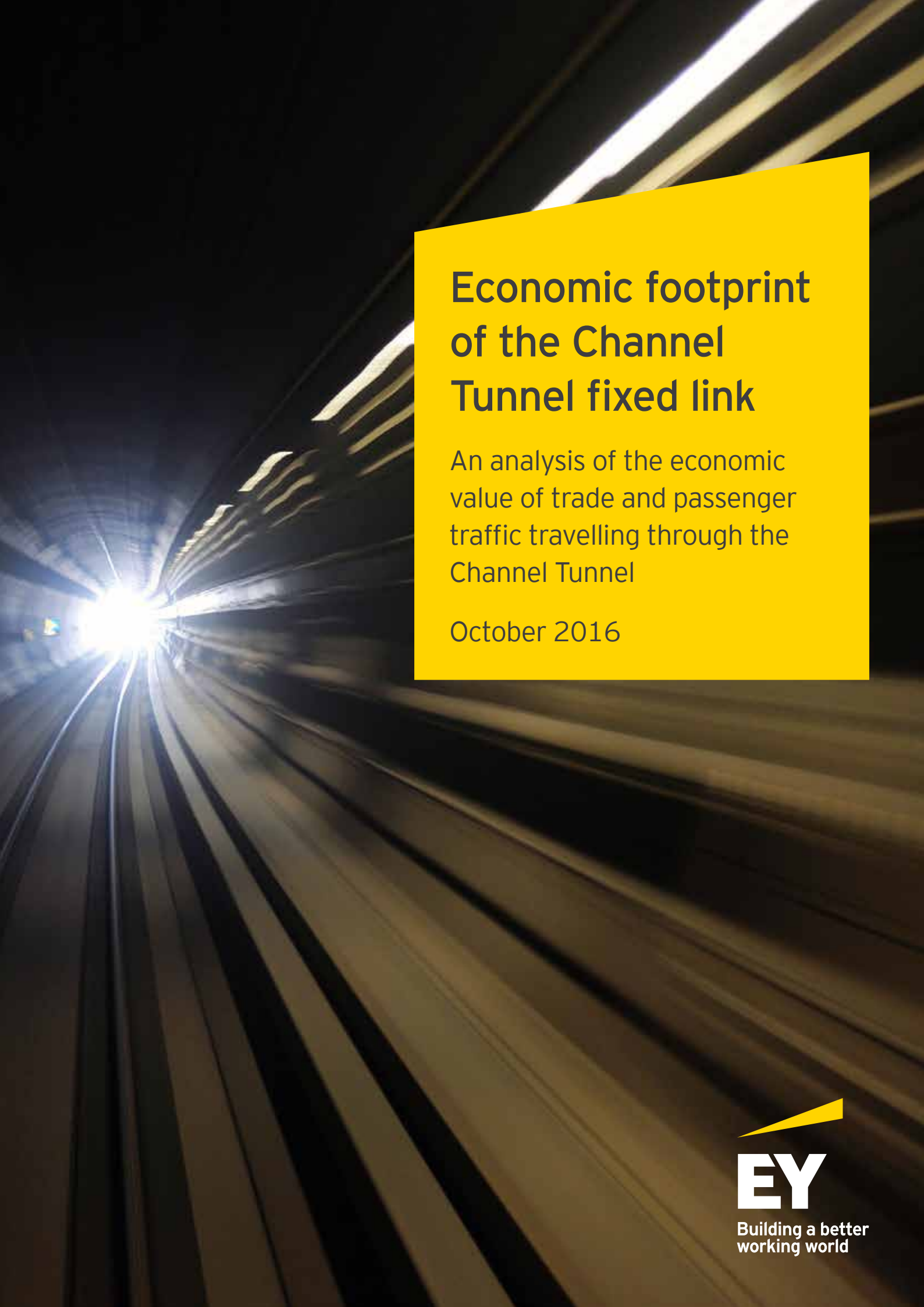
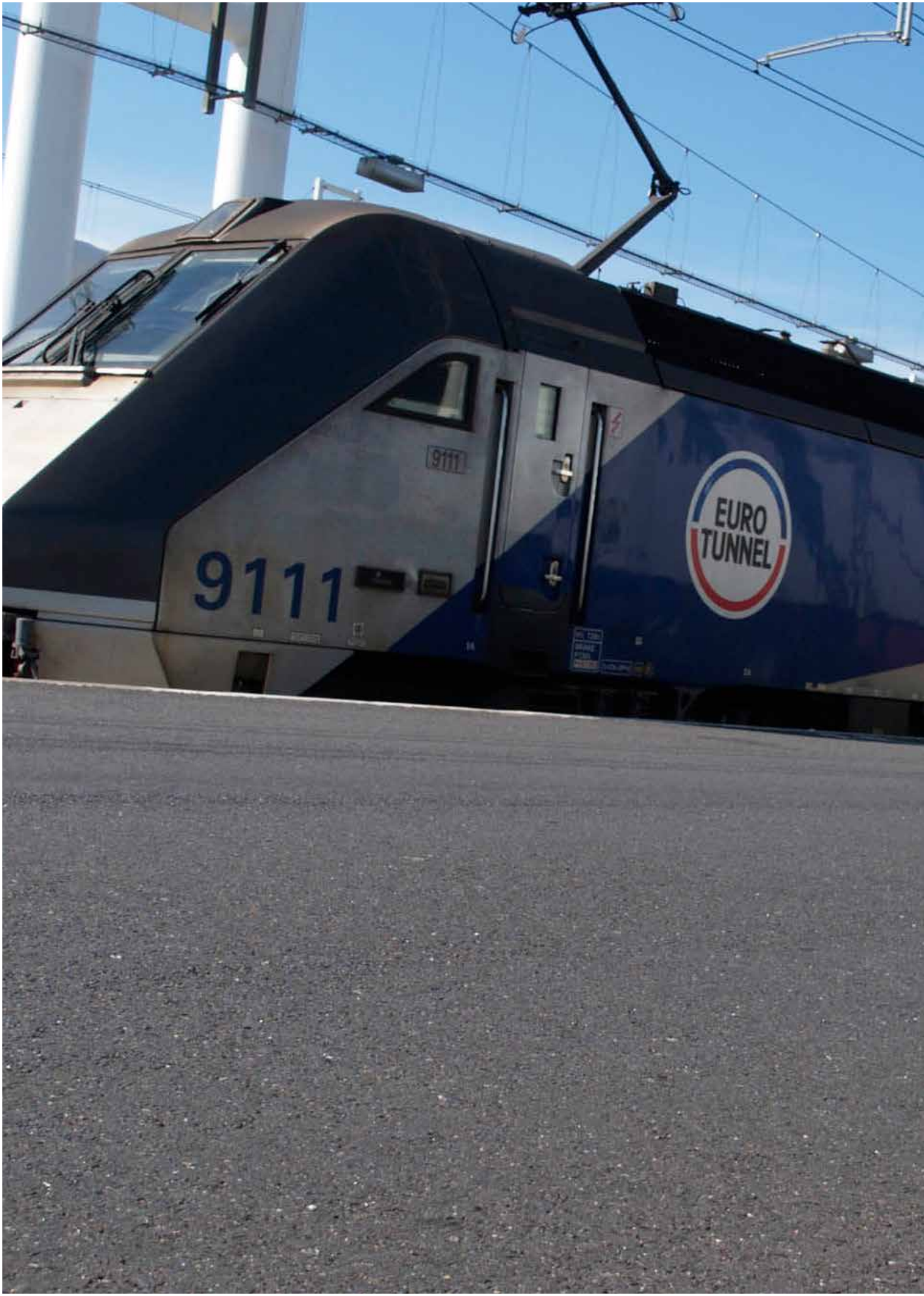


Economic footprint of the Channel Tunnel fixed link

An analysis of the economic value of trade and passenger traffic travelling through the Channel Tunnel

October 2016

EY
Building a better working world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The Channel Tunnel provides a fast, reliable and regular service that forms a key part of Europe's transport and logistics infrastructure

FOREWORD

MATT CORKERY
Lead Partner, Economic Advisory

The Channel Tunnel, since its opening 22 years ago, has established itself as a vital transportation link providing a regular, reliable and rapid connection between the UK and continental Europe.

The opening of the Tunnel has had far reaching economic consequences, enabling the development of new and varied business models. It has enabled the development of integrated cross-border supply chains in sectors such as manufacturing and retail, driving gains in productivity, and delivering clear and direct benefits to the UK economy. It has also helped to facilitate online purchasing, as express delivery companies ship goods to UK consumers via European hubs.

The Tunnel has revolutionised business travel, with Eurostar services providing a fast and reliable service to Paris, Brussels and beyond.

This has supported businesses in maintaining relationships with overseas customers whilst reducing travel time and cost. The opening of the first completed section of High Speed 1 in 2003, and its completion to St Pancras International in 2007, resulted in considerable reductions in journey times and, for a number of destinations, Eurostar is now faster than air travel.

1994

- **6th May 1994**
  Channel Tunnel is officially opened by Her Majesty Queen Elizabeth II and French President François Mitterrand
- **Summer 1994**
  First international freight train travels through the Channel Tunnel and truck shuttle services begin
- **14th November 1994**
  Start of passenger shuttle services

1997

- **17th July 1997**
  Opening to the public of Samphire Hoe, a natural reserve created by Channel Tunnel at the foot of Shakespeare cliff (between Folkestone and Dover) during the construction of the Tunnel

2000

- **28th February 2000**
  Start of the Pet Travel scheme for cats and dogs

2003

- **28th September 2003**
  Opening of the first section of the UK high speed rail link

2006

- **September 2006**
  Channel Tunnel carries out its first carbon footprint assessment, which highlights its commitment to the environment

2007

- **November 2007**
  Commercial opening of High Speed 1 and inauguration, by Her Majesty Queen Elizabeth II at St. Pancras International and start of cross-Channel Europorte rail freight services

Holidaymakers have benefited too: whether taking cars, caravans or coach tours on Le Shuttle Passenger services or taking city breaks using Eurostar, the Channel Tunnel supports a significant leisure and lifestyle economy. In return foreign tourists, coming to the UK via the Channel Tunnel, spend money in hotels, restaurants, sports venues and at heritage sites, supporting employment across the UK.

This report analyses and presents the diverse influence and economic footprint of the Channel Tunnel in the UK. The analysis focusses on 2014, but also considers how the importance of the Channel Tunnel will support future economic growth.

THE CHANNEL TUNNEL WILL CONTINUE TO PLAY AN IMPORTANT ROLE POST-BREXIT

The result of the UK's recent referendum on membership of the European Union (EU) has created uncertainty over the future of the UK's political relationship with it. In the short-term this uncertainty will impact on the outlook for the UK economy, with EY ITEM Club downgrading its expectations of GDP growth for the next two years.

However, the longer term outlook for the UK economy will be driven by the outcome of negotiations over the form of the UK's exit, driven by four key areas: trade; immigration; regulation and Government policy.

Whilst the specific implications of any future deal between the UK and the EU are currently unknown, we anticipate that the strong economic and trade relationship will persist. As a result, in any future state, the Channel Tunnel will continue to play an integral role in the UK's national infrastructure, acting as the most efficient and resilient connection between the UK and continental Europe.

2010

- **May 2010**
  Acquisition of GB Railfreight by Europorte

2011

- **May 2011**
  Establishment of a joint venture to build an electricity interconnection between UK and France using the Tunnel

2012

- **25th July 2012**
  Successful launch of mobile telephone and internet services on Channel Tunnel trains

2014

- **5th June 2014**
  To celebrate 20 years of operation Her Majesty Queen Elizabeth II unveils a plaque at St. Pancras international

2015

- **Summer 2015**
  Disruptions to the Channel Tunnel caused by industrial action and incursions by migrants in Calais

2016

- **Early 2016**
  Record traffic volumes set for the first quarter of 2016 with 410,729 trucks carried
- **23rd June 2016**
  UK referendum on membership of the EU, the UK votes to exit

EXECUTIVE SUMMARY

Imports
£47.8 billion
22% of total **UK** imports from **EU** countries

Trade
£91.4 billion
25% of UK **trade** with EU countries

Exports
£43.6 billion
30% of total **UK** exports to **EU** countries

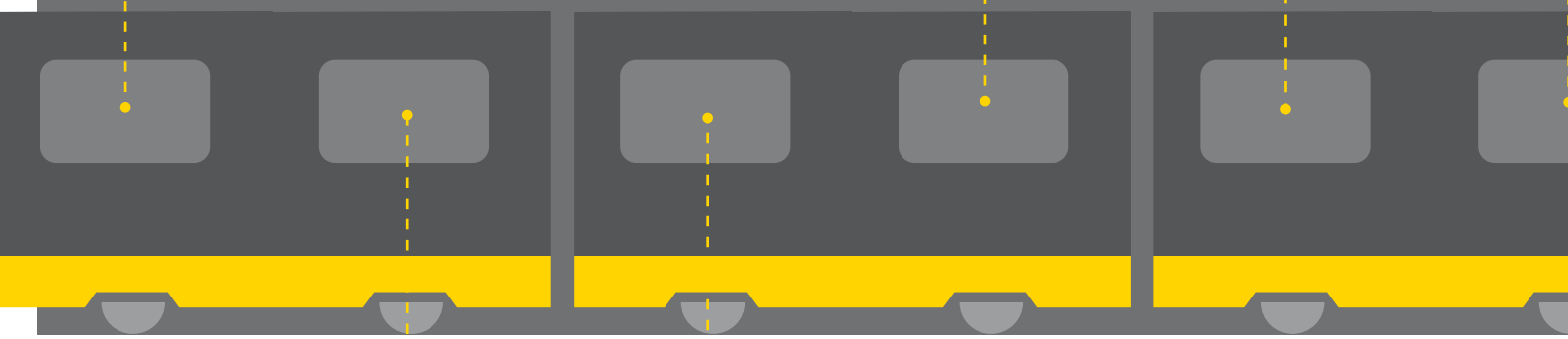
West Midlands
largest exporter
20%
of exports supporting local manufacturing and steel sectors

London
largest importer
30%
of imports mainly courier freight and food products

840,000 business trips
were taken using the Tunnel in 2014

45,000 UK jobs supported by overseas tourists using the Tunnel

£1.7bn
total value of inbound tourism spend by the Channel Tunnel



Exports supported **220,000 UK jobs** in 2014

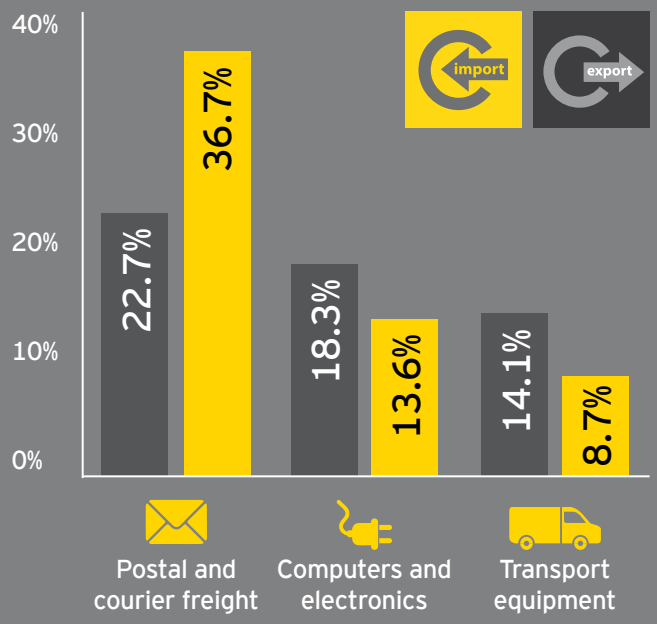
21 million
passengers used the Tunnel in 2014

Carbon emissions for rail freight are **99 times** lower than air and **8 times** lower than ferries

The Channel Tunnel is vital for transporting **high value time sensitive products**

90% of customers cite **'shorter tranport time'** as a key reason for using the Tunnel

Top 3 products



2,900 rail freight trains

1.4m trucks

2.6m cars and coaches

10.4m Eurostar passengers

Passed through the Channel Tunnel in 2014

INTRODUCTION

In order to quantifiably demonstrate the diverse impacts of the Channel Tunnel, EY was commissioned to undertake a study of the Tunnel's economic footprint in the UK.

The main focus of the report is on the Channel Tunnel's freight service (i.e. Le Shuttle Freight and rail freight) and the associated economic activity enabled by trade of goods through the Tunnel.

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

In order to capture the benefits the Channel Tunnel brings in a normal year, 2014 was used as a basis for the footprint, as this was the last year in which Tunnel operations were broadly unaffected by external disruptions. For consistency, figures presented throughout the report are on a 2014 price base.

The contribution that the Channel Tunnel makes to the trade in services via business travel on Le Shuttle Passenger services and Eurostar, has not been directly quantified, but the benefits are discussed qualitatively.

This report sets out the findings of this work, capturing the following key effects:

- The total value of goods imports and exports transported through the Tunnel, including the sector and geographic spread of this trade;
- The time, cost and environmental benefits of using the Tunnel for transporting freight and passengers; and
- The value created by inbound tourism as well as the benefits to outbound tourists and business travellers of easy access to and from continental Europe.

The report relies on a combination of primary and secondary research: Ipsos MORI[1] (working with EY) conducted a survey with Channel Tunnel freight customers in May 2016. A sample of freight customers, which are distributed across Europe, was randomly selected from Channel Tunnel's customer list and questions were emailed in advance of a telephone interview.

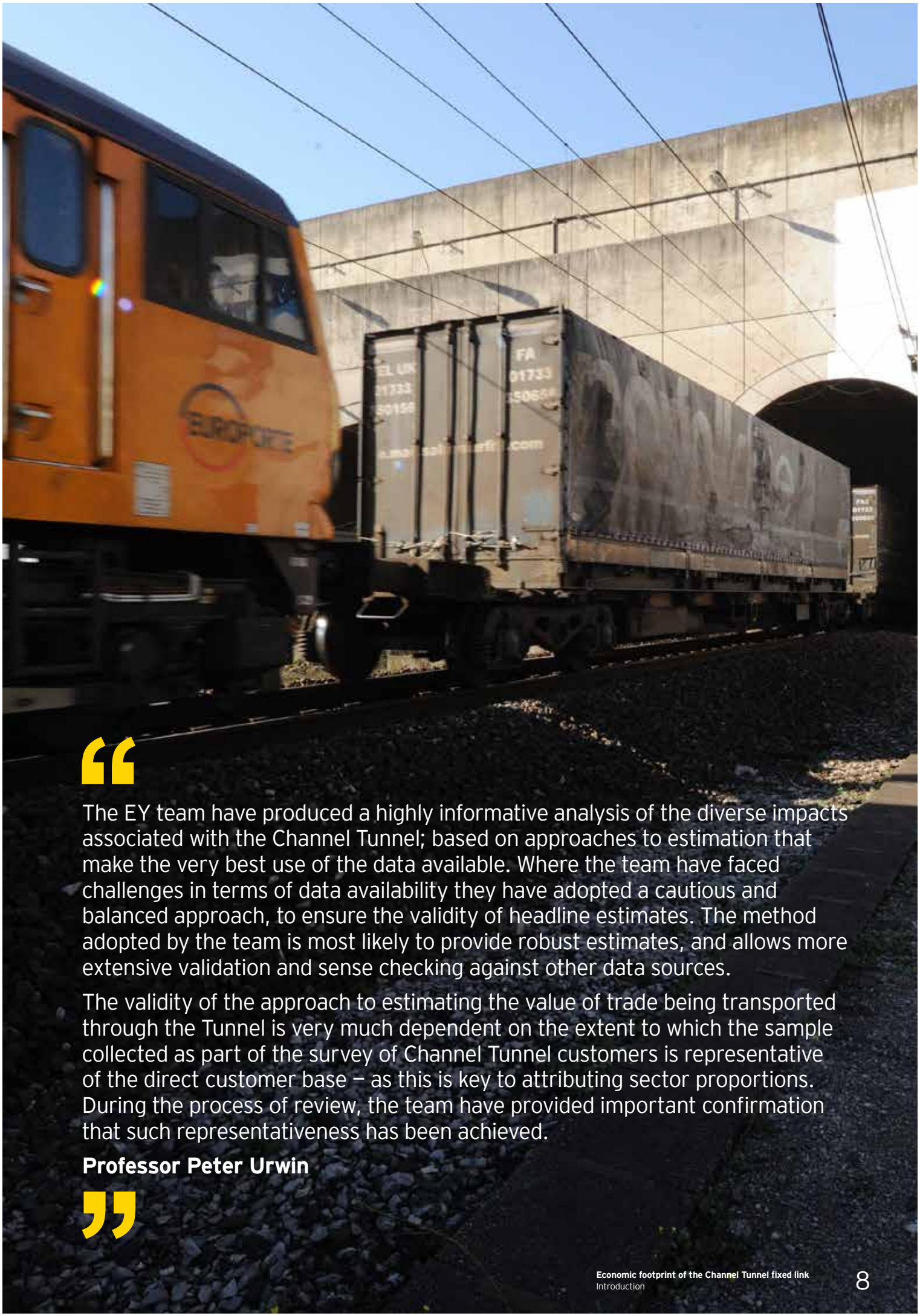
A total of 205 interviews were conducted, which collectively represented around 20% of Channel Tunnel's Le Shuttle Freight volumes, and information collected included data on the volumes, values and types of good transported through the Tunnel during 2014 and about the origins and destinations of goods transported.

The survey also included qualitative questions on reasons for using the Tunnel over alternatives as well as the impact of disruptions to Tunnel services.

The results of the survey have been used to inform this report, however, to protect respondents commercial interests responses remain anonymous[2].

In line with best practice the analysis contained in this report has also undergone a peer review by economist Professor Peter Urwin, Director of the Centre for Employment Research and Professor of Applied Economics at the University of Westminster.

[1] www.ipsos-mori.com
[2] Quotations from the survey interviews have been used throughout the report. However, company names have been withheld in order to protect commercial interests



“

The EY team have produced a highly informative analysis of the diverse impacts associated with the Channel Tunnel; based on approaches to estimation that make the very best use of the data available. Where the team have faced challenges in terms of data availability they have adopted a cautious and balanced approach, to ensure the validity of headline estimates. The method adopted by the team is most likely to provide robust estimates, and allows more extensive validation and sense checking against other data sources.

The validity of the approach to estimating the value of trade being transported through the Tunnel is very much dependent on the extent to which the sample collected as part of the survey of Channel Tunnel customers is representative of the direct customer base – as this is key to attributing sector proportions. During the process of review, the team have provided important confirmation that such representativeness has been achieved.

Professor Peter Urwin

”

THE CHANNEL TUNNEL FACILITATED TRADE WORTH £91.4BN IN 2014

It is a key link to a continent of over **650m people.**

Trade is a vital source of economic prosperity for the UK, creating demand for its exporters as well as being a source of both imported consumer goods and intermediate inputs used by businesses. The UK has strong trade links with the EU, the largest single market in the world with a GDP surpassing that of the US in 2003, accounting for 44.6% of total UK exports and 53.2% of UK imports in 2014[3].

The Channel Tunnel is a key part of the UK's transport and logistics infrastructure, physically connecting it to continental Europe and acting as a key enabler of trade. On average around 320 trains pass through the Channel Tunnel every day, of which over half (57%) are carrying freight being imported from or exported to Europe.

1.4 million trucks and 2,900 rail freight trains passed through the Tunnel in 2014. In total the Channel Tunnel carries 38% of all freight units between the UK and France via the Short Straits[4].

There are two types of freight transport service provided by the Channel Tunnel: the Le Shuttle Freight service (trucks) and the rail freight train service. Freight carried by the Le Shuttle Freight service accounts for 92% of the total volume of freight transported through the Tunnel. Truck freight benefits from an overall time saving compared to other forms of transport, due to the Tunnel's speed, reliability, frequency and flexibility. This enables businesses receiving and sending goods through the Tunnel to operate integrated, cross-border, business models and benefit from the efficiencies of just-in-time production processes.

Meanwhile, rail freight, while carrying a much smaller share of Tunnel freight volumes, offers a distinct value to those businesses wishing to import or export bulk goods[5]. Around 77% of rail freight transported through the Tunnel in 2014 was bulk, including steel, aluminium and automotive parts. Without the Tunnel it would be more expensive or time consuming to transport bulk freight across the Channel and could require businesses to adopt less efficient production processes.

The total value of trade passing through the Channel Tunnel in 2014 was £91.4bn, equating to 25% of UK trade with EU countries.

[3] Office for National Statistics (ONS), How important is the European Union to UK trade and investment?, June 2015
[4] Department for Transport (DFT), UK Port Freight Statistics 2014
[5] Bulk cargo is commodity cargo that is generally transported unpackaged and in large quantities

THE CHANNEL TUNNEL CARRIED £43.6BN OF EXPORTS WHICH HELP TO DRIVE ECONOMIC OUTPUT ACROSS A NUMBER OF SECTORS

The ability of UK businesses to easily access markets abroad allows them to supply exports, which directly contribute to the output of the UK economy. In turn, these businesses contribute to UK employment, through the workforce they employ to produce these exports, and the Exchequer, through the tax they pay to central and local Government.

The success of British industries in international markets is a key part of the UK Government's plan for sustainable growth, which includes a target to double UK exports to £1 trillion each year by 2020[6]. By exporting, British businesses are able to access new markets and achieve growth rates that would not be possible within the domestic market alone.

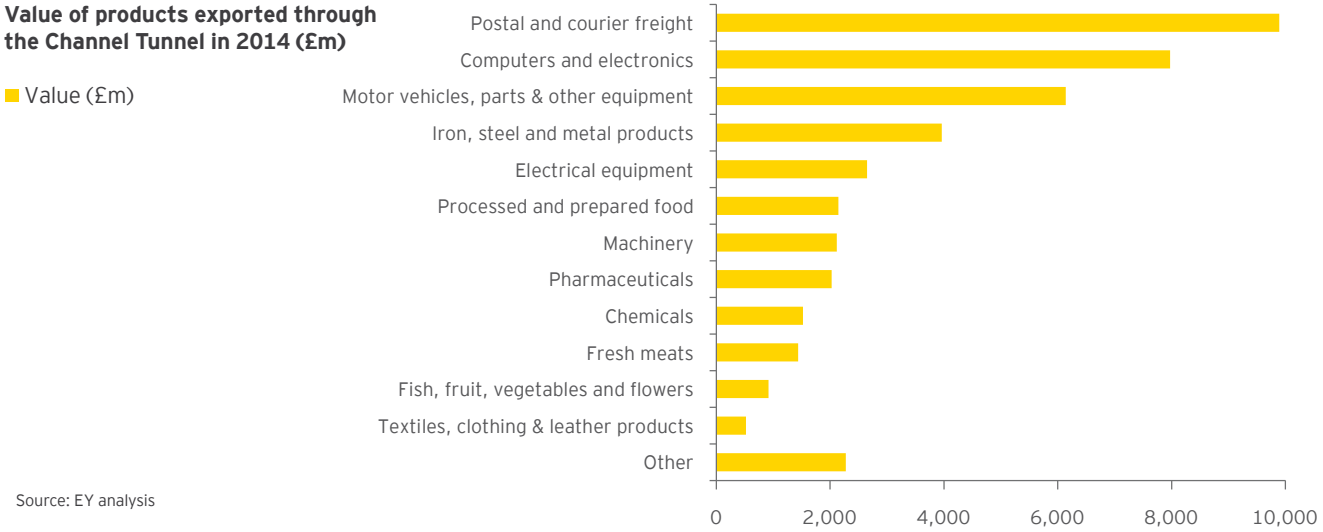
The Tunnel facilitates UK export growth by providing efficient, fast and reliable access and lowering physical barriers to trade between the UK and continental Europe.

EY analysis based on a survey of Channel Tunnel freight customers estimates that the total value of exports transported through the Tunnel in 2014 was £43.6bn[7]. This represents 30% of the total value of UK exports to EU countries. The largest category of goods exports by value was postal and courier freight (£9.9bn)[8], followed by computers and electronics (£8bn), motor vehicles, parts and other transport equipment (£6.1bn) and iron, steel and metal products (£4bn).

The product categories that make up the bulk of UK export value transported through the Tunnel mirror closely those being imported. This reflects the high level of regional optimisation that takes place across Europe and, in particular, the EU. As the most integrated trading area of individual nations in the world, businesses have taken advantage of free trade arrangements by spreading their production processes across a number of locations to benefit from regional specialisation. For example, a UK-based manufacturer may import components from Germany, which are used to assemble its product in the UK, which is subsequently distributed to customers across Europe. This operating model relies on a secure and reliable transport infrastructure.

Exporters face competition from producers across the world, with the most successful focused on increasing the efficiency of their operations, in order to compete effectively in global markets. The Channel Tunnel plays a key role in reducing costs by enabling streamlined production processes (such as just-in-time) and supporting multiple European production centres, by providing a fast and reliable service which reduces business risk and the associated costs.

Value of products exported through the Channel Tunnel in 2014 (£m)



Source: EY analysis

[6] Department for Business, Innovation & Skills Performance Indicators, Number of UK Businesses helped to improve their performance through internationalisation, January 2015

[7] The total volume (in tonnes) of imported and exported goods was estimated by multiplying the number of trucks passing through the Tunnel by an assumption on the average tonnage per truck (this differed between imports and exports). The resulting tonnage was split between product types using the results from the survey of Channel Tunnel freight customers. The total value of freight was then estimated by multiplying product tonnage by an assumption of the value per tonne for each product category

[8] Postal and courier freight is further discussed on page 16

Case study
"Just-in-time" production

What is "just-in-time" production?

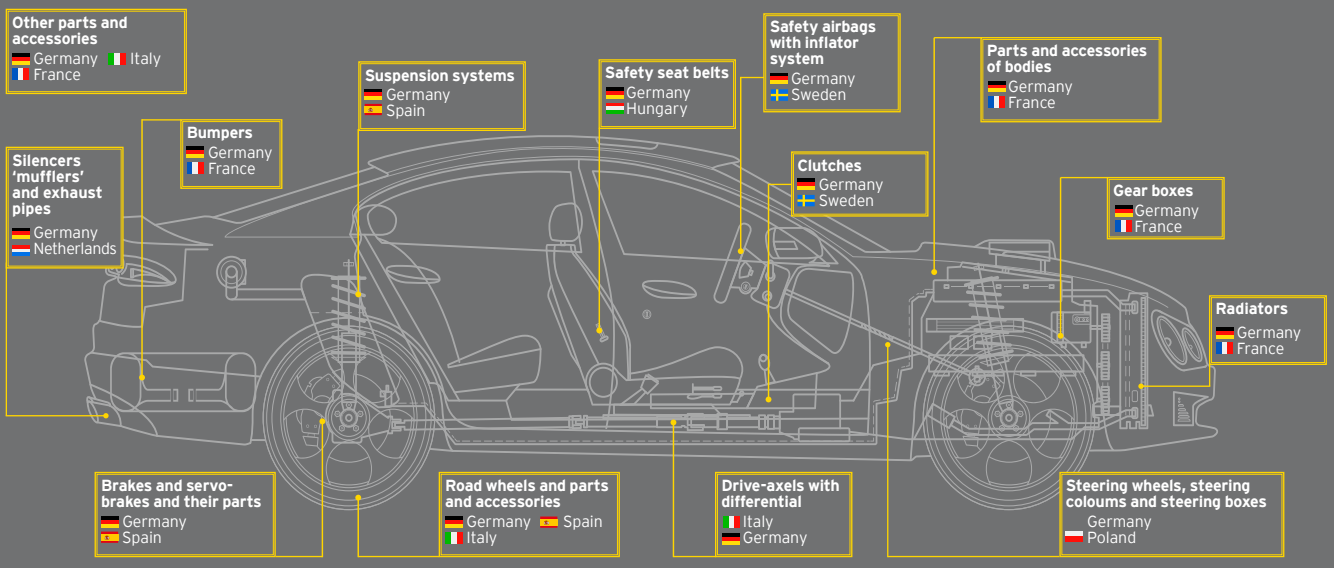
Just-in-time production (JIT) is a production strategy employed by many businesses (particularly in manufacturing and retail sectors) to increase the efficiency of their operations by only taking receipt of inputs when they are needed in the production process. This reduces the cost of storing stock. It originated in Japan[9] following WW II as a complement to the mass-manufacturing assembly line approach developed by Henry Ford in the early 20th century. The JIT production approach has been widely adopted and is now an integral part of many industries, including users of the Channel Tunnel.

JIT and the Channel Tunnel

The frequency, reliability and flexibility of the Channel Tunnel has enabled greater integration between UK and continental European markets, and trans-European production models, that make the most of regional specialisation, are now widely used in a number of industries. For example, the European automotive industry sources inputs from suppliers and plants spread across different geographies, which are then consolidated at a single assembly site for distribution to their entire network of retailers and customers.

In order for this production model to be efficient JIT methods are used, to reduce the cost of holding stock, and a dependable transport infrastructure is essential. Anecdotal evidence from the automotive sector suggests that when transporting from Belgium and Germany to the UK, only around a 15 minute margin is built in for delays. The speed, frequency and reliability of the Channel Tunnel means that it provides automotive producers with greater comfort than other transport methods.

A number of automotive production facilities are located in the UK. This accounts for the high levels of both imports and exports of motor vehicles and parts being transported through the Channel Tunnel. The origin of imported parts that feed into final production in the UK is extremely varied. Around 40% of car parts are imported from Germany[10]. However, other key sources include Italy, Poland and France. Once these final vehicles are assembled they are then distributed across Europe. In 2014 the UK exported 78% of the cars it manufactured (or 1.2 million vehicles) to over 100 countries worldwide[11]. The EU is a key destination for these exports, accounting for 53% of demand for UK-built vehicles. The largest customer markets are Belgium, Germany, Italy, Spain and the Netherlands, who collectively account for around 70% of the total value of UK exports of motor vehicles to EU countries[12].



[9] The Toyota Motor Corporation are credited with its development
[10] HM Revenue & Customs (HMRC), UK Trade Info 2014
[11] The Society of Motor Manufacturers and Traders, Motor Industry Facts 2015
[12] HM Revenue & Customs (HMRC), UK Trade Info 2014

> We prioritise or are instructed by [name withheld] to go for Eurotunnel, especially due to the shorter time, stability, the flexibility and there are not so huge weather condition impacts as with the ferry.
> **Automotive producer, company name withheld**

THE CHANNEL TUNNEL SUPPORTS THE REBALANCING OF THE ECONOMY BY BENEFITING ALL REGIONS AND NATIONS OF THE UK

Goods transported through the Channel Tunnel are exported from and imported to every region of the UK. This supports the concerted drive and various initiatives to enable and accelerate local economic development and growth across the UK, in order to rebalance the national economy.

The UK's exports through the Tunnel originate from all regions and nations of the UK. EY analysis, based on a survey of Channel Tunnel freight customers, shows that the region which contributed the largest share of exports is the West Midlands (20%), closely followed by the East of England (18%).

One of the largest export sectors for the West Midlands is iron, steel and metal products with the region exporting 55% of the total in this sector that is transported through the Tunnel. This reflects the nature of industries located in the West Midlands with the proportion of jobs in production industries around 2.5% higher than the average for the UK[13].

London, perhaps unsurprisingly, is not a significant exporter of 'tangible' goods through the Tunnel, accounting for only 12% of the total value of goods exported. This can be explained by the nature of the London economy, which is largely service-based and therefore its trade is mainly made up of 'intangibles' (such as business consultancy and advice, entertainment and art). The value of this intangible trade is not directly captured in the value of freight travelling through the Tunnel. However, the Tunnel provides important support for trade in these intangible services, through the business passenger travel that enables export of such services, as well as enabling those who commute to and from the UK for work.

[13] ONS, Labour Force Survey, 2014

[14] The number of jobs supported by the Channel Tunnel is calculated by multiplying labour productivity ratios (obtained from ONS employment and output data) for each export sector by the export value of each sector being transported through the Tunnel

[15] An average labour productivity ratio is used to estimate the number of jobs supported by exports of postal and courier freight

[16] ONS, Labour Force Survey, 2014

Exports sent by UK producers through the Channel Tunnel supported 220,000 jobs in 2014[14]

Exports represent the direct output of UK businesses. In order to produce this output businesses rely on factors of production, including labour. As a result, this output supports UK employment in export industries. This includes 45,000 in the production of computers and electronics, 32,000 in steel, iron and metal production and 21,000 in the production of motor vehicles, parts and other transport equipment.

A large number of jobs are also supported in a variety of manufacturing and service industries, 48,000 in total, as a result of the export of postal and courier freight. However, without a detailed understanding of which products are contained within the packages that are sent it is not possible to attribute these jobs to any particular sector[15]. The total number of jobs supported by UK producers transporting goods through the Channel Tunnel is 220,000. This equates to around 1% of the UK's working population[16].

A large proportion of the jobs supported by exports through the Channel Tunnel are based in the West and East Midlands (40%) where around a third of the jobs are in the production of iron, steel and metal products. This includes a wide variety of finished and intermediate metal products, including metal frameworks for construction, treated and coated metals, cutlery and tools. The East of England is also a key source of jobs in export industries (16% of total supported jobs). This includes employment in sectors such as the production of computers and electronics and motor vehicles, parts and other transport equipment as well as being the region with the most jobs supported in sectors that export using postal and courier freight.

Proportion of exports transported through the Channel Tunnel from the UK's regions and nations

Source: EY analysis

North East
- Export value: 6%
- Examples:
  - £890m of postal and courier freight
  - £97m of food products

Yorkshire and the Humber
- Export value: 5%
- Example:
  - £195m of iron, steel and metal products

Scotland
- Export value: 5%
- Examples:
  - £970m of computers and electronics
  - £300m of fish, fruit, vegetables and flowers

East Midlands
- Export value: 14%
- Examples:
  - £1bn of computers and electronics
  - £1bn of motor vehicles, parts and other transport equipment

East
- Export value: 18%
- Examples:
  - £2.4bn of postal and courier freight
  - £1.3bn of motor vehicles, parts and other transport equipment
  - £1bn of computers and electronics

North West
- Export value: 4%
- Example:
  - £290m of iron, steel and metal products

West Midlands
- Export value: 20%
- Examples:
  - £2.2bn of iron, steel and metal products
  - £700m of machinery
  - £190m of motor vehicles, parts and other transport equipment

London
- Export value: 12%
- Examples:
  - £730m of postal and courier freight
  - £130m of wood products
  - £175m of beverages

Wales
- Export value: 7%
- Examples:
  - £1bn of motor vehicles, parts and other transport equipment
  - £400m of iron, steel and metal products

South East
- Export value: 4%
- Examples:
  - £530m of computers and electronics
  - £365m of motor vehicles, parts and other transport equipment

South West
- Export value: 3%
- Example:
  - £159m of food products

£47.8BN OF IMPORTS FEED INTO THE SUPPLY CHAINS OF UK BUSINESSES AND ENABLE GREATER CHOICE OF PRODUCTS FOR CONSUMERS

Imported goods are not simply substitutes for domestic production but also play a crucial role in UK supply chains. By sourcing inputs at lowest cost, businesses lower their production costs, thereby increasing their competitiveness, which ultimately feeds through to consumers in the form of lower prices. On average UK manufacturers import around 60% of the final value of their products[17].

Importing also provides consumers with access to a greater variety of goods that either could not be produced domestically or would be more expensive if they were. Overall, this leads to an improvement in their welfare as they are more easily able to afford the goods they buy and can in turn increase consumption of other goods and services.

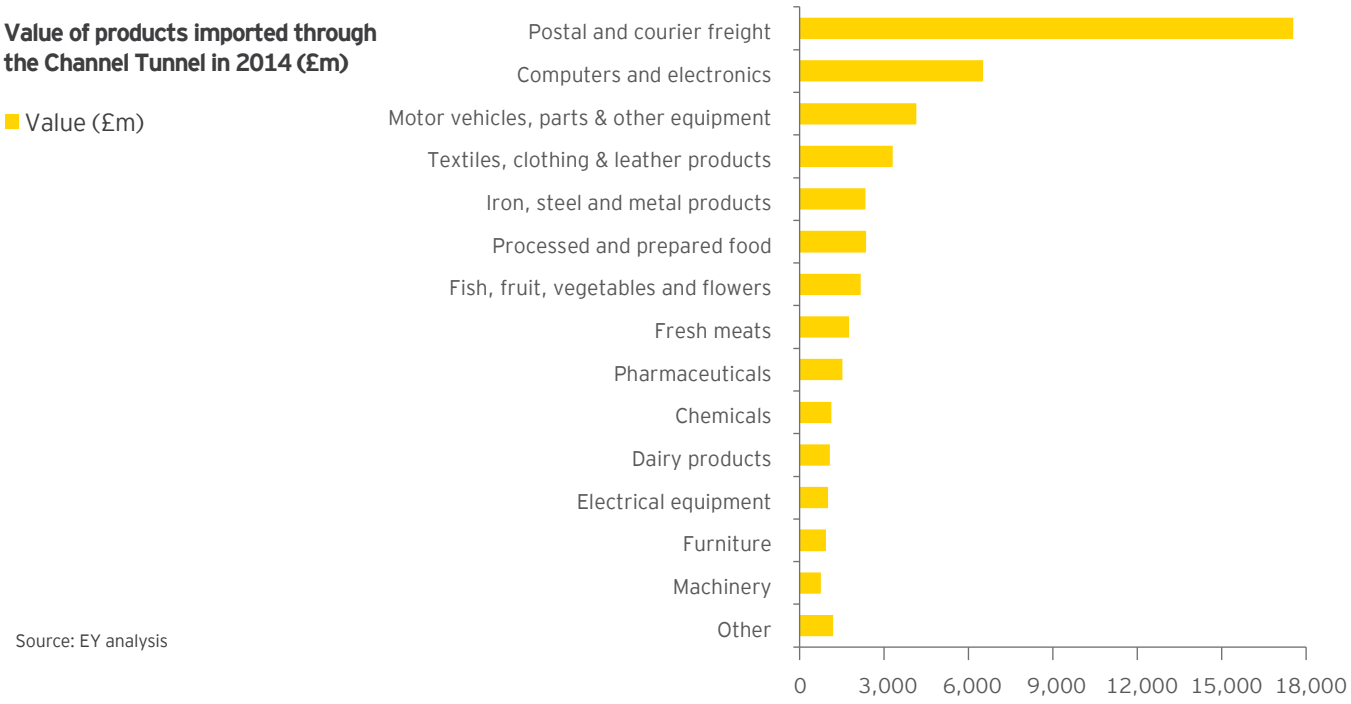
EY analysis based on a survey of Channel Tunnel freight customers estimates that the total value of imports transported through the Tunnel in 2014 was £47.8bn. This represents 22% of the value of UK imports from EU countries, evidencing the importance of the Channel Tunnel as a key trade route with the UK's largest trading partner.

The largest product groups by value were postal and courier freight (£17.5bn)[18] followed by computers and electronics (£6.5bn), motor vehicles, parts and other transport equipment (£4.1bn) and textiles, clothing and leather products (£3.3bn).

The results of the survey indicate that London is the largest consumer of goods imported through the Tunnel, accounting for 30% of the total value of imports. This is due in part to its proximity to the Tunnel, its population size and local consumer preferences (e.g. international food). Approximately 33% of postal and courier freight being imported through the Tunnel is also destined for London, reflecting the city's focus on financial services, the largest user of these imports.

The West Midlands is the 2nd largest importer (23%), with this driven by imports of intermediate goods by the region's manufacturers, including iron, steel and metal products.

Value of products imported through the Channel Tunnel in 2014 (£m)



Source: EY analysis

[17] ONS, Supply and Use Tables, 2013
[18] Further analysis of this is provided on page 16

The Channel Tunnel is vital for transporting high value, time sensitive products

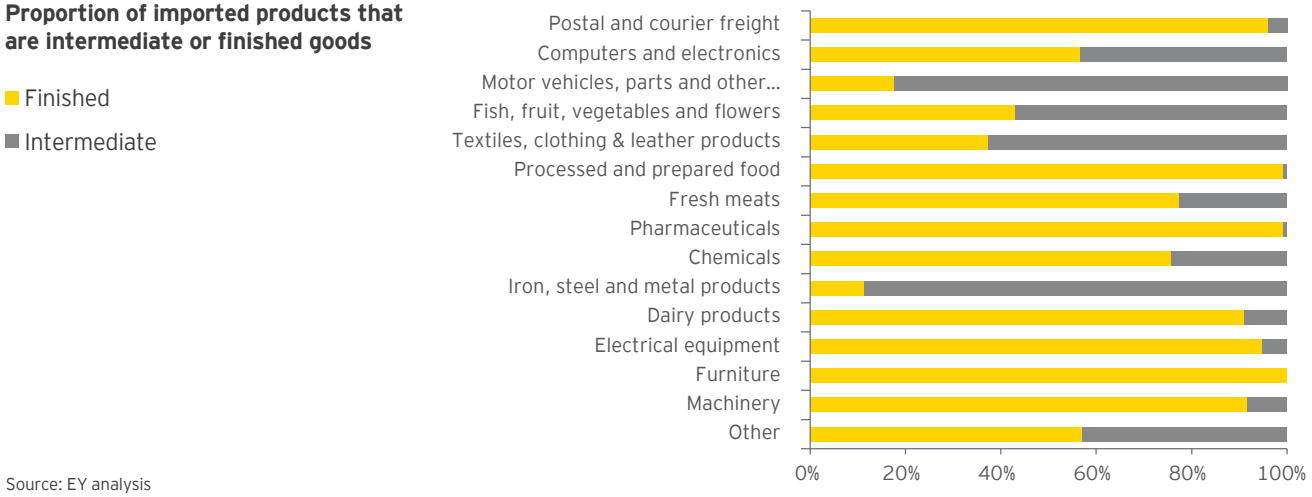
The average value of a tonne of freight being transported through the Channel Tunnel into the UK is over £4,000, which is almost three times higher than the average for UK imports as a whole. **This is because the Channel Tunnel differentiates itself from other transport services by providing a more flexible, reliable and frequent service, with lower overall transport times.** The goods that require this level of service in their delivery, by their very nature, tend to be higher value as they are time-critical inputs, components or finished products. For less time-critical, lower value goods, low cost transport methods are more regularly used, such as container shipping.

The supply of intermediate products allows UK businesses to add value to their production processes

Based on information from a survey of Channel Tunnel freight customers, around 25% of the value of imports carried through the Tunnel are intermediate inputs, used by UK businesses in the production process.

This supply of imports is important to ensure that UK businesses have access to the materials they need to produce at lowest cost to compete in the global market. The product categories with the largest share of intermediate inputs are iron, steel and metal products, fresh produce, textiles, clothing and leather products and motor vehicles, parts and other transport equipment.

Proportion of imported products that are intermediate or finished goods



Source: EY analysis

Postal and courier freight and other finished goods

The majority of imports (75%)[19] transported through the Tunnel are finished products that will be delivered either directly to consumers, or to wholesalers and retailers, ultimately ending up on the shelves of supermarkets and high street stores. Examples of finished products that are transported daily through the Channel Tunnel include food products, pharmaceuticals, chemicals and furniture, as well as postal and courier freight.

The emergence of e-commerce has led to increasing numbers of consumers directly sourcing the goods they need from online suppliers. The importance of the Channel Tunnel to online retailing is demonstrated by the significant share of the value of goods imported and exported accounted for by postal and courier freight. The content of this freight is not regularly monitored and therefore no reliable estimates of the product mix contained within this category are available. However, it is likely that it includes a range of products from consumer goods to specific components for manufacturing plants as well as commercial documentation.

For those packages being delivered to businesses, rather than households, evidence from the ONS shows which UK industries consume imports of postal and courier freight[20]. The sector which consumes the largest share of postal and courier freight by value is financial and insurance activities (22.6%). Other sectors which consume high proportions of imported postal and courier freight are wholesale and retail trade (9.2%), public administration and defence (8.7%), transportation and storage (6.6%) and manufacturing (5.1%).

[19] These values represent the share of respondents who provided an answer to this question. 13% of respondents did not know whether the products were finished or intermediate goods
[20] ONS, United Kingdom Input-Output Analytical Tables, 2010

Case study
Express delivery

The express delivery market

Express delivery services were introduced to Europe in the mid-1980s, having initially been developed in the US. Europe is now the largest market within the international express industry, with 47% of the total volume of cross-border deliveries. This equates to the delivery of over 260 million packages each year[21].

The growth in express volumes has continually exceeded growth in global trade since 2009 (apart from 2010). A key driver for this is the expansion of online retail. The result is that 88% of UK customers have had some experience of using couriers or express delivery[22]. Cross-border transport is particularly important in Europe, where around 80% of the traffic in express deliveries is shipped from one European country to another.

The key reasons that European businesses use express services are[23]:

- Their products are time-sensitive or perishable;
- They run streamlined production processes and want to minimise stock in order to maximise efficiency while limiting the need for production shut-downs; and
- Demand from their customers for quick turnarounds.

Express services provide access to high-quality delivery services for small businesses that are unlikely to have their own supply chains. This is particularly important for their participation in export markets where they need to remain competitive with international competitors.

Express service providers are reliant on quick, high-frequency and reliable transport methods

Express services are differentiated from other haulage services by the speed and precision (i.e. within fixed time periods) of delivery and the ability of customers to track packages. Furthermore, demands by customers on service providers continue to increase, for example the introduction of requirements to hit 30 minute delivery windows. Whilst these pressures on quality of service put upward pressure on costs there is downward pressure on prices, driven by increasing competition and falling average weights per consignment.

In this context, the Channel Tunnel provides critical infrastructure for the operation of express delivery services between the UK and continental Europe. The Channel Tunnel offers high-frequency, short-transit times, as well as being less affected by issues such as weather, which can disrupt other forms of cross-Channel transport. The shorter crossing times through the Tunnel, compared to the ferry crossing, also reduce costs, allowing services to remain competitive compared to air freight.

The express industry is an enabler of economic activity

The express industry employs 272,000 people in Europe[24]

96% of EU28 companies use express services to get guaranteed next-day delivery[25]

43% of European businesses say that orders could be lost because of longer delivery times if next-day services were no longer available, and 15% say that it could force them to relocate[26]

Engineering and manufacturing sectors account for 30% of cross border volumes[27]

Transportation services, retail and consumer goods collectively account for a further 30%

Also important for sectors such as pharmaceuticals and biotechnology as well as financial and business services and research & development, where products being transported are usually time critical and high-value

[21, 22, 23] Courier and Express Delivery, 2016, Mintel
[24, 25, 26] The Economic Impact of Express Carriers in Europe, Oxford Economics
[27] Express Delivery and Trade Facilitation: Impacts on the Global Economy, 2015, Frontier Economics

> Historically the Tunnel has provided transit time advantages such as efficient border checks and customs controls. It is however important, that in light of upcoming changes to trade relations between the UK and continental Europe, that any agreement does not seek to dilute these advantages.
>
> **Steve Hanley-Cook, DHL Freight**

Case study
British food exporters

Food production is one of the UK's largest sectors

In 2014, UK food and drink manufacturing turnover was £96bn, accounting for 16% of total UK manufacturing sector turnover[28]. Department for Environment, Food & Rural Affairs (DEFRA) estimates that the entire food chain (including primary production as well as retail) contributes £97bn per year to the economy and employs 1 in 8 people in the UK[29]. In 2014, £12.8bn of food and non-alcoholic drink was exported by the UK. Of this around 73% went to EU countries. Fresh produce makes up a significant proportion of these exports, including £1.8bn of meat and animal products, £1.6bn of fish and seafood and £1bn of fruit and vegetables. The top selling products included salmon (£626m), beef (£465m) and vegetables (£317m)[30].

Food exporters and the Channel Tunnel

Timely delivery of fresh produce is essential for a number of UK food produce exports and their competitiveness. £0.9bn of fish, fruit, vegetables and flowers was exported through the Tunnel in 2014. A further £1.4bn of meat was also exported and £2.1bn of processed and prepared food. Together these sectors made up 10% of the total value exported through the Tunnel in 2014.

> We need to get to the market as early and as quickly as possible [to keep the produce fresh]. The ferries take twice as long to cross the Channel as the Eurotunnel.
> **(Perishable food producer, company name withheld)**

The main destinations of these food exports are Poland, France and Italy with the main sources of these exports being Scotland and the South and Midlands of England.

When we compare the value of food product exports being sent through the Tunnel to total UK exports of food products, we find that the Channel Tunnel represents around 60% of this trade.

This is due to the speed frequency and reliability of the Tunnel's service. Fresh produce is perishable and therefore any delay to delivery could reduce the quality of the produce and may even result in the goods spoiling and that output being lost.

THE CHANNEL TUNNEL SUPPORTS TRADE BETWEEN MORE THAN 20 COUNTRIES

The goods transported through the Tunnel have a wide geographical spread of origins and destinations. The survey of Channel Tunnel freight customers revealed that 27 countries were listed as either origins or destinations for products.

The largest source of imports by volumes is Belgium, accounting for 26% of the total volume of imports being transported through the Tunnel. However, its importance in terms of value, while still significant, is lower at 17% of the total value of imports. This is because the products being imported from Belgium have a relatively low value to weight ratio, including textiles, clothing and leather products food products. The importance of Belgium as a source of goods imported to the UK reflects its role as a logistics hub whereby goods from across Europe (and the world) are consolidated before being sent onto final destinations[31].

Germany is the largest producer of imports by value transported through the Tunnel (19%) to the UK. This reflects its strength as a world leader in a number of manufacturing industries including metal, iron and steel and motor vehicles, parts and other transport equipment. These imports to the UK feed into the production processes of a variety of UK manufacturing businesses as intermediate goods, as well as being directly sold to UK consumers.

The most important origins/destinations for goods carried through the Tunnel are largely consistent with the most important for UK trade as a whole. For example, Germany is the UK's largest trading partner within the EU28, followed by the Netherlands and then France. This reflects the relative (population) size of each country as well as their proximity to the UK. It also reflects their significance within the EU market as a whole. Collectively these three countries make up around 40% of the EU's overall GDP[32].

The UK's main trading partners are also heavily represented in the key destinations of UK exports being transported through the Tunnel. In the case of exports France is the most significant single destination (18%). This is primarily driven by exports of postal and courier freight and chemical products.

[28] https://www.gov.uk/government/publications/food-and-drink-in-the-uk-investment-opportunities/food-and-drink-in-the-uk-investment-opportunities
[29] https://www.gov.uk/government/news/uk-food-and-drink-exports-reach-a-record-150-countries-worldwide
[30] Exports Snapshot, Food and Drink Federation, 2014
[31] A report conducted by Colliers International (Top European Logistics Hubs, 2013) identifies Europe's "Blue Banana" hubs, a discontinuous corridor of cities that are strategically located in the economic heart of Europe, as the dominant locations from a distribution perspective. This spans the conurbation of cities stretching from the Netherlands, Belgium, Western and Southern Germany down to Switzerland and Northern Italy. Antwerp tops the list, followed by Rotterdam, Brussels, Dusseldorf and Hamburg
[32] Eurostat

THE TUNNEL PLAYS A KEY ROLE IN MAKING THE UK AN ATTRACTIVE PLACE TO INVEST

The UK Government has set ambitious goals on trade and investment[33], to:

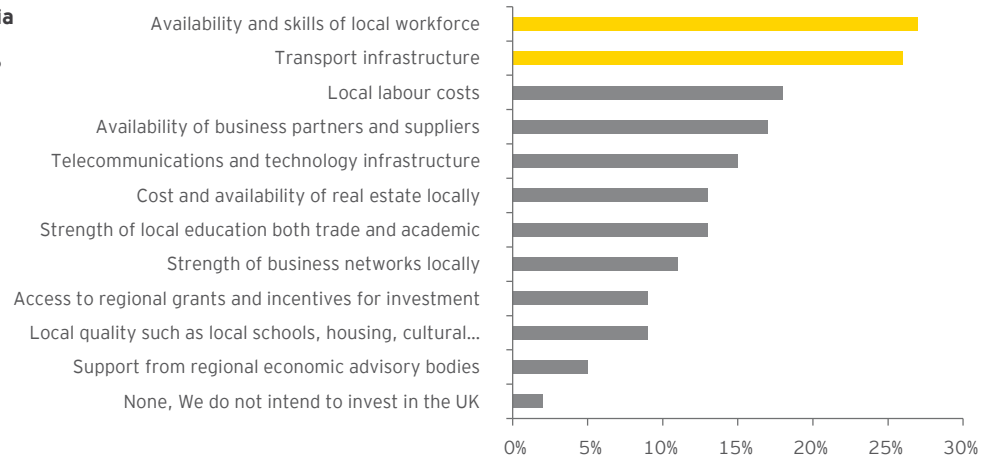
- Support an increase in the value of UK exports to £1 trillion (almost twofold compared to 2015) by 2020;
- Support an increase in the value of foreign direct investment stock to £1.5 trillion by 2020 (almost 1.5 times that of 2014);
- Support an increase in the volume of UK exporters to 288,000 by 2020; and
- Remain the number one country in Europe for foreign direct investment projects.

EY's 2016 Attractiveness Survey found that when investors are considering whether to invest in regional locations of the UK, transport infrastructure comes at the top (after availability of skills and local workforce) of the list of investment criteria (26%), while 29% of existing investors in the UK list it as their number one issue. Therefore having efficient transport infrastructure linking the UK to the continent is critical to maintaining this access and to achieving the Government's ambitions.

When asked which transport infrastructure is the most important when considering investment in the UK investors cited road networks as the most vital (42%), followed by airports and then ports (30%).

The Channel Tunnel is both port and motorway linking the UK's road network with that of continental Europe and is therefore a critical piece of the UK's transport infrastructure.

What are your investment criteria when considering investing in the regional locations in the UK?



Source: EY's UK attractiveness survey 2016, sample (n=444)

The recent vote for the UK to exit the European Union may affect investors' views of the UK as an attractive location to invest. However, the full impact of this is currently uncertain with many investors delaying decisions until the future relationship between the UK and the EU becomes clear.

Given the potentially protracted exit process following the referendum, the UK may experience a dampening of inward investment as concerns around political and economic uncertainty override the forces driving investors into the UK.

Conversely, if the recent change in the value of the Pound persists then exports will be more competitive, while imports will be relatively more expensive, affecting their demand and consequently the balance of trade carried through the Tunnel.

[33] https://www.gov.uk/government/organisations/uk-trade-investment/about

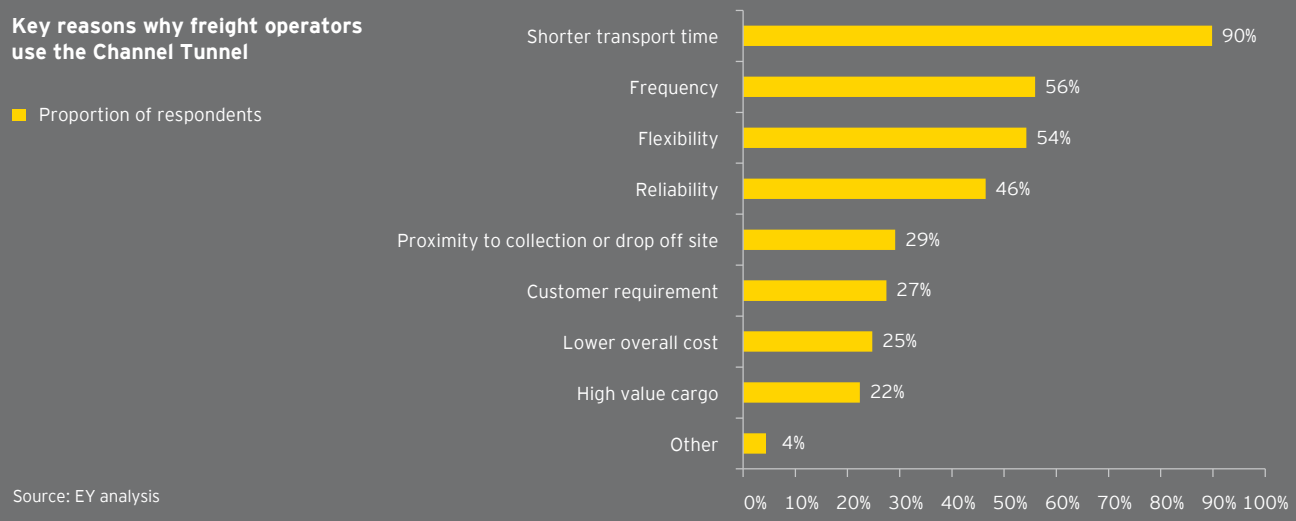
THE TUNNEL PROVIDES A FAST, RELIABLE AND REGULAR SERVICE, LOWERING BUSINESS TRANSPORT COSTS

UK businesses depend on the Channel Tunnel to operate modern business models, based on its four key differentiating factors:

- **Speed of transit –** The Tunnel provides critical infrastructure for industries that need to transport goods quickly, for example, sectors using just-in-time methods or the express delivery industry. **A survey of Channel Tunnel freight customers showed that 90% of respondents use the Tunnel because it provides a shorter overall transport time when compared to alternatives;**
- **Frequency –** Le Shuttle Freight service operates 24 hours a day, 7 days of the week which allows businesses to trade at any time throughout the year. Up to six Le Shuttle Freight trains depart per hour between Folkestone and Calais. 56% of respondents said they used the Tunnel because of its frequency;
- **Flexibility –** Flexibility reduces transport costs as transport managers are able to adapt to changing traffic patterns, which affect when a driver is likely to arrive at a particular location; 54% of respondents said they use the Tunnel because of its flexibility. Freight operators are able to register as customers of the Channel Tunnel and then their trucks can arrive at the Tunnel entrance at any time, without a booking, and travel on the next available crossing; and
- **Reliability –** The Channel Tunnel can typically run a service regardless of bad weather, and 46% of its customers surveyed highlighted this reliability as a key reason for using the Tunnel.

The survey concluded that an overall shorter transport time is the top reason (quoted across all product categories) for using use the Tunnel. In particular it was given as the top reason for transporting postal and courier freight and fish, fruit, vegetables and flowers. For computers and electronics, while an overall shorter transport time is important; flexibility and frequency are almost equally important (83%) as well as reliability (71%) and the need to transport high value cargo (51%).

Key reasons why freight operators use the Channel Tunnel



Source: EY analysis

THE TUNNEL IS THE FASTEST WAY TO TRANSPORT FREIGHT ACROSS THE ENGLISH CHANNEL

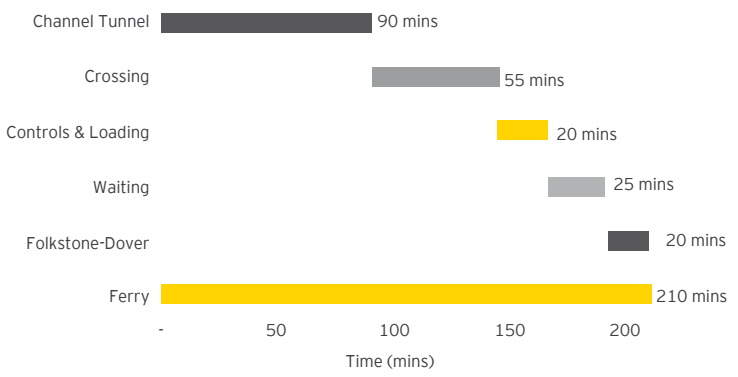
The Channel Tunnel provides the fastest service across the short-straights: the total time saved from use of the Tunnel compared with the Dover-Calais ferry route is around 120 minutes.

This includes a saving of 55 minutes on the crossing time and 25 minutes saving on waiting time due to the higher regularity of Channel Tunnel services. The proximity of the ferry and Tunnel ports in Folkestone and Dover to major road freight routes also means that most trucks must travel an extra 25 km to reach the ferry port. This adds approximately 20 minutes to the average journey time.

The total time saving is equivalent to 120,000 days for all truck traffic using the Channel Tunnel, over the course of 2014[34].

These time savings translate into a significant cost saving for freight operators. EY analysis suggests that each crossing saves approximately £55 per truck per crossing[35]. When the total number of crossings undertaken on the Channel Tunnel in 2014 is taken into account (1.4m), this equates to a total benefit of £79m over a single year. The majority (64%) of this is a result of savings on staff costs, as truck drivers are paid hourly rather than per journey. Therefore, reducing travel times can reduce the variable costs of a single journey but also free up drivers for other deliveries.

Comparison of travel times using Le Shuttle and ferry



Source: Eurotunnel

[34] This is based on multiplying the per truck time saving by all truck traffic passing through the Tunnel in 2014

[35] This includes savings on mileage costs from the shorter road journey to and from the ports at Folkestone and Dover (e.g. fuels, tyres and maintenance repairs), savings on staff costs from time savings as well as other fixed and daily costs

THE CHANNEL TUNNEL USES LOW-CARBON ELECTRICITY TO POWER ITS TRAINS, REDUCING ITS CARBON FOOTPRINT

The Channel Tunnel contributes to the decarbonisation of the UK economy, significantly reducing CO_2 emissions compared to alternative modes of transport.

The UK's Climate Change Act established a target for the UK to reduce its emissions by at least 80% from 1990 levels by 2050. As part of achieving this target the UK Government monitors progress through a series of five-yearly carbon budgets[36]. Transport currently accounts for around a quarter of the UK's greenhouse gas emissions and also affects air quality[37].

The Channel Tunnel offers environmental benefits when compared to other forms of cross-channel transport:

- Channel Tunnel trains are electric, using electricity that is predominantly supplied from France where around 90% of electricity generation is from low-carbon sources[38] (i.e. nuclear); and
- As a result the trains that run through the Tunnel do not emit sulphur dioxide or nitrogen oxide gases into the atmosphere which are particularly harmful to health and the marine environment.

When comparing the carbon dioxide emissions of trains carrying trucks through the Tunnel on a typical crossing to a ferry, on average 147 kgs of CO_2[39] are saved per truck per crossing[40]. The CO_2 savings result from a difference in the fuels used and, as with travel times, the shorter distance to reach the port from major road freight routes. The 25km distance saved on the motorway represents around 22% of the carbon saving. Furthermore, as ferries are powered by combustible fuels they release SO_2 and NO_2 which can form airborne particulates which represent a risk to human health[41]. The total carbon saving for all trucks using the Channel Tunnel in 2014 was 211,600 tonnes of CO_2.

For passenger traffic, using Le Shuttle Passenger services (vehicles), the saving is on average 6.5 kgs of CO_2, when compared to the alternative of a Dover-Calais ferry. Over a single year of traffic this equates to a saving of 57,800 tonnes of CO_2.

The EU operates a cap and trade scheme on carbon emissions. It works by limiting the total number of emissions that can be released and then allows businesses to buy and sell permits in order to cover their emissions. The result is the creation of a market and a price for emitting CO_2. Whilst the transport sector is not currently included in the EU's Emissions Trading Scheme, it is envisioned that it may be included in the future. If this were the case then hauliers may face a similar carbon price to that prevailing for the industrial sector. Over the course of 2014 the average European carbon price was £6/tCO_2[42]. By applying this carbon price to the CO_2 emissions saved by trucks using the Channel Tunnel instead of a ferry, a total of £1.6m worth of carbon dioxide was saved. This carbon price is well below the social cost of carbon (£22.24/tCO_2)[43] that the UK Government advises captures the true externality cost of emitting carbon dioxide. Applying this higher carbon price the total value of carbon dioxide saved would be £6m.

The analysis presented so far only considers the environmental impact of the Channel Tunnel compared to ferries. However, air travel is another possible alternative. Survey respondents confirmed that, for most goods being transported to and from continental Europe, air freight is not a realistic alternative to transporting goods using the Channel Tunnel, as a result of the much higher cost. However, it may occasionally be used for urgent and extremely high value deliveries, where the cost of delay outweighs the cost of using air freight.

Therefore, whilst it is difficult to make a direct comparison of the time and CO_2 costs of air freight and the Channel Tunnel, due to the difference in the start and end points, some general comparisons can be drawn out. Freight transportation by air is the least environmentally friendly way to ship goods. In addition to releasing more CO_2 emissions per km travelled, aircraft release gases and particulates at higher altitudes where they are more harmful to the ozone layer[44].

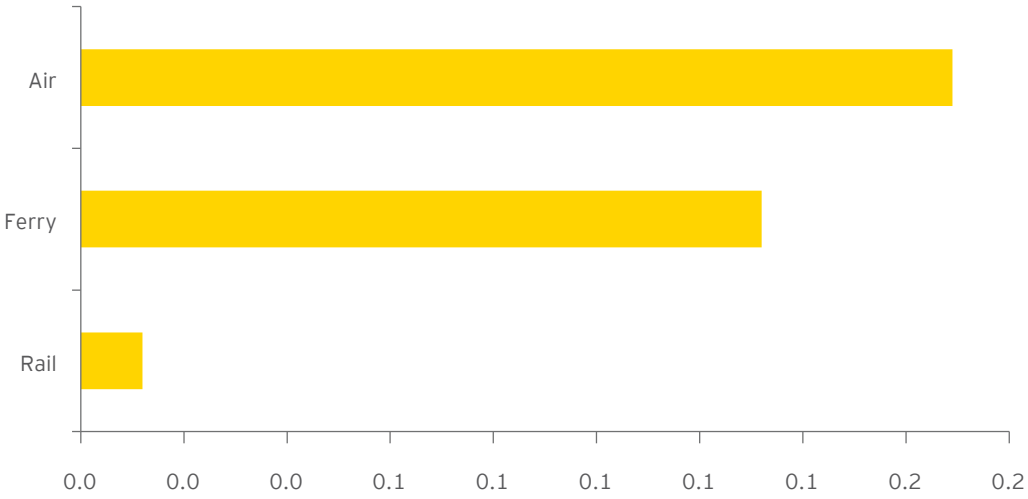
[36] Committee on Climate Change
[37] www.gov.uk/government/policies/transport-emissions
[38] www.rte-france.com
[39] This is calculated by estimating the carbon dioxide emissions of a single crossing through the Tunnel and on a ferry for a single truck using DEFRA emissions factors for ferries and French electricity generation. The emissions savings from the reduced 25km on motorways in the UK is also included
[40] For evaluation purposes this only considers comparative ferry crossings on the Dover-Calais route
[41] The Ecology of Transportation: Managing Mobility for the Environment, Davenport & Davenport, 2006
[42] Department of Energy & Climate Change (DECC), Energy & Emissions Projections – November 2015
[43] https://www.gov.uk/government/collections/carbon-valuation--2#social-cost-of-carbon
[44] Calculating the Environmental Impacts of Aviation Emissions, Dr Christian N Jardine, Environmental Change Institute and Aviation and the Global Atmosphere, Penner, Lister, Griggs, Dokken & McFarland, Intergovernmental Panel on Climate Change. "Aircraft emit gases and particles directly into the upper troposphere and lower stratosphere where they have an impact on atmospheric composition. These gases and particles alter the concentration of atmospheric greenhouse gases, including carbon dioxide (CO_2), ozone (O_3), and methane (CH_4); trigger formation of condensation trails (contrails); and may increase cirrus cloudiness-all of which contribute to climate change"

According to UK Government statistics, carbon emissions for air freight are 23 times higher than road and 89 times higher than rail[45].

Carbon emissions per air passenger are also higher than per passenger emissions using other modes of transport.

CO_2 emissions per km travelled by passengers

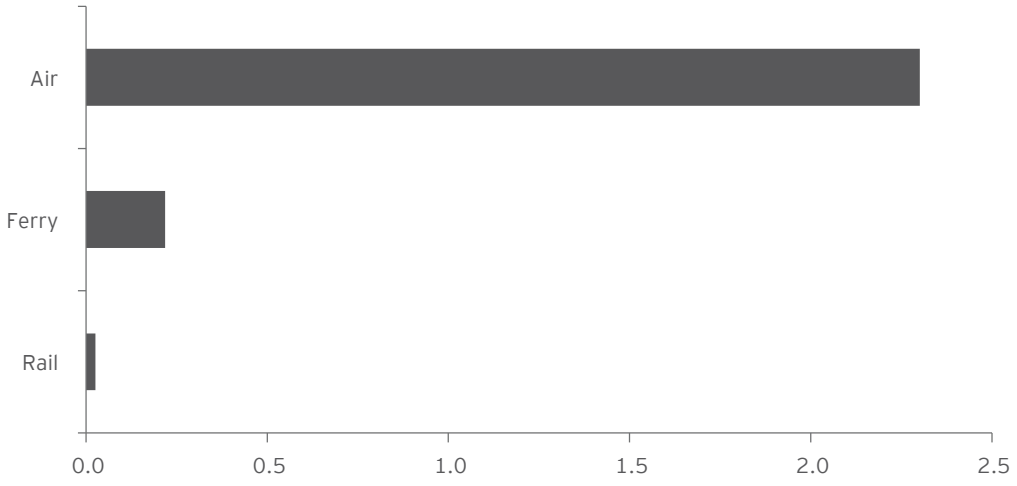
kg CO_2 per passenger



Source: DEFRA/DECC

CO_2 emissions per km of freight transported

kg CO_2 per tonne of freight



Source: DEFRA/DECC

[45] UK Government conversion factors for company reporting, DECC and DEFRA
Please note that these emission factors are based on UK data only and are given for illustrative purposes

THE TUNNEL'S PASSENGER SERVICES SUPPORT TRADE IN SERVICES

The Tunnel transports 21m passengers every year

In 2014 a total of 21 million passengers[46] travelled through the Tunnel. This was split roughly equally between those in passenger vehicles (cars, coaches, motorbikes, etc.) on the Le Shuttle Passenger service, and those travelling via Eurostar.

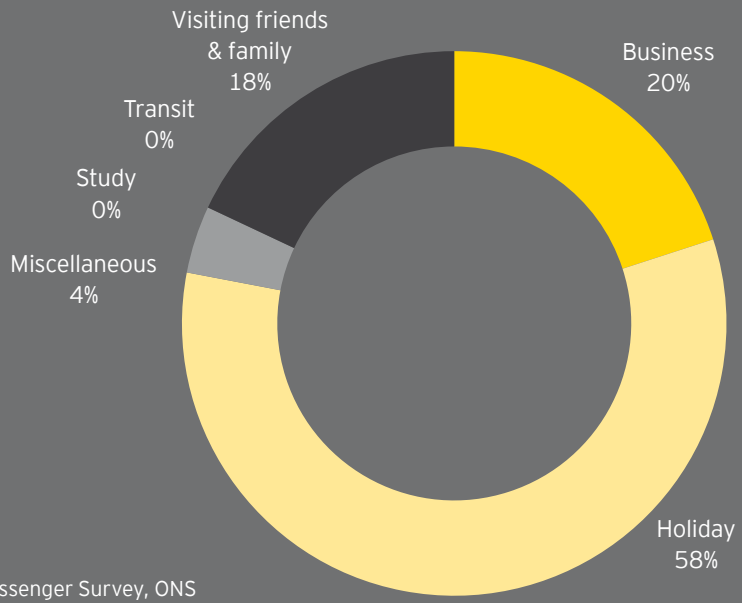
Passengers use the Tunnel for a variety of reasons

The most common reason cited by passengers for using the Channel Tunnel was to go on holiday. The UK International Passenger Survey (IPS) found that in 2014, 58% travellers using the Channel Tunnel (both via Eurostar and Le Shuttle Passenger service) were doing so to go on or return from holidays (this include both UK and foreign residents).

The other drivers of travel are to "visit friends and relatives" (18%) and "business" (20%). Despite significant advancement in remote communications technology, face-to-face meetings are still an important part of forming and retaining business relationships.

By providing a fast and cost effective way for business people to travel between the UK and the rest of Europe the Tunnel enables these relationships which ultimately result in cross-border trade in goods and services to the benefit of the UK economy. This is further described on Page 26 .

Reasons for travel



Source: International Passenger Survey, ONS

[46] Passengers include both outbound and inbound journeys and therefore a single trip is equivalent to two passenger journeys. However, we know that some passengers only undertake journeys in a single direction (i.e. a tourist that flew into the UK then uses the Tunnel to visit continental Europe and then flies out of a different European international airport). This accounts for the difference between passenger numbers and visits/trips presented in this report

840,000 PEOPLE TRAVELLED FROM THE UK THROUGH THE TUNNEL ON BUSINESS IN 2014

In 2014, around 840,000 business trips were made by UK residents to Europe using the Tunnel, either on Eurostar or via Le Shuttle Passenger services[47].

This accounts for 12%[48] of total business trips made by UK residents to continental Europe in the same year. The flexibility of the Tunnel suits the profile of business travellers. 68% of overnight business trips are booked less than a month in advance. For day trips the proportion is even higher at 75%. This compares to only 30% of holidays being booked so close to departure[49].

The expenditure on tickets by outbound business travellers travelling from the UK from the Tunnel in 2014 was £289m[50]. In addition to this spend, these business travellers made a direct contribution to the economies that they visited through their spending on hotels, restaurants and transport etc. They also contributed to the UK travel industry through companies that arrange business trips.

However, the broader economic benefit of these business trips is the trade in goods and services that they facilitate.

> The UK economy is dominated by the service sector including financial, legal and professional and creative services.

Examples of a services export would be the fees earned on a legal case or for design work. Overall, services contribute around 78% to UK GDP[51]. Of service exports, 38% are provided to Europe[52].

Those travelling through the Tunnel on business include passengers travelling to and from business meetings creating relationships with customers and suppliers that may eventually feed through into UK trade. They also include those people commuting to and from the UK to carry out specific work, or who simply wish to live in one country and work in another.

[47] ONS International Passenger Survey data does not distinguish between visitors travelling by Le Shuttle or Eurostar, which is a separately owned company
[48] ONS International Passenger Survey data reports over 6.7 million overseas business trips by UK residents by air, sea and the Tunnel during 2014
[49] Business Traveller – UK, August 2014, Mintel
[50] ONS, International Passenger Survey, 2014
[51] www.ons.gov.uk/economy/economicoutputandproductivity/output/bulletins/indexofservices/feb2016
[52] ONS, International Trade in Services, 2014

TOURISTS VISITING THE UK VIA THE TUNNEL SPEND £1.7BN IN THE UK ECONOMY

Inbound tourism generates significant benefit to the UK economy through the money spent by visitors on goods and services during their stay. The ONS estimated that the value of the UK tourism industry stood at £59.6bn in 2014[53]. 19.2% of the UK internal tourism expenditure came from inbound tourists[54].

Data from the IPS shows that around 4.5m visits (defined as a round trip) were made to the UK by overseas residents using the Channel Tunnel.

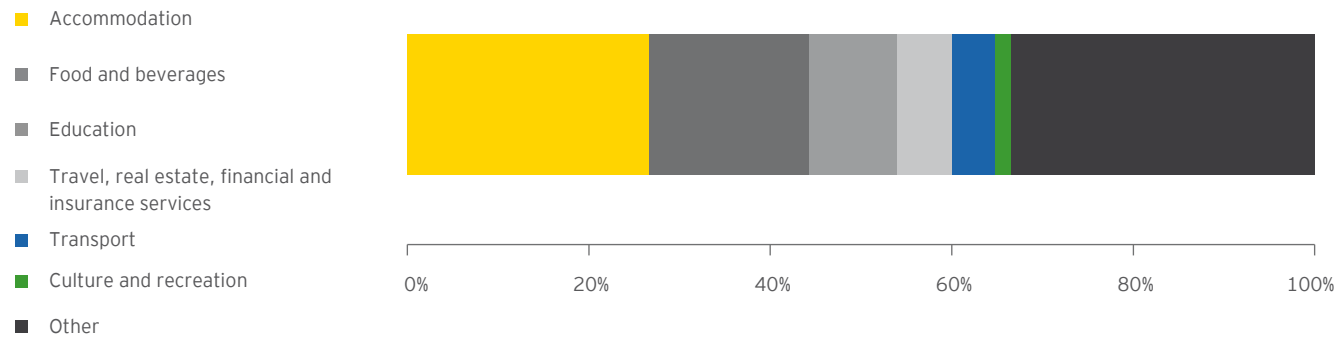
The difference in spend between different transport options is due to the length of visit of travellers using different modes of transport: 52% of overseas visitors using the Tunnel stay for between 1-3 nights; by comparison 45% of air travellers stay for between 4-13 nights (compared to 32% for the Tunnel). The total spend of visitors to the UK who travelled via the Channel Tunnel in 2014 was estimated at £1.7bn.

Tourists spend money on a variety of goods and services: 26.6% of spending is on accommodation; 17.6% on food and drink and 9.6% on clothing[55].

On average, each visitor spent £376 per visit. This is slightly higher than for travel by sea but lower than for travel by air.

Outbound visitors from the UK to Europe also generate significant revenues for the countries that they visit. Around 4.7m trips were taken by UK residents using the Tunnel in 2014 spending a total of 28m nights abroad. Of this 62% were travelling for the purposes of taking a holiday, 18% were on business and 17% were visiting friends and family. The main destinations of these visitors were France (65%) and Belgium (19%).

Profile of spending for visitors to the UK



Source: ONS, Supply and Use Tables

[53] www.ons.gov.uk/ons/rel/tourism/tourism-satellite-account
[54] ONS, The UK Tourism Satellite Account (UK-TSA), 2013
[55] ONS, Supply and Use Tables, 2013

THE MULTIPLIER EFFECT INCREASES THE ECONOMIC IMPACT OF TOURISM SPENDING

The total spend by overseas tourists in the UK (£1.7bn) is an inflow into the UK economy, similar to the inflow of payments received for other UK exports[56]. This spend translates into a direct contribution to the UK's Gross Domestic Product (GDP) of around £865m in 2014.

This benefit would be felt in the industries directly involved in tourism such as hospitality. EY analysis suggests that almost 18,000 jobs are directly supported by the inward tourism enabled by the Channel Tunnel.

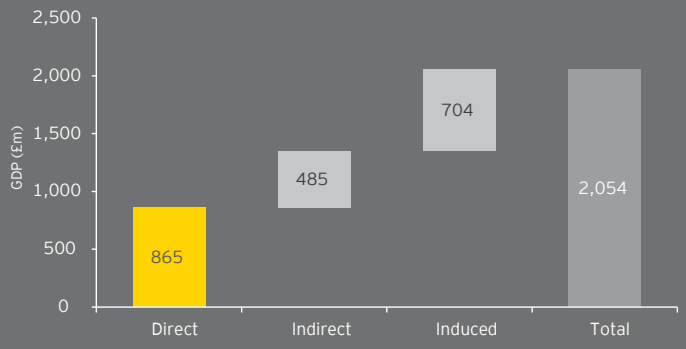
Visitor spending also generates economic benefit through wider multiplier effects. These occur because businesses such as hotels and restaurants need to purchase goods and services from other businesses in order to meet the demand from tourists.

This additional demand generates additional value throughout the UK's supply chains and is known as the "indirect" multiplier effect.

In addition, people earning income from employment in the tourism industry and its supply chain, purchase goods and services from other businesses (e.g., supermarkets) and therefore generate additional economic value – this is known as the "induced" impact.

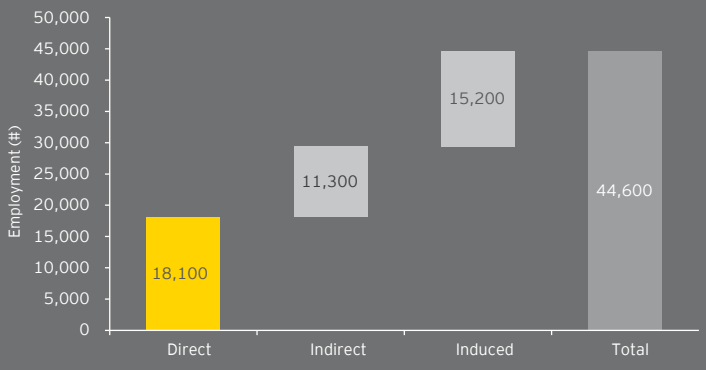
Once these multiplier effects are taken into account, the total contribution to UK GDP from the estimated spend of overseas visitors (who came via the Tunnel) rises to £2.1bn and the estimated total contribution of these visitors to UK employment rises to 44,600.

Direct, Indirect and Induced GDP supported by overseas tourists using the Tunnel



Source: EY analysis

Direct, indirect and induced employment supported by overseas tourists using the Tunnel



Source: EY analysis

[56] This analysis has attributed this spend to tourists travelling via the Tunnel. However this spend or part of it may have occurred even if the Channel Tunnel was not available for any reason

Case study
Pet travel

Studies have found that pets increase individuals' health and well-being including having healthier hearts, less time off sick, fewer visits to the doctor and encouraging them to take more exercise. The UK pet population is around 65m including 9m dogs and 7.9m cats[57], with around 46% of UK households owning a pet[58].

People would often prefer to take their pets away with them, in order to avoid the cost of kennelling and to limit the distress of leaving their pets in the care of someone else. Almost 2m pets have travelled through the Channel Tunnel since the "Pet Travel Scheme" was introduced in 2000. The pet travel scheme allows people to enter or return to the UK with their pet cat, dog or ferret as long as it has been microchipped, has a pet passport and has been vaccinated against rabies.

> Dogs are very much a part of the family and by treating them as such, Eurotunnel Le Shuttle has become the first port of call for dog owners heading over to France with their four-legged friends.
> **Caroline Kisko, Kennel Club Secretary**

Unlike other forms of transport, including air, pets can travel with their owners for the entire 35 minute journey and without the need for sedatives and specialised containers. This improves both the comfort and the welfare of the animal throughout the journey. The speed of the Channel Tunnel crossing also minimises the length of time that animals need to stay stationary and contained within the vehicle, reducing the likelihood of them becoming restless or distressed. The Channel Tunnel terminals also have dedicated pet facilities for owners to exercise their pets before boarding. The Channel Tunnel provides a way to transport large pets for £18 per pet per crossing. Other smaller pets including rabbits, birds, fish, reptiles and amphibians travel free of charge.

These benefits mean that the Channel Tunnel is the most popular way for people to transport their pets to and from continental Europe. Around 71% of the pets entering the UK each year do so using Le Shuttle Passenger services[59].

[57] National Center For Health Research, Dana Casciotti PhD and Diana Zuckerman PhD, The benefits of pets for human health
[58] Pet Food Manufacturers' Association
[59] https://www.eurotunnel.com/uk/tickets/travelling-with-your-pet/

THE CHANNEL TUNNEL SUPPORTS TRAVEL FOR A DIVERSE RANGE OF LIFESTYLES

Going on holidays abroad clearly provides significant economic benefit to UK residents[60]. For example, 46%[61] of people say that their happiest memory was being on holiday with their family.

The Channel Tunnel enables a variety of holiday and lifestyle choices, including low cost alternatives such as camping and coach tours. The benefits of holidays can last beyond the end of the trip and has been linked to greater optimism and ambition for the future and well as reducing worries and concerns.

The Channel Tunnel is also a popular way for people to travel to and from continental Europe to attend sporting and other cultural events. Each year the Channel Tunnel sees a spike in passenger traffic around the weekend of the Le Mans 24 hour race as avid motorsport fans journey to the site of the oldest sports car race. The Tunnel's booking system flexibility allows last minute planning for sporting tournaments where later games are un-specified at the outset. It also provides a cost effective option for those who do not want or cannot book hotel accommodation near the events. Le Shuttle Passenger service transports many vehicle types through the Tunnel, including cars (85%), motorcycles (1%) and vans (5%)[62] and for those who wish to drive with specialist equipment, for example to camp at music festivals, or move furniture and large items between residences, it provides an effective option. This is true of people coming to events in the UK, and for UK residents to travel to events in other parts of Europe. A large number of sports fans also use Eurostar services. For the 2016 European Football Championships it is estimated that around 500,000 British fans made the short trip to France to watch the tournament. A number of other countries' fans, resident in the UK, will also have travelled to the tournament to support their national teams.

As well as transporting passengers to these events, the Tunnel is frequently used by event organisers to transport specialist equipment. This includes high value sports equipment, including Formula 1 cars, bicycles and (in 2014) equipment for the European wrestling championships in Finland. The main reason for transporting these goods through the Tunnel, instead of using an alternative is the speed and practicality of transit.

In 2012 a large number of horses were transported through the Tunnel in order to compete in the London Olympic Games. The speed as well as the smoothness of the transit was important to ensure that the horses were comfortable, safe and ready to compete when they arrived.

[60] People value leisure time and optimise this via holidays abroad. The amount spent on these holidays (including travel) is a good proxy for the value of the welfare that this generates
[61] Family Holiday Association
[62] Channel Tunnel, Market Analysis by Vehicle Group, 2015

> The Tunnel's booking system flexibility allows last minute planning for sporting tournaments where later games are un-specified at the outset. It also provides a cost effective option for those who do not want or cannot book hotel accommodation near the events.

THE CHANNEL TUNNEL SERVICE IS RESILIENT AND IS SET TO GROW OVER THE REMAINDER OF THE DECADE

The Channel Tunnel has experienced average annual growth in truck volumes of 13% since its first full year of operation in 1995.

Le Shuttle Freight services commenced in June of 1994 with the first full year of operation in 1995 seeing 391,000 trucks pass through the Channel Tunnel. By 2014 the number of trucks passing through the Tunnel had increased by more than 350%, reaching 1.4 million. Over the same period UK GDP growth has averaged 2.5% per annum[63] and total growth in UK trade has averaged 7%[64]. Since then, the Tunnel has continued to break its own records, transporting more trucks in 2015 than ever before, despite the significant disruption that affected the Tunnel that year.

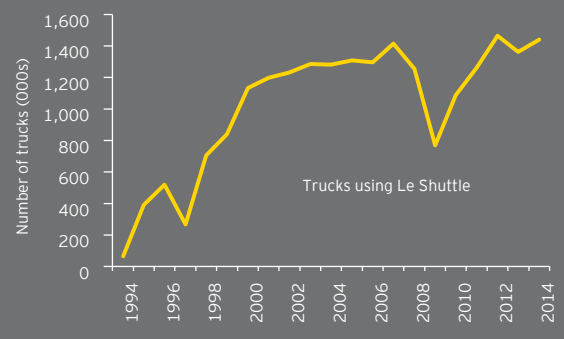
A fire in the Tunnel in November of 1996 which resulted in partial closure of the Tunnel until June the following year affected truck volumes but these rebounded quickly and by 1998 traffic volumes were back on their previous growth trajectory.

A sharp decline in truck volumes in 2009 was caused by a fire in 2008 which resulted in partial closure of the Tunnel for several months. The impact of this disruption was exacerbated by the financial crisis of this period. Total UK trade value fell by 10% between 2008 and 2009. Again, the Tunnel recovered and truck volumes are now higher than pre-crisis levels.

The Tunnel's rail freight service has experienced a different pattern, seeing significant growth in the period 1995-1998 where the total tonnes of freight transported through the Tunnel via rail more than doubled. Rail freight is able to operate at night when other Tunnel services are not operational, maximising the Tunnel's economic usefulness. However, a number of logistical challenges, coinciding with privatisation of the rail network in the UK, meant that rail freight volumes were significantly affected until 2007 when Open Access was introduced. This allowed the entry of new operators of rail freight services as well as separate operation of French and UK rail freight services. Since 2007 the volume of rail freight passing through the Tunnel has increased by 36%.

Together, this demonstrates the resilience of demand for the Channel Tunnel and its importance as a key part of the UK's infrastructure. As we have seen the Channel Tunnel offers freight operators a distinct value, through higher frequency, more reliable, faster and flexible service, that cannot easily be replaced by other forms of transport. The economic value of this service to the UK is evident in the value of trade that it enables.

Trucks and rail freight passing through the Channel Tunnel (1994 – 2014) [65]



Source: Department for Transport

[63] ONS, UK National Accounts, The Blue Book time series dataset
[64] Oxford Economics
[65] The scales of these graphs are not equivalent. Rail freight only represents around 9% of the volume of freight being transported through the Channel Tunnel

The value of trade passing through the Tunnel will grow due to macroeconomic factors and increased service provision

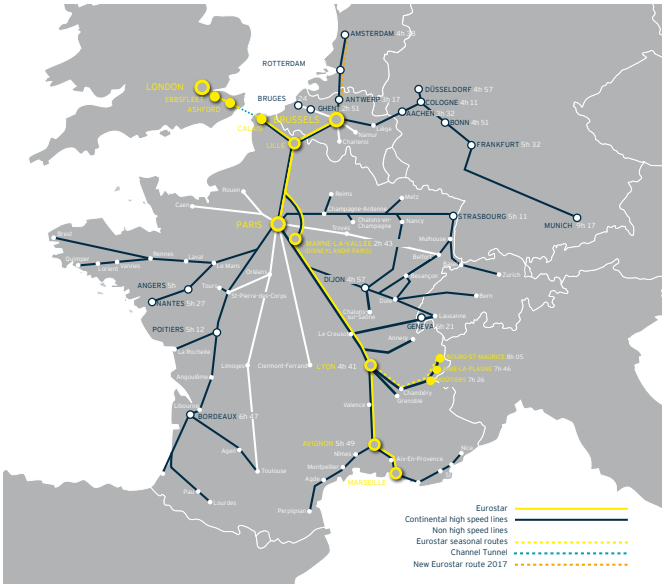
While the future of the UK's trade policy with the EU remains uncertain, a central case assumption that a similar trading partnership will exist sees exports growing by 4% by 2017. This forecasts for exports is driven by an assumption that the relatively lower value of the Pound will persist, making exports more attractive. Meanwhile, imports are likely to be constrained by price and weaker domestic demand. EY ITEM Club forecasts that net trade will add 1.1% to UK GDP in 2017[66,67].

The number of trucks travelling on Le Shuttle Freight services is expected to continue to grow over time[68], driven by economic and population growth in UK and Europe as well as expansion in the capacity through the Channel Tunnel. The long length of the concession held by Groupe Eurotunnel (until 2086) provides the confidence to secure long term private investment in the Channel Tunnel service, including investments in rolling stock.

New routes will see a growth in passenger traffic

The number of passengers travelling on Eurostar and in cars and coaches on Le Shuttle Passenger services is expected to grow significantly over the remainder of the decade. This growth in passenger numbers is driven by a diversification of rail services into new routes to match increasing demand. From December 2016 services will begin operating between London and Amsterdam, with the journey expected to take around four hours.

A permanent schedule for direct routes between London, Lyon, Avignon and Aix-en-Provence was launched in 2015, following a successful pilot. Other routes, including direct services from London to Geneva, Frankfurt and Cologne, are also being considered by the operators. The availability of new routes is likely to act as a driver of the growth in the number of overseas trips made by UK residents.



This passenger traffic will continue to support the UK economy by drawing in tourists from the European continent who spend money on hotels, restaurants and tourism activities.

As a result, tourism enabled by the Channel Tunnel is likely to make a significant contribution to the growth of the UK tourism industry.

Furthermore, UK tourists travelling to continental Europe will be able to make use of the new services on offer, enabling wider consumer choice which increases individuals' welfare. Business travellers will also benefit from this increased choice as the Channel Tunnel will compete with more air travel routes, saving business time and money.

The Channel Tunnel will remain a key piece of the UK's transport infrastructure

As we have seen throughout this report, the Channel Tunnel differentiates itself from other forms of transport, connecting the UK with continental Europe, by providing a high-frequency, flexible, and reliable service, which results in an overall lower transport time and cost for businesses. The ability of the Channel Tunnel to directly link into the road and rail networks of the UK and continental Europe means that it can act like a motorway, reducing physical barriers to trade.

For a number of export and import sectors this is critical to allowing them to implement cost effective business models, including just-in-time production, express delivery services and trade in fresh produce.

The value of trade that passes through the Tunnel each year is significant and is likely to grow with importance as new routes are opened.

Whilst there is likely to be increased uncertainty following the UK's decision to leave the EU, the UK's trade relationship with European countries will continue. This means that the UK will continue to rely on the Channel Tunnel to connect it with Europe and beyond and it will continue to form a key part of the UK's transport infrastructure.

[66] EY ITEM Club Summer 2016
[67] Should customs or tariff barriers be imposed between the UK and the EU, this may directly reduce trade volumes and consequently the volume of traffic passing through the Tunnel
[68] According to Channel Tunnel forecasts

APPENDIX

Sources

1 Office for National Statistics

2 International Monetary Fund

3 Groupe Eurotunnel

4 HM Revenue & Customs

5 EY 2016 UK Attractiveness Survey

6 Eurostat

7 Department of Energy & Climate Change

8 Department for Transport

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