



One hub or none

The case for a single UK hub airport

November 2012

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1 Introduction

We are living through an era of profound change. The balance of the global economy is shifting to the 'emerging markets' of the world: places like China, India, Brazil, Russia, Mexico, South Korea, Indonesia and Turkey whose populations and economies are growing rapidly.

At the same time the UK's economy is burdened by debt and faces the prospect of weak economic growth for years to come. Government is focussing on paying debt back, which will mean less government spending, and in turn will make economic recovery even more difficult.

So Britain today is faced with some tough choices about how best to structure its economy for the future. We have to decide the best strategy to create employment and prosperity in the UK. In a world in which Britain has no automatic right to be at the top table and can no longer rely on cheap credit, we must determine the strengths it should develop to rehabilitate the economy.

Our history as an island trading nation should give us a clue. We do well in specialist industries that require global mobility - businesses that either need to meet clients around the world, or attract talent from across the globe. Part of our competitive advantage is rooted in the UK having had the world's largest port or airport on its shores for the past 350 years. This has meant that the world travelled through the UK to reach its final destination. Consequently London has become the centre of global service industries like insurance, law and finance.

350 years of history will end sometime in the next decade when the UK's hub airport, Heathrow, is overtaken by Paris, Amsterdam, Frankfurt or Dubai as the busiest airport for international passengers. Each of these airports is a direct competitor to the UK's hub. Heathrow's comparative decline will make the UK a less attractive place to do business, as over time we increasingly fail to offer the number and range of destinations businesses need. Worse still, Heathrow is doing particularly badly on routes to the new emerging markets that are so important for growth. Heathrow won't have added any more flights by the time it is overtaken. It can't. It is full, with no spare runway capacity and no plans approved for a new runway.

In setting up its Airports Commission, chaired by Sir Howard Davies, the Government has recognised that maintaining the UK's aviation hub status is critical to future economic success. Jobs and growth in the UK depend on international connectivity.

This document addresses the following questions: What is a hub and why is it different from other airports? What is the value of a hub airport to the UK? Is it possible to have two hubs, or to split a hub over more than one location? And what type of hub will the UK need in future?

It concludes, by reference to international experience, that only a single airport can operate as a successful hub in the UK and that the choice for Britain is not between two hubs or one, but between one hub or none.

Ultimately, the Government has three options: do nothing and let the UK fall behind; add additional capacity at Heathrow; or close Heathrow and replace it with a new hub airport.

We suggest 12 criteria which the Davies' Commission could use to assess the pros and cons of each option for creating new hub capacity. It should be possible to build consensus on what the UK requires from its hub airport so that every option can be assessed on its merits.

We would like the Davies' Commission to work as quickly as it can, but it is more important to make a considered decision than a quick decision. The UK has the opportunity to make the right decision, once. If we make the wrong decision now it will be too late to change: the UK will have lost its position as a global hub for good.

None of the options for additional airport capacity is easy. Every choice, including doing nothing, has its consequences. However a clear positive decision would stimulate economic growth, create jobs, and help secure Britain's competitiveness in a changing world.



Colin Matthews
Chief Executive, Heathrow

2 Executive Summary

2.1 What is a hub airport?

A hub airport is an airport where local passengers combine with transfer passengers to allow airlines to fly to more destinations more frequently than could be supported by local demand alone. Put simply, it is the most efficient way of connecting many different destinations. Typically, passengers from short-haul flights combine with passengers from the airport's local area to fill long-haul aircraft. Transfer passengers are essential for a hub airport to serve many destinations. They allow the UK to connect to countries where it couldn't sustain a direct daily flight itself. These flights support trade, jobs and economic growth.

The number of direct passengers varies on each route by time of day, day of the week and month. Airlines cannot adjust the aircraft size each day. Instead, having sold seats to as many direct passengers as possible, they fill the rest of the aircraft with transfer traffic. The key aspect of transfer traffic is its variability. The demand from passengers transferring through London is highly elastic. A passenger travelling, say, from Lyon to New York faces a wide choice of flights connecting through London, Paris, Frankfurt, Amsterdam and Madrid, and a small price differential influences strongly the choice of route. Without transfer traffic, load factors would be lower and many routes would not be viable.

We recognise the importance of hub networks in other walks of life. Mail sorting offices, telephone exchanges, and supermarket distribution centres are examples which show that the best way of connecting two points efficiently is via a central hub.

As our only international hub airport, Heathrow supports flights that cannot be operated profitably from any other UK airport and connects British businesses with the growth markets other non-hub airports cannot reach. Heathrow serves 75 direct destinations world-wide that are not served by any other UK airport and handles more than 80% of all long haul passengers that come to the UK.

2.2 The value of a hub airport to the UK

International connectivity through a hub airport supports economic growth. UK businesses trade 20 times more with emerging markets with daily flights than those with less frequent or no direct service. In addition, the rate of growth in UK trade is substantially lower where daily flight connections with Heathrow are not available.

Yet constraints at Heathrow - which is running at over 99% capacity - mean that the UK is unable to serve growing international demand. Heathrow is permitted 480,000 flights a year. All four of Heathrow's competitor European hub airports - Paris, Frankfurt, Madrid and Amsterdam - have enough runway capacity to serve around 700,000 flights per year.

As a consequence Heathrow is slipping out of the Premier League of Europe's international hub airports. Paris and Frankfurt will push Heathrow into third place in Europe within the next ten years. They already boast around 2,200 more flights to mainland China than Heathrow each year. There are 26 emerging market destinations with daily flights from other European hubs that are not served daily from Heathrow: including destinations such as Manila, Lima, and Jakarta.

The UK is cutting itself off from growth. We could be missing out on up to £14 billion per year in lost trade due to poor connections. This lack of runway capacity has particularly hurt regional growth in the UK by pushing out aircraft serving regional routes.

As well as its wider contribution to the UK's connectivity and economic growth, Heathrow itself directly employs 76,500 people, making it one of the largest single-site employers in the UK. Taking into account the hotel, catering and transport companies based at Heathrow, there are a total of 114,000 direct and indirect jobs at the airport - 22% of the jobs in the local area.



2 Executive summary

2.3 Why aren't two hubs better than one?

Some have suggested the answer to the aviation challenge the UK faces is not to build new capacity at Heathrow, but to have two hubs - either through a 'dual hub' with another hub airport operating independently of Heathrow, or a 'split hub' with Heathrow connected to another airport, such as Gatwick, via a rail link. Neither of these options is a credible solution.

History shows that a dual hub in the UK does not work. Attempts to create a dual hub between Heathrow and Gatwick were tried in the 1970s and 1990s but both ended in failure because airlines were attracted back to the main Heathrow hub where they could maximise transfer opportunities. Those who promote New York as an example of a city that has more than one large airport ignore the fact that New York has three large US network airlines that operate from the city, whereas the UK only has one major network airline in British Airways.

The split hub option "Heathwick" is not viable. Connection times would be too long for transfer passengers, and it would be prohibitively expensive to create and operate. Not only would the Government need to fund and build an expensive and complex rail connection. It would also mean Heathrow's minimum connect time of 60 minutes would extend to at least 100 minutes. This wouldn't be competitive with other European hubs, such as Amsterdam which has a 45 minute minimum connect time.



2.4 The choice

There is a trend of consolidation in the airline industry. Following recent mergers there are just three major network airline businesses in Europe: IAG (which owns British Airways and Iberia), Lufthansa, and Air France-KLM. Yet there are five major hub airports in Europe: Heathrow, Amsterdam, Paris, Frankfurt and Madrid. The most efficient business model would be consolidation around just three hubs. The merger with Iberia gives British Airways an alternative European hub in Madrid at which to grow.

The choice for the UK is not between two hubs or one, but between one hub or none. Only a single airport can operate as a hub in the UK. That leaves three options for the UK Government:

- It can do nothing and let the UK fall behind its European competitors at the cost of lost growth and jobs
- It can add additional capacity at Heathrow
- Or it can close Heathrow and replace it with a new hub airport.

To examine its options and help it decide its aviation policy for the future, the Government has established an Airports Commission. After fifty years of indecision on aviation by successive Governments, this is the last chance to take a policy decision before the UK loses its position as a major air transport hub for good. The pros and cons of each option should be carefully considered. We suggest 12 criteria against which new hub airport capacity options could be assessed:

- 1 Will it result in a competitive hub airport?
- 2 Is it commercially deliverable?
- 3 Will it deliver sufficient hub capacity?
- 4 Will it be able to operate safely?
- 5 What are the economic benefits?
- 6 How quickly can it be delivered?
- 7 What will the environmental impacts be?
- 8 What will the noise impacts be?
- 9 How attractive will the location be for passengers?
- 10 What new road and rail links will be required?
- 11 What will the land use and urban development impacts be?
- 12 How would options that involve replacing Heathrow manage the transition?



3 What is a hub airport?

3.1 What is a hub airport?

Airlines make flights profitable by:

- flying aircraft as full as possible by supplementing business passengers with leisure passengers and passengers transferring from other flights
- importing and exporting cargo, which is usually flown in the hold of ordinary passenger planes
- operating at a competitive cost.

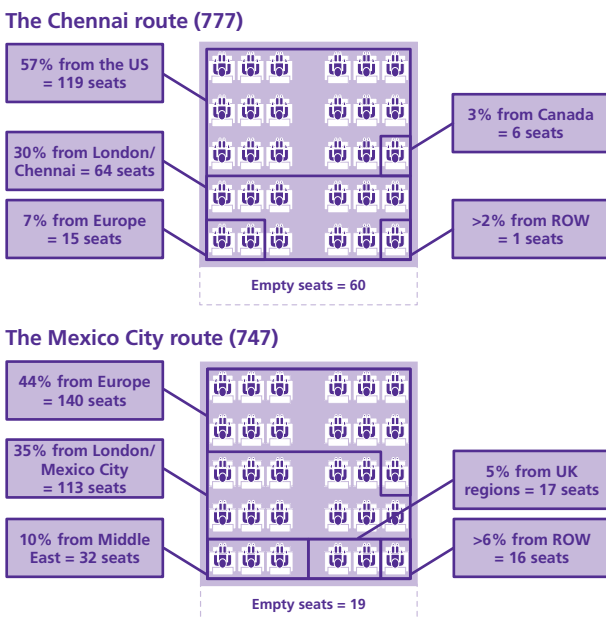
A hub airport is an airport where local passengers combine with transfer passengers to allow airlines to operate flights to more destinations more frequently than could be supported by local demand alone.

Typically, passengers from short-haul flights combine with passengers from the airport's local catchment area to help fill long-haul aircraft. It is this network of flights, transfer passengers and direct passengers that makes a hub airport different. It allows the UK to connect to countries where it wouldn't be able to sustain a direct daily flight by itself. These flights support trade and economic growth.

To take an example, London, Edinburgh, or Stockholm might not have enough people wanting to travel to Sao Paulo to be able to justify a daily flight. By pooling demand through a hub airport like Heathrow, airlines are able to serve the destination profitably and increase the number of flights per day.

This hub phenomenon is self-reinforcing. Once a flight to Sao Paulo has been established, then more passengers travel through the hub and more passengers are available to transfer onto other flights. Each additional flight to the hub makes other flights more likely to succeed. Every flight removed from the hub makes every other flight less viable.

Figure 3.1: Pooling demand - the average flight from Heathrow to Chennai and Mexico City in 2011¹



3.2 Examples of other hub networks

The importance of a hub is not particularly intuitive when thinking about airports. Yet, we recognise hubs in other walks of life.

If you send a letter from Aberdeen to Sao Paulo you expect your letter to be grouped with others at a central sorting office before heading to Brazil. Equally we expect telephone companies to route telephone lines via an exchange rather than connecting each phone directly to every other phone. And we expect supermarket retailers to collate products at a central warehouse before they are distributed to individual stores or homes. In each case we intuitively recognise that the best way of connecting two remote points efficiently is via a central hub. What is true for letters, telephone calls or supermarkets is also true for air passengers.

Just as a telephone exchange enables many telephones to be connected with fewer lines, so a hub airport enables many destinations to be connected with fewer flights.

Figure 3.2: Efficient hub networks: be they for letters, telephone calls or air passengers²

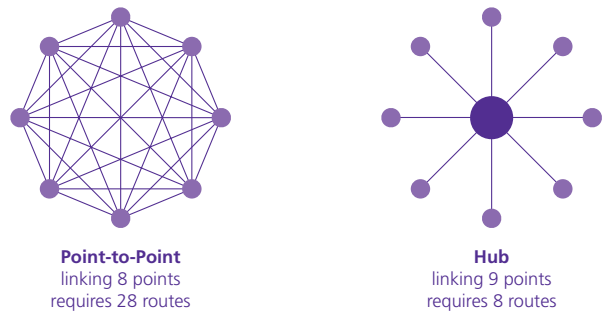
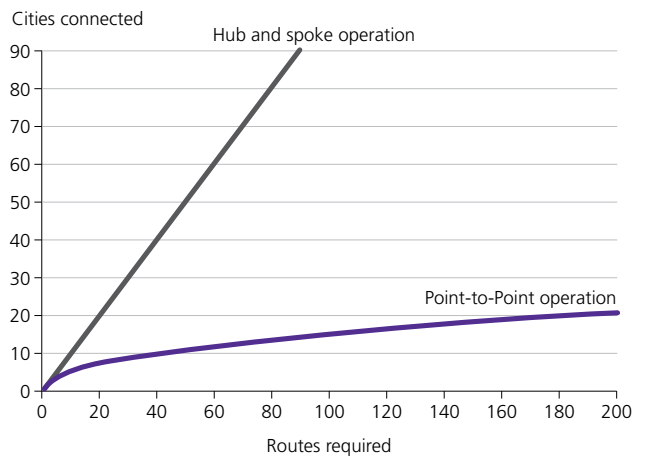


Figure 3.3: The number of destinations that can be connected by flights from a hub airport compared to a point-to-point airport³



¹ CAA Passenger Survey Data, 2011

² Heathrow illustration

³ Frontier Economics, Connecting for Growth, 2011

3 What is a hub airport?

3.3 Hubs serve more destinations

The benefits of a hub airport to Britain are that marginal destinations that couldn't be served at all from a point-to-point airport can be served profitably from a hub airport, and popular routes can be served more frequently. Heathrow serves 75 direct destinations world-wide that are not served by any other UK airport. Only a hub airport can link Britain effectively to all the long-haul destinations that will be important to its future competitive position.

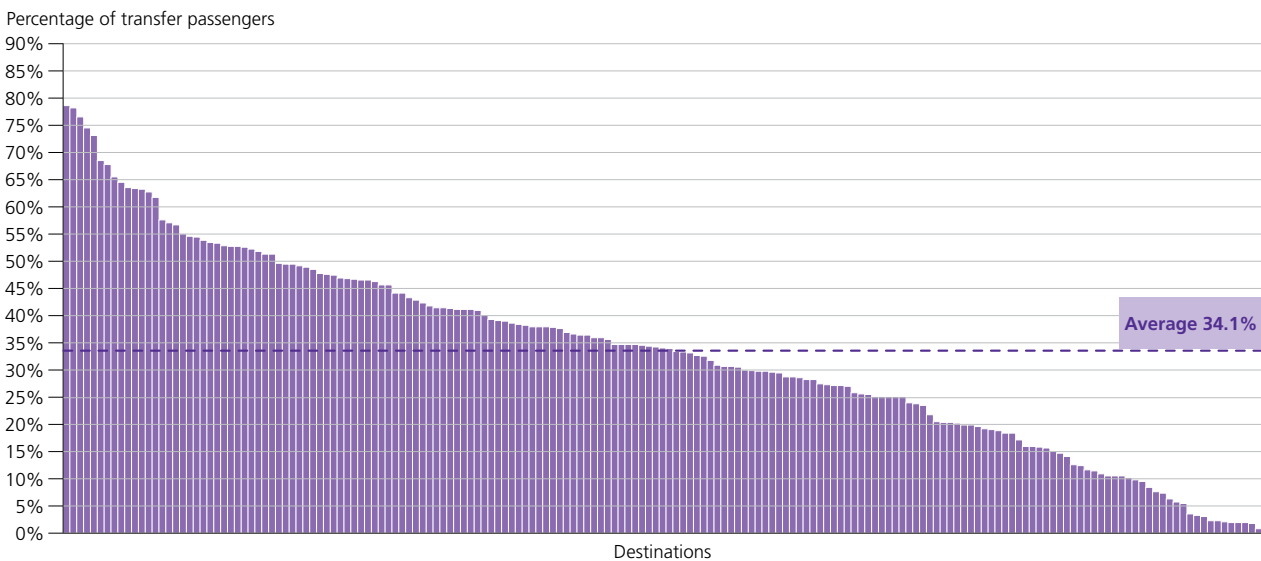
3.4 The critical role of transfer passengers

The reason Heathrow is able to support direct long-haul flights to multiple destinations is because of transfer passengers. One-third of passengers on the average flight from Heathrow are transfer passengers and the vast majority of flights have at least 25% transfer passengers. If these passengers did not exist then the routes would not be viable and would either disappear or reduce in frequency.

Figure 3.4: 75 destinations served by Heathrow that are not served by any other UK airport⁴



Figure 3.5: Percentage of Heathrow's transfer passengers by destination⁵



^{4,7} Heathrow analysis of OAG data, 2012

⁵ CAA Passenger Survey Data, 2011

⁶ Frontier Economics, Connecting for Growth, 2011

3 What is a hub airport?

The demand from passengers starting or ending their flight in London, that is direct passengers, varies on each route by time of day, day of the week and month. This is especially true for the most profitable market segment, business travellers who place a high value on direct flights.

Airlines cannot adjust the aircraft size each day. Instead, having sold seats to as many direct passengers as possible, they fill the rest of the aircraft with transfer traffic.

The key aspect of transfer traffic is its variability - the ability of airlines to dial demand up or down. The demand from passengers transferring through London is highly elastic. A passenger travelling, say, from Lyon to New York faces a wide choice of flights connecting through London, Paris, Frankfurt, Amsterdam and Madrid, and a small price differential influences strongly the choice of route.

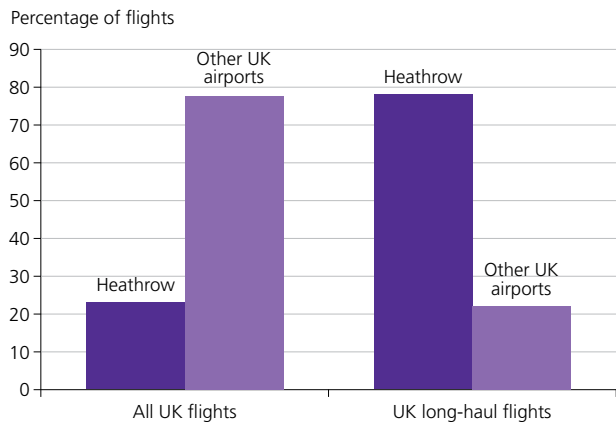
In practice, some flights from a hub airport such as Heathrow have 80% or more transfer passengers, while others have, say, 10%. The average number of transfer passengers matters less than its variability. Without transfer traffic (ie without a hub) load factors would be lower and many routes would not be viable.

Figure 3.6 Some important long-haul routes which have more than 50% transfer passengers⁶



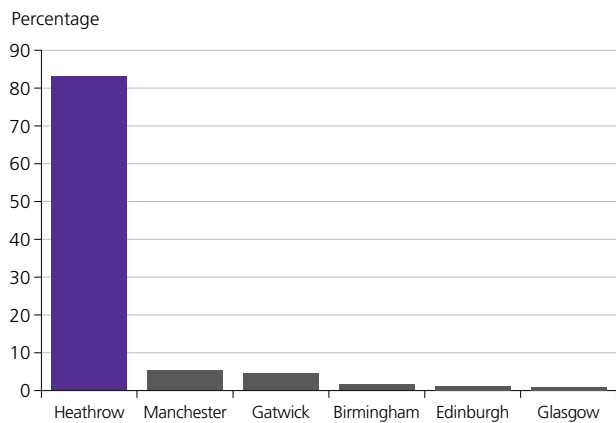
It is transfer passengers that explain why Heathrow accounts for a much greater proportion of long-haul flights than you would expect given the overall number of flights it operates. Heathrow accounts for just 23% of all UK flights but 78% of all scheduled long-haul flights. This is because of the economics of the hub network - airlines can operate routes from a hub that they cannot operate profitably from a point-to-point airport.

Figure 3.7: Total UK flights, total long-haul flights⁷



Heathrow also accounts for a much greater proportion of business travel than you would expect given its size. While it accounts for just 32% of UK aircraft seats it accounts for more than 80% of long-haul business and first class seats.

Figure 3.8: Percentage of long-haul premium air passengers arriving or departing from UK in 2011⁸



The value of a hub can also be seen by looking at the type of daily long-haul flights that are able to operate from other UK airports. Almost all of these flights are to destinations where there is either a very large leisure market (such as Florida or the Caribbean) or are to a foreign hub airport (such as Emirates to Dubai). There are almost no flights to non-hub long-haul business destinations.

3 What is a hub airport?

Figure 3.9: Direct daily flights from Manchester Airport to long-haul destinations⁹

Destination	Airline	Description
Abu Dhabi	Etihad	Foreign hub
Atlanta	Delta	Foreign hub
Chicago	American Airlines	Foreign hub
Doha	Qatar	Foreign hub
Dubai	Emirates	Foreign hub
New York	United, American Airlines	Long-haul business and leisure
Orlando	Virgin Atlantic, Thomas Cook, First Choice, Thomson, Airtours, Skytours, Cosmos, US Airways	Leisure
Philadelphia	US Airways	Foreign hub
Sharm-el-Sheikh	Monarch, Easyjet	Leisure

Birmingham Airport has just one direct daily flight to a long-haul destination - an Emirates flight to its hub in Dubai.

3.5 Hub competition

The global map of major international hub airports shows that, with the exception of North America, they are few and far between. There are 27 member states in the EU, but only five have a major hub airport. The UK has no divine right to have a hub located within its territory.

Just as London and the UK compete with other countries and regions for economic growth and business, so hub airports compete with each other for transfer passengers, flights and new destinations.

Heathrow competes with Paris, Frankfurt, Amsterdam and Madrid. To be competitive, hubs need to be able to attract network airlines and their passengers. That means delivering a great passenger experience; short connection times; strong local demand for air travel; low airline charges; low taxes; good road and rail connections; and enough capacity to support a network. Airlines will compete with each other and will move operations to hubs that improve their profitability. This competition is good for consumers - delivering lower prices and greater choice of services.

Major international hub airports



⁹ Heathrow analysis of OAG data, 2012

3 What is a hub airport?

3.6 Won't point-to-point airports be able to operate more direct flights to other destinations?

As Heathrow has become full, airlines have faced a choice as to whether to operate via a point-to-point UK airport or whether to operate from another European hub airport instead. The more attractive profits available from operating at hubs such as Paris, Frankfurt and Amsterdam have generally proved more enticing than the option of operating from a point-to-point UK airport. There are isolated examples of routes operating from point-to-point UK airports (such as Air China flying from Gatwick to Beijing) but most traffic growth has been at other European hubs.

There are numerous examples of failed long-haul services from point-to-point UK airports:

- Hong Kong Airlines to Hong Kong from Gatwick. Started March 2012, ended September 2012
- American Airlines from Stansted and Gatwick. Started Stansted to New York JFK in October 2007, ended in 2008; and moved all its services from Gatwick to Heathrow as soon as the 2008 US-UK Open Skies agreement allowed it to do so
- Air Namibia from Gatwick. Started 2005, ended 2009
- Etihad from Gatwick: Started in 2004, ended in 2007
- Continental Airlines from Bristol to New York. Started 2005, ended November 2010
- Air India from Birmingham to Amritsar. Started 2005, ended October 2008. Birmingham Airport has no direct flights to India despite there being 200,000 people of Indian origin in the West Midlands. Although Birmingham Airport questions the importance of a hub all its flights to India are via Paris, Frankfurt, Amsterdam or Dubai.

These failures are driven by the commercial reality of airline network economics, which require transfer passengers to support long-haul services. It typically takes airlines a minimum of three years to build sufficient passenger volumes to make a route profitable. The hub business model allows airlines to supplement direct passengers with transfer passengers when the route starts out, allowing them to fill their aircraft on a Tuesday and Wednesday and not just at more popular times to travel such as Friday or Sunday. The transfer passengers make starting a route of marginal profitability easier.

As demand grows for a destination you might imagine that the airline might seek to provide routes from point-to-point destinations rather than a hub. But it is more attractive for an airline to continue to increase the frequency of the route from its hub rather than to operate from a point-to-point airport instead. Passengers benefit by having a wider choice of routes at greater frequency. Airlines need profitable well-established routes in order to start new routes from the hub.

Airlines that cannot operate from the UK's hub at Heathrow do not automatically go to another UK airport instead: they operate from outside the UK altogether. A survey by the Board of Airline Representatives in the UK (BAR UK), which represents almost 90 scheduled airlines, shows that more than half (53%) are locating flights in other countries that they say would have come to the UK if there was spare capacity at Heathrow. 86% of airlines said that they would put on more flights to the UK if additional take-off and landing slots were available at Heathrow.

This means that without additional hub capacity the UK will fall from being at the centre of a global network of trade and commerce to being a branch line serving other European or international hubs.





4 What is the value of a hub to the UK?

4.1 There are many benefits of having a successful hub in the UK

UK economy	<ul style="list-style-type: none"> - A hub provides direct air links to both international and domestic destinations that could not be justified by local demand alone - providing opportunity for increased levels of commerce and employment - The host country becomes an attractive location for international businesses that value high quality international connectivity - Direct flights to international destinations also facilitate trade with those countries. For example, UK businesses trade 20 times as much with emerging market destinations that have a direct daily flight from Heathrow - The UK could be missing out on up to £14 billion of trade per year due to poor connections¹⁰ - In total, if Heathrow is constrained, Oxford Economics estimates that by 2021 this could lower employment by 141,400. - Heathrow contributes millions of pounds to the UK exchequer each year through business rates, air passenger duty and other taxes
UK business	<ul style="list-style-type: none"> - A hub gives business easy access to markets and greater ability to reach potential customers - A hub makes a city a natural place to set up global services industries because it is a destination that clients will pass through on their way to other destinations - A hub makes it easier for businesses to attract global talent as it provides easy connections to many destinations - A hub makes it easier for businesses to import and export goods quickly to a wide range of destinations.
UK air passengers	<ul style="list-style-type: none"> - A hub provides direct travel opportunities that would not be possible without additional connecting passengers. Without a successful hub, passengers from the UK have to connect via another country to access some destinations, making their journey longer and less convenient - A hub also means passengers have access to more frequent services.
UK regions	<ul style="list-style-type: none"> - With a connection to the hub, UK regions benefit from having access to an international route network that they couldn't sustain from their local airports alone. This benefit has been diminished at Heathrow over the last decade as a lack of runway capacity has pushed out aircraft serving regional routes - Having access to a successful UK hub shortens journey times compared to travelling via a foreign hub - A further benefit is that international businesses that locate near a UK hub usually have a UK supply chain that brings benefits to the whole country - Heathrow's own supply chain brings benefits to the UK regions. In 2010 and 2011, the rebuilding of Terminal 2 at Heathrow was the largest privately funded investment project in Europe. Of this, £1.7 billion was spent on goods and services from more than 1,000 UK firms.
Local people	<ul style="list-style-type: none"> - Heathrow directly employs 76,500 people, making it one of the largest single-site employers in the UK. Taking into account the hotel, catering and transport companies based at Heathrow, there are a total of 114,000 direct and indirect jobs at the airport - 22% of local jobs.
Tourism	<ul style="list-style-type: none"> - A hub makes it easier for tourists from long-haul destinations to visit the UK. In 2010, foreign tourists that used Heathrow are predicted to have generated 152,000 jobs in the UK¹¹ - Tourism agencies and hoteliers work at hubs to promote opportunities for stop-over breaks for those passengers connecting through a hub. Just as passengers travelling from the UK to Australia might choose to stop over at a hub city such as Dubai, Hong Kong, or Singapore, so passengers travelling between the US and Europe stop-over in London - In 2021, without new aviation capacity at Heathrow airport, there could be up to 5.8 million fewer international tourists travelling to the UK from long-haul destinations every year than would be the case if there was capacity at the UK's hub. This will constitute a potential loss of up to £7.3 billion of tourist spend in the UK economy each year - estimated to equate to £3.6 billion less GDP and 78,800 fewer jobs supported.¹²
The environment	<ul style="list-style-type: none"> - Additional hub capacity would add emissions to the UK's CO₂ footprint. However, these emissions would still exist if extra capacity isn't built - they would simply be pushed to other UK or European airports, as the evidence shows that passengers would fly using other airports. A south-east hub could handle these passengers with lower carbon impact than other airports. Heathrow attracts larger planes flying at higher load factors than other airports - and this results in lower emissions per passenger. The average short haul aircraft at Heathrow has 35 more seats available than its equivalent at Frankfurt, Paris, and Amsterdam. In fact, adding extra capacity, might actually shrink global emissions by reducing congestion and queuing times for aircraft and enabling more passengers to fly directly to new destinations. Locating the hub as close as possible to the largest source of direct traffic in Europe (London) is the most efficient way to manage flights.¹³
UK airlines and the airport operator	<ul style="list-style-type: none"> - A hub allows UK airlines to augment local demand with connecting passengers, offering the opportunity of serving more routes, using larger aircraft and offering greater frequencies. This can lead to improved economic and financial performance and increased competitiveness versus foreign airlines.

¹⁰ Frontier Economics Bulletin, Missing trade opportunities, 2012

¹¹ ¹² Oxford Economics, The value of aviation connectivity to the UK, 2012

¹³ Analysis conducted by a global management consultancy on behalf of Heathrow

4 What is the value of a hub to the UK?

4.2 Trade matters to economic recovery

In a period of prolonged fiscal restraint, achieving economic growth in the UK is dependent upon our ability to successfully compete for trade and exports globally where competition is fiercer than ever. Economic growth and recovery depend on Britain's ability to export overseas and attract inward investment to the UK.

The centre of gravity in the world economy is shifting. The fastest growth is happening in markets that are geographically distant from the UK. Increasingly our economic prosperity in the UK will be in large part determined by our success in trading with emerging markets of the world rather than with existing markets in Europe or the US.

Over the next ten years, the IMF world GDP forecasts indicate that the eight largest Emerging Markets will account for more than half of global GDP growth. These eight countries (Brazil, Russia, India, China, Mexico, South Korea, Turkey and Indonesia) already account for nearly a quarter of world GDP today.

McKinsey estimates that by 2025 the top 600 global cities will account for 60% of GDP. 136 new cities will enter the top 600 over the next 15 years, all of them from the developing world and overwhelmingly (more than 100) from China.

Britain risks being cut off from this growth because these markets are not well served by direct air links from the UK. If the UK does not access these markets and compete in them, then its competitors across Europe will.

Figure 4.1: The top 25 urban areas by 2025 on GDP and GDP growth (emerging markets in bold)¹⁴

Rank	GDP	GDP growth to 2025
1	New York	Shanghai
2	Tokyo	Beijing
3	Shanghai	New York
4	London	Tianjin
5	Beijing	Chongqing
6	Los Angeles	Shenzhen
7	Paris	Guangzhou
8	Chicago	Nanjing
9	Rhein-Ruhr	Huangzhou
10	Shenzhen	Chengdu
11	Tianjin	Wuhan
12	Dallas	London
13	Washington DC	Los Angeles
14	Houston	Foshan
15	Sao Paulo	Taipei
16	Moscow	Delhi
17	Chongqing	Moscow
18	Randstad	Singapore
19	Guangzhou	Sao Paulo
20	Mexico City	Tokyo
21	Osaka	Shenyang
22	Philadelphia	Xi'an
23	Boston	Dongguan
24	San Francisco	Mumbai
25	Hong Kong	Hong Kong

It isn't possible to simply swap flights to traditional markets with new flights to emerging markets. The UK will still need good connections to traditional markets. In fact, these markets will grow too (albeit at a slower rate than emerging markets). Cutting off these routes would cut Britain off from the growing trade to be done with these markets too. As the table above shows, although nine of the ten cities with the highest GDP growth by 2025 will be in China, it will also be important to maintain our competitive advantage on direct flights to traditional markets that will grow such as New York.

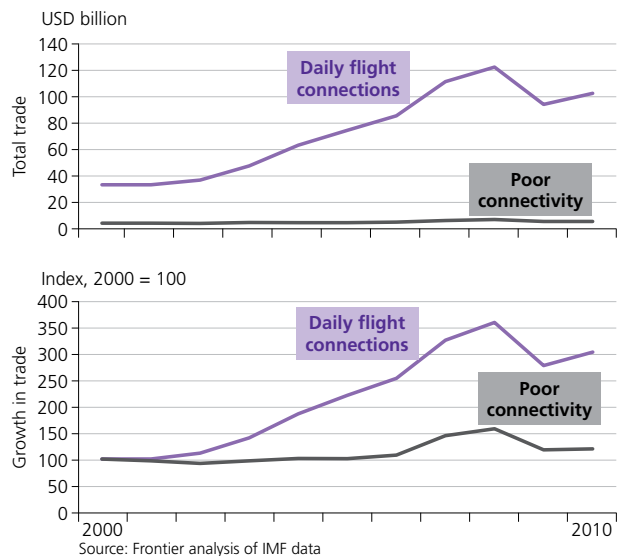
4.3 There is a correlation between direct flights and trade

As an island trading nation, connectivity with key markets has been central to UK prosperity over the past three hundred years, and is now more essential than ever. Air routes have replaced shipping lanes as the primary mechanism for the flow of high-value international trade. Freight going through Heathrow is worth around £35 billion a year and the airport is the UK's most important freight port by value.

UK businesses trade twenty times as much with emerging markets that have a direct daily flight connection as they do with countries that have poor connectivity. In addition, the rate of growth in UK trade is substantially lower where daily flight connections with Heathrow are not available. A very similar pattern is observed with inward investments between the UK and emerging markets.

The first chart below shows the total amount of trade done with countries that have direct flight connections compared to those that do not. The second shows that trade grows more quickly with countries that have a direct flight compared to those that don't.

Figure 4.2 UK trade is greater and grows faster with growth economies that have daily flight connections with Heathrow¹⁵



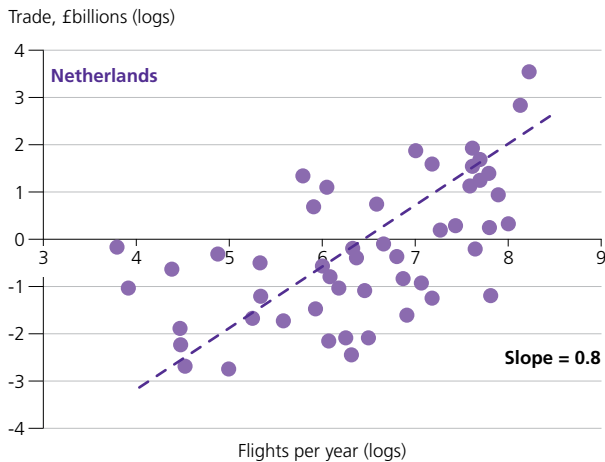
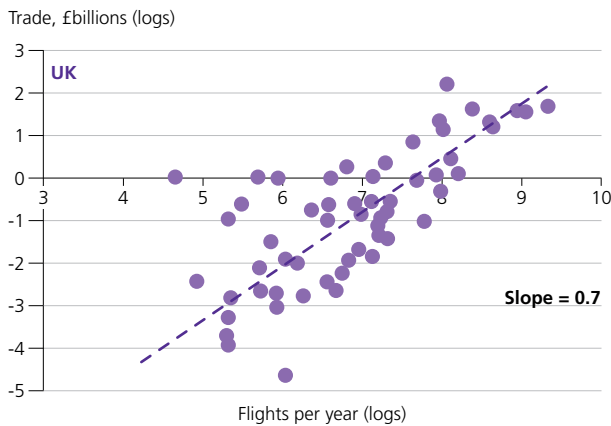
4 What is the value of a hub to the UK?

Of course, trade between two countries does not take place just because there is a direct flight service between them. It is difficult to estimate the impact of flight connectivity on trade. Which comes first? Does more connectivity lead to more trade; or does more trade lead to increased connectivity? The answer is probably a bit of both. What is certainly true is that the more flights a country has with emerging markets the more business opportunities are generated or strengthened.

This relationship doesn't just exist in the UK. A strong relationship between the amount of trade and the amount of direct flights can be seen in competitor countries too. On the charts below, each dot represents a non-OECD country. There is a strong statistical correlation between the number of direct flights the UK's competitors have with an emerging market, and the amount of trade they do with that nation.

The relationship suggests that increased international direct connectivity through a hub airport is vital to supporting increased trade and economic growth; and that a lack of connectivity could choke off trade that would otherwise develop.

Figure 4.3: The relationship between connectivity and trade¹⁴



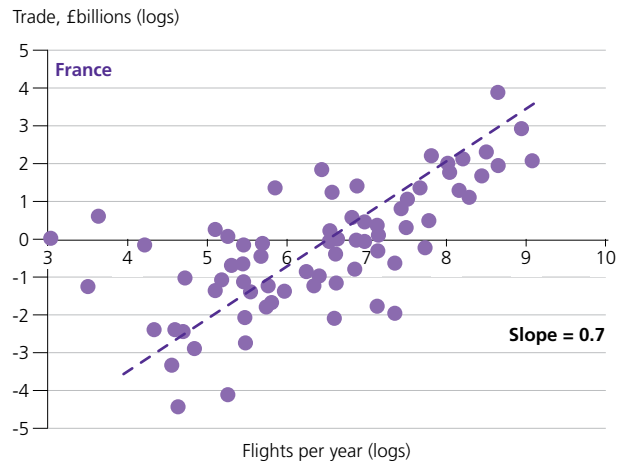
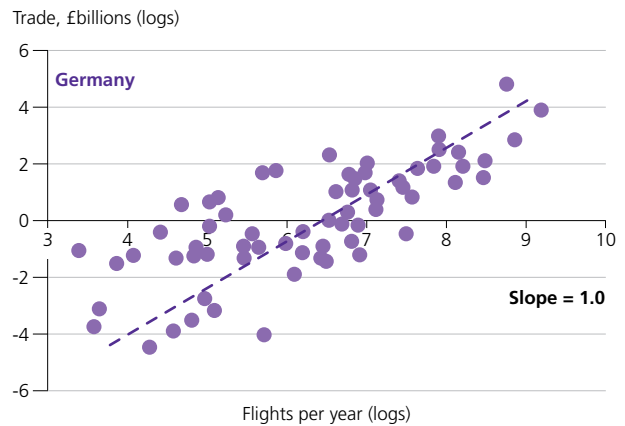
4.4 The UK is missing out on international destinations because Heathrow is full

Figure 4.4: Heathrow capacity compared to its European competitors¹⁷

Hub airport	Flight capacity	Flights	Percentage full
Heathrow	480k	476k	99%
Paris	700k	499k	71%
Frankfurt	700k	464k	66%
Amsterdam	650k	402k	62%
Madrid	800k	433k	54%

Heathrow is full, operating at its maximum permitted runway capacity. It is the busiest two-runway airport in the world and cannot add any new flights.

As a result, Heathrow is slipping out of the Premier League of Europe's international hub airports. There are 26 emerging market destinations with daily flights from other European hubs that are not served from Heathrow: including destinations such as Manila, Lima, and Chennai.



¹⁴ McKinsey Global Institute, Urban world: mapping the economic power of cities, 2011

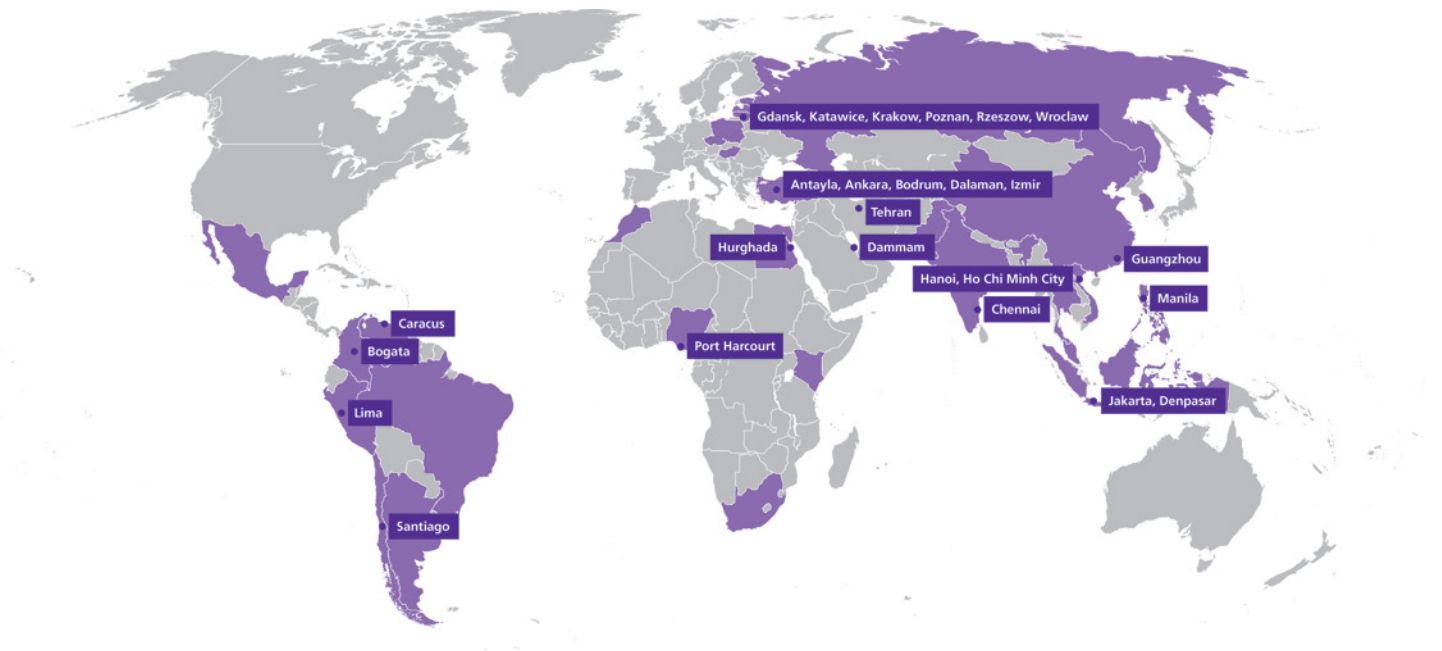
¹⁵ Frontier Economics, Connecting for Growth, 2011

¹⁶ Frontier Economics analysis of OAG and World Bank data, 2012

¹⁷ ACI data. Some airports have a greater theoretical capacity with four runways but are constrained by planning or noise caps.

4 What is the value of a hub to the UK?

Figure 4.5: Emerging markets destinations served daily from other European hubs but not served daily from Heathrow



Heathrow is also falling behind on routes to the mega-cities of the future in mainland China. Paris and Frankfurt airports fly 2,200 more flights to mainland Chinese cities each year than Heathrow does.

The UK is falling further behind its European competitors with each passing season. In 2011, there were 1,000 more flights to the three largest cities in mainland China from Paris and Frankfurt than there were from Heathrow. One year later, that number has risen to 1,532 - and this is despite Heathrow adding a new route to Guangzhou.

While Heathrow added one new route to the world's most important emerging market in 2012, its European competitors added seven new routes to China's interior. Paris, Frankfurt or Amsterdam airports boast direct flights to Chengdu, Hangzhou, Wuhan, Xiamen, Nanjing, Shenyang and Qingdao this year, in addition to the flights to Guangzhou, Beijing and Shanghai served from the UK.

The lack of slots available at Heathrow is having a direct impact on the UK's ability to serve these destinations. A recent report by Policy Exchange¹⁹ used the example of Wuhan to illustrate the point:

"Air France has recently announced the first non-stop service between Europe and Wuhan. It will offer three flights a week on a 309 seat Boeing 777. It seems unlikely that Air France believe there are 927 people in Paris who want to fly to Wuhan each week, or 927 people in Wuhan who want to fly to Paris each week. Rather, they believe that demand from all of Europe to and from Wuhan is sufficient that so long as people fly to and from Wuhan via Paris, the flight will be viable. Britain therefore has a choice. If we do not provide additional capacity, new flights, such as the route to Wuhan, will be indirect."

Figure 4.6: Direct flights to China from European hubs in 2012¹⁸



¹⁸ Heathrow analysis of OAG data, 2012

¹⁹ Does Britain Need a Hub Airport?, Policy Exchange, 2012

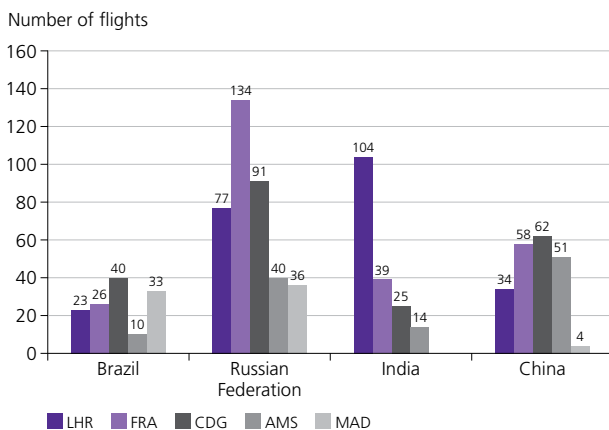
4 What is the value of a hub to the UK?

As Policy Exchange points out, this makes it less likely that people in the UK will fly to Wuhan, but it also makes the reverse true. Wuhan business people wanting to set up office in Europe will clearly see Paris as the easiest place to get to. To set up office in London they would need to change planes in Paris, putting Britain at a relative disadvantage in attracting those firms and jobs.

London's poor connectivity means it risks missing out on a one-off opportunity to become the global service capital and European headquarters for BRIC countries and companies. In the annual European Cities Monitor survey²⁰, companies have consistently rated easy access to markets, customers and clients and the quality of transport links with other cities and internationally as more important in location decisions than the cost of staff, languages spoken, or the overall business and taxation climate. Making it more difficult for businesses to access Britain will make it less likely that businesses locate in Britain.

Heathrow is well connected to Hong Kong given its historical links, even though it fares poorly compared to other European hubs on links to mainland China. Some people have suggested that the UK is therefore "ahead on overall destinations to China". This is slightly missing the point. The UK's connections with Hong Kong are an advantage that we should look to maintain but they won't help open up the vast markets of fast-growing mainland Chinese cities to UK trade.

Figure 4.7: Flights from Heathrow to Brazil, Russia, India and China (excluding Hong Kong)²¹



²⁰ European Cities Monitor, Cushman and Wakefield, 2011

²¹ Heathrow analysis of OAG data, 2011

²² BAA submission to Terminal 5 planning inquiry, IATA, and OAG

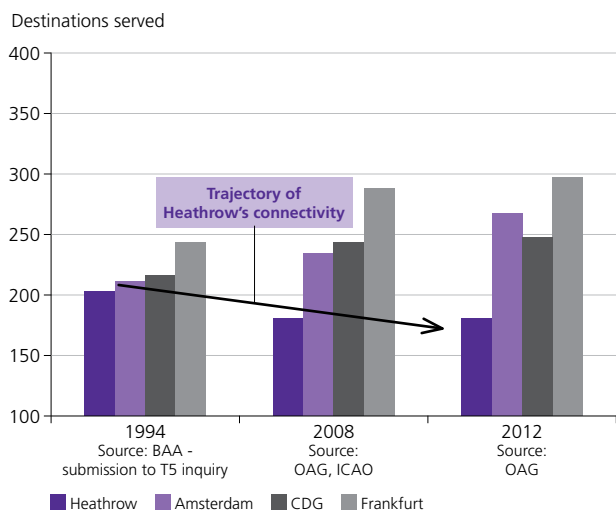
²³ Frontier Economics, Connecting for Growth, 2011

Hong Kong is badly positioned for a passenger wanting to transfer to mainland China - by the time a passenger has got to Hong Kong from the UK they have already flown right the way across China. It would be easier for them to transfer at a European competitor hub and fly direct from there instead. Connections to Hong Kong drive trade with Hong Kong. A lack of connections to Chengdu, Dalian, Hangzhou, Nanjing, Qingdao, Shenyang, Wuhan, and Xiamen is something the UK should be worried about.

And with the exception of India, where the UK has strong historical links, the UK is falling behind on flights to other growth destinations.

Heathrow is also falling behind other European hubs in terms of the overall number of destinations it serves. Consequently the UK's connectivity has weakened over the last two decades as capacity constraints at Heathrow have started to bite.

Figure 4.8: Comparison of destinations served by European hub airports - 1994-2012²²



Analysis by Frontier Economics²³ suggests that, if it had spare runway capacity today, Heathrow could immediately serve the following destinations:

- five daily flights to emerging market long haul destinations (Caracas, Lima, Santiago, Bogota and Manila);
- eight additional long haul emerging market destinations with lower service frequency (Hanoi, Ho Chi Minh City, Cancun, Jakarta, Dammam, Chengdu, Nanjing and Cali);
- at least weekly services to 30 other long haul destinations (in developed and Emerging Markets)

4 What is the value of a hub to the UK?



Heathrow would also be able to add additional daily flights to emerging market cities already served, such as Beijing. Frontier predicts that Heathrow could have served an additional 5 million long-haul seats this year alone.

4.5 The UK could be missing out up to £14bn a year due to poor connections

In its 2011 report, “Connecting for Growth”, Frontier Economics estimated what the potential trade benefits might be of making new connections to just ten emerging market destinations (Mexico, Indonesia, Venezuela, Colombia, Chile, Philippines, Pakistan, Peru, Ukraine and Vietnam). It concluded that a lack of connections to these countries could cost the UK £14bn of lost trade over the ten years to 2021.

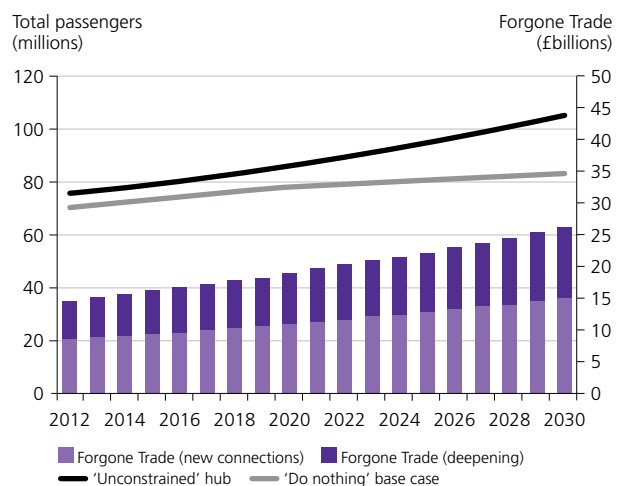
Frontier has now extended its previous analysis to consider:

- a wider set of countries that are connected to rival European hubs but not to Heathrow
- a longer time-horizon (the previous study ran to 2021)
- a “viability” check - Frontier applies a filter which allows the UK to connect only to new countries for which there is a sufficient level of demand to make the connection sustainable; and
- the impact on trade of “deepening” connectivity to countries with which the UK is already connected, ie by increasing flight frequency on existing routes or by establishing routes to new cities within that country.

The analysis considers the number of connections and passengers that there would be if there was unconstrained capacity at the UK’s hub airport and compares this to the number of passengers that there will be without any new runway capacity (do nothing). It then calculates the level of foregone trade associated with that connectivity gap. In practice, government policy has never supported unconstrained demand for environmental reasons, but the analysis gives a useful indication of the increased trade that could be delivered with better international connectivity.

Frontier’s analysis suggests that the UK could be missing out on significant volumes of international trade due to a lack of capacity at Heathrow. A lack of direct connections could already be costing the UK up to £14 billion a year. This figure could rise to up to £26 billion a year in lost trade by 2030.

Figure 4.9: Foregone passengers and trade due to lack of UK hub capacity²⁴



It is not just trade that the UK could be missing out on. The UK received just 147,000 visits from Chinese tourists in 2011, whereas France received 1.2 million visits in 2010²⁵.

The World Tourism Organisation predicts that the number of overseas trips made by Chinese tourists will surge from 70m last year to 100m by the end of the decade (from just 5m 15 years ago). China’s travellers overseas spent \$54bn in 2010 and \$72bn in 2011, compared with \$84bn for Germans and \$79bn for the US. Yet the UK is missing out on Chinese tourists.

²⁴ Frontier Economics analysis for Heathrow

²⁵ ONS International Passenger Survey and INSEE national tourism statistics

²⁶ Oxford Economics, The Value of Aviation Connectivity to the UK, 2012

²⁷ Heathrow analysis of OAG data

²⁸ Heathrow analysis of Airport IS data

4 What is the value of a hub to the UK?

4.6 UK regions

A lack of runway capacity at Heathrow has meant that routes to UK regional airports have been pushed out of the UK's hub over the last few years. There are now many more routes to foreign hub airports than there are to Heathrow from the UK regions. This matters because:

- Heathrow is still well-connected to many markets, particularly to North America, and the UK nations and regions are therefore being cut off from easy access to these markets
- flights going via other European hubs could be going via Heathrow if there was available capacity. These flights could be helping to make the UK's hub more competitive and therefore making the UK a more attractive place for business and foreign direct investment. Instead, these flights are helping to make other countries more competitive than the UK
- companies that locate in the UK because of Heathrow are far more likely than companies that locate in, say, Frankfurt to have a supply chain throughout the UK. It is in the interests of UK nations and regions to support a UK hub rather than a foreign hub.

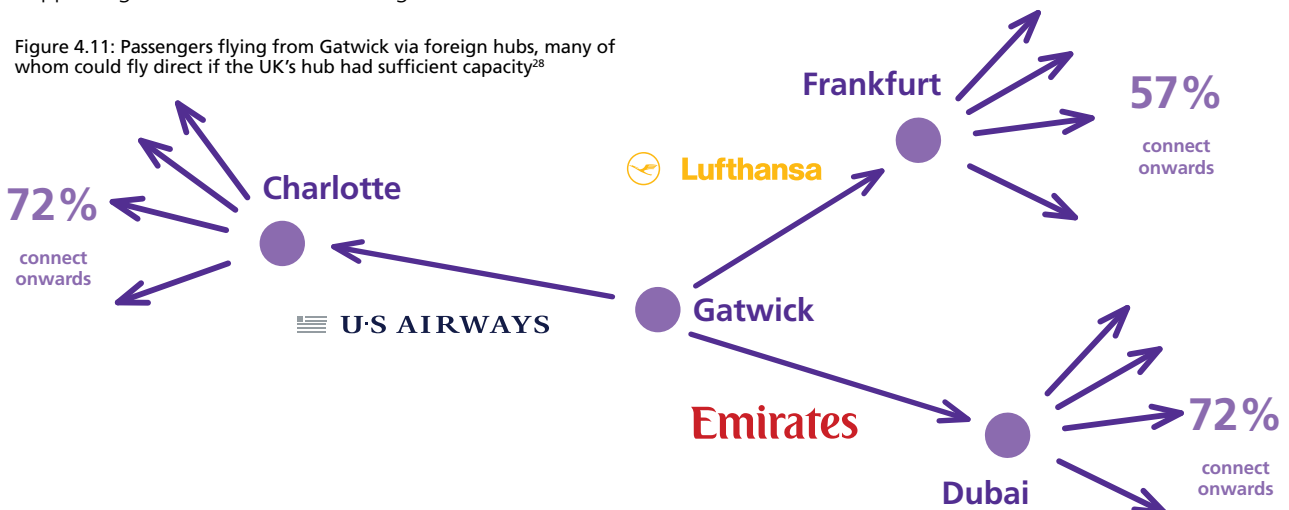
Research by Oxford Economics²⁶ found that direct feed to competitor hubs is strengthening overseas hub economies at the expense of the UK and making the UK less attractive for foreign direct investment.

The problem of foreign network airlines 'poaching' UK passengers at the expense of UK competitiveness is not unique to the UK nations and regions. The majority of passengers departing Gatwick on major overseas network carriers are not flying direct, but are connecting-on, at foreign hubs. The overwhelming majority (greater than 85%) of these passengers could fly non-stop from the UK to their final destination if there was sufficient capacity available at Heathrow, in turn supporting more UK trade and foreign direct investment.

Figure 4.10: UK regional airports outside the south east served by major European Hubs but not by Heathrow²⁷



Figure 4.11: Passengers flying from Gatwick via foreign hubs, many of whom could fly direct if the UK's hub had sufficient capacity²⁸





17:00	Tehran	IR710	E
17:05	Amman	RJ112	D
17:15	Hong Kong	VS238	A
17:15	La Coruna	VY9851	F
17:30	Oslo	BD3790	E
17:35	Madrid	LA5721	F
17:35	Vigo	VY3204	F
18:00	Copenhagen	SK1516	E
18:00	Stockholm	BD3846	E

5 Why aren't two hubs better than one?

Many people have expressed views on how best to provide additional hub capacity for the UK. All of the options can be grouped into one of three categories:

Dual hubs In which Heathrow and another airport such as Stansted or a new Thames Estuary airport both develop and operate as standalone hubs in their own right

A split hub or "virtual hub" In which Heathrow and another airport such as Stansted or Gatwick are joined together by a high speed rail connection for transfer passengers to operate a single hub that is physically separated over two sites

A single hub In which Heathrow adds new runway capacity or Heathrow is closed and a replacement hub airport provides new UK hub capacity.

5.1 Dual hubs

In which Heathrow and another airport such as Stansted or a new Thames Estuary airport both develop and operate as standalone hubs in their own right

5.2 Earlier dual hub experience and Gatwick: "The hub without the hubbub"

Dual hub operations were actively encouraged by Government aviation policy in the 1970s and 1980s. In an era of centralised state planning of aviation, Government policy was to develop British Airways (formed by merging BEA and BOAC) at Heathrow, and British Caledonian (formed by merging BUA and Caledonian Airways) at Gatwick. BA was directed to focus on the US, Middle East and Far East and British Caledonian's focus was to be West Africa and South America.

To help grow traffic at Gatwick and try to create two hubs, traffic distribution rules were established in 1977 whereby an airline that was not operating at Heathrow prior to July 1977 was not allowed access to Heathrow. At the same time the Bermuda II agreement was signed between the US and the UK, designating Gatwick as the London airport for all new transatlantic services by airlines of both nations.

The British Airports Authority of the time was keen to promote a dual hub policy for London and even went as far as introducing an airliner helicopter service between Gatwick and Heathrow to support high-value connecting passenger traffic. However, the dominance of Heathrow was a constant issue.

The liberalisation of air traffic that started in the 1980s saw the move of transatlantic services from Gatwick to Heathrow. In 1987, British Airways' takeover of British Caledonian left BA as the only UK airline with the capacity to provide hub services, but with its focus and base at Heathrow. In 1991 the failure of Pan Am and financial difficulties faced by TWA led the Government to abandon traffic distribution rules and Virgin Atlantic (who started at Gatwick) quickly moved the majority of its operation to Heathrow. In all, twenty airlines moved from Gatwick to Heathrow once they had an opportunity to do so - demonstrating the strength of the hub. The EU-US Open Skies agreement of 2008 meant the end of the Bermuda II rules restricting access to Heathrow to US carriers. Despite needing to acquire expensive operating slots (up to £25m for a pair), routes operated by US carriers have consolidated at Heathrow. Delta, Continental, NorthWest and US Airways all transferred services from Gatwick to Heathrow.

In the face of capacity constraints at Heathrow in the 1990s, BA made a further attempt to establish a second hub at Gatwick. This was done with the full commitment of BAA and included moving services from Heathrow to Gatwick and investment in infrastructure to connect passengers at Gatwick. It was branded publicly and marketed by BA as the "Hub without the hubbub"

The initiative failed. Heathrow's hub network and long-haul business routes generated higher yields, load factors and overall traffic volumes than at Gatwick. Since then, BA has taken every opportunity to consolidate hub traffic at Heathrow, leaving its Gatwick operation focussed largely on leisure oriented point-to-point traffic.

This history confirms the attractiveness of Heathrow as a hub. Where airlines can, the majority want to be co-located to maximise transfer opportunities.

5 Why aren't two hubs better than one?

5.3 If one hub is a good thing, why isn't two better?

The strongest global hubs typically have most of their flights operated by the home network airline.

The UK only has one major network airline - British Airways - which accounts for around 50% of flights at Heathrow.

The short-haul flights of the home airline are generally less profitable than the long-haul flights, and may actually lose money altogether. But this is offset by the money the airline makes on its long-haul flights and particularly from business passengers on long-haul flights (remember that the long-haul flights are only viable with the transfer passengers from the short-haul flights).

Other network airlines want to be co-located with the home network airline because they get a 'benefit' from the transfer passengers provided by the network airline's short-haul traffic.

You cannot have two hubs because:

1. the short-haul flights of the network airline become even more loss-making and inefficient making it impossible to operate profitably from the hub
2. the other airlines won't move into a second hub without the life support of strong feeder traffic from the home network airline.

Having two hubs in one area splits the value of the network. The bigger networks become the stronger they become. In the example below, each destination served by the hub contributes transfer passengers who then help to make other flights viable. Splitting the hub halves the pool of transfer passengers available for marginal routes and additional frequencies.

Figure 5.1: Percentage of flights operated by the home carrier at major hub airports²⁹

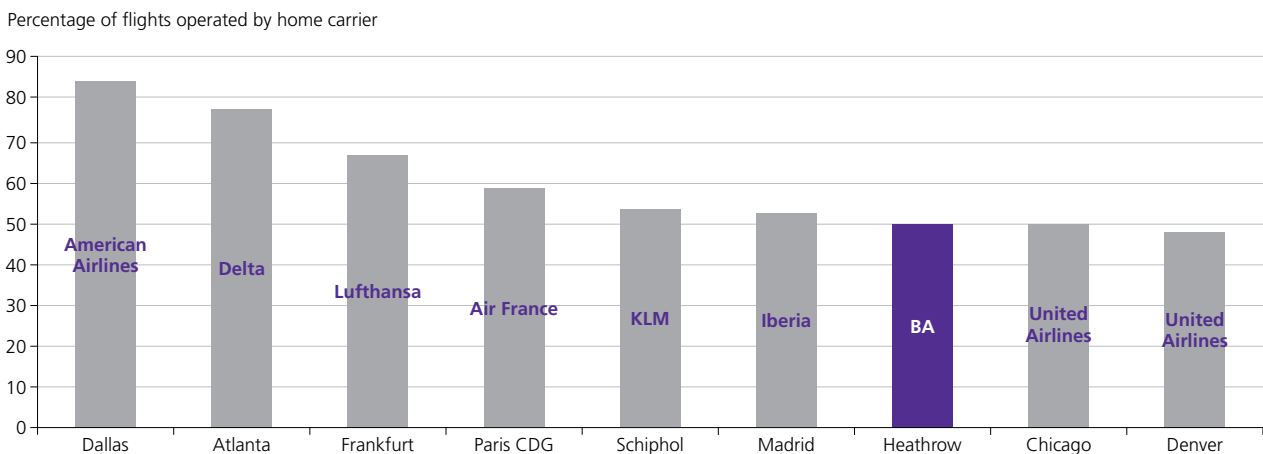
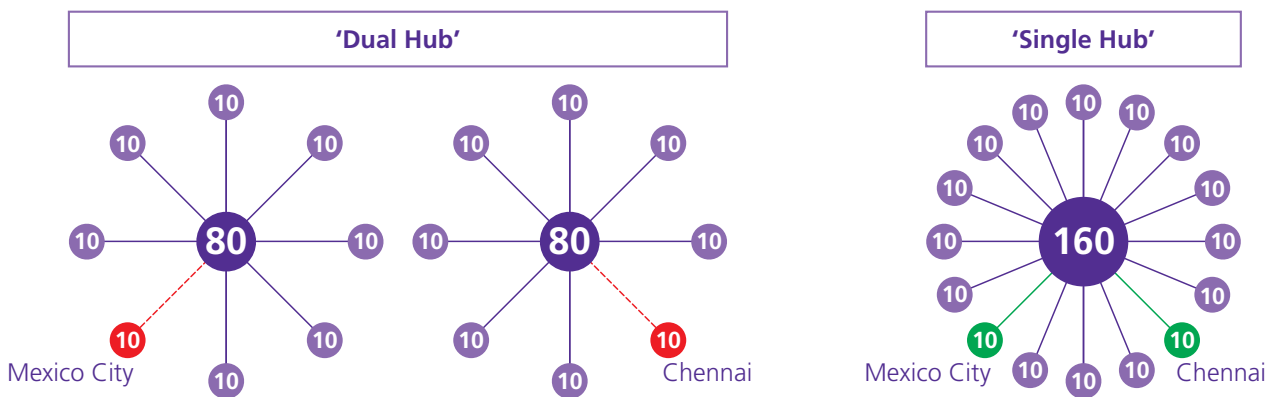


Figure 5.2: Splitting the hub halves the pool of transfer passengers available making marginal routes unviable



²⁹ Heathrow analysis of OAG data

5 Why aren't two hubs better than one?

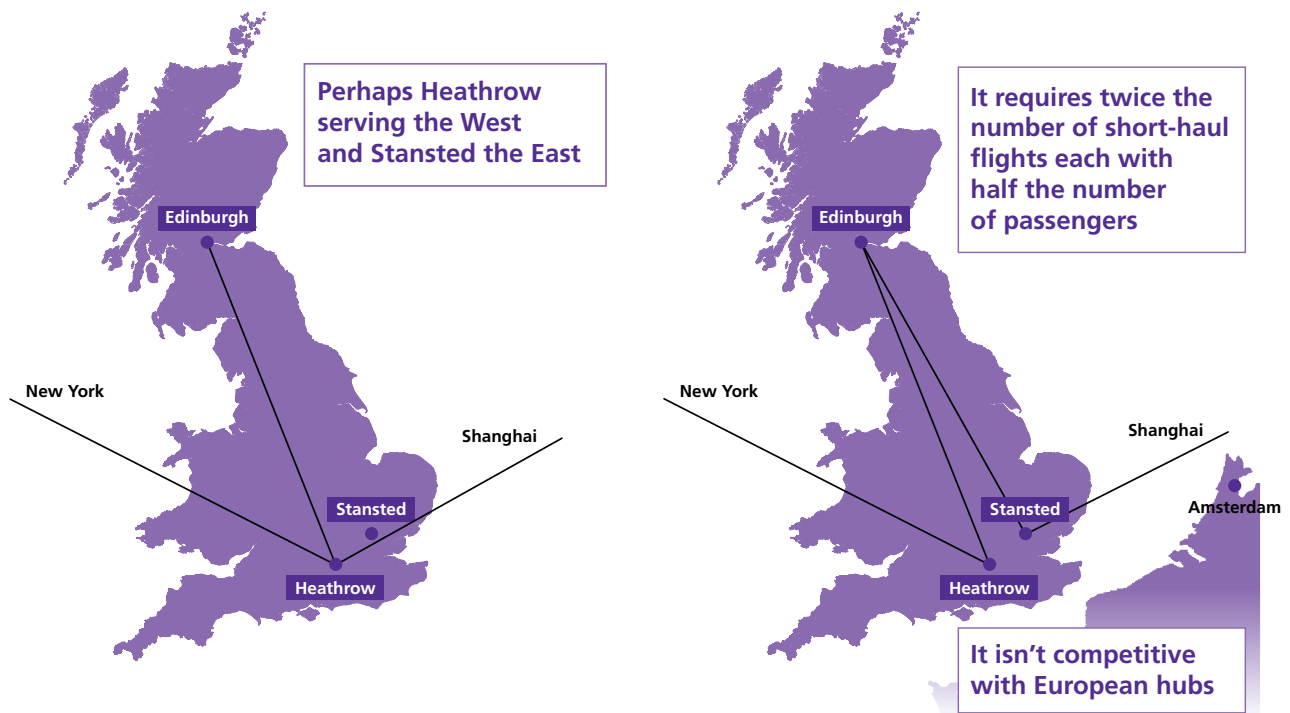
This would have a particular impact on current vulnerable routes like Mexico City and Chennai. These will be important for future UK trade and business but currently around two-thirds of the passengers on flights from Heathrow are transfer passengers. These routes would not be viable with two UK hubs.

Let's look at it another way. Imagine that Heathrow is the hub airport for all destinations to the west, and Stansted is the hub airport for all destinations to the east. You are on a flight from Glasgow and you want to transfer to New York. The person in the seat next to you wants to transfer to Shanghai. If there is a single hub then you can both be on the same aircraft. If there are two hubs then you can't and the airline has to put on two unprofitable flights.

If we were being more precise, we would say the home network airline in the UK is not British Airways but IAG - the company formed by the merger between British Airways and Iberia. There is a trend of consolidation in the airline industry. Following recent mergers there are just three major network airline businesses in Europe - IAG, Lufthansa, and Air France-KLM. And yet there are five major European hubs: Heathrow, Paris, Amsterdam, Frankfurt and Madrid - serving the same three airlines. The most efficient business model would be consolidation around just three hubs. Willie Walsh, the Chief Executive of IAG, has been quite open about the fact that if there is no hub capacity in the UK, then British Airways will grow overseas instead. The merger with Iberia gives British Airways an alternative European hub in Madrid at which to grow. The choice for the UK isn't one hub or two, it is one hub or none.

Figures 5.3 and 5.4: Having two hubs would split BA's network and makes it uncompetitive

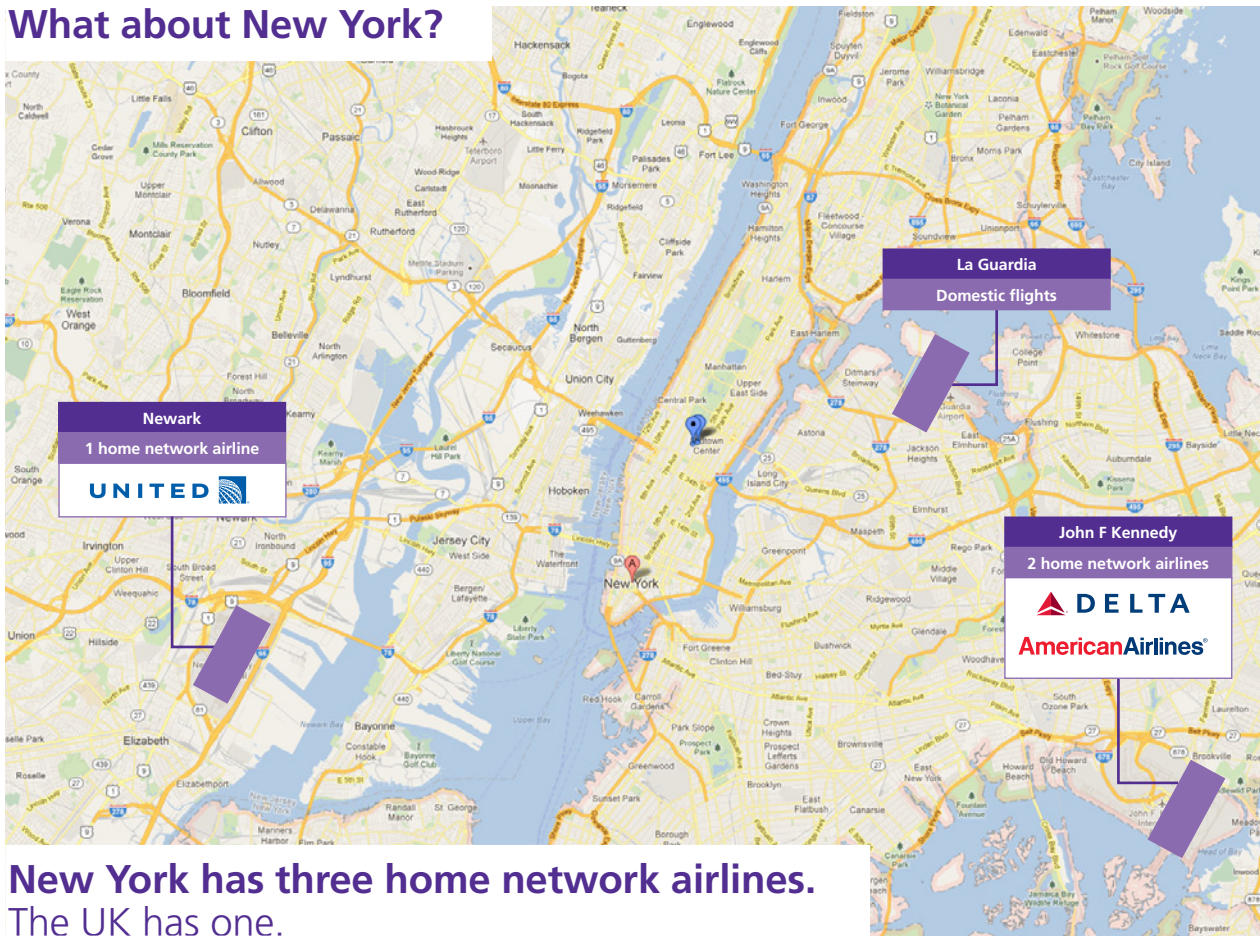
If one hub is a good, wouldn't two be better?



5 Why aren't two hubs better than one?

Figure 5.5: New York's airports and airlines

What about New York?



New York has three home network airlines.
The UK has one.

5.3 Example: New York

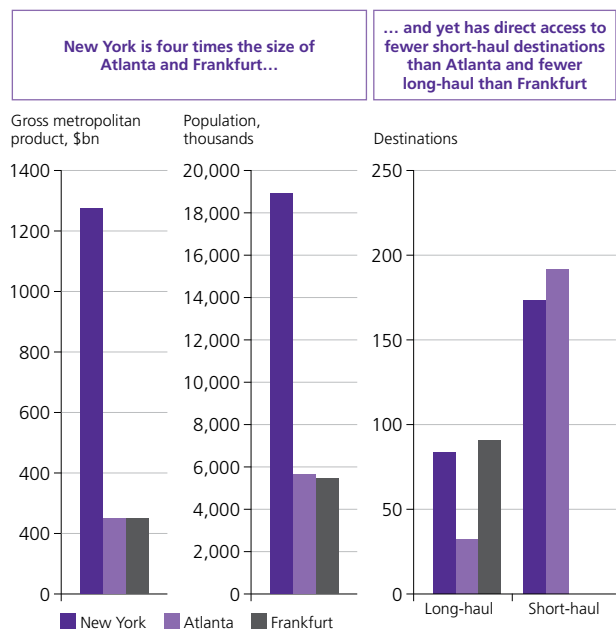
Those who support a dual hub approach promote New York as an example of a city that has more than one large airport.

The key difference between New York and London is that New York has three large US network airlines that operate from the city (American, Delta and United), whereas the UK only has one major network airline in British Airways. BA has stated clearly that it would not seek to establish a hub operation at Gatwick or at any alternative UK site whilst Heathrow is operating: a decision rooted in the painful history of the company's failed attempt to do that in the 1990s.

Starting a second hub operation is unlikely to be sustainable for any other airline as their yields and traffic volumes will be considerably reduced if cut off from BA's transfer traffic. All major networked airlines will wish to be at the main London hub where BA is based.

There is also strong evidence that New York's strategy of operating several airports means that the city is less well-connected than it would be if it had a single hub airport.

Figure 5.6: New York is less well-connected than you would expect it to be (Source: US census bureau and OAG)



5 Why aren't two hubs better than one?

5.4 Could point-to-point airlines be moved out of Heathrow?

Some commentators have suggested that the Government's focus should be on providing capacity for the main network airline at Heathrow, British Airways. The thinking goes that if other airlines, particularly those operating more point-to-point routes or to foreign hubs were to move out of Heathrow then there would be more space for British Airways to expand and serve new destinations. There are several obstacles to this:

Airlines might not be able to operate the flight profitably at all from another UK airport. The cost to an airline of moving out of Heathrow to a point to point airport would be millions of pounds of future revenue, particularly from lost business passengers who often pay ten times the fare of an economy passenger. Many airlines faced with having to move to Gatwick may choose not to operate the flight from the UK at all.

An analysis of average direct fares for airlines operating from both Heathrow and Gatwick shows that the benefits of a hub allow airlines to operate more profitably.

Figure 5.7 Comparative average fares realised for airlines operating from Heathrow and Gatwick³⁰

Route	Airline	Heathrow index	Gatwick index
London - Dubai	Emirates	100	77
London - Atlanta	Delta	100	55
London - Doha	Qatar Airways	100	69
Average		100	67

Profits are not just important to airline shareholders. Airline profitability is important to UK connectivity and passenger choice. Profits ensure that the network of routes available to the UK is sustainable over time - the market will drive airlines to operate from the hubs where they can make the most profit. Profits also subsidise the start-up of new routes which are initially loss-making for the airline.



There are very few flights from Heathrow that don't rely on transfer passengers. Only 18% of Heathrow flights have fewer than 10 per cent transfer passengers. In an industry where profit margins average 0.6%³¹, that 10% will often be the difference between the flight being viable at all. Each additional flight through the hub makes other flights more likely to succeed. Every flight taken out of the hub makes every other flight less viable, reducing the competitiveness of the UK's hub versus other European hubs.

It is not clear how Government could force airlines to move. It has been suggested that slot allocation rules could be changed to disadvantage point-to-point airlines, but this would only apply to new slots rather than existing slots. Airlines would seek compensation for existing Heathrow slots which they are currently able to sell for tens of millions of pounds each. Others have suggested introducing an extra tax on point-to-point passengers but this would disadvantage British passengers compared to overseas passengers and cripple the UK's hub compared to its European competitors. Any action which discriminates against certain airlines could also breach EU competition law as well as agreements like Open Skies which guarantee access to UK airports to certain carriers. Such a move would involve ripping up international agreements and reversing 20 years of air traffic liberalisation that has resulted in lower fares for UK consumers. Such action would also risk retaliatory action against UK airlines by other states. For example action by the UK Government to move a foreign national flag carrier airline out of Heathrow could see retaliatory action against British airline flights to that country.

³⁰ Mott MacDonald analysis of Airport IS data for Heathrow

³¹ IATA, 2012

5 Why aren't two hubs better than one?

5.5 A split hub or "virtual hub"

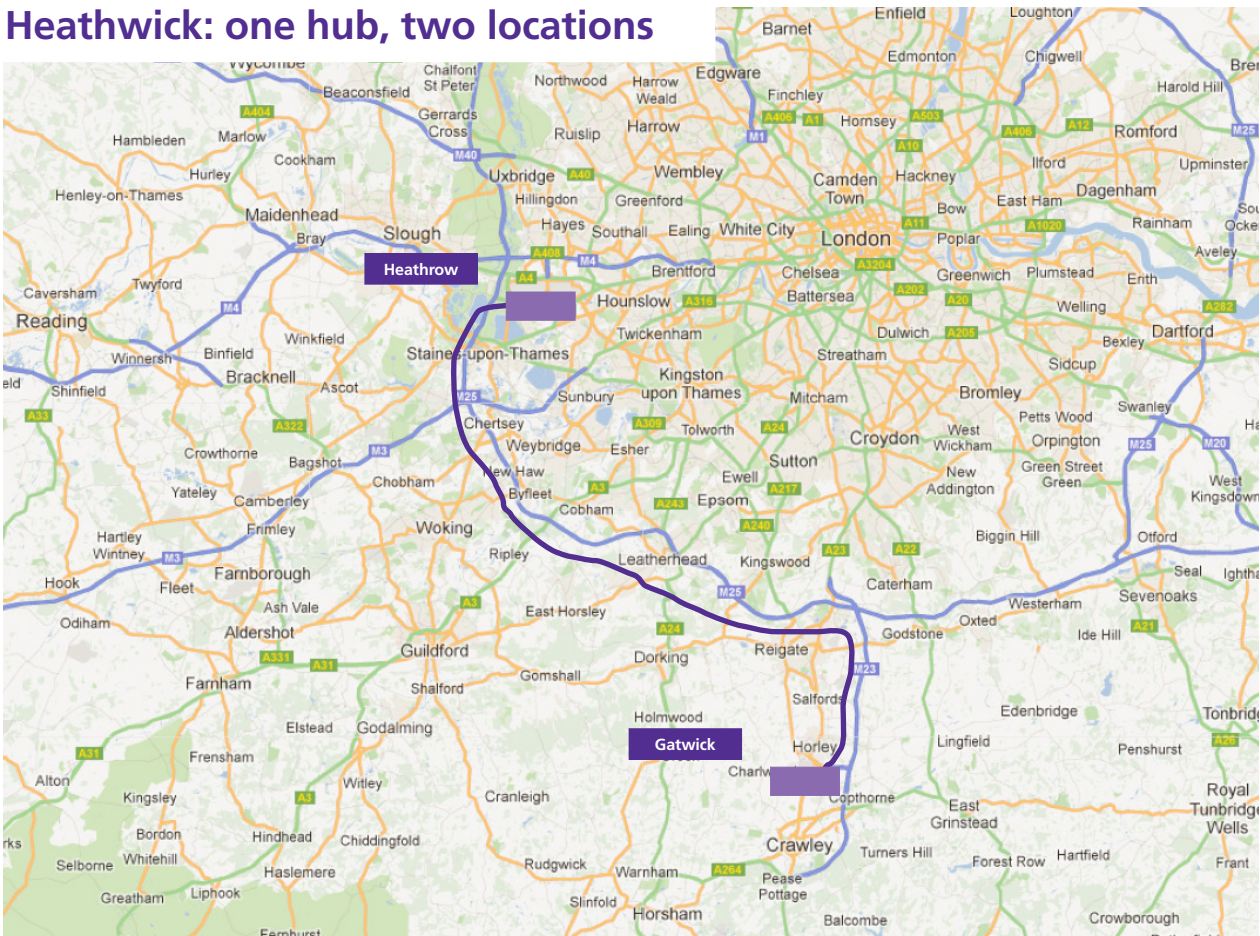
The 'Heathwick' proposal advocates using high-speed rail to link Heathrow and Gatwick airports together and enable them to operate as a single split hub.

The main challenge created by a split hub is the quick and efficient transfer of passengers, baggage and freight between two sites. This will make it uncompetitive with other hubs. A further challenge is the efficient use of aircraft which are not able to transfer between the two airports and have to take off from the airport they land at - reducing the airline's flexibility to utilise individual aircraft on multiple routes.

Minimum connect times (MCTs) are a key indicator of a successful hub. The shorter the time it takes to transfer passengers, baggage and freight between two aircraft the greater the range of connections that are available. MCTs are not just convenient for passengers they are essential for a healthy hub. Minimum connect times are published and are used by travel agents and bookers to establish which connections are possible for passengers. Flights that are due to take off before the minimum connect time won't show on booking systems as available connections for passenger to make. Reducing a minimum connect time by 15 minutes can make thousands of additional transfers possible - boosting the health of the hub.

Figure 5.9: Illustrative example of Heathwick proposal

Heathwick: one hub, two locations



5 Why aren't two hubs better than one?

The European benchmark for a competitive minimum connection time is 45 minutes which is achieved by Amsterdam Schiphol airport.

Heathrow has put huge investment into shaving minutes off its minimum connect times in recent years. Over the last five years it has switched airlines between terminals so that they are co-located with the other airlines with which they have the highest number of transfer passengers. This has the effect of ensuring that most passengers who are connecting at Heathrow are able to change planes while remaining within a single terminal. This gives a typical minimum connect time of 60 minutes.

Heathrow is currently investing £360 million in a new integrated baggage system that will automatically transfer all connecting baggage underground between its four terminals. The scale of investment reflects the importance of reducing baggage connection times. It usually takes longer to transfer bags and freight than to connect people.

The Heathwick proposal advocates a High Speed Rail line running between the M25 and M23 to provide airside connectivity. This would involve construction of a high speed rail link of between 50-60km in length, which would need to operate frequent (no fewer than every 15 minutes) airside trains all day between the two airports.

In terms of normal train loading there would be insufficient interconnecting passengers to sustain such a service, even at peak times. Most of the time the train would be largely empty making it an extremely expensive undertaking to construct and operate.

Even if such a product could be constructed and operated, the diagram below shows that even with optimistic assumptions a split hub between Heathrow and Gatwick could not achieve competitive minimum connect times. It is likely that passengers' bags would struggle to attain this time, leaving the UK with a hub delivering minimum connect times that may be at least an hour worse than European competitor hubs.

Figure 5.10: Heathrow currently targets a 60 minute minimum connect time

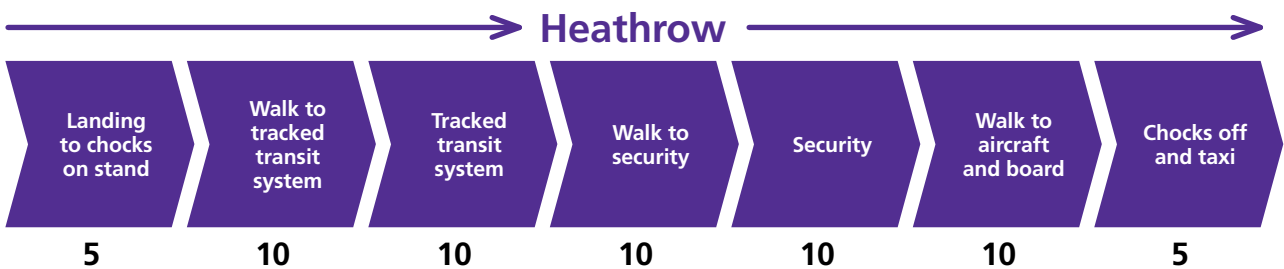
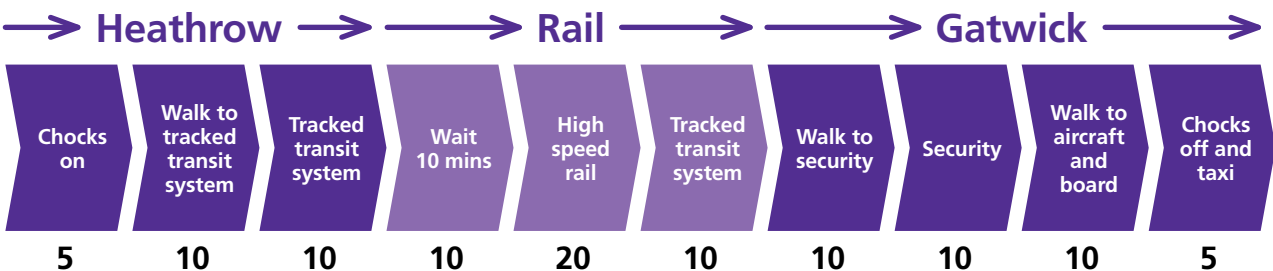


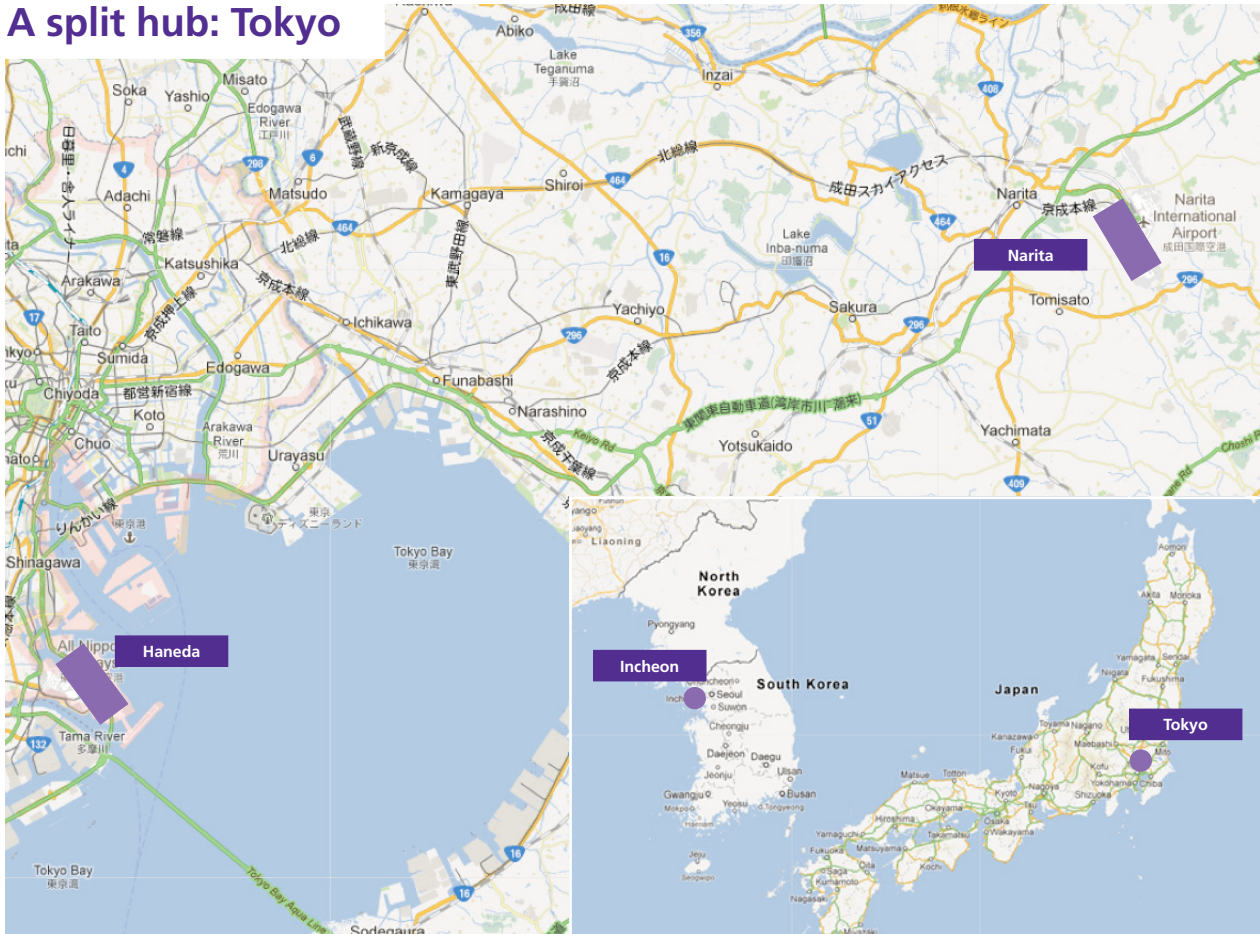
Figure 5.11: Heathwick - a 100 minute minimum connect time



5 Why aren't two hubs better than one?

Figure 5.12: Tokyo's airports

A split hub: Tokyo



5.6 Example: Tokyo

In the early 1960s Japan's main hub at Haneda was reaching capacity. The government ruled out any expansion of Haneda, instead opting for a new site 36km east of the city at Narita. Traffic distribution rules were used so that domestic traffic was kept at Haneda and all international traffic used Narita. A high-speed rail link, monorail and express bus service provide connections between the two airports. In theory passengers were able to connect from one airport to the other, and from short-haul to long-haul, as a virtual hub. In practice, few passengers ever did - they simply flew via Incheon, Hong Kong or another foreign hub instead.

Despite having a city and economy three times the size of London, Tokyo slipped from 1st to 7th in Asian city connectivity rankings in the three decades following Narita's opening in 1978. Over the same period, South Korea's Incheon airport in Seoul has become one of the world's most successful hub airports. Recognising the failure of the split hub the Japanese government has reversed its policy and is now expanding Haneda and permitting international traffic at the airport. Global network airlines (including British Airways) have since switched services from Narita to Haneda.

5 Why aren't two hubs better than one?

Figure 5.13: Dubai's airports

A split hub: Dubai



5.7 Example: Dubai

Dubai has two international airports less than 50km apart - the two runway Dubai international and the new six runway Al Maktoum International Airport at Jebel Ali which is still under construction. The plan was for the two airports to be linked by a high speed rail line, a metro line, and dedicated sealed cargo road and rail link. The Government planned to keep both airports open with shared operations between the two and plenty of spare capacity.

However, it has recently been decided to (a) postpone the move to Dubai World Centre until Emirates can move their entire operation into a single terminal to avoid a split hub; and (b) once space allows all network carriers to move to Dubai World Centre, to either close Dubai International or make it an airport dedicated to low-cost, point-to-point airlines. Dubai's example shows that network airlines prioritise physically co-located hubbing even in cases where surface access infrastructure costs are not an issue.



6 What does the UK require to maintain its hub airport status?

6.1 Assessing the best hub option

We don't think the right question to be asking now is "What is the solution?" Instead, we prefer to ask "What does the UK need from its hub airport?" If there is consensus about the UK's needs then options can be shortlisted and assessed against these needs.

The planning and construction timeline for any new hub capacity is at least a decade following any recommendation from the Davies Commission. The UK has the opportunity to make the right decision, once. We don't have the luxury of making the wrong decision and then changing our minds. If we do, then the UK will lose its competitive position as a global hub for good.

This is why we believe that it is more important to make a considered decision than to make a quick decision.

The qualities that will make hub airports successful can be defined and assessed. This chapter sets out Heathrow's view on the sorts of questions that should be asked of every serious option.

We will be submitting evidence and proposals to the Airports Commission. We also plan on publishing further work in due course setting out our view on the UK's hub requirements, the options for additional hub capacity, and the strengths and weaknesses of the main options.

6.2 Why has Heathrow been successful?

As our only international hub airport, Heathrow has been central to maintaining the UK's connectivity to global markets for more than fifty years. The characteristics that have made it the world's most successful hub up to now are:

- it has a strong network airline in British Airways that uses the airport as its transfer hub
- it has the scale to operate a large route network and frequent flights
- its terminal facilities and systems have been designed to quickly transfer passengers, their baggage and cargo between aircraft
- it has a great geographical location for attracting local direct passengers. It is close to London and at the heart of demand for business travel
- it is well plugged into road and rail connections. Much of Britain's motorway network has been planned so that it connects to Heathrow.
- it has a great geographical location for connecting transfer passengers between large international markets such as Europe and North America.

A competitive and commercially deliverable hub that can operate safely and has sufficient capacity is a pre-requisite. In addition to ensuring the basic technical and operational success of any additional hub capacity, policy makers will want to use the opportunity that extra hub capacity presents to deliver improvements on Heathrow's operations today.



6 What does the UK require to maintain its hub airport status?

6.3 What are the criteria by which UK hub options could be assessed?

We have grouped the questions that could be asked of each option into 12 categories:

1 A competitive hub

- Will the hub allow the UK's network airline to operate profitably and competitively?
- Will the minimum connect time be competitive?
- What proportion of transfer passengers are needed to make the hub viable?
- Will the hub be sufficiently resilient (structurally capable of handling operational disruption)?
- How competitive will the passenger experience be?

2 Commercially deliverable

- Can the option be privately financed or will it require subsidy from the tax payer?
- What are the key risks, such as planning, construction, transition, or air traffic forecast risks? Do they make the option unattractive for investors?
- What are the construction and other costs?
- What is the implied charge per passenger over time? Will this be competitive?

3 Sufficient capacity

- How many flights and passengers will the UK's hub need to accommodate over time?
- What are the main upside and downside demand scenarios? Is the hub option resilient to these scenarios?

4 Safe operation and airspace design

- Can each option be operated safely?
- What will be the airspace requirements and aircraft routes for each option?
- What effect will new capacity have on existing airspace and the operation of existing airports in the UK and Europe?
- What is the risk of bird strike, or other safety considerations, for each option?

5 Economic benefits

- What are the total economic benefits to the UK of each option?
- What would the benefits be to UK regions and the local community?

6 Timing of delivery

- What would be the cost of foregone trade for each year of delay in delivering new capacity?
- How quickly can each option be delivered and what damage does delay cause to the UK's competitive position?
- How quickly can planning consent be delivered for each option and how long will each take to construct?

7 Environmental impact

- What will be the air quality impacts of each option and can they operate within EU air quality pollutant limits?
- How will each option affect the ability of the UK to meet its binding climate change targets?
- What will be the CO₂ emissions associated with new roads or railways?
- What impact will there be on wildlife habitats and biodiversity?
- What are the impacts of passenger journeys to and from the hub?

6 What does the UK require to maintain its hub airport status?

8 Noise

- How many people would be newly exposed to aircraft noise?
- Which communities would be overflown for the first time?
- How will new aircraft, technology and operating procedures reduce noise impacts over time?
- What will the overall size be of each airport's noise footprint?
- Will there still be periods of respite for those living underneath flight paths?
- What flights would there be at night and in the early morning?
- What noise insulation or compensation might need to be provided to communities and at what cost?

9 Location for passengers

- What impact does geographical location have on a hub's ability to attract passengers?
- What evidence is there on how far a hub can be from the passengers and city it serves?
- Where would the ideal location be for serving UK passengers or business passengers?

10 Surface access

- What new road and rail links would need to be provided to service the hub?
- What will the costs of these be and how will they be funded?
- How effectively would the hub integrate with the UK's existing infrastructure and plans?
- What would be the impact on congestion on existing roads and transport systems?
- What public transport mode share could be achieved with each option?

11 Land use and urban development

- What will the likely impact be on local homes, schools, listed buildings, and scheduled ancient monuments?
- What are the likely urbanisation impacts of each option?
- How many new homes, roads, schools and hospitals might be needed to accommodate the influx of workers and businesses associated with the opening of a major new airport?
- Can each option comply with land use policies concerning conservation areas, the green belt, impacts on countryside, landscape, open space and coastal designations?

12 Transition

- How would options that involve replacing Heathrow manage the transition between Heathrow and the new hub?
- What would happen to the 114,000 jobs that depend on Heathrow today?
- What would the impact be on the economy around Heathrow, including on unemployment, house prices, commercial rents, and council tax income?
- How would a new airport find sufficient numbers of skilled workers?
- What would happen to the multinational companies that have located their global headquarters along the M4, M40, M3 corridors because of Heathrow?
- What would be the clean-up and redevelopment costs of replacing Heathrow?



7 Conclusion: The UK needs a single hub

A sustainable, export-led recovery requires good direct connections between the UK and the parts of the world that are growing most quickly. Delivering additional hub airport capacity should be part of any plan for UK economic recovery.

Hub airports are different. The UK does not have a shortage of overall airport capacity - it has a shortage of hub airport capacity. Only a hub airport can provide the flights to long-haul destinations that Britain needs. The cost to the UK economy of poor connections could already be up to £14 billion a year, and this figure could rise to up to £26 billion a year by 2030.

History and international experience show that having two hubs in the South of England would not work. Attempts to create a dual hub between Heathrow and Gatwick were tried in the 1970s and 1990s but both ended in failure because airlines were attracted back to the main Heathrow hub where they could maximise transfer opportunities.

British Airways' merger with Iberia gives it an alternative European hub in Madrid at which to grow. The choice for the UK is therefore not between two hubs or one, but between one hub or none.

A split or virtual hub such as 'Heathwick' would not offer a competitive minimum connect time and would be prohibitively expensive to create and operate. It wouldn't be competitive with other European hubs or attractive to passengers.

Only a single southeast airport, home to British Airways, can operate as a hub.

This leaves three options for the UK Government:

- **It can do nothing and let the UK fall behind its European competitors at the cost of lost growth and jobs**
- **It can add additional capacity at Heathrow**
- **Or it can close Heathrow and replace it with a new hub airport.**

The pros and cons of each option should be carefully considered and each proposal should be rigorously assessed against the UK's future air transport needs.





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