Economic Footprint of the Channel Tunnel in the EU

An analysis of the value of trade travelling through the Channel Tunnel between the UK and EU countries

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Building a better working world

Contents

Foreword

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In 2016 EY published a report *The Economic Footprint of the Channel Tunnel* which focused on the role that the Channel Tunnel plays in supporting trade and economic activity in the UK. The report has received wide recognition and will become increasingly important in a post-Brexit world.

Our new report builds on previous analysis, but this time focuses on the importance of the Channel Tunnel to the economies of the other EU Member States. It presents the diverse influence and economic footprint of the Channel Tunnel in the EU, and demonstrates the vital role played by the Channel Tunnel in the transportation of goods, freight, and people between mainland Europe, the UK and Ireland.

The Channel Tunnel carries over 1.6 million trucks[1] transporting goods between the UK and EU in either direction per year. A range of key industrial sectors rely on the Channel Tunnel for fast and reliable access to markets, from automotive and pharmaceuticals, to food and drink, while goods that are transported to the UK market are sourced from as close as France, to as far away as Turkey.

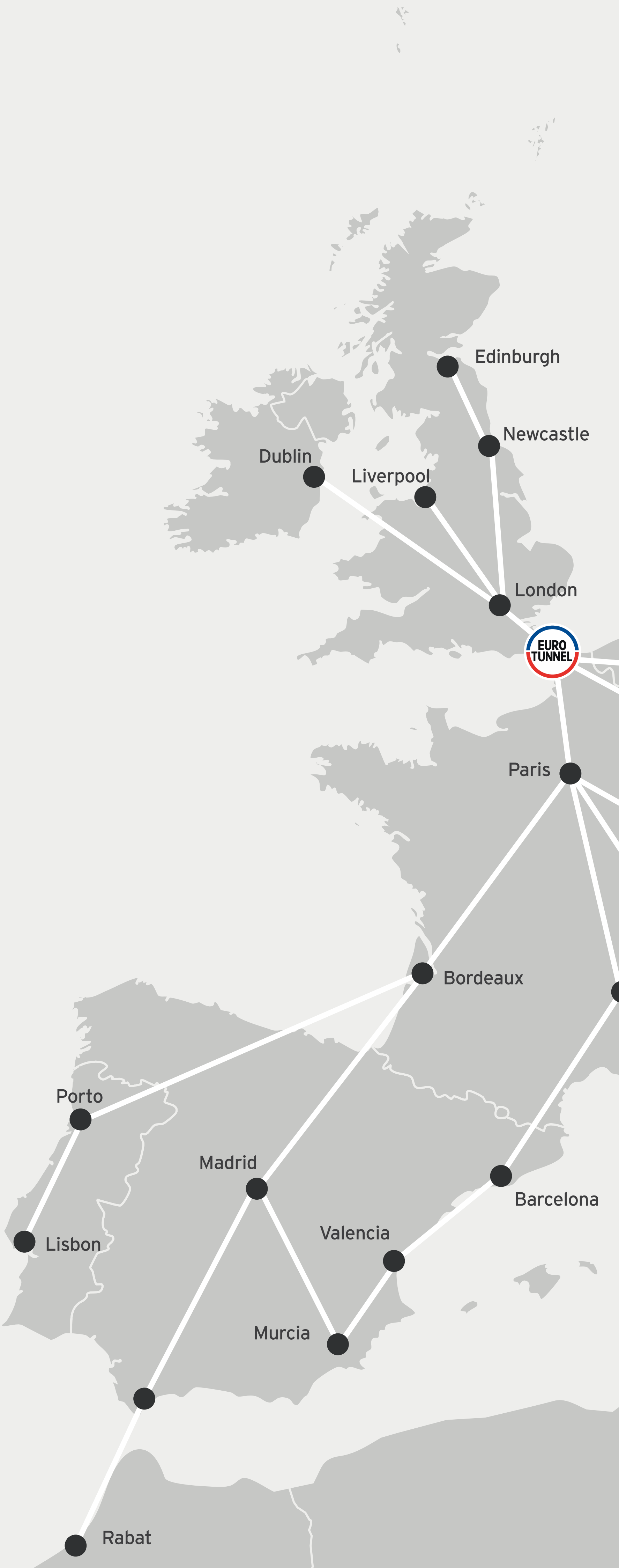
The Channel Tunnel has facilitated the development of new markets and business models which are now an essential part of daily life. Consumer expectations over the past 25 years have changed dramatically, with increased demand for 'express' delivery across most sectors.

Since it commenced operations in 1994, the Channel Tunnel has grown into a critical transport link for the integrated European market; facilitating a frequent and reliable 35-minute crossing between Folkestone and Calais, the Channel Tunnel remains the most competitive method of transport for traded goods.

The Channel Tunnel has also played a key role in strengthening the significant cultural links between the UK and mainland Europe, with over 4.5 million UK tourists visiting Europe via the Channel Tunnel per year, supporting leisure and hospitality, food and drink, and services sectors in the countries that they visit.

Brexit may well represent a significant change in the economic and political relationship between the UK and the EU, but the Channel Tunnel will retain a critical role as a facilitator of economic and cultural links between the two.

[1] Channel Tunnel Limited data


Edinburgh
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Paris
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Warsaw
Berlin
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Prague
Krakow
Luxembourg
Bratislava
Vienna
Munich
Budapest
Bern
Ljubljana
Belgrade
Bucharest
Zagreb
Lyon
Turin
Sarajevo
Sofia
Podgorica
Istanbul
Rome

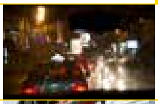
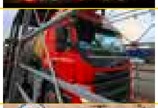
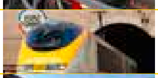
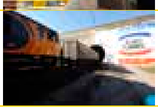
Introduction

In 2016 EY were commissioned to undertake analysis of the Channel Tunnel's economic footprint in the UK through the provision of its freight services (i.e. Le Shuttle Freight and Rail Freight).[2]

The 2016 report drew on a combination of primary and secondary research, including a survey of Channel Tunnel freight customers.[3]

In May 2016, Ipsos MORI (working with EY) conducted a survey with Channel Tunnel freight customers. A sample of freight customers, distributed across Europe, was randomly selected from Channel Tunnel's customer list and questions were emailed in advance of a telephone interview. A total of 205 interviews were conducted, which collectively represented around 20% of Channel Tunnel's Le Shuttle Freight volumes, and information collected included data on the volumes, values and types of good transported through the Channel Tunnel during 2014, and about the origins and destinations of goods transported.

Channel Tunnel key services

			Customers
Shuttle services	Passenger shuttle		Car and coach passengers
	Truck shuttle		Freight truck operators
Railway services	Eurostar		Eurostar
	Freight trains		Freight train operators

The survey included qualitative questions on reasons for using the Channel Tunnel over alternatives as well as the impact of disruptions to Tunnel services. The results of the survey, and the scope of the questions posed, were wide enough to also describe the Channel Tunnel's impact on the EU economies and thus have been used to inform this report.

EY were commissioned again in 2017 to undertake further analysis, using updated data where necessary, on the key trade flows between the UK and the rest of Europe and, in particular, to investigate the economic value that the Channel Tunnel also brings to EU economies through its freight services. This analysis uses the 2014 survey as a reference point as Channel Tunnel research confirms that the composition of goods transported is considered to be broadly stable, and unlikely to differ significantly over a two year period.

The analysis covers trade by both volume and by value, although the focus is on the latter due to its greater relevance for international trade comparisons. All figures are shown in 2016 Euro prices, unless otherwise stated.

As part of the new study, EY again engaged with Channel Tunnel customers across a number of countries and sectors to validate and update the analysis. This engagement provided insight into the role the Channel Tunnel plays within their operating model, why they choose the Channel Tunnel as a method for transporting their goods as opposed to alternatives available, and the potential future challenges to their trading relationship with the UK post-Brexit.[4]

The remainder of this report sets out the findings from our analysis, including:

- The total value of imports and exports transported through the Channel Tunnel in 2016, including the sector and geographic spread of this trade;
- The drivers for, and benefits of, transporting freight and passengers through the Channel Tunnel, including time savings and cost optimisation; and
- A number of case studies that highlight the value and composition of trade between the UK and some key countries and sectors.

In line with best practice, the analysis contained in this report and associated methodology and approach has also undergone a peer review by Professor L. Alan Winters, Director of the UK Trade Policy Observatory, and Professor of Economics at the University of Sussex.

[2] https://www.getlinkgroup.com/uploadedFiles/assets-uk/the-channel-tunnel/EY-Channel-Tunnel-UK.pdf
[3] The survey was conducted by Ipsos MORI in conjunction with EY. The sample of customers surveyed, which were distributed across Europe, was representative of 20% of Channel Tunnel's Le Shuttle Freight volumes
[4] The findings from these interviews have been used to inform this report, however, to protect respondents' commercial interests, responses remain anonymous

"This report represents an important extension to EY's previous report on the contribution of the Channel Tunnel to the UK economy. It analyses the significance of the Tunnel to the various other economies of the European Union. The analysis has entailed the careful processing of the previous sample and other sources of data both to update the information to 2016 and to disaggregate the effects in Europe.

While many pieces of information have required extrapolation or estimation, the team has been meticulous in doing this conservatively and in line with as many other sources of data as are available. Thus not only are the detailed figures in the report unlikely to be misleading, but the broad conclusions should command considerable confidence. Throughout the analysis the team has been open to challenge and very clear about what they have done and its reliability. I believe that the report offers a very solid basis for understanding the contribution of the Channel Tunnel to the economies of Europe on both sides of the English Channel."

Prof. L. Alan Winters
Professor of Economics, University of Sussex
Director, UK Trade Policy Observatory

Executive summary

EU exports to the UK
€69.0bn

Total trade through the Channel Tunnel
€137.8bn[5]

EU imports from the UK
€68.8bn

Trucks
1,641,638

Freight Trains
1,797

Coaches
53,623

Passengers by Eurostar and Shuttle
20,611,337

Cars
2,610,242

[5] The value of total trade carried through the Channel Tunnel will include trade that originated from or is going to Ireland via the UK. It will also include some trade that originated from outside the EU or the UK.

	France exports to UK	UK exports to France
Value (2016 prices)	€10.9bn	€11.1bn
% of total trade	26.7%	41.6%

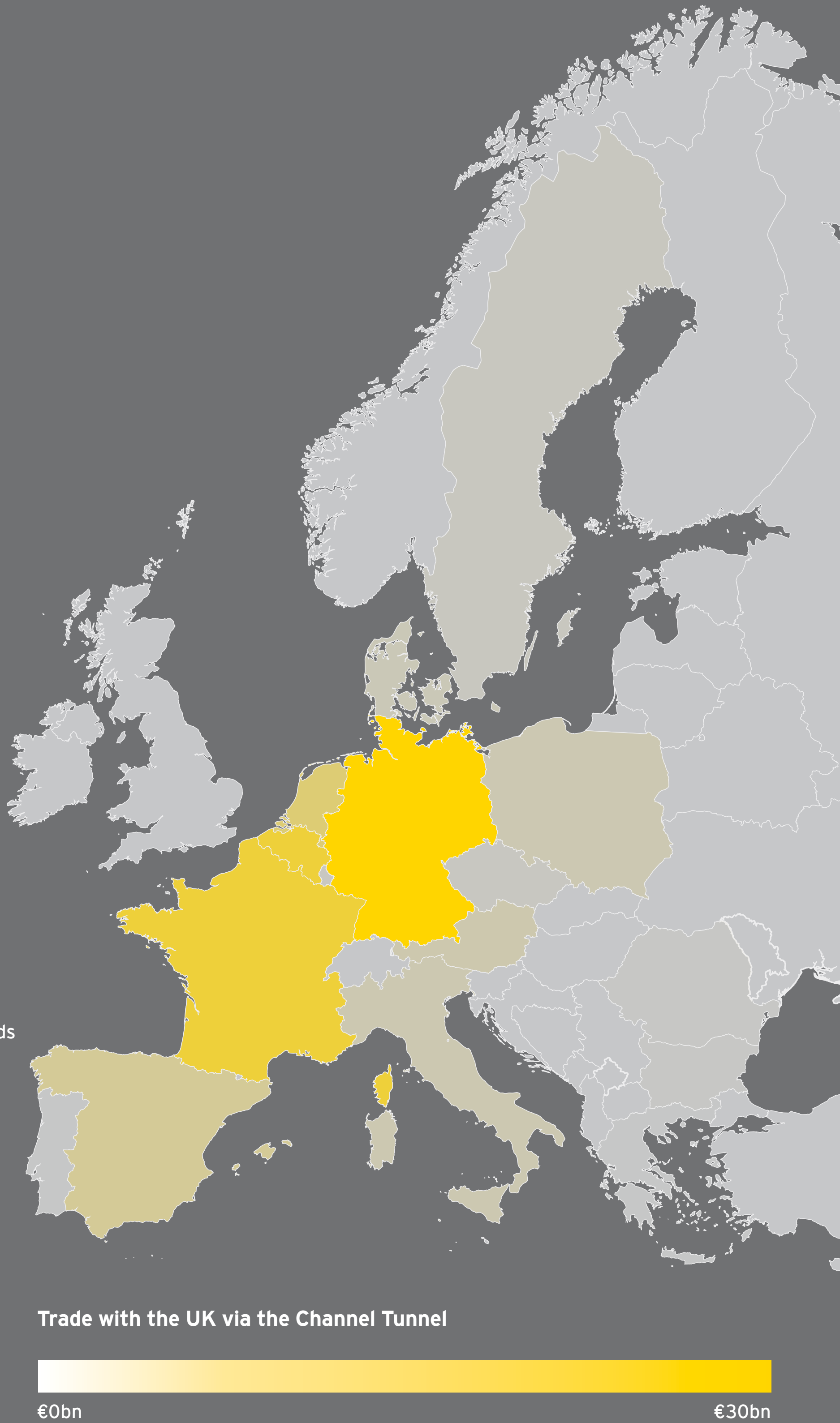
	Spain exports to UK	UK exports to Spain
Value (2016 prices)	€2.6bn	€5.2bn
% of total trade	11.8%	34.4%

	Germany exports to UK	UK exports to Germany
Value (2016 prices)	€15.0bn	€15.8bn
% of total trade	16.2%	33.7%

	Belgium exports to UK	UK exports to Belgium
Value (2016 prices)	€13.0bn	€8.8bn
% of total trade	38.9%	28.8%

	Netherlands exports to UK	UK exports to Netherlands
Value (2016 prices)	€8.4bn	€4.5bn
% of total trade	17.0%	16.1%

	Other countries exports to UK	UK exports to other countries
Value (2016 prices)	€19.2bn	€23.5bn



Trade analysis

The Channel Tunnel facilitated trade worth €138bn in 2016[6]

The value of trade transported via the Channel Tunnel in 2016 was equivalent to 26% of total UK-EU trade

The UK is the EU27's second largest trade partner, behind the US.[7] It is the destination for 7% of total EU27 exports by value and hence supports activity in a number of regional and national economies across Europe.[8] This in turn supports employment both directly by exporters, and indirectly down supply chains.

The Channel Tunnel facilitates EU export growth by providing efficient, fast and reliable access to the UK, as noted through interviews with Channel Tunnel customers.[9] The Channel Tunnel has been able to flourish in this connected environment, enabled by the removal of non-tariff barriers, and proficient border checks and customs controls.

The total value of exports from the EU to the UK transported through the Channel Tunnel in 2016 was €69.0bn

This represents 21% of the total value of EU exports to the UK. The largest category of goods exports by value was postal and courier freight (€24.6bn), followed by computers and electronics (€10.2bn), transport equipment, which includes the production and retail of automotive parts (€6.6bn), and textiles, clothing and leather (€5.0bn).

The Channel Tunnel is particularly important for transporting high value goods (e.g. pharmaceuticals) and goods which are time-sensitive in nature (e.g. automotive parts).

Postal and courier freight is the largest category of both imports and exports from the EU. The precise nature of goods captured within this trade sector is extremely varied and difficult to quantify. Further analysis of the growth in importance of this sector and its role in supporting particular economies is presented later in the report. The country level analysis in the report focuses on other sectors which are important to economic success of that country and which also rely on the Channel Tunnel for transporting into and out of the UK.

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[6] The previous report evidenced how the Channel Tunnel facilitated trade worth €113.5bn (£91.4bn at the average 2014 exchange rate £1=€1.2411) in 2014, representing 22% of all imports and 30% of all exports between the UK and EU. In 2016, the level of trade facilitated by the Channel Tunnel was €138bn (total trade figures are likely to also include an immaterial proportion of extra-EU trade and trade passing through the UK to and from Ireland). The increase in value is partly derived from an increase in shuttle volumes (15%) transported via the Channel Tunnel since 2014, and partly due to inflationary effects (14%), which include any effect of currency fluctuations. The composition of shuttle trade is understood to have remained stable over the past two years. Therefore data collected for 2014 data which analyses the composition of shuttle trade has been extrapolated to reflect the increased number of trucks passing through the Channel Tunnel in 2016. Rail freight has experienced substantial changes in this period, therefore new data has been collected to reflect this.

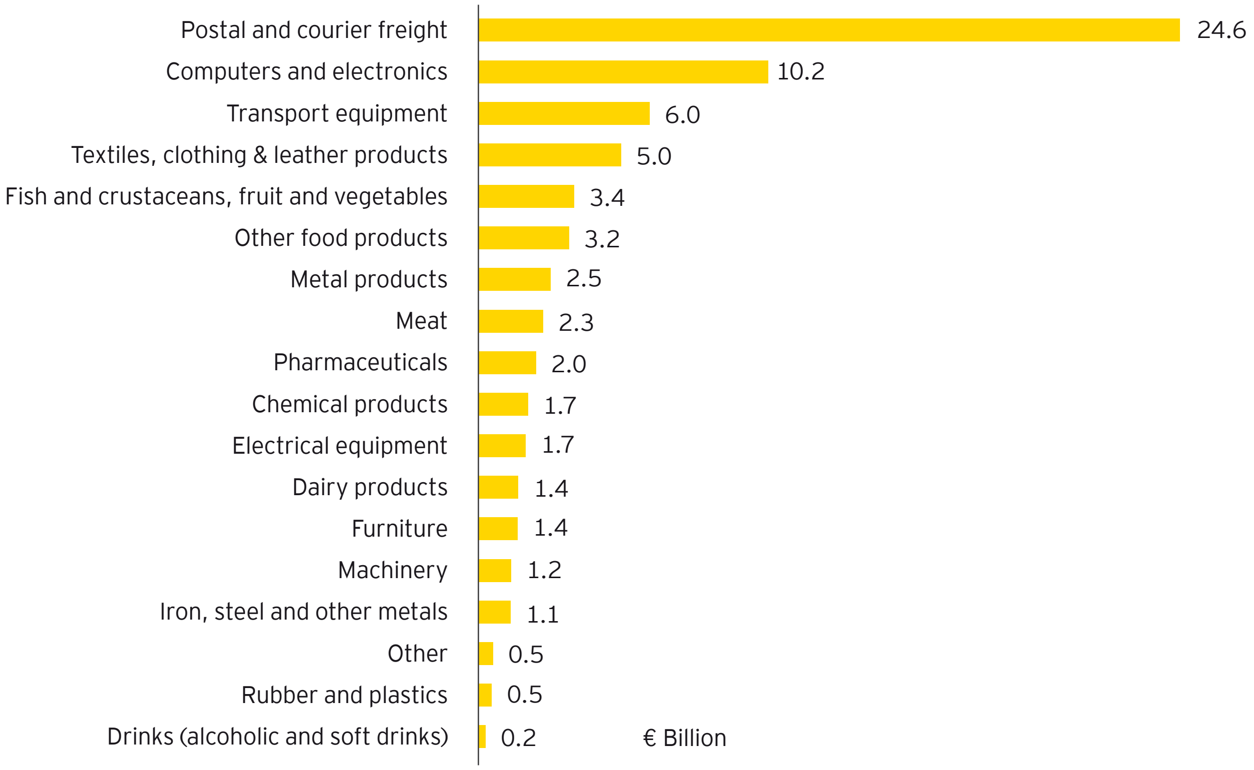
[7] https://fullfact.org/europe/uk-eu-trade/

[8] Eurostat 2016

[9] 90% of respondents to the EY & Ipsos Mori survey use the Channel Tunnel due to the shorter transport time, 56% for its frequency, and 54% for its flexibility

Figure 1: The value of EU exports to the UK via the Channel Tunnel in 2016, by product

Source: EY & Ipsos Mori Survey, EY Calculations



The Channel Tunnel is an integral part of the 'just-in-time, just-in-sequence' production process

The transport of many goods forms part of a wider 'just-in-time, just-in-sequence' production process. Manufacturers operate increasingly complex multi-national supply chains. These operating models rely on secure, reliable and timely transport infrastructure. The Channel Tunnel plays a key role in helping businesses build their operating model around an efficient and streamlined process.

Improved logistics and transport infrastructure have resulted in increased competition for many companies operating in Europe, as consumers can source their goods from further away at lower prices. As a result of this, European companies have sought to optimise their supply chains to maintain competitiveness. Much of this involves semi-finished products and components being transported across borders to reach the next stage of the production process. This interconnection means the trading relationships between the UK and EU are increasingly complex, with companies importing components and re-exporting finished goods. In this way the UK and EU economies are inextricably inter-linked.

> The food and drink categories, when combined account for up to €10.5bn of EU exports to the UK through the Channel Tunnel, which would make it the second largest category in total, behind postal and courier freight. In 2016, 30% of all food consumed in the UK was imported from the EU, with 49% produced domestically.[10]

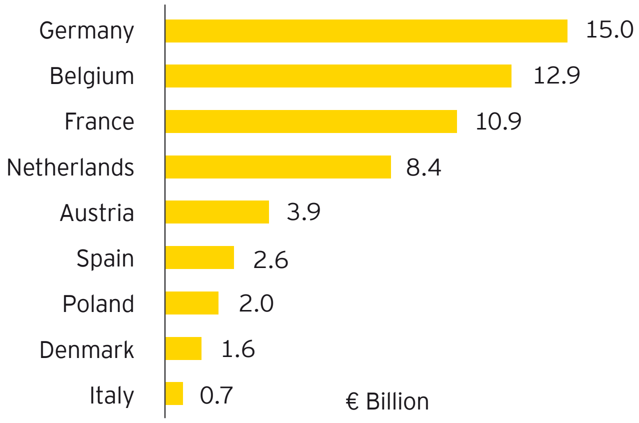
[10] HMRC 2016, https://www.gov.uk/government/publications/food-statistics-pocketbook-2017/food-statistics-in-your-pocket-2017-global-and-uk-supply

The majority of EU-UK trade facilitated by the Channel Tunnel is with the UK's near neighbours, such as France or Belgium, or countries which are linked to key trade routes from the Channel Tunnel, such as Spain or Germany[11]

Overall, Belgium, France and Germany combined make up 54% of all trade through the Channel Tunnel.[12] However, the Channel Tunnel's outreach spans across Europe and our analysis has determined how it provides a trade route for countries in Northern and Eastern Europe including Denmark, Poland, and the Czech Republic.

Figure 2: The value of EU exports to the UK via the Channel Tunnel in 2016, by country

Source: EY & Ipsos Mori Survey, EY Calculations



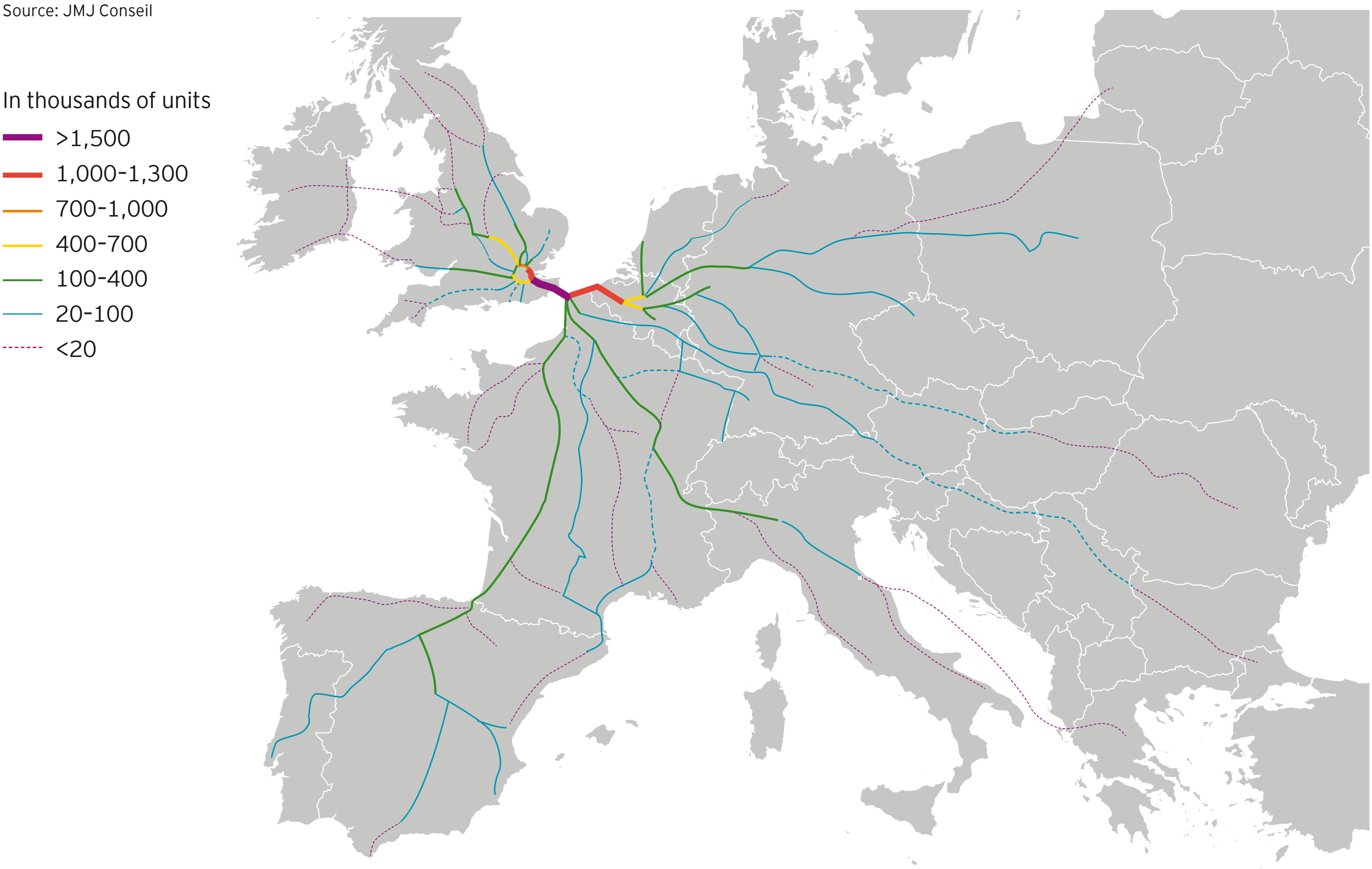
In addition to trading relationships, the Channel Tunnel serves as a convenient and rapid route for UK tourists to visit mainland Europe, as well as EU residents wishing to visit the UK. In 2017, around 21 million passengers travelled through the Channel Tunnel, amounting to around 57,000 every day. Of this, 10.3 million travelled on the Eurostar to cross the Channel.[13]

Just-in-time (JIT) inventory management is the process of ordering and receiving inventory for production and customer sales only as and when it is needed and not before. This means that the company does not hold safety stock and operates with low inventory levels, lowering business costs through increased efficiency and decreased waste. Just in Sequence (JIS) originated as an advancement of this concept, whereby the supplier also ensures that the sequence of the necessary modules is correct.

[11] Spanish trade with the UK using the Channel Tunnel generally travels centrally through Pamplona and Bordeaux, and through western France. Most German trade travels through Belgium and the Netherlands on route to its destination
[12] EY & Ipsos Mori Survey, EY Calculations, total value of trade in both directions
[13] The Channel Tunnel Group

Figure 3: Main road transport routes using the Channel Tunnel

Source: JMJ Conseil



The Channel Tunnel supports trade routes both across Europe (East-West), as well as North-South

Road traffic routes used on the European Mainland side:

52% of Channel Tunnel traffic uses the E40 via Ghent

20% uses the A26

10% the A25, Dunkirk-Lille

11% the A16 beyond Boulogne

Road traffic routes used on the UK side:

54% of traffic travels on the M25 via the Dartford tunnel/bridge

15% of northbound traffic uses the M25 via Heathrow

35% of vehicles that travel via the Tunnel use the M1

France

The Channel Tunnel supports the unique trading and cultural relationship between the UK and France

France and the UK enjoy a strong trading relationship. In 2016, trade between France and the UK was €67.4bn; this is made up of €40.8bn of exports from France to the UK, while UK exports to France were €26.6bn. The Channel Tunnel – the UK's only fixed link with mainland Europe – carries a significant proportion of this trade; 27% of French exports to the UK (by value), and 42% of French imports from the UK. In value terms, the directional flow of goods between the UK and France are similar (see Table 1), suggesting that trade through the Channel Tunnel is mutually beneficial for both countries.

In total the Channel Tunnel facilitated €22.0bn of direct trade between France and the UK in 2016. This is composed of trade in a variety of sectors, with the highest value of trade coming from transport equipment, chemical products and electrical equipment. The postal and courier sector is also an important sector for France. In 2016 France was the largest European importer and exporter through the Channel Tunnel for this sector, transporting €5.8bn and €4.0bn respectively. The Channel Tunnel also supports other smaller, but equally important sectors which contribute to a diverse French economy, such as transport equipment (€1.2bn exports), electrical equipment (€1.0bn exports), and pharmaceuticals (€0.6bn exports).

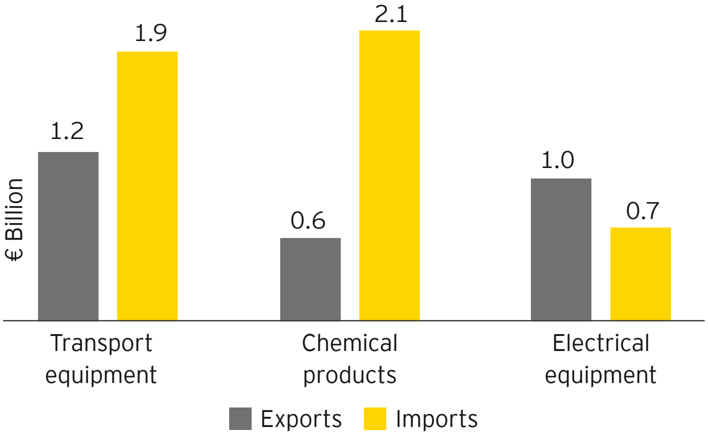
Table 1: French trade with the UK through the Channel Tunnel

Source: EY & Ipsos Mori Survey, EY Calculations

	France-UK trade through the Channel Tunnel (2016) Value €bn (2016 prices)	France-UK trade through the Channel Tunnel as a % of total France-UK trade Value (2016 prices)
French exports to UK	**10.9**	**26.7%**
UK exports to France	**11.1**	**41.6%**

Figure 4: French trade with the UK going through the Channel Tunnel[14]

Source: EY & Ipsos Mori Survey, EY Calculations



UK residents are the largest international contributors to the French tourism industry

France receives more international visitors than any other country worldwide, and the tourism sector plays a key role in supporting the French economy.[15] In 2016 France received over 82 million visitors. French Government analysis shows that more people from the UK visit France than from any other country, with 12 million visitors accounting for 15.4% of all non-domestic tourists to France.[16]

According to the 2016 International Passenger Survey, 65% of UK visits to France were for holidays, with one in five UK adults having visited France on holiday in the last five years.[17] Business travel accounted for about 900,000 visits (11%), making it the most popular destination for UK business travellers in Europe.[18]

[14] Postal and Courier freight has been excluded when looking at the product split by country as the contents are mostly unknown. It is analysed as a sector separately in a later section.
[15] https://www.entreprises.gouv.fr/files/files/directions_services/etudes-et-statistiques/4p-DGE/2017-06-4p-N71-EVE-ENGLISH.pdf
[16] https://www.entreprises.gouv.fr/files/files/directions_services/etudes-et-statistiques/4p-DGE/2017-06-4p-N71-EVE-ENGLISH.pdf. Note: ONS figures IPS 2016
[17] This is followed by visiting relatives and friends (18%).
[18] ONS IPS 2016

It is estimated that the tourism market in France currently accounts for around 8% of GDP and supports two million jobs (8% of total employment).[19] British tourists holidaying in France spend on average around €600 each visit, equating to more than €75 per night and €2.7bn in total during 2016.[20] Leisure visits generate further economic activity through the tourism and hospitality sector supply chains. For example the initial direct spend in restaurants and at cultural attractions induce greater spend by businesses with their own suppliers across a number of sectors including the retail and produce sectors, as well as transport and even the construction sector. This spend also facilitates employment in these industries, and the associated economic activity generated by these employees.

The Channel Tunnel assists in the rapid transport of people between France and the UK for both leisure and business, and therefore plays a key role supporting the French tourism and hospitality sectors.[21] Over a third of UK visitors to France travel via the Channel Tunnel,[22] which allows passengers to travel from Folkestone to Calais in just 35 minutes. The total direct spend by UK tourists in France travelling via the Channel Tunnel in 2016 was €1.5bn. This is equivalent in value to total exports of French transport equipment transported to the UK through the Channel Tunnel.

The Channel Tunnel supports exports to the UK from the expanding French brewing industry

In 2016 the brewing industry in France supported employment of 61,000, generating €3.9bn of GVA.[23] Exports from the sector totalled €291m, out of €4.7bn in total food and drink exports to the rest of the EU in this year. The industry is growing rapidly as part of the craft beer movement, with 94% of the world's breweries now producing craft beer.[24] There are currently 950 active breweries in France, more than double five years ago.[25]

The UK is a key export destination for beer produced in France, and received 15% of French beer exports in 2016 (€42m).[26] The UK's taste for speciality beers has grown alongside increased production in France. The Channel Tunnel provides opportunity for fast delivery to meet the stock requirements of UK retailers and the hospitality sector.

Trade through the Channel Tunnel **UK to France in 2016**
€11.1bn

Trade through the Channel Tunnel **France to UK in 2016**
€10.9bn

Total rail freight trains between **France and UK**
794

12m
UK tourists to France in 2016

Over
1/3
of UK visitors to France used the Channel Tunnel

UK tourists spending
€600
per trip

[19] https://www.ft.com/content/c968924e-7dc7-11e7-ab0. 1-a13271d1ee9c

[20] ONS IPS 2016, Total spend by holidaying tourists (€2.7bn) divided by the number of visits (5.57m) or number of nights (44.3m), total spend by all UK visitors was €4.5bn.

[21] EY analysis focuses on trade of goods via the Channel Tunnel and therefore does not capture the benefits derived from the services sector as a result of the flow of people who travel for business

[22] ONS IPS 2016, 2.8m visits by the Eurostar through the Channel Tunnel of 8.5m total visits

France exported **€1.7bn** of drinks (alcoholic and soft drinks) to the UK in 2016

Over half a million FTE workers in employment for the food and beverages production industry, generating **€35bn** of GVA

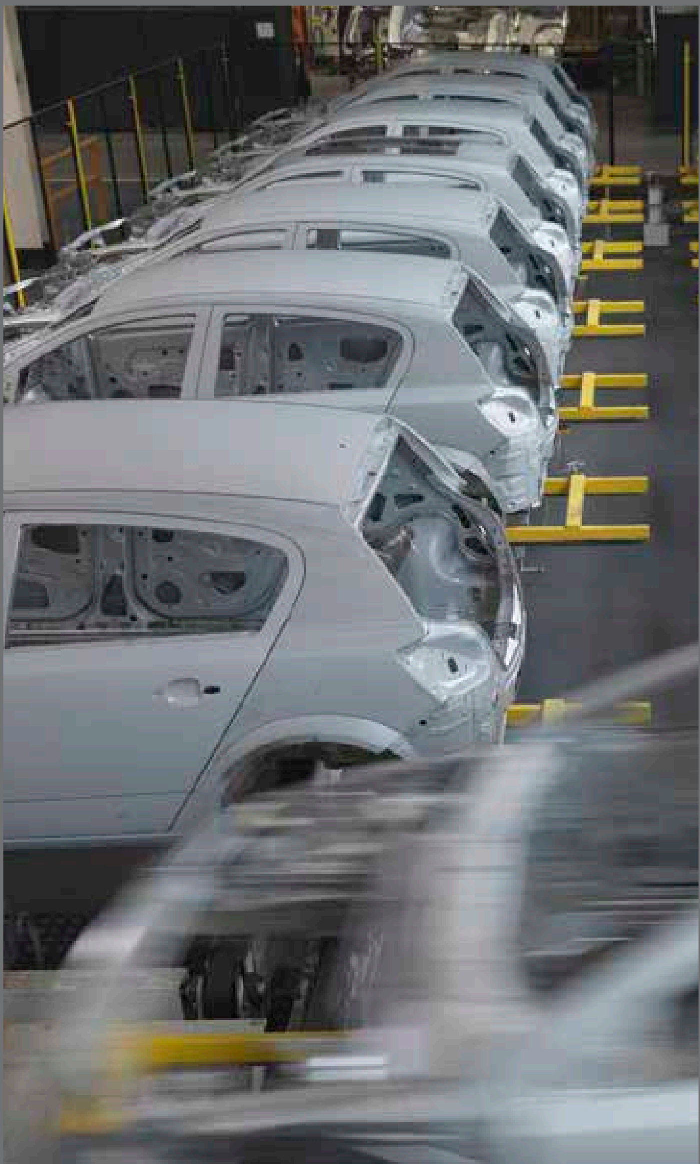
Over 600,000 FTE workers employed in food and beverage services industries, generating **€28bn** of GVA

The beer industry employed more than 61,000 people and generated GVA of **€3.9bn**

[23] https://www.brewersofeurope.org/site/countries/figures.php?doc_id=668
[24] Zenith Global 2017 (total number of breweries: 19,000)
[25] http://www.brewersofeurope.org/uploads/mycms-files/images/2016/publications/economic-report-countries/france.pdf
[26] UN Comtrade 2016, UK is preceded by Spain (31%), but accounts for more than Belgium (11%) and China (8%)

Germany

Germany exports €15.0 billion of goods to the UK through the Channel Tunnel, of which €2.1 billion are automotive related



The UK is the third largest market for German exports, accounting for €92.8bn in 2016.[27] Germany is also an important market for the UK, importing €46.7bn of goods in return, resulting in total trade of €139bn.

The Channel Tunnel is an important conduit for this trade, transporting 16% of Germany's exports to the UK (€15.0bn), and 34% of the UK's exports to Germany (€15.8bn).

Table 2: Germany trade with the UK through the Channel Tunnel

Source: EY & Ipsos Mori Survey, EY Calculations

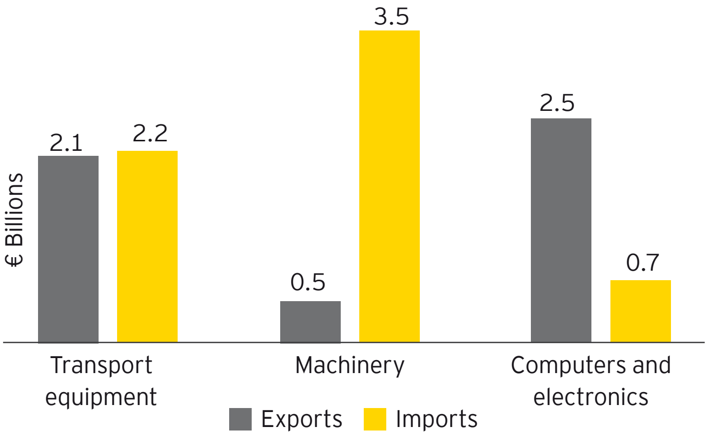
	German-UK trade through the Channel Tunnel Value €bn (2016 prices)	German-UK trade through the Channel Tunnel as a % of total German-UK trade Value (2016 prices)
German exports to UK	15.0	16.2%
UK exports to German	15.8	33.7%

Figure 5 presents the key sectors driving the composition of this trade: Transport equipment, machinery and computers and electronics (collectively accounting for €5.2bn of exports from Germany, and €6.4bn of imports).

[27] Germany is the world's largest exporter of goods, with total exports reaching €1.2tn in 2016. Of this €699bn was exported to EU Member States (Eurostat 2016)

Figure 5: German trade with the UK going through the Channel Tunnel

Source: EY & Ipsos Mori Survey, EY Calculations



Germany's economy is supported by exports from its automotive sector to the UK

Germany boasts the largest automotive sector in Europe and is the fourth-largest automotive manufacturer globally.[28] Transport equipment accounted for 36% of total exports from Germany to the UK and 16% of imports in 2016. One in three cars sold in the UK originated from Germany.[29]

The UK received 7.1% (€33.0bn) of German transport equipment that was exported worldwide in 2016, and is Germany's second largest European sales market for these products.[30] The Channel Tunnel transported €2.1bn of these exports (6% of the total), and transported German imports worth €2.2bn from the UK.[31] In addition, Germany exported €2.5bn of computers and electronics to the UK via the Channel Tunnel (the largest sector by value), and this will have included a significant amount of technological products used in automotive production.[32]

The Channel Tunnel carries €4.3bn of value in automotive parts between the UK and Germany

The Channel Tunnel plays a critical role in supporting the automotive trading relationship between the UK and Germany. Most notably it facilitates the rapid transport of components necessary for the just-in-time and just-in-sequence production process employed by the industry.

In 2016, €2.1bn of automotive goods were transported through the Channel Tunnel from Germany to the UK.[33] According to customers, the key reasons for the importance of the Channel Tunnel as a trade route include its speed, the reliability of service and the security it provides:

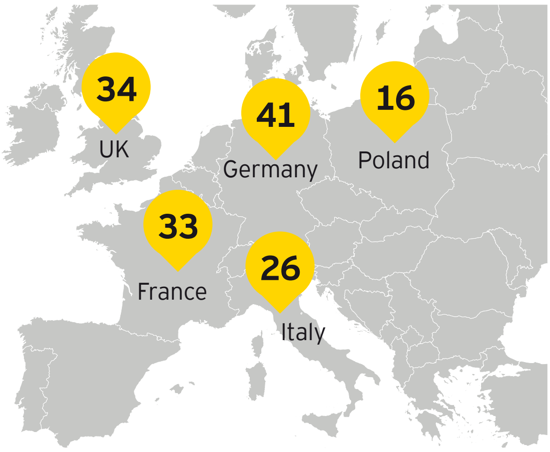
- **Speed** is of the essence to the automotive production line; one single production line can process multiple parts for multiple different models, meaning that a delay in the arrival to the production line of one car part has the potential to disrupt the production of numerous car models. The predictable and regular 35-minute tunnel journey,[34] enables suppliers to deliver car parts across the border within the strict time frames required by this production process.
- The frequency and **reliability** offered by the Channel Tunnel enables haulage companies to meet the demanding journey-time targets imposed by their customers, and therefore allows for an efficient and seamless production and supply-chain process.
- The Channel Tunnel further presents a more **secure** method of travel for goods compared to alternatives such as the ferry, since it is less affected by adverse weather conditions and migrant problems.

[28] By units produced, with 6.1m, behind China (28.1m), USA (12.2m) and Japan (9.2m)
[29] 2015 https://www.vda.de/en/services/facts-and-figures/annual-figures/exports.html
[30] France is the largest (14%), other large partners are Netherlands (11%), Italy (9%), and Austria (8%) (Eurostat 2016)
[31] EY & Ipsos Mori Survey, EY Calculations
[32] Postal and Courier freight exported from Germany to the UK (€4.2bn by value) is also likely to include a significant amount of automotive components. This would include replacement parts for the retail trade, and small components for the production process.
[33] EY & Ipsos Mori Survey, EY Calculations
[34] This becomes a 90 minute journey including wait time, loading and unloading

The Channel Tunnel is at the core of the interdependent automotive trade relationship between Germany and the UK

Figure 6: European automobile assembly and production plants

Source: ACEA 2016



Germany is home to nearly a fifth of all European automobile assembly and engine production plants, by far the largest proportion within a single country (41). The UK is home to the second highest number (34). Many of these plants form part of an interconnected and interdependent supply-chain network across Europe and the world.

The UK's role in Germany's automotive market is essentially two-fold, acting not only as a sales market, but also as a facilitator of Germany's global exports. This is a result of hosting multiple elements of the production line and having roles along the supply chain.

Case study: Duvenbeck

Duvenbeck is a logistics company largely focused on transport for the automotive, beverage and plastics industries. A substantial part of its loads are transported to and from the UK, of which more than 90% goes through the Channel Tunnel.

The automotive sector accounts for 70% of its customer base by transporting production material such as press and engine parts, and it serves customers such as BMW and Honda. Duvenbeck therefore understands first-hand the importance of the time-sensitive nature and strict timeframes faced by the automotive sector. Depending on the just-in-time just-in-sequence requirement, Duvenbeck is required to adhere to transit times of between 36 and 48 hours, with demanding customer targets, where at least 96% of loads must reach agreed delivery timeframes.

The transport options for reaching the UK are re-evaluated each year and Duvenbeck has concluded that the Channel Tunnel provides the option by which they can achieve the highest average speed. This allows for time and price-sensitive products such as car parts to reach production lines across the border in time, mitigating the risks to manufacturing operations in the sector. The Channel Tunnel allows Duvenbeck to **"operate double manned vehicles, offer high quality in terms of reliability on lead times, and shorten up the lead times to the Midlands from Munich and Stuttgart and vice versa to within a 24 hour timeframe."** (George Jaburg, Manager Intermodal, Duvenbeck)

Trade through the Channel Tunnel **UK to Germany in 2016**	Trade through the Channel Tunnel **Germany to UK in 2016**	Total rail freight trains between Germany and UK	# passengers travelling between **UK and Germany in 2016** via the Channel Tunnel
€15.8bn	**€15.0bn**	**541**	**241,000**

Germany automotive exports **€2.1bn** to UK through the Channel Tunnel

UK automotive exports **€2.2bn** to Germany through the Channel Tunnel

5,746,808 cars produced in Germany (~14%, or 810,000 exported to the UK)

Automotive R&D expenditure **€21.7bn**

Total German automotive jobs: 818,000, of which UK exports account for **115,000** (assumed same 14%)

The German automotive manufacturing sector generated value of **€107bn** in 2016, representing 22% of total manufacturing GVA in Germany, and making it the country's largest industry sector.

Spain

The Channel Tunnel supported 21% of all Spanish trade with the UK in 2016, and played a key role in Spain's fresh produce exports

Total trade between the UK and Spain in 2016 was €37bn. This consisted of €22bn of exports and €15bn of imports. Transport equipment was the largest sector by value accounting for 27% of total trade. Fresh produce was smaller, accounting for 8% of total trade, but was still important and significant in relative terms to particular regions across the country.[35]

The Channel Tunnel facilitated €7.8bn of trade between the UK and Spain – around 21% of total trade between the two countries in 2016. Sectors supported by trade via the Channel Tunnel include high value goods such as transport equipment and computers and electronics, as well as lower value but time-sensitive goods such as fish and crustaceans, fruit and vegetables, and other fresh produce.

Table 3: Trade between the UK and Spain through the Channel Tunnel

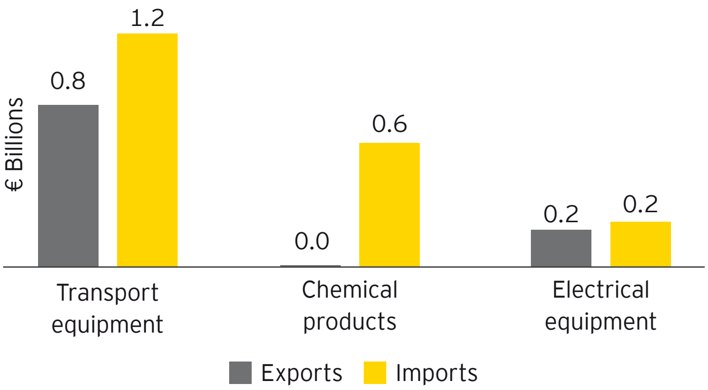
Source: EY & Ipsos Mori Survey, EY Calculations

	Spain-UK trade through the Channel Tunnel (2016) Value €bn (2016 prices)	Spain-UK trade through the Channel Tunnel as a % of total Spain-UK trade (2016) Value (2016 prices)
Spain exports to UK	2.6	11.8%
UK exports to Spain	5.2	34.4%

[35] Eurostat 2016

Figure 7: Spanish trade with the UK going through the Channel Tunnel

Source: EY & Ipsos Mori Survey, EY Calculations



Spain is the EU's largest exporter of fresh produce,[36] accounting for 24% of all EU exports in this sector

In 2016, Spain exported €15.5bn of fresh produce to European countries, of which €2bn was exported to the UK. This makes the UK Spain's third largest export market for fresh produce (13%), behind Germany (24%) and France (19%). For the UK, Spain is one of their most important providers in this sector, with almost half (46%) of its citrus fruit imports being sourced from Spain.[37]

The Channel Tunnel plays a particularly important role in the export of fresh produce from Spain to the UK

Due to the perishability and time-sensitive nature of fresh produce, time is of particular importance when considering long distance transport options. As a result, the sector is heavily reliant on the Channel Tunnel to transport its produce to the UK.

In 2016, the Channel Tunnel transported €193m of fresh produce from Spain to the UK. The wider food and drink sector, which includes fresh produce, meat, and drinks makes up 20% of total Spanish exports through the Channel Tunnel. Other products such as rubber and plastics are also transported from Spain to the UK via the Tunnel but in smaller quantities.[38]

The Channel Tunnel's provision of a fast and efficient transport route to market not only supports the time-sensitive nature of transporting fresh produce, but further supports the seasonal aspect of demand in this sector. For example the peak season for citrus fruit is November to April, and during this period most of Spain's traffic comes to the UK on road trailer services via the Dover Corridor.[39] As such, any disruption to the supply chains, in particular the transport between Spain and the UK, would lead to material economic effects to both Spain and the UK. This is especially the case for disruption related to weather, which the Channel Tunnel is less sensitive to.

Production of fresh produce is largely concentrated in the East of Spain, meaning that access to the UK via the Channel Tunnel proves faster and more efficient than ferry routes from the West coast

Spain's fresh produce industry accounted for 34% of total EU output of fruit and 16% of vegetables in 2016.[40] Pack houses[41] and employment in agriculture are heavily concentrated in the South East of Spain, with 85% of Spanish fruit and vegetable exports coming from Valencia, Murcia, and Andalucía.[42]

Processing and packing occurs along the East coast on the fresh produce's way to be transported to the rest of Europe. Given the location of the pack houses, exporting from ports in the North West of the country is less attractive for many producers due to the extra road travel required to get there, as well as the possibility of delays due to adverse weather when arriving at the ports.

[36] For the purpose of this report fresh produce includes fish and crustaceans, fruit and vegetables
[37] DEFRA report, annex 8
[38] Both in value and volume
[39] The Dover Corridor includes the Channel Tunnel Fixed Link (both rail and shuttle), and the Short Straits route from the port of Dover
[40] Eurostat 2016
[41] Pack houses are the processing stage fresh produce go through before being ready for sale. In the pack houses produce is sorted for size, packaged and made ready for transport
[42] FEPEX 2016

Figure 8: Regional fruit and vegetable exports by value

Source: FEPEX 2016, EY Analysis

- Pack houses are concentrated in **Murcia** (although distributed between Valencia and Almeria)
- Road vehicles (13.6m refrigerated trailers) are routed across **France via Bordeaux and Paris**
- Typical payload is **22.5 tonnes** (split over 26 pallet spaces)
- Vehicles enter the UK as accompanied **RoRo traffic via Dover Corridor**
- UK pack houses are clustered in the **South East** (particularly Kent)
- Peak delivery day is **Thursday**, ready for retailer peak trading
- Transit cycle times are **short and tightly** controlled
- Door-to-door transit time is **3 days/2 days** with two drivers at peak times (e.g. Christmas)

Trade through the Channel Tunnel **UK to Spain in 2016**	Trade through the Channel Tunnel **Spain to UK in 2016**	Total rail freight trains between **Spain and UK**	# passengers travelling between **UK and Spain in 2016** via the Channel Tunnel
€5.2bn	**€2.6bn**	**309**	**80,000**

Case study: Breogan Transportes

Breogan Transportes provides logistical and transport services between Spain and the UK.

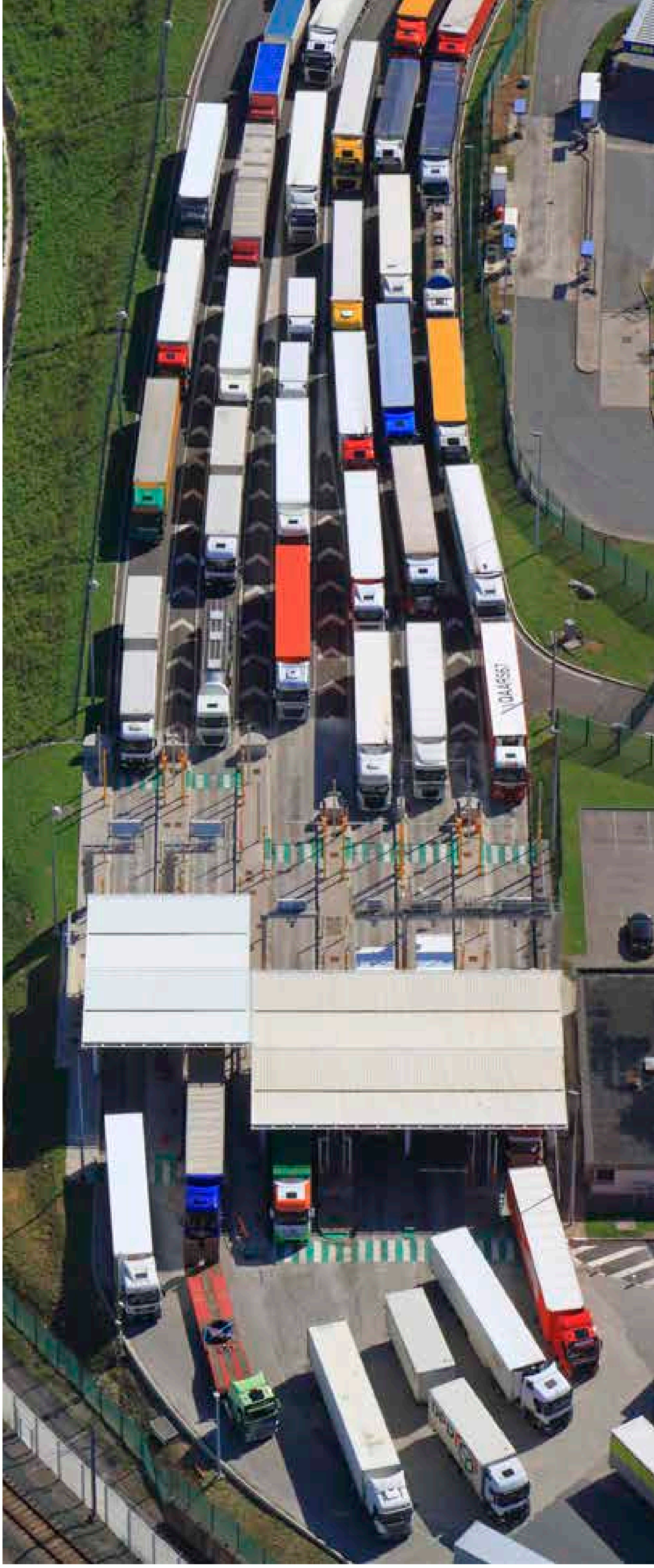
A flexible service is crucial to Breogan Transporte's business and operating model. The regular service schedule offered by the Channel Tunnel allows for efficient planning, for both the transportation of goods and for adhering to operational regulations, such as the legal driving requirement for drivers. The frequency and reliability of the Channel Tunnel is of particular importance given the time sensitive nature of the logistics business model – one which is bound by strict time frames and targets imposed by customers.

As with many logistics companies, Breogan Transportes anticipates future challenges with regards to customs processes and their effect on the fast and flexible service provided by the Channel Tunnel.

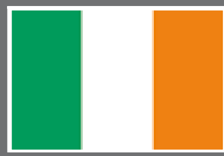
Spain produced **€17.7bn** of fresh fruit and vegetables in 2016

This accounts for **25%** of EU fruit and vegetable production

The Channel Tunnel supports **€193m** of fresh produce exports from Spain to the UK



Ireland



The Channel Tunnel has provided a crucial land bridge for Irish exports to access Mainland Europe via the UK

In 2016 Ireland's global exports were worth €119bn, equivalent to 47% of GDP and an increase of 6.1% on the prior year.[43] Just over 50% of Ireland's exports in 2016 went to other European countries (€60bn), with Belgium and the UK collectively accounting for just under half of Ireland's European exports (€29.6bn).[44] Key exports include medicines and pharmaceutical products, organic chemicals, and essential oils and perfume materials.[45]

Ireland sourced 59% of its imports from the EU in 2016 (worth €43.9bn). Of this, the majority were sourced from the UK (38%) and France (23%).[46] Ireland's main imports comprise transport equipment (22%) and pharmaceutical related products (8%).[47]

Table 4: Irish trade in goods with EU countries, 2016
Source: CSO

Exported goods by value	Value €bn
Medicinal and pharmaceutical products	30.2
Organic chemicals	23.6
Essential oils, perfume materials, toilet preparations etc.	7.9
Electrical machinery, appliances etc.	7.3
Miscellaneous manufactured articles	6.7
Imported goods by value	**Value €bn**
Other transport equipment	16.5
Medicinal and pharmaceutical products	6.2
Organic chemicals	4.3
Road vehicles	3.8
Office machines and automatic data processing equipment	3.4

[43] CSO 2016, http://www.cso.ie/en/releasesandpublications/er/nie/niear2016/
[44] This comprises €15.0bn to the UK and €14.6bn to Belgium
[45] CSO 2016
[46] http://www.cso.ie/en/releasesandpublications/er/gei/goodsexportsandimportsdecember2017/
[47] Other transport equipment refers to equipment such as ships and boats manufacturing, railroad rolling stock and locomotives, air and spacecraft parts

Figure 9: Value of trade with top 5 Irish EU trading partners

Source: CSO

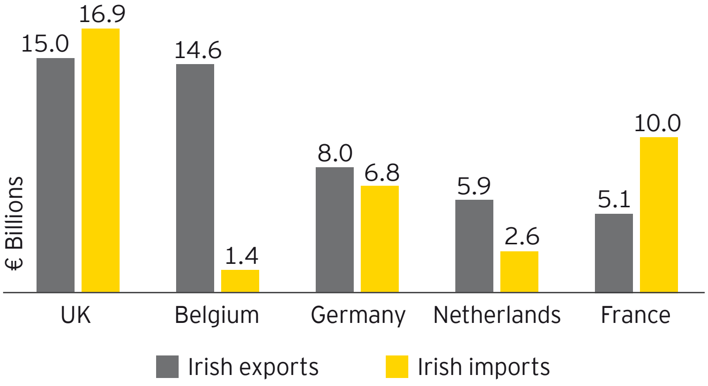
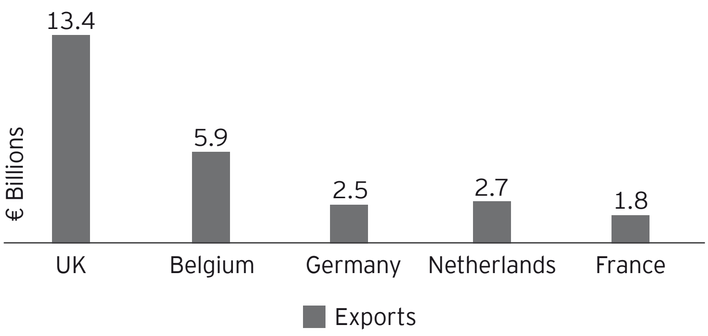


Figure 10: Top European destinations for Irish pharmachem exports

Source: CSO



The Channel Tunnel facilitates Irish trade with mainland Europe

The UK is a key trading partner for Ireland, but also an important transit route for Irish businesses to access markets in mainland Europe. An estimated 53% of Irish export volumes[48] travel to the rest of the EU via the UK.[49] In 2016, €15bn of goods were exported to the UK, and €45bn were destined to the rest of the EU.[50]

Ireland's exports are dominated by pharmachem,[51] accounting for 45% of total export value in 2016

The value of Ireland's exports are dominated by the pharmachem industry, which reflects its role as the seventh largest exporter of medicines globally.[52] Collectively, medicinal and pharmaceutical products and organic chemicals account for just under half of all Irish exports (together 45%). Almost half of all Irish pharmachem exports are transported to the EU, with €1.7bn of this estimated to travel through the Channel Tunnel.[53, 54]

[48] Figure excludes UK
[49] CSO 2016
[50] http://www.cso.ie/en/releasesandpublications/er/gei/goodsexportsandimportsdecember2017/
[51] For the purpose of this report, the Pharmachem industry is defined as pharmaceutical, medicinal products and organic chemicals
[52] https://www.export.gov/article?id=Ireland-Drugs-and-Pharmaceuticals
[53] CSO 2016
[54] Ireland exports €22.5bn of pharmachem to the EU (excluding the UK). Assuming 53% of their exports to the EU travel through the UK (€11.9bn). 14% of UK exports in pharmaceuticals to the EU travel through the Channel Tunnel. Applying this to trade from Ireland this gives €1.7bn of pharamchem exports travelling from Ireland through the UK and into the EU by the Channel Tunnel

Given the high value nature of the goods, Pharmachem companies value the high security offered by the Channel Tunnel. Customers note that the ability to transport refrigerated freight, the significantly lower embarking and disembarking times than alternative methods, and the protection from adverse weather conditions are all reasons for using the Channel Tunnel.

Irish food and drink exports combined[55] were worth €11.4bn in 2016, with a significant proportion travelling through the Channel Tunnel to reach mainland Europe

The food, beverage and tobacco sector plays an important role in the Irish economy. The sector has grown by 39% since 2010, and generated €11.4bn of global exports in 2016 of which €8.3bn went to the EU. This growth has been driven by global demand for Irish meat and dairy products, which accounted for €5.5bn of total exports in 2016.[56]

Irish food exporters often use the UK land-bridge via Channel Tunnel to access EU markets due to the perishable nature of the goods. Time to market is critical for fresh produce to maximise value; according to Channel Tunnel customers, fresh food can lose as much as 5% in value for every hour delay in the delivery time. As a result, Irish food exporters predominantly use the Channel Tunnel for its certainty, reliability and speed.[57]

Case study: Drumur Transport

Based in Wexford, Drumur Transport ships a number of products including perishable goods, such as fruit and vegetables, as well as high value pharmaceuticals. These loads, strict on security and timeframes, are transported well within their hundreds per week from ports in Ireland.

An example of the door-to-door journey time for transporting meat from Dublin to Italy via the Channel Tunnel is around 36 hours. This is a more attractive option for transporting time-sensitive goods, compared to a 46-hour journey using the ferry crossing to France.

The shorter journey time enables Drumur Transport to maximise efficiency of the end-to-end journey whilst meeting driving regulations. Drivers can drive no more than 15 hours including breaks (9 hours driving time). Delays loading and unloading, or postponed or cancelled ferry crossings can lead to drivers being forced to stay overnight in the UK or Europe and add substantial cost to the company.

[55] Including tobacco & feeding stuff for animals – SITC: 00,01,02,03,04,05,06,07,08,09,1, http://www.cso.ie/px/pxeirestat/Statire/SelectVarVal/Define.asp?maintable=TSM09&PLanguage=0
[56] http://www.cso.ie/px/pxeirestat/Statire/SelectVarVal/Define.asp?maintable=TSM09&PLanguage=0
[57] Customer interviews with Irish hauliers

Alternative options to the Channel Tunnel for Irish trade[58]

It estimated that there are one million roll-on roll-off movements every year between Dublin and Holyhead, with around 690,000 containers shipped.

[58] http://ftai.ie/export/sites/ireland/.content/downloads/FTAI_Brexit_position_paper.pdf

Postal and courier freight transported through the Channel Tunnel was worth €38.6bn in 2016

Trade in postal and courier freight through the Channel Tunnel was worth €38.6bn in 2016; the largest product category in terms of value and volume. It accounted for 25% of the value of all Channel Tunnel traffic in 2016

Companies offering express delivery services, whose priority is to transport goods as quickly as possible, use the Calais-Folkestone route through the Channel Tunnel almost exclusively for all of their trade between the EU and the UK.[59] In 2015 around 340,000 vehicles (20% of total trucks travelling through the Channel Tunnel) made the trip between mainland Europe and the UK to deliver express parcel freight to both business and consumers.[60] The majority of this trade is from the EU into the UK (€24.6bn), suggesting the UK has a higher demand for this service offering.

The composition of goods within postal and courier freight is difficult to define, however a significant proportion are high value, low volume goods

The nature of postal and courier freight means that the contents of individual consignments are not typically recorded in national statistics. Much of this trade is handled as groupage, with many companies transporting their often unrelated products together. However, discussions with the freight companies and the Channel Tunnel, suggests that these consignments range from consumer goods, manufacturing parts, to commercial documentation.

[59] JMJ Conseil
[60] JMJ Conseil, figures relate to the groupage-parcel-express delivery market, this includes dry groupage, online retail traffic and air cargo (road transport between airports)

Figure 11: The value of EU imports from the UK – postal and courier freight through the Channel Tunnel, 2016

Source: EY & Ipsos Mori Survey, EY Calculations

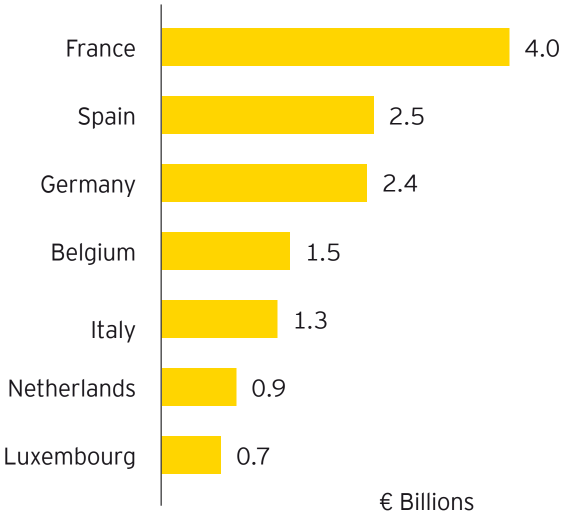
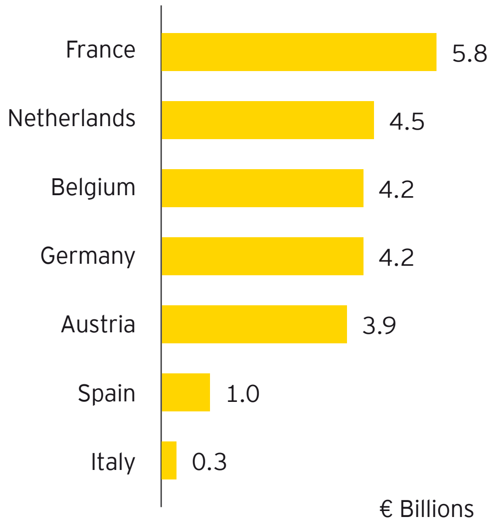


Figure 12: The value of EU postal and courier exports to the UK via the Channel Tunnel, 2016

Source: EY & Ipsos Mori Survey, EY Calculations



Belgium and the Netherlands account for more than a third of postal and courier exports to the UK

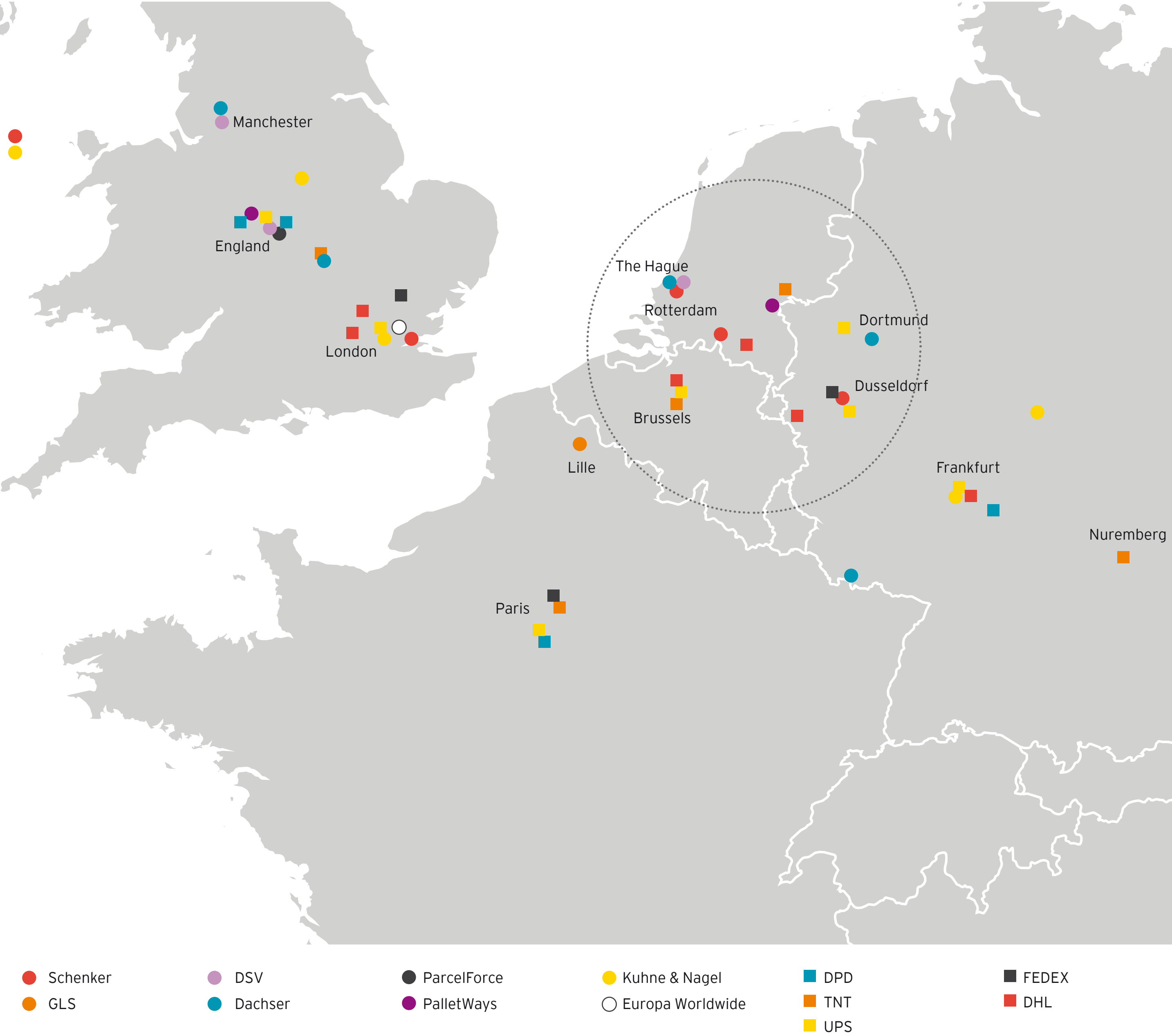
The countries that export the largest share of postal and courier freight in the EU, perhaps unsurprisingly given its express nature, are those closest geographically to the UK (see Figure 12). While France is the UK's largest trading partner in postal and courier freight, Belgium and the Netherlands account for more than a third of EU-UK traffic in this sector, with Ruhr in Germany accounting for a further 10%.[61] This is reflective of the importance of cities in northern Europe acting as hubs for express delivery. The individual products destined for the UK are sent to one of these hubs from elsewhere in Europe (and potentially from outside Europe) and grouped with similar items ready to be transported to Calais for loading onto a shuttle. The locations of the hubs operated by different distribution companies are shown in Figure 13, demonstrating the concentration of these northern European cities.

In addition to postal and courier exports, the Netherlands' flower export market is particularly reliant on the Channel Tunnel. The industry as a whole exports €5.6bn of flowers, plants and bulb, of which the UK is the second largest market. In 2016, exports of flowers, such as sales of Dutch tulips, roses and chrysanthemums to British supermarkets reached €0.9bn.[62]

[61] JMJ Conseil
[62] http://www.floraldaily.com/article/8958/Less-Dutch-flowers-to-UK-due-to-Brexit

Figure 13: Groupage hubs in the UK, France, and BeNeLux regions

Source: JMJ Conseil



The UK market for same-day and next-day delivery almost doubled in size between 2012 and 2016, from €4.4bn to €8.1bn

UK consumers increasingly demand and expect rapid delivery of consumer goods via online purchases, with the UK market for same-day and next-day delivery almost doubling in value: the value associated with transporting these goods into the UK increased from €4.4bn in 2012 to €8.1bn in 2016.[63] This trend, alongside the growing prevalence of just-in-time production processes has led to a substantial increase in the volume of goods being carried by express delivery. Express goods are increasingly being transported as part of mixed loads from central logistics hubs to smaller warehouses and to end-users. The expectations of consumers and businesses are unlikely to change in the near future. Therefore, in the face of any new or transitional customs processes at the border as a consequence of Brexit, business will come under increasing pressure to innovate and maintain short transit times.

The Channel Tunnel has been a key element to facilitating the growth of same-day and next-day delivery to homes and businesses

The Channel Tunnel allows haulage companies to optimise their drivers' routes and schedules, allowing for the scheduled breaks drivers must take after four and a half hours of driving.[64] The Channel Tunnel provides a rest period, allowing companies to adhere to legal requirements without compensating on journey times. This makes the transport faster, cheaper, and more frequent than alternative transport methods, especially as drivers coming from higher cost regions such as the BeNeLux, France and Germany are often paid on an hourly basis.

[63] Mintel 2017 – Courier and Express Delivery – UK. This report states that this was £3.0bn (€3.7bn) in 2009.
[64] EU drivers must rest at least 11 hours each day, with breaks totalling at least 45 minutes after no more than 4 hours 30 mins of driving www.gov.uk/drivers-hours/eu-rules

Country insights

The footprint of the Channel Tunnel stretches further across the EU, supporting key industries in a number of countries

Greece

Pharmaceuticals and food

The Channel Tunnel accounts for over **10%** of Greek exports to the UK, and 17% of its imports from the UK.

The pharmaceuticals sector accounts for around **14%** of the total value of trade through the Channel Tunnel (€292m) between the UK and Greece.

Despite the distance, the Channel Tunnel is seen as a price efficient way of safely transporting pharmaceutical goods across the Channel. This is partly due to there being no straightforward sea route to the UK other than around Italy and Spain, and also due to it being a significantly cheaper alternative to air freight.

Italy

Textiles and meat

The Channel Tunnel transports up to 10% of the trade from Italy[65] worth around **€3.6bn** in 2016.

Of this, **3%** is attributed to textiles and clothing. This sector is one of the largest exporters of goods from Italy to the UK, making up 13% of all Italy's exports to the UK.[66]

Approximately **31,000** tonnes of meat, and over 30,000 tonnes of other food products are exported from Italy to the UK via the Channel Tunnel each year. This is roughly half of total exports to the UK in this sector.

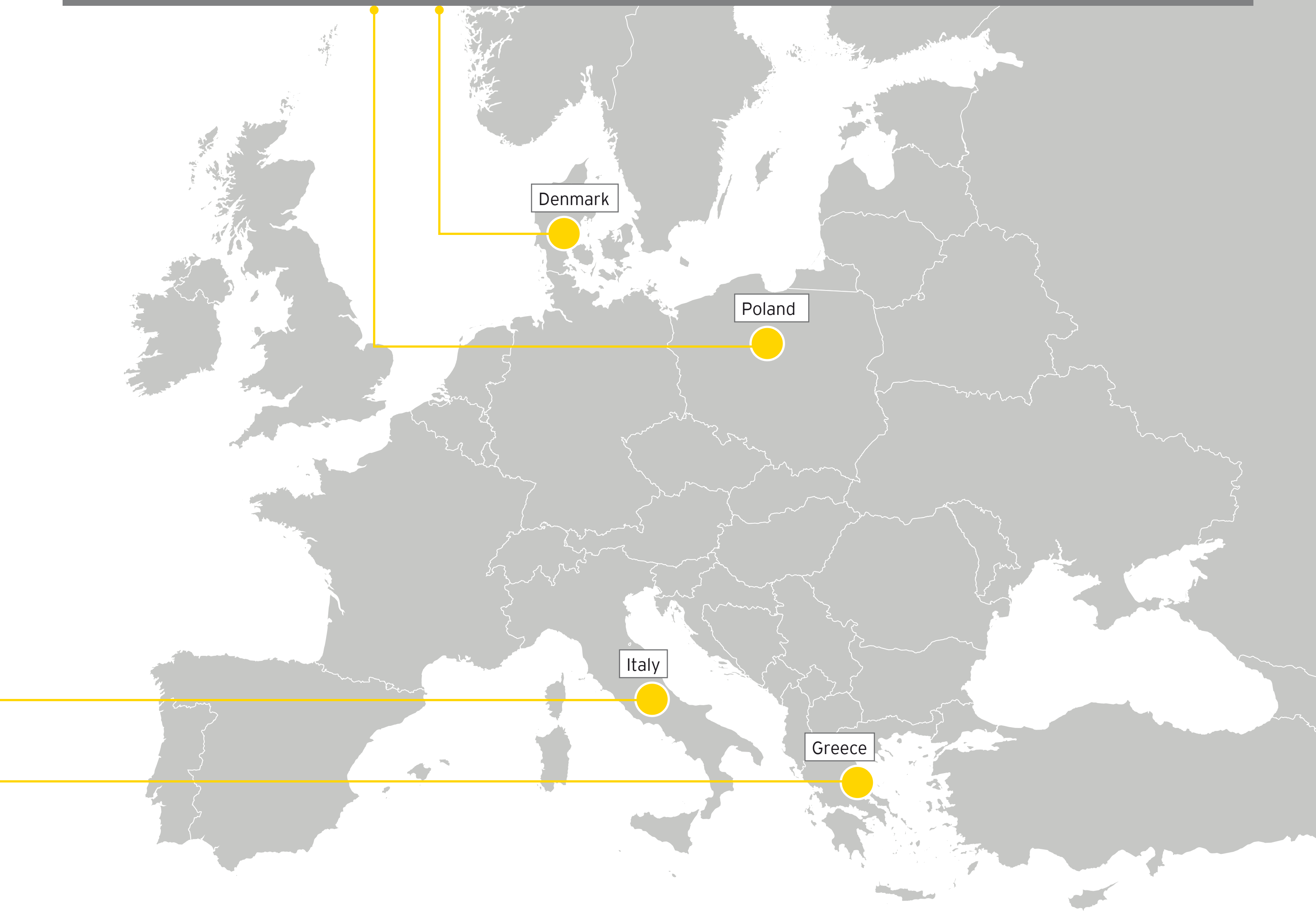
[65] EY & Ipsos Mori Survey, EY Calculations
[66] Eurostat 2016

Northern and Eastern Europe

Electronics

Denmark exports over **€180m** of computers and electronics to the UK via Channel Tunnel, accounting for 14% of their exports through the Channel Tunnel by value. The Channel Tunnel carries about a quarter of Danish exports to the UK by value.

Poland exports **€800m** of computers and electronics through the Channel Tunnel, over 17% of its total exports to the UK.



The Channel Tunnel will continue to play an integral role in the trade and cultural relationship between the UK and Mainland Europe, even within a post-brexit world

Since it commenced operations in 1994 the Channel Tunnel has become increasingly important to the continued economic success of countries on both sides of the Channel. The value of total EU-UK trade going through the Channel Tunnel has continued to increase, as supply chains around the continent become ever more interconnected and efficient.

The Channel Tunnel has faced a number of operational and economic challenges during its history, including the financial crisis and fire-related damages and operational restrictions in 2008/9, and more recently security concerns at the port in Calais, which had a significant adverse effect on rail services. However, despite these challenges the volumes of freight, passenger vehicles, and high speed trains have continued to grow, and the Channel Tunnel continues to invest in increased capacity and security.

The mix of goods transported through the Channel Tunnel continues to evolve; there has been a continued increase in the volumes of road freight as a response to the growing UK economy, while rail freight has taken longer to recover from the disruptions caused by the migration crisis in 2015.

This evolution stretches beyond the transport of goods, and includes the development and alignment of changing consumer lifestyles and customer behaviours over the past 25 years. The 'express" element to the operating model that the manufacturing industry relies on today also stretches across a number of sectors, such as postal and courier, fresh food, and pharmaceuticals. This is driven by consumer expectations for fast and reliable delivery. The Channel Tunnel plays a key role in enabling EU businesses to meet these expectations and fulfil consumer demands.

The possible imposition of customs controls on EU-UK trade post Brexit clearly has the potential to change the nature of the economic relationship between the UK and EU 27. Despite the impending Brexit negotiations and subsequent implications for the Folkestone-Calais border, there is promise for a continued competitive transport service provided by the Channel Tunnel. As our analysis shows, the Channel Tunnel is integral to the vitality of trade and tourism between the UK and mainland Europe, and will remain so post-Brexit.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Appendix

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