported to Australia last year and life science companies and chemicals manufacturers are set to benefit in particular.
- 90% of all exports from Northern Ireland to Australia are machinery and manufacturing goods – used extensively in Australia's mining, quarrying and recycling sectors. Under the new FTA tariffs will be removed and customs procedures will be simplified.
- Car manufacturers in the midlands and north of England will see tariffs of up to 5% cut, boosting demand for their exports.

An FTA with Australia is also a gateway into the fast-growing Indo-Pacific region and will boost our bid to join CPTPP, one of the largest free trade areas in the world, covering £9 trillion of GDP and 11 Pacific nations from Australia to Mexico.

Secretary of State for International Trade, Liz Truss, said:

> "This deal delivers for Britain and shows what we can achieve as a sovereign trading nation. It is a fundamental, liberalising agreement that removes tariffs on all British goods, opens new opportunities for our services providers and tech firms, and makes it easier for our people to travel and work together.
>
> "The agreement paves the way for us to join the Trans-Pacific Partnership, a £9 billion free trade area home to some of the biggest consumer markets of the present and future.
>
> "Membership will create unheralded opportunities for our farmers, makers, innovators and investors to do business in the future engine room of the global economy."

The deal's ambitious commitments on market access for services professionals, cutting-edge digital provisions and reduced barriers to investment will benefit the UK's service sector.

The UK exported £5.4 billion worth of services, including £1.4bn of insurance and pension services and £780m of financial services, to Australia in 2020. Red tape and bureaucracy will be torn down for more than 13,000 small and medium sized businesses across the UK who already export goods to Australia, with quicker export times.

Parliament will have the opportunity to scrutinise the agreement in detail once the text is published, along with an impact assessment and explanatory memorandum.

National Chair of the Federation of Small Businesses, Mike Cherry, said:

> "A trade deal with Australia will come as great news for many of our members who have long been exporting there as well as those who are hoping to expand their trade ambitions.
>
> "As we look beyond the pandemic and enjoy the benefits of post Brexit growth, deals like this will reap vast rewards to small firms right across the UK. Around 40 per cent of UK small firms who trade internationally do so already with Australia, and a trade deal that could be worth up to £800 million will only increase those numbers.
>
> "The inclusion of a small business chapter in this agreement will also ensure that the needs of smaller businesses are fully catered for in the years to come."

CEO of techUK, Julian David, said:

> "Australia is a key market for the UK technology sector and an important gateway to the wider Indo-Pacific region. The new trade agreement announced today has the most advanced digital trade provisions of all the deals the UK has signed so far, opening up opportunities for our innovative businesses operating in emerging technologies, such as AI and cleantech.
>
> "The new law of data provisions and the ban on data localisation will leave our SMEs in particular to export across the market without the cost of having to set up servers. We are looking forward to working with our industry and the government to make sure the sector takes full advantage of these state-of-the-art digital trade provisions."

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