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ECONOMICS



**IMPACT OF NEW HUB
OPTIONS ON BUSINESS
LOCATIONS, FDI AND
ALIGNMENT WITH
STRATEGIES**

IMPACT OF NEW HUB OPTIONS ON BUSINESS LOCATION, FDI AND ALIGNMENT WITH STRATEGIES

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IMPACT OF NEW HUB OPTIONS ON BUSINESS LOCATION, FDI AND ALIGNMENT WITH STRATEGIES

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1. EXECUTIVE SUMMARY

1.1. Introduction

Technical Note 6 summarises the findings to date related to the impact of a new airport hub on business location and FDI and discusses the alignment with local plans. It considers three potential airport hub locations: Stansted, Inner Estuary and Outer Estuary.

1.2. Business Locations

Examining the existing situation in the hub airport scenario local areas, the baseline data shows a fairly similar distribution of employment across sectors. Without a hub airport, the projected trend for the business sectors in the local areas examined broadly follows the trend across the whole of the South East. In the local area around Stansted, the following larger sectors will experience significant growth: administrative and support services and retail services; professional, scientific and technical services and the construction sector. By contrast, the manufacturing sector is set to fall. The picture is similar for the local areas around Outer and Inner Estuary, though the latter has an additional two sectors which are sizeable and likely to grow: information and communication services and arts, entertainment and recreation services.

With the hub airport in place, modelling by Oxford Economics shows the main growth sectors are as follows:

- **Transportation and storage:** The net gain in this sector is estimated to be up to 76,500 additional employees (in Inner Estuary and Outer Estuary) by 2050. The projected net increase in this sector in Stansted is 73,000 additional employees by 2050.
- **Wholesale and retail trade:** The net gain in this sector is estimated to be 13,000 - 14,000 in each of the three scenarios considered.
- **Accommodation and food services:** The net employment gain in this sector by 2050 is estimated to be 13,000 for the Outer Estuary hub location. The figure for Inner Estuary is 11,000 and, for Stansted, 8,000.
- **Administrative and support service activities:** The net gain in employment is estimated to be around 5,000 additional employees in each of the three scenarios considered.
- **Construction:** The net increase in the construction sector will start to materialize in 2021 and be sustained up to 2050 with additional 5,000-6,000 employees.

These figures show the increase in jobs due to direct, indirect and induced effects as a result of the hub airport over and above the projected employment changes without an airport hub.

In addition to direct, indirect and induced effects, a hub airport is expected to generate additional growth in certain sectors due to catalytic development where firms choose to locate close to the hub airport because of the proximity to the airport and related infrastructure. There is considerable evidence of a strong business demand for access to aviation. In a recent London First survey 90% of businesses stated that international air links are critical to their business and that these links would need to grow in the long term for London to remain globally competitive. The

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European section of the Airports Council concludes that international global accessibility is “absolutely essential” to businesses making location decisions¹. There are numerous international examples of such catalytic development along a development corridor from the airport fence to a central city location. Sectors that are considered most likely to re-locate (or establish) within development corridors associated with a new airport are:

Transportation and storage: The development of logistics parks and cargo cities - along the lines of those seen around Memphis International Airport, Beijing Airport and Frankfurt Monchhof.

Financial and insurance activities: The banking and finance sector is highly aviation-dependent; it was the biggest purchaser of air travel in 2010 with a 16% share across all air transport spend by sector and two thirds of the sector’s total travel spend relates to air travel. On average £2,178 is spent on air travel per employee². These sectors often cluster in business parks adjacent or coupled with science parks although a hub airport with its additional capacity is also expected to boost on-going growth of the financial services sector around Canary Wharf.

Professional, scientific and technical activities: As is the case for financial and insurance sectors, professional, scientific and technical businesses are also highly aviation-dependent. The research and development sector spent 34% of its travel spend on air travel (£197 spent on air travel per employee on average). There are many international examples of this type of sector developments. For example, Helsinki Airport has the Technopolis development located 700m from the airport, with more than 130 companies operating at the site and a floor area of 23,100m². In addition, the 21-storey Avia Tower, is currently being developed that will anchor a number of knowledge-based companies in the area³. The proximity to the R&D activities of Cambridge may result in Stansted having particularly strong catalytic impacts in this sector.

Wholesale and retail, accommodation and food services, arts, entertainment and recreation: Activity in these sectors will likely increase due to the expected increase in tourism and business travel that a hub airport will bring. Three quarters of the UK’s 30m annual inbound visitors arrive by air and the many major multinational companies in the UK already attract large numbers of visitors to their offices. For example, it is estimated that GSK House attracts up to 500 visitors per day. A new hub airport for London would also boost the tourism sector and support existing plans for growth in the tourist sector. For example, a new hub airport – in particular if placed within the Estuary – would significantly support the plans by Hollywood film giant Paramount for a large scale entertainment complex by 2018. The entertainment complex will feature Europe’s largest indoor water park, theatres, live music venues, attractions, cinemas, restaurants, event space and hotels. The £2billion project will create 27,000 jobs and is set to transform the Swanscombe peninsula, between Gravesend and Dartford, into an international tourist destination.

Education: The higher education sector may be boosted by the hub airport due to the competitive advantage given to UK universities by additional connectivity to global locations. In addition, there may be some benefits from agglomeration effects with large clusters of research and development, scientific and technical companies located close to each other, enabling knowledge sharing. At Frankfurt Airport, the HOLM House of Logistics and Mobility competence centre – considered the world’s first airport university campus – will be built at Gateway Gardens in the next few years⁴.

¹ ACI 2004: The Social and Economic Impact of Airports in Europe

² York Aviation: 2011 referenced in Greater London Authority, 2011: A New Airport for London – Part two

³ J Kasarda, 2011: Global Airport Cities

⁴ Ibid

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Manufacturing: Air freight is used for around 1/4 of the value of the UK’s international goods movements by value. In 2007 the value of UK air freight exports to non EU countries was £31.3bn. Increased aviation capacity offers important benefits through improved production processes and access to markets, including for sectors with high economic growth potential.

Information and communication: The telecommunications sector is one of the most air intensive sectors of the UK economy with spend per employee on air transport at £419. The sector spends 27% of their total transport spend on air travel⁵.

Real estate activities: There is likely to be a demand for housing and business premises due to the catalytic development expected. The “estate agent activities” sector spent 21% of its total travel spend on air travel.

The reported total employment including catalytic development generated by an airport (the sum of direct, indirect and induced jobs), relative to direct employment, varies widely across studies, although it is most commonly between 2 and 3⁶ times the number of direct jobs. This range is considered as realistic, but conservative. Table 1-1 below provides estimated net employment impacts associated with a new hub airport, based on this range:

Table 1-1 Prediction of Net Employment Impacts (2050)

Airport Location	Direct Jobs	Indirect Jobs	Induced Jobs	Total Jobs (Lower range: 2)	Catalytic Jobs (Lower range: 2)	Total Jobs (Upper range: 3)	Catalytic Jobs (Upper range: 3)
Stansted	87,000	5,000	31,000	174,000	51,000	261,000	138,000
Inner Estuary	91,000	6,000	38,000	182,000	47,000	273,000	138,000
Outer Estuary	90,000	6,000	38,000	180,000	46,000	270,000	136,000

Of the three potential locations for a new hub airport, Stansted offers opportunities to achieve catalytic employment impacts towards the upper end of the range, due to greater land availability, greater proximity to other economic centres and better surface access than the two estuary airport options. The catalytic effects in the local area around Stansted would likely be focused around two broad corridors: one running north-south from Cambridge, through Stansted to the Isle of Dogs, and one running east-west running from Colchester, through Stansted to Luton, thereby offering a better opportunity to link the higher growth areas (e.g. Cambridge, Peterborough, Milton Keynes) to the rest of the country compared to the other hub airport location options. It is considered that the Outer Estuary airport option may achieve lower catalytic job impacts, due to physical constraints (i.e. the sea), the greater distance to other economic centres and more limited surface access.

1.3. Foreign Direct Investment

There is a clear link between air connectivity and FDI. According to a European Cities Monitor survey of business leaders, transport links are an essential factor in the location decision of 52% of

⁵ York Aviation, referenced in Greater London Authority, 2011: A New Airport for London – Part two

⁶ The Australian Government Department of Infrastructure and Transport, 2013: Employment generation and airports

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companies. A study commissioned by IATA surveyed 625 businesses in five countries and found that 63% of firms stated that air transport was vital or very important to investment decisions, while a further 24% said it was somewhat important. On average, 18% of firms reported that a lack of good air transport links had affected their past investment decisions⁷.

The strong relationship between FDI and aviation connectivity is also well-documented in academic literature, with some estimates suggesting that FDI increases by 50% after a first direct connection to a foreign region⁸. A recent study by the University of Brescia sought to establish impact of new routes on the creation of European inward FDI in Italy. The study concluded that inward FDI increased overall by 33.7% in the two years after the opening of new routes while, in the same period, FDIs in the control group decreased by 16.6%⁹.

Over the last decade the UK has been both the second largest recipient of FDI and the second largest source after the USA. According to the World Bank, UK net FDI inflow in 2010 was \$61bn or approximately £41bn. At the same time (2010-11) over 94,000 jobs were created and safeguarded in the UK by foreign companies' investments¹⁰. Recent years have seen a changing pattern of FDI inflows globally. In 2009, UK was the 3rd largest recipient of FDI and in 2010-11, UK dropped to 7th place in the global league¹¹.

Increasing the airport capacity through a new airport hub in London will enable more flights between UK and the overseas emerging markets. If airport capacity fails to increase, UK is at risk of falling further behind European competitors: According to a recent study by Frontier Economics, Paris and Frankfurt already boast 1000 more annual flights to the three largest cities in China than Heathrow. There are 21 Emerging Market destinations with daily flights from other European hubs that are not served from Heathrow. These include destinations such as Manila, Guangzhou, and Jakarta¹². Overall, the FDI impact on the national economy is likely to be greatest in the Stansted location, in part because of greater land availability, greater proximity to other economic and knowledge centres (including Cambridge) and better surface access. By comparison, the two estuary airports, particularly the Outer Estuary, may achieve lower levels of FDI due to physical constraints, distance to other economic centres and more limited surface access.

1.4. Impact on the South East, London and Local Areas

FDI remains vital to the success of London and the South East. London's share of all UK FDI projects between 1999 and 2009 was estimated to average 33% bringing more than 500,000 jobs to the capital (13% of all jobs). In 2008, FDI contributed £52bn to London's economy and foreign-owned businesses created 42% of London's economic growth between 1998 and 2004¹³.

Examples of large international businesses choosing to relocate to cities with strong connectivity include:

- Sany Heavy Industries (the largest concrete-pumping equipment company in China) located its American HQ in Atlanta in 2007, citing convenient transportation;
- The global technology company NCR relocated its HQ from Ohio to Atlanta in 2009, citing logistics and infrastructure;

⁷ Gatwick airport, 2013: Response to Discussion Paper 02 on Aviation Connectivity and the Economy

⁸ Bannò, Mutinelli, & Redondi, 2011, cited in Airports Commission Discussion Paper 02: Aviation connectivity and the economy Heathrow Airport Limited, 19th April 2013

⁹ Ibid

¹⁰ Greater London Authority, 2011: A New Airport for London – Part 2

¹¹ World Investment Report, 2011: Non-Equity Modes of International Production and Development

¹² Frontier Economics, 2011: Connecting for growth

¹³ Think London, 2007: 52 Billion: The Value of Foreign Direct Investment to London

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- The healthcare company Baxter which located to Atlanta in 2012, citing logistics;
- Porsche is planning to build its new 2014 base next to Hartfield Jackson Airport;
- KPMG moved its European HQ from Canary Wharf, London and north Frankfurt to a business centre location adjacent to Frankfurt Airport¹⁴.

The scale of FDI around Heathrow provides strong evidence of the impact of FDI on the local area. According to a study by Deloitte on the economic impact analysis of Heathrow, FDI accounts for 220,000 jobs in West London, the Thames Valley and part of Surrey¹⁵.

Considering these examples, the local areas around a new hub airport would likely benefit from a significant increase in FDI. The main regional impacts are likely to be similar in each of the three airport options considered, although this preliminary study has identified minor nuances related to the likely location of 'development zones'. Stansted has the best surface access at present, and also the greatest land availability. It also offers linkages between high growth areas of Cambridge and London. Inner Estuary is closest to central London and offers the potential to rebalance the large differences in the local economies and incomes of the eastern part of London. Outer Estuary would be likely to generate the most geographically disperse growth zone across a large part of the south east, offering the opportunity to address the inequalities in income and growth over a large scale.

1.5. Alignment with national, regional and local strategies

In considering the alignment with national, regional and local strategies, a number of relevant plans were reviewed, including the London Plan and the economic development strategies. From an initial compatibility review, it can be concluded that these strategies will, overall, be supported as a result of introducing a new hub airport, whether based in Stansted, Inner Estuary or Outer Estuary. However, the scale of growth will be much larger than is assumed in plans. Consequently, the strategies would need to be radically revised to maximise economic and social benefits for the local areas, the London region and UK as a whole.

¹⁴ Airports Commission Discussion Paper 02: Aviation connectivity and the economy
Heathrow Airport Limited, 19th April 2013

¹⁵ Deloitte, 2007: The Heathrow Phenomenon. Economic Impact Analysis

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2. INTRODUCTION

Technical Note (TN) 6 summarises the findings to date related to the impact of a new airport hub on business location and FDI. It also discusses the alignment with local plans. It considers three potential airport hub locations - Stansted, Inner Estuary and Outer Estuary. The sections below provide a commentary around the baseline, consideration of relevant evidence and assessment of impact. Appendices 1-3 set out the impact assessment matrix for each of the three scenarios. More detailed baseline information is provided in a separate Annex.

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3. BUSINESS LOCATION

The following section discusses the impact on business location. It sets out the baseline (current and projected) and, drawing on the results of the economic modelling by Oxford Economics¹⁶, highlights the predicted impact in terms of the net effect on direct, indirect and induced employment. The section concludes with a discussion on the likely impact on business locations as a result of catalytic development. In doing so, it draws on the findings from a review of existing international experience of creating a development corridor around a hub airport – a so-called “Aerotropolis”. A detailed mapping of the impacts against each of the scenarios considered can be found in Appendixes 1-3.

Direct, indirect, induced and catalytic effects - definitions

- **Direct:** The impact on employment and GVA within airport boundary. Only activities essential for the operation of a 90 rising to 170mppa hub airport are currently included, based on the current employment mix at Heathrow. For the Stansted option, we operate with an assumption that the existing airport remains in place and therefore capacity is 110mppa in 2029 rising to 208 in 2050. Activities include operational offices, retail, catering and hotels in terminals, maintenance facilities/hangars, fuelling facilities, multi-storey parking.
- **Indirect:**
 - Airport construction: Phase 1 of construction starts in 2019 (2020 at Stansted) and lasts until each airport enters operation in 2029. A second phase of construction starts in 2025 (Isle of Grain) or 2026 (Stansted and Outer Estuary) and runs to 2050. The impact on employment and GVA amongst firms in airport local area who supply goods and services to airport construction (builders, materials suppliers, architects, etc.);
 - Airport operation (2029-2050): Impact on employment and GVA amongst firms in local area who supply goods and services to airport operation (e.g. accountancy or recruitment firms);
 - Construction of road and rail links starts in 2015, and the initial capital expenditure is complete by 2029-30. Beyond that there is annual expenditure on renewals (maintenance and replacement). Further capital expenditure is undertaken from 2035 (Stansted), 2037 (Outer Estuary) or 2041 (Isle of Grain). The impact on employment and GVA amongst firms in airport local area who supply goods and services to infrastructure construction and maintenance (road builders, materials suppliers, engineers, etc.);
- **Induced:** Impact on consumer spending in the airport local area¹⁷ by all those included in the direct and indirect figures.

¹⁶ The Oxford Economics modelling for this study is detailed in technical note 1.

¹⁷ The local areas for the purposes of this study are defined in terms of adjacent local authorities: Stansted (Braintree, Harlow, Uttlesford and East Hertfordshire); Inner Estuary (Medway UA, Tonbridge and Malling,

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- **Catalytic:** Jobs generated by “catalytic effects” – the impact of development from businesses wanting to be close to a hub airport. Likely to be along a development corridor from airport fence to central city location. Development zone could include science and business parks, conference facilities, hotels, logistics, healthcare/medical services, higher education and advanced manufacturing. Could also include residential development¹⁸.

3.1. The baseline

Considering business sectors across the three airport scenarios and Heathrow airport, the baseline data shows a fairly uniform distribution of employment. However, Heathrow has a slightly larger proportion of people working in the ‘financial and business services’ sector than the other airport hub areas, and the South East and England as a whole, although less than that of London as a whole. In addition, Heathrow has a higher proportion of workers in the ‘transport and storage’ sector than the other hub airport areas, London, the South East and England as a whole. The Inner Estuary local area currently has the highest proportion of construction employees compared to the other areas, as presented in Figure 3-1 overleaf.

In terms of overall employment levels, the percentage of unemployed (measured by the number of JSA claimants in March 2013) the Outer Estuary local area has the highest unemployment rate amongst the four areas in 2012 at 4.2%, higher than the average claimant rate for England (3.8%), London (3.9%) and the South East (2.5%). Stansted is below the national average (2.7%) as is Heathrow (3%) and Inner Estuary (3.3%). There is, however, great variation within the local areas. For example, the claimants’ rate for Harlow local authority is 4.7%, almost 2% higher than Braintree and nearly 3% higher than East Herts. In the Inner Estuary area, Gravesham, Medway and Swale also exhibit higher than average unemployment (4%). Thanet, based in the Outer Estuary area, has the highest levels of unemployment (6.2%).

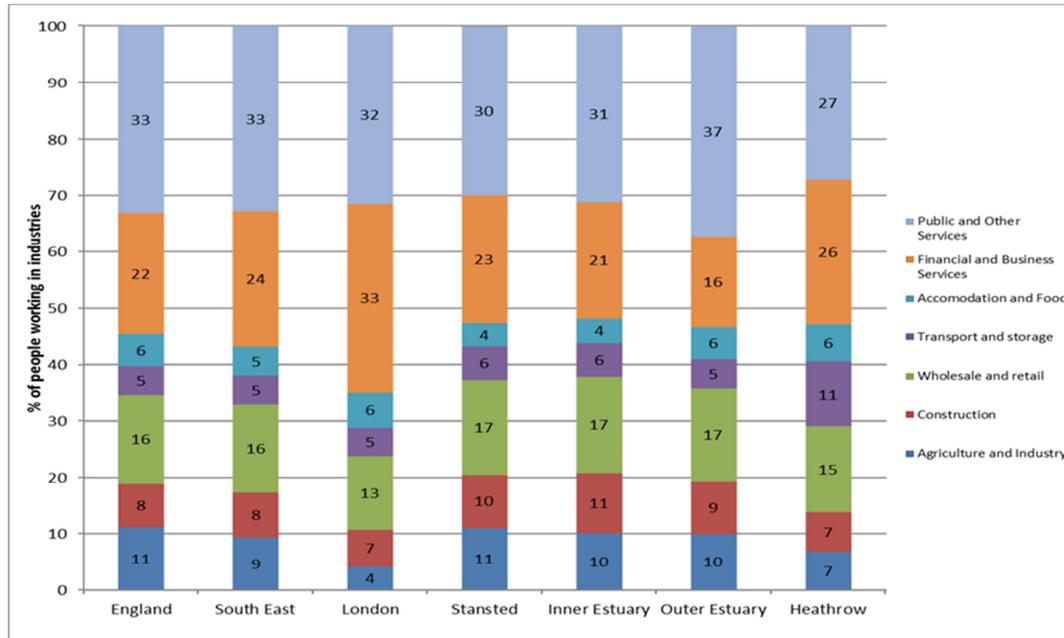
1.1.2.

Dartford, Gravesham, Swale and Maidstone); Outer Estuary (Swale, Thanet and Canterbury) and Heathrow (Hillingdon, Hounslow, Slough UA, Spelthorne, Ealing).

¹⁸ Note that this TN discusses catalytic effects overall. However, in some studies there is an additional category of “Direct Off-Airport” which includes local businesses that rely on airport passengers for custom e.g. off airport hotels, car parks, etc., and businesses which are customers of the airport and rely on the airport as a crucial element of their production process. These are not included explicitly in the modelling figures, although some of these firms will be included in the modelling under indirect impacts, because such firms will be suppliers to the airport as well as customers. As such, “direct off-airport” jobs are included as either indirect or catalytic figures, depending on whether the firm is part of the airport’s supply chain.

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Figure 3-1 Baseline Employer Profile



Source: ONS Census 2011¹⁹

The projected change (without a hub airport) for the business sectors broadly follows the trend across the whole of the South East²⁰.

In the local area around Stansted, administrative and support services and retail services are set to have the highest growth rate between 2013 and 2030 with a projected 25% increase in employees working in these sectors. In the same period, the professional, scientific and technical services are set to grow by 22% closely followed by the construction sector (21%). By contrast, the manufacturing sector is set to fall by 22.7%. During the period 2030-50 the construction, human health and social work activity and the professional scientific and technical services sectors are set to grow by 18-21%. The manufacturing industry is set to continue to decline with a projected 29% fall in the period 2030-2050.

¹⁹ The business sector categories are standard categories used by ONS, though some of the categories have been combined in this figure.

²⁰ The projections are based on Oxford Economics' Local Authority District Forecasting Model which sits within Oxford Economics' suite of global, national and industry forecasting models. This structure ensures that global and national factors (such as developments in the Eurozone and UK Government fiscal policy) have an appropriate influence at the local level. This empirical framework (or set of 'controls') is critical in ensuring that the forecasts are much more than just an extrapolation of historical trends. Local area employment forecasts are determined by modelling the performance of each industry in each local area against regional and national trends, population developments and implied multiplier effects. Aggregate total employment is cross referenced with a number of variables, (including population, relative performance across similar areas, historical cyclical performance and know policy), for checking and validation purposes.

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Considering the main business sectors in the local area around Inner Estuary, the administration and support sector is set to grow with 27% during 2013-2030. Similarly, the professional, scientific and technical services are set to grow with 26% followed by information and communication services (22%) and arts, entertainment and recreation services (20%). By contrast, manufacturing is projected to drop by 28% in this period. During 2030-2050, professional, scientific and technical services are set to grow by 24%, followed by information and communication (18%), arts, entertainment and recreation (17%), and administrative and support services (16%). The manufacturing sector is projected to continue to fall by a further 33% in the period.

In the local area around Outer Estuary, administrative and support service activities are set to grow rapidly at 40% during 2013-2030. Similarly, professional, scientific and technical activities are projected to grow rapidly at 30%. As is the case in the other two local areas considered, the manufacturing industry is projected to decline by 23% during 2013-2030. In the following period (2030-2050), the trends will continue: 36% growth in administrative and support services; 15% growth in professional, scientific and technical activities; and 30% decline in the manufacturing sector.

Tables 3-1 below set out the trend forecast in total employment by sector in the years 2013-2050 without the introduction of a hub airport.

Table 3-1 Total employment by sector 2013-2050 without a hub airport, Stansted

Total employment by sector (000s)	Stansted Baseline (no hub airport)								
	2013	2030	Difference 2013-30	% change 2013-2030	Compound Annual Growth Rate 2013-2030	2050	Difference 2030-50	% change 2030-2050	Compound Annual Growth Rate 2013-2050
Year									
Agriculture, forestry and fishing	2	2	0	0.0%	0.0%	2	0	0.0%	0.0%
Mining and quarrying	0	0	0	0.0%	0.0%	0	0	0.0%	0.0%
Manufacturing	22	17	-5	-22.7%	-1.5%	12	-5	-29.4%	-1.6%
Electricity, gas, steam and air conditioning supply	0	0	0	0.0%	0.0%	0	0	0.0%	0.0%
Water supply; sewerage, waste management and	1	1	0	0.0%	0.0%	1	0	0.0%	0.0%

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remediation activities									
Construction	19	23	4	21.1%	1.1%	28	5	21.7%	1.1%
Wholesale and retail trade; repair of motor vehicles & motorcycles	36	40	4	11.1%	0.6%	40	0	0.0%	0.3%
Transportation and storage	14	16	2	14.3%	0.8%	17	1	6.3%	0.5%
Accommodation and food service activities	12	14	2	16.7%	0.9%	15	1	7.1%	0.6%
Information and communication	6	7	1	16.7%	0.9%	7	0	0.0%	0.4%
Financial and insurance activities	3	3	0	0.0%	0.0%	4	1	33.3%	0.8%
Real estate activities	4	5	1	25.0%	1.3%	6	1	20.0%	1.1%
Professional, scientific and technical activities	18	22	4	22.2%	1.2%	26	4	18.2%	1.0%
Administrative and support service activities	16	20	4	25.0%	1.3%	22	2	10.0%	0.9%
Public administration & defence; compulsory social security	6	6	0	0.0%	0.0%	6	0	0.0%	0.0%
Education	20	21	1	5.0%	0.3%	23	2	9.5%	0.4%
Human health and social work activities	22	24	2	9.1%	0.5%	29	5	20.8%	0.7%
Arts, entertainment and recreation	6	7	1	16.7%	0.9%	9	2	28.6%	1.1%
Other service activities	5	6	1	20.0%	1.1%	6	0	0.0%	0.5%
Total	212	234	22	10.4%	0.6%	253	19	8.1%	0.5%

Source: Latest ONS data and projections by Oxford Economic, 2013. The highlighted cells show any sectors with a baseline or projected baseline of 10,000 employees or above.

Table 3-2 Total employment by sector 2013-2050 without a hub airport, Inner Estuary

Total employment by sector (000s)	Inner Estuary Baseline (no hub airport)
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Year	2013	2030	Difference 2013-30	% change 2013-2030	Compound Annual Growth Rate 2013-2030	2050	Difference 2030-50	% change 2030-2050	Compound Annual Growth Rate 2013-2050
Agriculture, forestry and fishing	4	3	-1	-25.0%	-1.7%	2	-1	-33.3%	-1.9%
Mining and quarrying	0	0	0	0.0%	0.0%	0	0	0.0%	0.0%
Manufacturing	29	21	-8	-27.6%	-1.9%	14	-7	-33.3%	-1.9%
Electricity, gas, steam and air conditioning supply	2	1	-1	-50.0%	-4.0%	1	0	0.0%	-1.9%
Water supply; sewerage, waste management and remediation activities	5	4	-1	-20.0%	-1.3%	4	0	0.0%	-0.6%
Construction	34	39	5	14.7%	0.8%	44	5	12.8%	0.7%
Wholesale and retail trade; repair of motor vehicles and motorcycles	68	73	5	7.4%	0.4%	70	-3	-4.1%	0.1%
Transportation and storage	27	29	2	7.4%	0.4%	28	-1	-3.4%	0.1%
Accommodation and food service activities	23	25	2	8.7%	0.5%	26	1	4.0%	0.3%
Information and communication	9	11	2	22.2%	1.2%	13	2	18.2%	1.0%
Financial and insurance activities	9	9	0	0.0%	0.0%	8	-1	-11.1%	-0.3%
Real estate activities	6	8	2	33.3%	1.7%	9	1	12.5%	1.1%
Professional, scientific and technical activities	23	29	6	26.1%	1.4%	36	7	24.1%	1.2%
Administrative and support service activities	33	42	9	27.3%	1.4%	49	7	16.7%	1.1%
Public administration and defence; compulsory social security	20	18	-2	-10.0%	-0.6%	17	-1	-5.6%	-0.4%
Education	37	35	-2	-5.4%	-0.3%	35	0	0.0%	-0.2%
Human health and social work activities	52	54	2	3.8%	0.2%	61	7	13.0%	0.4%

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Arts, entertainment and recreation	10	12	2	20.0%	1.1%	14	2	16.7%	0.9%
Other service activities	9	10	1	11.1%	0.6%	9	-1	-10.0%	0.0%
Total	402	422	20	5.0%	0.3%	438	16	3.8%	0.2%

Source: Latest ONS data and projections by Oxford Economic, 2013. The highlighted cells show any sectors with a baseline or projected baseline of 10,000 employees or above.

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Table 3-3 Total employment by sector 2013-2050 without a hub airport, Outer Estuary

Total employment by sector (000s)	Outer Estuary Baseline (no hub airport)								
	2013	2030	Difference 2013-30	% change 2013-2030	Compound Annual Growth Rate 2013-2030	2050	Difference 2030-50	% change 2030-2050	Compound Annual Growth Rate 2013-2050
Year									
Agriculture, forestry and fishing	3	2	-1	-33.3%	-2.4%	2	0	0.0%	-1.1%
Mining and quarrying	0	0	0	0.0%	0.0%	0	0	0.0%	0.0%
Manufacturing	13	10	-3	-23.1%	-1.5%	7	-3	-30.0%	-1.7%
Electricity, gas, steam and air conditioning supply	0	0	0	0.0%	0.0%	0	0	0.0%	0.0%
Water supply; sewerage, waste management and remediation activities	2	2	0	0.0%	0.0%	1	-1	-50.0%	-1.9%
Construction	13	15	2	15.4%	0.8%	17	2	13.3%	0.7%
Wholesale and retail trade; repair of motor vehicles and motorcycles	30	32	2	6.7%	0.4%	31	-1	-3.1%	0.1%
Transportation and storage	9	10	1	11.1%	0.6%	10	0	0.0%	0.3%
Accommodation and food service activities	13	13	0	0.0%	0.0%	13	0	0.0%	0.0%
Information and communication	3	3	0	0.0%	0.0%	3	0	0.0%	0.0%
Financial and insurance activities	3	3	0	0.0%	0.0%	2	-1	-33.3%	-1.1%
Real estate activities	2	3	1	50.0%	2.4%	3	0	0.0%	1.1%
Professional, scientific and technical activities	10	13	3	30.0%	1.6%	15	2	15.4%	1.1%
Administrative and support service activities	10	14	4	40.0%	2.0%	19	5	35.7%	1.7%
Public administration and defence; compulsory social	6	6	0	0.0%	0.0%	6	0	0.0%	0.0%

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security									
Education	25	24	-1	-4.0%	-0.2%	25	1	4.2%	0.0%
Human health and social work activities	26	26	0	0.0%	0.0%	29	3	11.5%	0.3%
Arts, entertainment and recreation	5	6	1	20.0%	1.1%	6	0	0.0%	0.5%
Other service activities	5	6	1	20.0%	1.1%	7	1	16.7%	0.9%
Total	178	188	10	5.6%	0.3%	197	9	4.8%	0.3%

Source: Latest ONS data and projections by Oxford Economic, 2013. The highlighted cells show any sectors with a baseline or projected baseline of 10,000 employees or above.

3.2. Net Impact: consideration of direct, indirect and induced effects

Oxford Economics has modelled the likely local impact on employment as a result of introducing an airport hub. The model includes direct, indirect and induced net employment effects only. As set out in Table 3-5 below, the main net gain in employment impact on Stansted, Inner Estuary or Outer Estuary is in the following sectors:

- Transportation and storage: The net gain in this sector is estimated to be up to 76,000 additional employees in Inner Estuary and Outer Estuary by 2050. The projected net increase in this sector in Stansted is 73,000.
- Wholesale and retail trade: The net gain in this sector is estimated to be between 13,000-14,000 in each of the three scenarios considered.
- Accommodation and food services: The net gain in this sector by 2050 is estimated to be 13,000 for the Outer Estuary hub location. The figure for Inner Estuary is 11,000 and, for Stansted, 8,000.
- Administrative and support service activities: The net gain in employment is estimated to be 5,000 in each of the three scenarios considered;
- Construction: The net increase in the construction sector will start to materialize in 2021 and be sustained up to 2050 when there will be an additional 5-6,000 employees in this sector.

Table 3-5 below summarises the net effect on the local areas of Stansted, Inner Estuary and Outer Estuary. It shows the impact of the hub airport over and above what would have occurred anyway i.e. the net change not including trend forecast.

Table 3-4 Net impact by sector (direct, indirect and induced employment)

	Stansted Net Changes	Inner Estuary Net Changes	Outer Estuary - Net Changes
Total employment by sector (000s)			

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Year	2013	2030	2050	2013	2030	2050	2013	2030	2050
Agriculture, forestry and fishing	0	0	0	0	0	0	0	0	0
Mining and quarrying	0	0	0	0	0	0	0	0	0
Manufacturing	0	0	0	0	0	0	0	0	1
Electricity, gas, steam and air conditioning supply	0	0	0	0	0	0	0	0	0
Water supply; sewerage, waste management and remediation activities	0	0	0	0	0	0	0	0	0
Construction	0	6	5	0	7	6	0	7	6
Wholesale and retail trade; repair of motor vehicles and motorcycles	0	10	13	0	10	14	0	11	14
Transportation and storage	0	52	73	0	54	76	0	54	76
Accommodation and food service activities	0	6	8	0	8	11	0	9	13
Information and communication	0	0	0	0	0	0	0	0	0
Financial and insurance activities	0	0	0	0	0	1	0	0	0
Real estate activities	0	2	2	0	2	2	0	1	2
Professional, scientific and technical activities	0	1	1	0	1	1	0	1	1
Administrative and support service activities	0	4	5	0	4	5	0	4	5
Public administration and defence; compulsory social security	0	2	3	0	3	4	0	2	4
Education	0	1	2	0	1	2	0	1	2
Human health and social work activities	0	1	1	0	2	2	0	1	2
Arts, entertainment and recreation	0	2	3	0	2	4	0	2	4
Other service activities	0	1	3	0	1	3	0	2	3
Total	0	89	123	0	98	133	0	99	133

Source: Oxford Economics, 2013: Modelling undertaken in support of Mayor's Aviation Work Programme. The highlighted cells show any sectors with a net change of 3,000 employees or above.

3.3. Catalytic developments

Airports have become a crucial asset for city-regions especially those competing on a European or international spatial level for future-oriented enterprises and highly skilled employees. Formerly

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planned as stand-alone facilities in the cities’ periphery, hub airports have evolved from original pure infrastructure facilities into multimodal and multi-layered spatial development zones²¹. This new form of urban form, the so-called “Aerotropolis”, naturally vary in terms of sector developments and geographic reach, though research suggests that they typically stretch up to 20 miles outward along existing transport corridors. As a result of this development, a number of cities are now increasingly polycentric – for example, clusters such as Amsterdam Zuidas, Las Colinas, Texas, and South Korea’s Songdo International Business District have become globally significant airport edge-cities. The illustration below sets out the concept of an Aerotropolis²².



Figure 3-2 The Aerotropolis concept

Developing an airport corridor – the case of Schiphol

Schiphol is the fourth largest airport in Europe and one of the world’s major international aviation hubs. The Schiphol Group, who is both the operator and the owner, has gained a worldwide reputation as a pioneer in the field of airport-linked spatial development. The company has, since the 1990s, adopted a commercially oriented approach which has not only radically altered the passenger terminal but also the airport’s hinterland. As a result, new office sites have gradually

²¹ Bontje, 2009: The knowledge economy, hub airports and accessibility. A location based perspective. The Case of Amsterdam-Schiphol.

²² Karsada and Lindsay, 2012: Aerotropolis-the way we’ll live next

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been built up in the corridor and substantially increased revenues through rents and passengers' purchases. Currently, the total stock comprises nearly 200,000 m² of office space. In the future, the office stock at Schiphol-Center will grow by another 8 – 15% due to a number of projects in the pipeline, such as the extension of the Outlook Building. The construction activities of the office complexes were accompanied by a simultaneously increasing number of high-quality facilities such as hotels of different categories or meeting and conference centres. Similar to the office buildings, most of these premises are either directly linked to the terminal via a walkway or a promenade. All this helped to transform the location of Schiphol-Center into a multifunctional and multimodal premium business site.

As a result – and indication of its success - in the Amsterdam office market it is not the city centre which is the most expensive office location, but the Schiphol-Center at the city's edge: In 2009, the Schiphol-Center achieved the highest office rents countrywide (maximum rents of 390 € / m² per year); the actual central business district of Amsterdam halfway between city centre and Schiphol Airport achieved rents of approximately 335 € / m² per year and, in the city centre itself, a prime rental value of around 255 € / m² was realized. Despite the considerable turbulences which have affected the real estate markets over recent years, the prime rents at Schiphol-Center have remained relatively stable.

Multimodality of transportation infrastructure combined with an extensive business infrastructure is understood as a crucial competitive and developmental advantage in the global market. This kind of locational quality, which is tailored to the requirements of knowledge-intensive companies, has transformed Amsterdam into a polycentric urban landscape. In this context, Schiphol has become "the most prominent growth engine...and the largest employment concentration in the metropolitan area²³."

As set out in Table 3-6 below there are many other examples from around the world which demonstrate the strong catalytic effects of a hub airport in the local area around a development corridor.

Table 3-5 Examples of catalytic development around hub airports

Name of airport	MPPA	Examples of catalytic development
Frankfurt Airport	50.9	Major real estate developments in and around the airport: The Monchof logistics park (mixed use logistics, office and retail operations) and the Squaire Frankfurt office/hotel complex; CargoCity. 7bn EURO investment programme, estimated to secure more than 175,000 jobs. The HOLM house of logistics and mobility competence centre – considered the world's first airport university campus – will be built at Gateway Gardens in the next few years.
Dallas/Fort Worth int. airport	57	International Commerce Park, West Air Cargo, Gas Wells, production and distribution centre. Investment of over \$16bn, securing more than 300,000 jobs.
Beijing Capital International	65.5	Airport City plan based around cargo and logistics. Airport City Logistics Park: Investment over \$19bn securing over 500,000 jobs.

²³ Bontje, 2009: The knowledge economy, hub airports and accessibility. A location based perspective. The Case of Amsterdam-Schiphol.

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Airport		Future plans for exhibition space, education, and industrial development.
Denver International Airport	50.2	Neighbours Commerce City: investment of \$22.3bn, creating 76,000 local jobs and \$22.2bn for Colorado's economy. Plans to build solar energy plant.
Helsinki International Airport	13	Hotel, Business parks, Avia Forum, Technopolis, Entertainment centre, jumbo shopping mall, Congress centre and a residential area. Accounts for 70% all new jobs created in the city, investment of €2bn planned and space to another 100,00 local jobs. Vantaa Innovation Institute the anchor of knowledge based business community. Plans for extra new housing for up to 30,000 people.
Incheon International Airport	28	International Business Centre, 72 hole golf course, Free Trade Zone with airport logistics park, Waterpark hosting international sports. Expansion from 44 mppa to 62 mppa forecast to generate 80,000 new jobs, \$7.8bn in production inducement effect and \$3.3bn in value-added creation.
Kuala Lumpur International Airport	29.7	Formula one racing track, Commercial Centre, Support Facilities, Hotels – creating more than 22,000 local jobs.
Memphis International	9.8	FedEx world hub, Tennessee air national guard, Ground Transportation Centre. \$28.6bn investment creating 220,154 jobs.
Pittsburgh International Airport	8	Business and commerce parks, sporting and scientific companies HQ, military reserves. Carnegie Mellon University and high-tech local development linked to airport.
Athens International Airport	16.2	Retail park, exhibition hall, conference centre, shopping centre. €4.1bn investment creating over 16,000 jobs.
Dubai International Airport	50	Large scale development zones (primarily retail and leisure/tourism). 58,000 direct jobs (contributes \$6.2bn); 43,000 indirect jobs (contributes \$3.5bn) and 23,900 induced jobs (contributes \$2bn)
Stockholm Arlanda	19	E4 corridor between Stockholm and Uppsala: 6 major institutions: Stockholm University, Uppsala University, the Royal Institute of Technology, Karolinska Institute, the Swedish University of Agricultural Sciences and the Stockholm School of Economics. These are all collaborating to create a corridor for research in Sweden that can benefit from their collective expertise. Arlanda airport is close to halfway between these two centres, and has a large cluster of high tech companies along the 70km corridor.

Sources: Kasarda, 2012: Global airport Cities. D. E. Andersson, A. E. Andersson and C. Mellander, 2011: Handbook of Creative Cities.

The ratio of catalytic development relative to direct employment varies widely across different studies. In part, this is because of the variation in the studies relating to:

- the geographical area assumed to be affected

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- patterns of economic activity at different airports
- assumptions regarding upstream and downstream industry linkages,
- different base case assumptions about the counterfactual scenario, i.e. the level of production and employment in the region in the absence of the airport²⁴,
- the degree to which planning and regulation is supporting growth priorities, including the relative effectiveness of the accompanying development plans and resources behind it,
- the success in attracting foreign direct investment, and
- variation in how different studies categorise direct, indirect, induced and catalytic effects.

The reported total employment generated by an airport (the sum of direct, indirect and induced jobs), relative to direct employment, varies widely across studies though experts suggest that it is most commonly between 2 and 3 times the number of direct jobs²⁵. This range is considered as realistic, but conservative. Table 3-7 below provides estimated catalytic job generation associated with a new hub airport, based on this range:

Table 3-6 Prediction of Net Catalytic Employment Impacts (2050)

Airport Location	Direct Jobs	Indirect Jobs	Induced Jobs	Total Jobs (Lower range: 2)	Catalytic Jobs (Lower range: 2)	Total Jobs (Upper range: 3)	Catalytic Jobs (Upper range: 3)
Stansted	87,000	5,000	31,000	174,000	51,000	261,000	138,000
Inner Estuary	91,000	6,000	38,000	182,000	47,000	273,000	138,000
Outer Estuary	90,000	6,000	38,000	180,000	46,000	270,000	136,000

Of the three potential locations for a new hub airport, the Stansted option is likely to offer opportunities to achieve catalytic employment impacts towards the upper end of the range. This is because of greater land availability (broadly 360 degrees around the airport), greater proximity to other economic centres and better surface access than the two estuary airport options. As such, the catalytic effects in the local area around Stansted would likely be focused in two broad corridors: one running north-south from Cambridge, through Stansted to the Isle of Dogs, and one running east-west running from Colchester, through Stansted to Luton. It would seem to offer a better opportunity to link the higher growth areas (e.g. Cambridge, Peterborough, Milton Keynes) to the rest of the country compared to the other hub airport location options. It is considered that the Outer Estuary airport option may achieve catalytic job impacts towards the lower end of the range. This is due to physical constraints (i.e. the sea), lesser proximity to other economic centres and more limited surface access. For both estuary airports, catalytic impacts may be experienced in a corridor running from the airport into London and potentially as far west as Heathrow.

²⁴ Hakfoort et al., 2001: The Regional Economic Impact of an Airport: The Case of Amsterdam Schiphol Airport

²⁵ The Australian Government Department of Infrastructure and Transport, 2013: Employment generation and airports. See also Twomey and Tomkins 1995, Hakfoort et al. 2001 and York Aviation 2004.

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Considering business location, the sectors most likely to re-locate within a development corridor around Stansted, Inner Estuary or Outer Estuary, are those which are most aviation-dependent and/or likely to benefit from economics of agglomeration²⁶.

There is strong evidence of a strong business demand for access to aviation. In a recent London First survey 90% stated that international air links are critical to their business and that these links would need to grow in the long term for London to remain globally competitive. This is backed up by other studies: York Aviation has conducted a number of detailed consultations with businesses in the City of London to identify the key requirements for air service connectivity to support London as a financial centre. Direct connections are particularly important for business travellers. Considering international evidence, the European section of the Airports Council with York Aviation concludes that international global accessibility is "absolutely essential" to businesses making location decisions²⁷. The organisation lists a number of examples in support of this:

- 31% of companies relocating to the area around Munich Airport cited the airport the primary factor in their location decision;
- A survey of businesses in the Hamburg area found that 80% of manufacturing companies reported air service connections as important;
- The Ile de France Region generates 30% of the French national GDP. Accessibility to Paris CDG Airport is powerful factor in companies' location decisions, particularly for the large global companies headquartered in the Paris area, and to firms engaging in new-high-tech, innovation, industries;
- The cluster of high tech industries around Copenhagen and Nice Airports²⁸.

Sectors that are considered most likely to re-locate (or establish) within development corridors associated with a new airport are discussed briefly below:

3.4. Transportation and storage

Economic activity in this sector will likely increase significantly, especially around the local and regional area. The development of logistics parks and cargo cities - along the lines of those seen around Memphis International Airport, Beijing Airport and Frankfurt Monchhof - are expected to generate significant economic activity with the potential to further grow and develop as the cluster development matures over time after the opening of an airport.

3.5. Financial and insurance activities

The banking and finance sector is highly important to the UK and in particular to London:

In 2011, financial and insurance services contributed £125.4 billion in gross value added (GVA) to the UK economy, 9.4% of the UK's total GVA. In 2009, London accounted for 45.8% of the total financial and insurance sector GVA in the UK²⁹. The sector is also highly aviation-dependent: In 2010, it was the biggest purchaser of air transport, with a 15.6% share across all air transport spend by sector and it spent two thirds of total travel spend on air travel. On average, £2,178 is

²⁶ Agglomeration refers to the benefits that companies obtain from locating near each other due to the economies of scale and networking effects. Where more firms in related industries cluster together, costs of production can reduce due to these firms having competing multiple suppliers, greater specialisation and the division of labour

²⁷ ACI, 2004: The Social and Economic Impact of Airports in Europe

²⁸ Greater London Authority, 2011: A New Airport for London - Part 1 and 2

²⁹ House of Commons Library Services, 2012: Financial Services - contribution to the UK economy

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spent on air travel per employee³⁰. Economic activity in this sector will likely increase as a result of agglomeration effects of a hub airport, in particular across a new development corridor and within Docklands and the City of London. With regards to the latter, a hub airport with strong transport links across to the City and Docklands, will be instrumental in supporting existing growth plans within this sector not least in the Canary Wharf area, which is set to double in size over the next decade.

3.6. Professional, scientific and technical activities

In line with the financial and insurance sectors, professional, scientific and technical business sectors are highly aviation-dependent. The research and development sector spent 34.4% of its travel spend on air travel (£197 spent on air travel per employee on average). A new hub airport for London is likely to boost the development of new science parks and innovation centres, situated across a development corridor. There are many international examples of such developments: Helsinki Airport, for example, has the Technopolis development located strategically only 700 metres from the airport in the Aviapolis area. There are more than 130 companies operating at the site with a floor area of 23,100 m². In addition, the Avia Tower, is currently being developed, a 21-storey 20,000m² high-rise building that will anchor a number of knowledge-based companies in the area³¹. The proximity to the science and research activities of Cambridge may result in Stansted resulting in particularly strong catalytic impacts for this sector.

3.7. Wholesale and retail, Accommodation and food services, Arts, entertainment and recreation

Activity in these sectors may increase regionally and more widely, largely as a result of the expected increase in tourism and business travels that a hub airport will bring (three quarters of the UK's 30 million annual inbound visitors arrive by air). The major corporates that are located in west London attract large numbers of visitors to their offices. For example, it is estimated that GSK House attracts 200-500 visitors per day. A similar pattern could be expected around a new hub airport in London. Tourists also increase demand in this area. For example, Hong Kong International Airport has Hong Kong Disneyland located approximately 10 minutes from the airport, which attracts tourists across the whole of Asia. A new hub airport for London would help attract similar large scale tourist attractions and support existing plans for growth in the tourist sector. For example, a new hub airport – in particular if placed within the Estuary – would significantly support the plans by Hollywood film giant Paramount for a large scale entertainment complex. The entertainment complex will feature Europe's largest indoor water park, theatres, live music venues, attractions, cinemas, restaurants, event space and hotels. The £2billion project will create 27,000 jobs and is set to transform the Swanscombe peninsula, between Gravesend and Dartford, into an international tourist destination.

3.8. Education

Employment in the primary education sector may grow in line with the increase in the population associated with the catalytic development expected as a result of the hub airport. More significantly, the higher education sector will likely be boosted further by the hub airport due to the competitive advantage given to UK universities by additional connectivity to more global locations. In addition, there may be some benefits to the higher education sector from agglomeration effects whereby large clusters of research and development, scientific and technical companies are located close to each other, enabling knowledge sharing. At Frankfurt Airport, the

³⁰ York Aviation: 2011 as referenced in Greater London Authority, 2011: A New Airport for London – Part 2

³¹ J Kasarda, 2011: Global Airport Cities

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HOLM House of Logistics and Mobility competence centre – considered the world’s first airport university campus – will be built at Gateway Gardens in the next few years³².

3.9. Manufacturing

The UK, and in particular the London region, has seen a significant decline in the manufacturing sector over the past three decades and the trend is projected to continue. Oxford Economics estimate that the local areas around Stansted, Inner Estuary and Outer Estuary will see a further 50% fall in this sector from now to 2050. Yet, international examples demonstrate how aviation supports the manufacturing industry. This is due to the tendency of manufacturing companies, in particular food manufacturers, to benefit from proximity to an airport – with air freight used for around a quarter of the value of the UK’s international goods movements by value. In 2007 the value of UK air freight exports to non EU countries was £31.3bn. A hub airport could be instrumental in slowing the decline of the manufacturing sector across London and the South East, thus supporting the government’s goal of re-balancing the economy and safeguarding jobs in this sector.

3.10. Information and communication

The telecommunications sector is one of the most air intensive sectors of the UK economy with spend per employee on air transport at £419 and percentage of transport spend on air travel at 26.9%³³.

3.11. Real estate activities

There is likely to be a demand for housing and business premises due to the catalytic development expected as result of the new hub airport. In addition, the “estate agent activities” sector spent 21.3% of its travel spend on air travel with £42 spent on air travel per employee on average.

3.12. Other:

Economic activity in other sectors may also increase regionally and more widely, due to a combination of catalytic development and net population increases. This applies particularly to the following sectors: Administrative and support service activities, public administration and defence; compulsory social security, human health and social work activities, and construction.

³² J Karsada, 2011: Global Airport Cities

³³ York Aviation, 2011, referenced in Greater London Authority, 2011: A New Airport for London

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4. FOREIGN DIRECT INVESTMENT

The section below discusses the impact of a new aviation hub on foreign direct investment on the national, regional and local economies.

4.1. Impact on the UK economy

The UK has a great track record of attracting foreign direct investment (FDI). Over the last decade the UK has been both the second largest recipient of FDI and the second largest source after the USA. According to the World Bank, UK net FDI inflow in 2010 was \$61bn or approximately £41bn. At the same time (2010-11) over 94,000 jobs were created and safeguarded in the UK by foreign companies’ investments³⁴. With the rebalancing of the global economy, particularly the growth in the importance of emerging markets, recent years have seen a changing pattern of FDI inflows globally. In 2009, UK was the 3rd largest recipient of FDI and, in 2010-11, UK dropped to 7th place in the global league³⁵. The highly aviation dependent sectors of finance, business activities, wholesale and retail are amongst the top five sectors attracting FDI³⁶.

There is a clear link between air connectivity and FDI. According to a recent European Cities Monitor survey of business leaders, transport links are an essential factor in the location decision of 52% of companies. A study commissioned by IATA surveyed 625 businesses in five countries (China, Chile, United States, Czech Republic and France), and found that 63% of firms stated that air transport was vital or very important to investment decisions, while a further 24% said it was somewhat important. On average, 18% of firms reported that the lack of good air transport links had affected their past investment decisions³⁷.

The strong relationship between FDI and aviation connectivity is also well-documented in academic literature, with some estimates suggesting that FDI increases by 50% after a first direct connection to a foreign region³⁸. A recent study by the University of Brescia sought to establish impact of new routes on the creation of European inward FDI in Italy. The academics employed a comparison group design to determine the net impact of new routes on the generation of FDI considering both SMEs and large companies. It concludes that inward FDI increased overall by 33.7% in the two years after the opening of new routes while, in the same period, FDI in the control group decreased by 16.6%³⁹. Table 4-1 provides an overview of other studies demonstrating the link between air connectivity and FDI⁴⁰.

Table 4-1 Studies on the relationship between aviation and FDI

Authors	Findings	Sample
McCann and Acs, 2011	Size of a city is much less important than its level of global connectivity in determining	Large MNE, global cities

³⁴ Greater London Authority, 2011: A New Airport for London – Part two

³⁵ World Investment Report 2011: Non-Equity Modes of International Production and Development

³⁶ International Trade Centre: Investment maps: <http://www.investmentmap.org/prioritySector.aspx>

³⁷ Gatwick airport, 2013: Response to Discussion Paper 02 on Aviation Connectivity and the Economy

³⁸ Bannò, Mutinelli, & Redondi (2011) cited in Airports Commission Discussion Paper 02: Aviation connectivity and the economy Heathrow Airport Limited, 19th April 2013

³⁹ Air Connectivity and Foreign Direct Investments: The economic effects of the introduction of new routes

⁴⁰ compiled by Bannò, Mutinelli, & Redondi (2011)

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	international investments.	
Carod et al., 2010	Among others, infrastructures are key determinants of investment location.	National and foreign firms, regional and municipality level
Sellner and Nagl, 2010	Air accessibility has positive impact on GDP and investment growth.	Investment rate, country level
Xu et al., 2009	A sound foundation in traffic infrastructure, in particular in airfreight network, attracts more FDI.	FDI, provincial area
Bel and Fageda, 2008	The availability of direct non-stop flights is a major determinant in the location choices of large European firms' headquarters.	Large firms' headquarters, metropolitan area
Hong, 2007	National investors, when making location decisions, value market size, while foreign ones emphasize cheap labour and convenient airway transport.	Foreign logistic firms, metropolitan area
Basile et al., 2005	Italian regions attracted significantly less than their potential and this could be explained, among others, by the low level of infrastructure.	FDI, regional level
Strauss -Kahn and Vives, 2005	Among other factors, headquarters relocate to metropolitan areas with good airport facilities.	Headquarters, metropolitan area
Doeringer et al. 2004	The presence of an international airport influences the location choices of both multinational and domestic plants.	National and foreign firms, regional level
Brueckner, 2003	Frequent service to a variety of destinations, is key to attracting new firms for service-related businesses.	Employment, metropolitan area
Hoare, 1975	The geography of FDI in UK is related to the accessibility to airports.	Foreign firms, provincial area

Situated between the United States and the rest of Europe - and through its membership of the EU's single market - the UK is strategically well placed to compete in the global market for FDI. However, the recent economic and financial crisis, coupled with a general trend of globalisation, has shifted the economic weight east and south. The surge of emerging markets represents great opportunities for securing FDI to the UK, both from these growth economies and from other foreign investors who are attracted to the UK as a business location for developing business in the global supply chain.

Increasing the airport capacity through a new airport hub in London will enable more flights between UK and the overseas emerging markets, which will continue to grow in importance in the global market place. As such, it will become increasingly important for the UK to be connected by air to these countries so it remains an attractive place to invest in for foreign companies. If airport capacity fails to increase, UK is at risk of falling further behind European competitors: According to

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a recent study by Frontier Economics, Paris and Frankfurt already boast 1000 more annual flights to the three largest cities in China than Heathrow. There are 21 Emerging Market destinations with daily flights from other European hubs that are not served from Heathrow. These include destinations such as Manila, Guangzhou, and Jakarta⁴¹.

Overall, the FDI impact on the national economy is likely to be greatest in the Stansted location, in part because of greater land availability (broadly 360 degrees around the airport), greater proximity to other economic and knowledge centres (including Cambridge) and better surface access than the two estuary airport options. By comparison, the two estuary airports, particularly the Outer Estuary, may achieve lower levels of FDI due to physical constraints, lesser proximity to other economic centres and more limited surface access. More research is needed to explore this issue in more detail.

4.2. Impact on the South East, London and Local Areas

With London's status as a global city, FDI remains vital to the success of city and the South East.

London's share of all UK FDI projects between 1999 and 2009 was estimated to average 33% bringing more than 500,000 jobs to the capital (13% of all jobs). In 2008, FDI contributed £52bn to London's economy in 2008 and foreign-owned businesses created 42% of London's economic growth between 1998 and 2004⁴². Employees in foreign owned businesses are, on average, paid 37% more than those in domestically-owned ones and even after adjusting for the different job types 12% discrepancy in favour of those employed in foreign-owned firms remains. And, importantly, these employees of foreign-owned companies are more than twice as productive as other London workers when measured across all sectors.

In line with international surveys, good international air links remain a critical factor for choosing London and the South East as a business location. According to a recent London First survey 90% of foreign-owned businesses surveyed stated that international air links are critical to their business and that these links would need to grow in the long term for London and the South East to remain globally competitive⁴³. With London's existing airport capacity under pressure, there is a real risk of London losing out to other capitals with greater hub airport capacity. There are already numerous examples of large international businesses choosing to relocate to cities with strong connectivity:

- Sany Heavy Industries (the largest concrete-pumping equipment company in China) which located its American HQ in Atlanta in 2007, citing convenient transportation;
- The global technology company NCR which relocated its HQ from Ohio to Atlanta in 2009, citing logistics and infrastructure;
- The healthcare company Baxter which located to Atlanta in 2012, citing logistics;
- Porsche which is planning to build its new 2014 base next to Hartfield Jackson Airport.

An example from the UK is the case of KPMG, which has recently moved its European Headquarters from Canary Wharf, London and Marie Curie Strasse (north of Frankfurt) to a business centre location adjacent to Frankfurt Airport (south of Frankfurt)⁴⁴.

⁴¹ Frontier Economics, 2011: Connecting for growth

⁴² Think London, 2007: 52 Billion: The Value of Foreign Direct Investment to London

⁴³ Greater London Authority, 2011: A new airport for London part one

⁴⁴ Airports Commission Discussion Paper 02: Aviation connectivity and the economy Heathrow Airport Limited, 19th April 2013

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The scale of FDI around Heathrow provides strong evidence of the impact of FDI on the local area. According to a study by Deloitte on the economic impact analysis of Heathrow, FDI accounts for 220,000 jobs in West London, the Thames Valley and part of Surrey. The report concludes "FDI is crucial to economic success of the area and global connectivity through Heathrow seems to play a key role in this."⁴⁵

Heathrow Airport Limited has recently mapped businesses in the Thames Valley which shows that the area, compared to the UK average, has:

- 50% more European businesses (Heathrow provides strong European connectivity);
- 60% more foreign companies (Heathrow provides majority of UK long haul connectivity);
- 100% more US companies (Heathrow provides a large majority of UK connectivity to the US);
- 260% more Japanese companies (Japan is only accessible from Heathrow).

The airport also commissioned external econometric analysis which estimated that expanding its connectivity, by adding a third runway might generate up to £18bn of Net Present Value from new foreign investment⁴⁶.

This is with London Heathrow airport currently being constrained at 70 mppa, whereas a new hub opening would provide capacity of up to 90 mppa (rising to 180 mppa). This would represent a step change in terms of capacity and would therefore give the opportunity for even greater benefits to be realised.

Considering the experiences of Heathrow and many international examples of successful establishment of development zones, it is clear that the local areas around each of the airport hub options considered is likely to benefit from a significant increase in FDI in the area once the airport is fully operational. The main regional area impacts are likely to be similar in each of the three airport options considered, though this preliminary study has identified minor nuances related to the likely location of 'development zones'. Table 4-2 sets out a brief discussion of the regional area impact in Stansted, Inner Estuary and Outer Estuary. There is also a brief consideration of the likely local area impact of a closure of Heathrow. More research would be needed to further explore these differences in local impacts.

Table 4-2 Overview of regional area impact

Airport hub option	Brief overview of regional area impact
Stansted	As a location, Stansted has high quality road and rail infrastructure which provides fast, direct links to Cambridge and London, as well as the ports of East Anglia and the Thames Estuary. It also has land available which could offer great potential to expand the existing London – Stansted Corridor. This could strengthen the competitiveness of London and South East as a business location and substantially increase the level of FDI to the capital. With this, there is a potential to transform London into a polycentric centre (central London and Stansted development corridor) for business and economic activity akin to the developments of the Dutch Schiphol-Center with its large

⁴⁵ Deloitte, 2007: The Heathrow Phenomenon. Economic Impact Analysis

⁴⁶ Airports Commission Discussion Paper 02: Aviation connectivity and the economy
Heathrow Airport Limited, 19th April 2013

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	multifunctional and multimodal premium business site.
Inner Estuary	An Inner Estuary airport hub could, with associated road and rail infrastructure investment, offer strong opportunities for the development of an 'Eastern Growth Wedge' stretching from Southend in the east through central London to Heathrow in the west. Such a development corridor would likely attract additional FDI and strengthen the competitiveness of London and the South East as a business location. With this, there is a potential to transform London into a polycentric centre (central London and an eastern development corridor encompassing local areas around the Inner Estuary such as Medway, Southend, Thurrock and Dartford). An eastern growth wedge, would also offer the potential to rebalance the local economies and close the income gaps which currently exists between the east and the west in London and the South East.
Outer Estuary	An Outer Estuary airport hub could, with associated road and rail infrastructure investment, provide strong opportunities for the development of a growth zone across a large part of the south east, stretching from Thanet town in the east through Canterbury, Swale, Medway, Gravesham, Bexley, Woolwich, Thamesmead and Central London through to Heathrow in the West. The Outer Estuary option would generate a significantly more geographically dispersed development zone than would likely be the case for Inner Estuary and Stansted options. While this geographical dispersion might provide challenges of optimizing agglomeration effects, the location option offer the potential to rebalance the local economies and close the income gaps which currently exists between the east and the west of London and the South East.

4.3. Alignment with national, regional and local strategies

In considering the alignment with national, regional and local strategies, the following strategies have been reviewed:

- London Plan (2011)
- Braintree Economic Development Strategy 2012-14
- East Hertfordshire Economic Development Strategy 2007-2012
- Uttlesford Economic Development Strategy 2012-14
- Gravesham Local Plan & Corporate Business Plan 2010-2015
- Maidstone Economic Development Strategy (for 2028)
- Medway Economic Development Strategy 2009-12
- Swale Draft Core Strategy for 2031
- Thanet Draft Economic Growth Strategy
- Tonbridge and Malling Core Strategy
- Canterbury Core Strategy Report for Consultation 2010
- Canterbury Economy and Tourism Strategy 2008-2012
- Harlow Local Development Plan 2006
- Swale Draft Core Strategy for 2031

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From an initial compatibility review, we can conclude that – overall - these strategies will be supported as a result of introducing a new hub airport, whether based in Stansted, Inner Estuary or Outer Estuary. The scale of growth will be much larger than is assumed in plans and, strategies would require revising to maximise economic and social benefits for citizens, businesses and society as a whole.

Table 4-3 the extent to which the hub airport support or detracts from objectives in the London plan – initial compatibility analysis

Objective/Aim	Stansted	Inner Estuary	Outer Estuary
Policy 3.1 Ensuring equal life chances for all	✓	✓	✓
Policy 3.2 Improving health and addressing health inequalities	-	-	-
Policy 3.3 Increasing Housing Supply	✓	✓	✓
Policy 3.6 Children and young people's play and informal recreation facilities	✓	✓	✓
Policy 3.7 Large residential developments	✓	✓	✓
Policy 3.9 Mixed and balanced communities	✓	✓	✓
Policy 3.11 Affordable Housing Targets	✓	✓	✓
Policy 3.14 Existing Housing	✓	✓	✓
Policy 3.16 Protection and Enhancement of social infrastructure.	✓	✓	✓
Policy 3.17 Health and social care facilities	✓	✓	✓
Policy 3.18 Education Facilities	✓	✓	✓
Policy 3.19 Sports facilities	-	-	-
Policy 6.2 Providing public transport capacity and safeguarding land for transport	✓	✓	✓
Policy 6.4 Enhancing London's transport connectivity	✓	✓	✓
Policy 6.6 Aviation	✓	✓	✓
Policy 6.7 Better streets and surface Transport.	✓	✓	✓
Policy 6.11 Smoothing traffic flow and tackling congestion	✓	✓	✓

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Policy 7.1 Building London's neighbourhoods and communities	✓	✓	✓
Policy 7.2 An inclusive environment.	✓	✓	✓
Policy 7.5 Public realm.	✓	✓	✓

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APPENDIX 1: IMPACT ASSESSMENT TABLE FOR STANSTED LOCAL AREA

Aspect/sub- aspect	Summary of Baseline Conditions	Predicted Impact	Scale of Impact ⁴⁷	Duration	Evidence
Business location: Agriculture, forestry and fishing	Baseline data and projections of number of employees in this sector within the local area: 2000: 2,000 2008: 2,000 2013: 2,000 2030: 2,000 2050: 2,000	There is not predicted to be any significant change to the number of employees either directly employed in this sector, or employed through indirect or induced effects as a result of the hub airport. However, overall, there may be a decrease in the number of employees in the agriculture, forestry and fishing sector due to the amount of agricultural land that is likely to be claimed for business and residential development as a result of the hub airport and its catalytic effects. It should be noted that there are only small number of people employed in this sector in the Stansted local area and therefore the impact is likely to be small in nature, and in context this is not considered to be significant, i.e. overall neutral.	Neutral	N/A	Oxford Economics modelling undertaken in support of Mayor's Aviation Work Programme.
Business location: Mining and quarrying	Baseline data and projections of number of employees in this sector within the local area: 2000: 150 2008: 195 2013: 100 2030: 55 2050: 25	There is not predicted to be any significant change to the number of employees in this sector as a result of the hub airport and therefore the impact on employment in this sector is considered to be neutral.	Neutral	N/A	Oxford Economics modelling undertaken in support of Mayor's Aviation Work Programme.
Business location: Manufacturing	Baseline data and projections of number of employees in this sector within the local area: 2000: 32,000 2008: 24,000 2013: 22,000 2030: 17,000 2050: 12,000	There is not predicted to be any significant change to the number of employees either directly employed in this sector, or employed through indirect or induced effects as a result of the hub airport. Although modelling suggests that employment in this sector is, in general, declining, there may be an increase in employment in this sector as a result of catalytic development due to the hub airport. This is due to the tendency of manufacturing companies, in particular food manufacturers, to benefit from proximity to an airport.	✓	Permanent impact	Oxford Economics modelling undertaken in support of Mayor's Aviation Work Programme. GLA, 2011: A New Airport for London: Air freight used for around 1/4 of the value of the UK's international goods movements by value. In 2007 the value of UK air freight exports to non EU countries was £31.3bn. It offers important benefits through improved production processes and access to markets, including for sectors with high economic growth potential.
Business location: Electricity, gas, steam and air conditioning supply	Baseline data and projections of number of employees in this sector within the local area: 2000: 280 2008: 100 2013: 190 2030: 150 2050: 85	There is not predicted to be any significant change to the number of employees in this sector as a result of the hub airport and therefore the impact on employment in this sector is considered to be neutral.	Neutral	N/A	Oxford Economics modelling undertaken in support of Mayor's Aviation Work Programme.

⁴⁷ Scale of Impact

Impacts have been scored using professional judgement, taking account of magnitude of change, spatial extent of impacts, temporal extent of impacts, and whether impacts are temporary or permanent.

✓✓ Substantial significant positive impact; ✓ Minor significant positive impact; Neutral - No significant impact; ✗ Minor significant negative impact; ✗✗ Substantial significant negative impact

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Aspect/sub- aspect	Summary of Baseline Conditions	Predicted Impact	Scale of Impact ⁴⁷	Duration	Evidence
Business location: Water supply; sewerage, waste management and remediation activities	Baseline data and projections of number of employees in this sector within the local area: 2000: 1,000 2008: 1,000 2013: 1,000 2030: 1,000 2050: 1,000	There is not predicted to be any significant change to the number of employees in this sector as a result of the hub airport and therefore the impact on employment in this sector is considered to be neutral.	Neutral	N/A	Oxford Economics modelling undertaken in support of Mayor's Aviation Work Programme.
Business location: Construction	Baseline data and projections of number of employees in this sector within the local area: 2000: 19,000 2008: 19,000 2013: 19,000 2030: 23,000 2050: 28,000	There is expected to be a substantial increase in economic activity in this sector in the local area during the construction phase of the hub airport. Modelling predicts the following number of additional employees in the local area in this sector during construction (either directly employed in this sector, or employed through indirect or induced effects as a result of the hub airport): 2021: 16,000 2023: 22,000 2025: 19,000 There is expected to be a small increase in economic activity in this sector in the local area during operation of the hub airport. Modelling predicts the following number of additional employees in the local area in this sector during operation (either directly employed in this sector, or employed through indirect or induced effects as a result of the hub airport): 2030: 6,000 2050: 5,000 Although the construction sector is not usually considered to be an aviation dependent sector, the catalytic development expected as a result of the new hub airport may require an increase in construction activity to facilitate that development.	✓✓	Permanent impact	Oxford Economics modelling undertaken in support of Mayor's Aviation Work Programme.
Business location: Wholesale and retail trade, repair of motor vehicles and motorcycles	Baseline data and projections of number of employees in this sector within the local area: 2000: 35,000 2008: 36,000 2013: 36,000 2030: 40,000 2050: 40,000	There is expected to be a substantial increase in economic activity in this sector in the local area. Modelling predicts the following number of additional employees in the local area in this sector (either directly employed in this sector, or employed through indirect or induced effects as a result of the hub airport): 2030: 10,000 2050: 13,000 In addition it is considered that economic activity in this sector may increase regionally and more widely, largely as a result of the expected increase in tourism and business tourism that a hub airport will bring.	✓✓	Permanent impact	Oxford Economics modelling undertaken in support of Mayor's Aviation Work Programme. GLA, 2011: A New Airport for London: Three quarters of the UK's 30 million annual inbound visitors arrive by air. ONS 2011: The highest average spend per person per visit to the UK is £2,253 for visitors from the UAE, £1,690 from China and £1,158 from Russia) Experiences from Washington Dulles Aerotropolis (the second largest retail market in US)
Business location: Transportation and storage	Baseline data and projections of number of employees in this sector within the local area: 2000: 13,000 2008: 15,000 2013: 14,000 2030: 16,000	There is expected to be a substantial increase in economic activity in this sector in the local area (including more than a doubling in the number of employees in this sector). Modelling predicts the following number of additional employees in the local area in this sector (either directly employed in this sector, or employed through indirect or induced effects as a result of the hub airport): 2030: 52,000 2050: 73,000	✓✓	Permanent impact	Oxford Economics modelling undertaken in support of Mayor's Aviation Work Programme. J. Kasarda, 2011 Global Airport Cities: Memphis International Airport has been ranked the world's busiest cargo hub for 18 years. FedEx World Hub is situated on approximately 121 hectares and processes 94% of Memphis' total airfreight. Major national and international distribution facilities for Flextronics, Hewlett-Packard, Nike, Sharp and many others have

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Aspect/sub- aspect	Summary of Baseline Conditions	Predicted Impact	Scale of Impact ⁴⁷	Duration	Evidence
	2050: 17,000	In addition it is considered that economic activity in this sector may increase significantly, regionally and more widely, largely as a result of catalytic development.			located in Memphis largely because of the FedEx hub. Frankfurt Monchhof Logistics Park will be an integrated "cargo city" (mixed use logistics, office and retail operations) with excellent transportation links because of its proximity to Frankfurt Airport and direct access to the A3 and A67 autobahns as well as the B43 federal highway. At Beijing Airport, an Airport City Logistics Park has been created, integrated into a Free Trade Zone, mainly for cargo and logistics business. It covers 2.7 million Sqm.
Business location: Accommodation and food service activities	Baseline data and projections of number of employees in this sector within the local area: 2000: 10,000 2008: 13,000 2013: 12,000 2030: 14,000 2050: 15,000	Substantial increase in economic activity in this sector in the local area. Modelling predicts the following number of additional employees in the local area in this sector (either directly employed in this sector, or employed through indirect or induced effects as a result of the hub airport): 2030: 6,000 2050: 8,000 In addition it is considered that economic activity in this sector may increase regionally and more widely, largely as a result of tourism and business tourism.	✓✓	Permanent impact	Oxford Economics modelling undertaken in support of Mayor's Aviation Work Programme. Three quarters of the UK's 30 million annual inbound visitors arrive by air. (Greater London Authority, A New Airport for London, November 2011) Hounslow Local Economic Assessment (2011): The major corporates that are located in west London attract large numbers of visitors to their offices, there are examples of sizeable hotels whose local business is built almost entirely around the visitors to the sites of these firms. For example, it is estimate that GSK House attracts 200-500 visitors per day.
Business location: Information and communication	Baseline data and projections of number of employees in this sector within the local area: 2000: 9,000 2008: 7,000 2013: 6,000 2030: 7,000 2050: 7,000	Small increase in economic activity in this sector in the local area as a result of direct, indirect and induced employment from the hub airport. Modelling predicts the following number of additional employees in the local area in this sector: 2030: 430 2050: 470 It is considered that economic activity in this sector may increase regionally and more widely, largely as a result of agglomeration effects of a hub airport.	✓	Permanent impact	Oxford Economics modelling undertaken in support of Mayor's Aviation Work Programme. The telecommunications sector is one of the most air intensive sectors of the UK economy with spend per employee on air transport at £419 and percentage of transport spend on air travel at 26.9% (York Aviation, 2011, referenced in Greater London Authority, A New Airport for London, November 2011)
Business location: Financial and insurance activities	Baseline data and projections of number of employees in this sector within the local area: 2000: 4,000 2008: 3,000 2013: 3,000 2030: 3,000 2050: 4,000	Small increase in economic activity in this sector in the local area as a result of direct, indirect and induced employment from the hub airport. Modelling predicts the following number of additional employees in the local area in this sector: 2030: 230 2050: 310 It is considered that economic activity in this sector may increase regionally and more widely, largely as a result of agglomeration effects of a hub airport.	✓	Permanent impact	Oxford Economics modelling undertaken in support of Mayor's Aviation Work Programme. The banking and finance sector is listed as the biggest spender on air transport with a 15.6% share of air transport spend by sector. (ONS, 2010, referenced in Greater London Authority, A New Airport for London, November 2011) In addition, the banking and finance sector spent 66.6% of its travel spend on air travel with £2,178 spent on air travel per employee on average. (York Aviation, 2011, referenced in Greater London Authority, A New Airport for London, November 2011)
Business location: Real estate activities	Baseline data and projections of number of employees in this sector within the local area: 2000: 2,000 2008: 3,000 2013: 4,000	Small increase in economic activity in this sector in the local area as a result of direct, indirect and induced employment from the hub airport. Modelling predicts the following number of additional employees in the local area in this sector: 2030: 2000 2050: 2000 It is considered that economic activity in this sector may increase	✓	Permanent impact	Oxford Economics modelling undertaken in support of Mayor's Aviation Work Programme. The "estate agent activities" sector spent 21.3% of its travel spend on air travel with £42 spent on air travel per employee on average. (York Aviation, 2011, referenced in Greater London Authority, A New Airport for London, November 2011)

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Aspect/sub- aspect	Summary of Baseline Conditions	Predicted Impact	Scale of Impact ⁴⁷	Duration	Evidence
	2030: 5,000 2050: 6,000	regionally and more widely, largely as a result of the demand for housing and business premises due to the catalytic development expected as result of the new hub airport.			
Business location: Professional, scientific and technical activities	Baseline data and projections of number of employees in this sector within the local area: 2000: 18,000 2008: 20,000 2013: 18,000 2030: 22,000 2050: 26,000	There is expected to be a substantial increase in economic activity in this sector in the local area during the construction phase of the hub airport. Modelling predicts the following number of additional employees in the local area in this sector during construction (either directly employed in this sector, or employed through indirect or induced effects as a result of the hub airport): 2021: 4,000 2023: 5,000 2025: 4,000 There is expected to be a small increase in economic activity in this sector in the local area during operation of the hub airport. Modelling predicts the following number of additional employees in the local area in this sector during operation (either directly employed in this sector, or employed through indirect or induced effects as a result of the hub airport): 2030: 1,000 2050: 1,000 It is considered that economic activity in this sector may increase regionally and more widely, largely as a result of the agglomeration effects of a hub airport.	✓✓	Permanent impact	Oxford Economics modelling undertaken in support of Mayor's Aviation Work Programme. The research and development sector spent 34.4% of its travel spend on air travel with £197 spent on air travel per employee on average. (York Aviation, 2011, referenced in Greater London Authority, A New Airport for London, November 2011) Helisinki Airport has the Technopolis development located strategically only 700 metres from the airport in the Aviapolis area. There are more than 130 companies operating at the site with a floor area of 23,100 m2. In addition, the Avia Tower, is currently being developed, a 21-storey 20,000m2 high rise building that will anchor a number of knowledge-based companies in the area. (Global Airport Cities, J. Kasarda, 2011)
Business location: Administrative and support service activities	Baseline data and projections of number of employees in this sector within the local area: 2000: 16,000 2008: 22,000 2013: 16,000 2030: 20,000 2050: 22,000	Small increase in economic activity in this sector in the local area as a result of direct, indirect and induced employment from the hub airport. Modelling predicts the following number of additional employees in the local area in this sector: 2030: 4000 2050: 5000 It is considered that economic activity in this sector may increase regionally and more widely, due to the catalytic development expected as result of the new hub airport.	✓	Permanent impact	Oxford Economics modelling undertaken in support of Mayor's Aviation Work Programme.
Business location: Public administration and defence; compulsory social security	Baseline data and projections of number of employees in this sector within the local area: 2000: 7,000 2008: 8,000 2013: 6,000 2030: 6,000 2050: 6,000	Small increase in economic activity in this sector in the local area as a result of direct, indirect and induced employment from the hub airport. Modelling predicts the following number of additional employees in the local area in this sector: 2030: 2000 2050: 3000 It is considered that economic activity in this sector may increase regionally and more widely, due to the net population increase expected due to the hub airport and the corresponding demand for public services, and also the catalytic development expected as result of the new hub airport.	✓	Permanent impact	Oxford Economics modelling undertaken in support of Mayor's Aviation Work Programme.
Education	Baseline data and projections of number of employees in this sector within the local area: 2000: 14,000	Small increase in economic activity in this sector in the local area as a result of direct, indirect and induced employment from the hub airport. Modelling predicts the following number of additional employees in the local area in this sector: 2030: 1000	✓	Permanent impact	Oxford Economics modelling undertaken in support of Mayor's Aviation Work Programme. At Frankfurt Airport, the HOLM House of Logistics and Mobility competence centre – considered the world's first airport university campus – will be built at Gateway Gardens in the next few years. (Global Airport Cities, J.

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Aspect/sub- aspect	Summary of Baseline Conditions	Predicted Impact	Scale of Impact ⁴⁷	Duration	Evidence
	2008: 16,000 2013: 20,000 2030: 21,000 2050: 23,000	2050: 2000 It is considered that economic activity in this sector may increase regionally and more widely, due to the catalytic development expected as result of the new hub airport. Jobs in the primary education sector are may increase in line with the increase in the population associated with the catalytic development expected as a result of the hub airport. The higher education sector, however, may be boosted further by the hub airport due to the competitive advantage given to UK universities by additional connectivity to more global locations. In addition, there may be some benefits to the higher education sector from agglomeration effects whereby large clusters of research and development, scientific and technical companies are located close to each other, enabling knowledge sharing			Kasarda, 2011)
Business location: Human health and social work activities	Baseline data and projections of number of employees in this sector within the local area: 2000: 13,000 2008: 19,000 2013: 22,000 2030: 24,000 2050: 29,000	Small increase in economic activity in this sector in the local area as a result of direct, indirect and induced employment from the hub airport. Modelling predicts the following number of additional employees in the local area in this sector: 2030: 1000 2050: 1000 It is considered that economic activity in this sector may increase regionally and more widely, due to the net population increase expected because of the hub airport and the corresponding demand for health service and social workers, and also the catalytic development expected as result of the new hub airport.	✓	Permanent impact	Oxford Economics modelling undertaken in support of Mayor's Aviation Work Programme.
Business location: Arts, entertainment and recreation	Baseline data and projections of number of employees in this sector within the local area: 2000: 4,000 2008: 5,000 2013: 6,000 2030: 7,000 2050: 9,000	Small increase in economic activity in this sector in the local area as a result of direct, indirect and induced employment from the hub airport. Modelling predicts the following number of additional employees in the local area in this sector: 2030: 2000 2050: 3000 In addition it is considered that economic activity in this sector may increase regionally and more widely, largely as a result of tourism.	✓	Permanent impact	Oxford Economics modelling undertaken in support of Mayor's Aviation Work Programme. Three quarters of the UK's 30 million annual inbound visitors arrive by air. (Greater London Authority, A New Airport for London, November 2011) Hong Kong International Airport has Hong Kong Disneyland , approximately 10 minutes from the airport, which attracts Asia-wide tourists. (Global Airport Cities, J. Kasarda, 2011)
Business location: Other service activities	Baseline data and projections of number of employees in this sector within the local area: 2000: 5,000 2008: 6,000 2013: 5,000 2030: 6,000 2050: 6,000	Small increase in economic activity in this sector in the local area as a result of direct, indirect and induced employment from the hub airport. Modelling predicts the following number of additional employees in the local area in this sector: 2030: 1000 2050: 3000 It is considered that economic activity in this sector may increase regionally and more widely, due to the net population increase expected because of the hub airport and the corresponding demand for services, and also the catalytic development expected as result of the new hub airport.	✓	Permanent impact	Oxford Economics modelling undertaken in support of Mayor's Aviation Work Programme.
Inward investment to the UK as a whole	UK has for many years been both the second largest recipient of FDI and the second largest source after the USA, though there has been a decline in recent years. UK 3rd largest recipient of FDI in 2009. In 2010-11, UK dropped to 7th	Substantial impact: The improved connectivity provided by a hub airport would significantly boost FDI to the UK as a whole.	✓✓	Permanent impact	IATA survey shows that 63% of international business leader stated that air transport was vital or very important to investment decisions, while a further 24% said it was somewhat important. Bannò, Mutinelli, & Redondi (2011): FDI increases by

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Aspect/sub-aspect	Summary of Baseline Conditions	Predicted Impact	Scale of Impact ⁴⁷	Duration	Evidence
	<p>place in the global league. The UK had FDI net inflows of £41bn in 2010 and FDI created and safeguarded 94,000 UK jobs (paid 37 per cent more than those in domestically-owned ones)</p>				<p>50% after a first direct connection to a foreign region</p> <p>University of Brescia: European inward European FDI increased overall by 33.7% in the two years after the opening of new routes while, in the same period, FDIs in the control group decreased by 16.6%</p> <p>Frontier Economics: UK is at risk of falling further behind European competitors: Paris and Frankfurt already boast 1000 more annual flights to the three largest cities in China than Heathrow. There are 21 Emerging Market destinations with daily flights from other European hubs that are not served from Heathrow.</p>
<p>Inward investment to the regional and local areas</p>	<p>UK FDI projects between 1999 and 2009 was estimated to average 33% bringing more than 500,000 jobs to London which is 13% of all jobs. In 2008, FDI contributed £52bn to London's economy in 2008 and foreign-owned businesses created 42 per cent of London's economic growth between 1998 and 2004.</p> <p>A number of large foreign owned businesses are already in the area, including Pfizer, Bio Focus, GlaxoSmithKline and the global health care provider Merck Sharpe Dohme.</p>	<p>Substantial impact: As a location, Stansted has high quality road and rail infrastructure which provides fast, direct links to Cambridge and London, as well as the ports of East Anglia and the Thames Estuary. It also has land available which could offer great potential to expand the existing London – Stansted Corridor and thus strengthen the competitiveness of London and South East as a business location and substantially increase the level of FDI to the capital. With this, there is a potential to transform London into a polycentric centre (central London and Stansted development corridor) for business and economic activity akin to the developments of the Dutch Schiphol-Center with its large multifunctional and multimodal premium business site.</p>	<p>✓✓</p>	<p>Permanent impact</p>	<p>London First survey: 90% of foreign-owned businesses surveyed stated that international air links are critical to their business and that these links would need to grow in the long term for London to remain globally competitive</p> <p>Examples of large international businesses choosing to relocate to cities with strong connectivity, including KPMG. The company recently moved its European Headquarters from Canary Wharf, London and Marie Curie Strasse (north of Frankfurt) to a business centre location adjacent to Frankfurt Airport located south of Frankfurt.</p>
<p>Alignment with local and regional economic strategies</p>	<p>The following strategies have been reviewed:</p> <p>Braintree Economic Development Strategy 2012-14</p> <p>East Hertfordshire Economic Development Strategy 2007-2012</p> <p>Uttlesford Economic Development Strategy 2012-14</p> <p>London Plan (2011)</p> <p>Broadly all these strategies are targeted towards achieving sustainable economic growth.</p>	<p>Broadly these strategies will be supported, as airports support economic growth. The scale of growth will be much larger than is assumed in plans and, strategies would require revising to maximise benefits, possibly being targeted towards achieving more ambitious objectives.</p>	<p>✓✓</p>	<p>Permanent impact</p>	<p>Matrices of compatibility have been prepared, comparing objectives relating to economy in the reviewed strategies against the construction and operation of a new hub airport.</p>

IMPACT OF NEW HUB OPTIONS ON BUSINESS LOCATION, FDI AND ALIGNMENT WITH STRATEGIES

APPENDIX 2: IMPACT ASSESSMENT TABLE FOR INNER ESTUARY LOCAL AREA

Aspect/sub- aspect	Summary of Baseline Conditions	Predicted Impact	Scale of Impact	Duration	Evidence
Agriculture, forestry and fishing	Baseline data and projections of number of employees in this sector within the local area: 2000: 6,000 2008: 4,000 2013: 4,000 2030: 3,000 2050: 2,000	There is not predicted to be any significant change to the number of employees either directly employed in this sector, or employed through indirect or induced effects as a result of the hub airport. However, overall, there may be a decrease in the number of employees in the agriculture, forestry and fishing sector due to the amount of agricultural land that is likely to be claimed for business and residential development as a result of the hub airport and its catalytic effects. It should be noted that there are only small number of people employed in this sector in the Stansted local area and therefore the impact is likely to be small in nature, and in context this is not considered to be significant.	Neutral	N/A	Oxford Economics modelling undertaken in support of Mayor's Aviation Work Programme.
Mining and quarrying	Baseline data and projections of number of employees in this sector within the local area: 2000: 500 2008: 180 2013: 300 2030: 160 2050: 75	There is not predicted to be any significant change to the number of employees in this sector as a result of the hub airport and therefore the impact on employment in this sector is considered to be neutral.	Neutral	N/A	Oxford Economics modelling undertaken in support of Mayor's Aviation Work Programme.
Manufacturing	Baseline data and projections of number of employees in this sector within the local area: 2000: 48,000 2008: 32,000 2013: 29,000 2030: 21,000 2050: 14,000	There is not predicted to be any significant change to the number of employees either directly employed in this sector, or employed through indirect or induced effects as a result of the hub airport. Although modelling suggests that employment in this sector is, in general, declining, there may be an increase in employment in this sector as a result of catalytic development due to the hub airport. This is due to the tendency of manufacturing companies, in particular food manufacturers, to benefit from proximity to an airport.	✓	Permanent impact	Oxford Economics modelling undertaken in support of Mayor's Aviation Work Programme. "Air freight is used for around a quarter of the value of the UK's international goods movements by value. In 2007 the value of UK air freight exports to non EU countries was £31.3bn. It offers important benefits through improved production processes and access to markets, including for sectors with high economic growth potential." (Greater London Authority, A New Airport for London, November 2011)
Electricity, gas, steam and air conditioning supply	Baseline data and projections of number of employees in this sector within the local area: 2000: 1,000 2008: 1,000 2013: 2,000 2030: 1,000 2050: 1,000	There is not predicted to be any significant change to the number of employees in this sector as a result of the hub airport and therefore the impact on employment in this sector is considered to be neutral.	Neutral	N/A	Oxford Economics modelling undertaken in support of Mayor's Aviation Work Programme.
Water supply; sewerage, waste management and remediation activities	Baseline data and projections of number of employees in this sector within the local area: 2000: 3,000 2008: 3,000 2013: 5,000	There is not predicted to be any significant change to the number of employees in this sector as a result of the hub airport and therefore the impact on employment in this sector is considered to be neutral.	Neutral	N/A	Oxford Economics modelling undertaken in support of Mayor's Aviation Work Programme.

IMPACT OF NEW HUB OPTIONS ON BUSINESS LOCATION, FDI AND ALIGNMENT WITH STRATEGIES

Aspect/sub- aspect	Summary of Baseline Conditions	Predicted Impact	Scale of Impact	Duration	Evidence
	2030: 4,000 2050: 4,000				
Construction	Baseline data and projections of number of employees in this sector within the local area: 2000: 24,000 2008: 43,000 2013: 34,000 2030: 39,000 2050: 44,000	There is expected to be a substantial increase in economic activity in this sector in the local area during the construction phase of the hub airport. Modelling predicts the following number of additional employees in the local area in this sector during construction (either directly employed in this sector, or employed through indirect or induced effects as a result of the hub airport): 2021: 17,000 2023: 14,000 2025: 18,000 There is expected to be a small increase in economic activity in this sector in the local area during operation of the hub airport. Modelling predicts the following number of additional employees in the local area in this sector during operation (either directly employed in this sector, or employed through indirect or induced effects as a result of the hub airport): 2030: 7,000 2050: 6,000 Although the construction sector is not usually considered to be an aviation dependent sector, the catalytic development expected as a result of the new hub airport may require an increase in construction activity to facilitate that development.	✓✓	Permanent impact	Oxford Economics modelling undertaken in support of Mayor's Aviation Work Programme.
Wholesale and retail trade, repair of motor vehicles and motorcycles	Baseline data and projections of number of employees in this sector within the local area: 2000: 64,000 2008: 69,000 2013: 68,000 2030: 73,000 2050: 70,000	There is expected to be a substantial increase in economic activity in this sector in the local area. Modelling predicts the following number of additional employees in the local area in this sector (either directly employed in this sector, or employed through indirect or induced effects as a result of the hub airport): 2030: 10,000 2050: 14,000 In addition it is considered that economic activity in this sector may increase regionally and more widely, largely as a result of the expected increase in tourism and business tourism that a hub airport will bring.	✓✓	Permanent impact	Oxford Economics modelling undertaken in support of Mayor's Aviation Work Programme. Three quarters of the UK's 30 million annual inbound visitors arrive by air. (Greater London Authority, A New Airport for London, November 2011) The highest average spend per person per visit to the UK is £2,253 for visitors from the UAE, £1,690 from China and £1,158 from Russia. (ONS, 2011) The Washington Dulles Aerotropolis is the second largest retail market in US (just behind Manhattan) with the airport region also becoming a consulting and high-tech office mecca (The Aerotropolis and Global Competitiveness, J. Kasarda, December 2011).
Transportation and storage	Baseline data and projections of number of employees in this sector within the local area: 2000: 19,000 2008: 25,000 2013: 27,000 2030: 29,000 2050: 28,000	There is expected to be a substantial increase in economic activity in this sector in the local area (including more than a doubling in the number of employees in this sector). Modelling predicts the following number of additional employees in the local area in this sector (either directly employed in this sector, or employed through indirect or induced effects as a result of the hub airport): 2030: 54,000 2050: 76,000 In addition it is considered that economic activity in this sector may increase significantly, regionally and more widely, largely as a result of catalytic development.	✓✓	Permanent impact	Oxford Economics modelling undertaken in support of Mayor's Aviation Work Programme. J. Kasarda, 2011 Global Airport Cities Memphis International Airport has been ranked the world's busiest cargo hub for 18 years. FedEx World Hub is situated on approximately 121 hectares and processes 94% of Memphis' total airfreight. Major national and international distribution facilities for Flextronics, Hewlett-Packard, Nike, Sharp and many others have located in Memphis largely because of the FedEx hub. Frankfurt Monchhof Logistics Park will be an integrated "cargo city" (mixed use logistics, office and retail operations) with excellent transportation links because of

IMPACT OF NEW HUB OPTIONS ON BUSINESS LOCATION, FDI AND ALIGNMENT WITH STRATEGIES

Aspect/sub- aspect	Summary of Baseline Conditions	Predicted Impact	Scale of Impact	Duration	Evidence
					its proximity to Frankfurt Airport and direct access to the A3 and A67 autobahns as well as the B43 federal highway. At Beijing Airport, an Airport City Logistics Park has been created, integrated into a Free Trade Zone, mainly for cargo and logistics business. It covers 2.7 million Sqm.
Accommodation and food service activities	Baseline data and projections of number of employees in this sector within the local area: 2000: 14,000 2008: 22,000 2013: 23,000 2030: 25,000 2050: 26,000	Substantial increase in economic activity in this sector in the local area. Modelling predicts the following number of additional employees in the local area in this sector (either directly employed in this sector, or employed through indirect or induced effects as a result of the hub airport): 2030: 8,000 2050: 11,000 In addition it is considered that economic activity in this sector may increase regionally and more widely, largely as a result of tourism and business tourism.	✓✓	Permanent impact	Oxford Economics modelling undertaken in support of Mayor's Aviation Work Programme. Three quarters of the UK's 30 million annual inbound visitors arrive by air. (Greater London Authority, A New Airport for London, November 2011) Hounslow Local Economic Assessment (2011): The major corporates that are located in west London attract large numbers of visitors to their offices, there are examples of sizeable hotels whose local business is built almost entirely around the visitors to the sites of these firms. For example, it is estimate that GSK House attracts 200-500 visitors per day.
Information and communication	Baseline data and projections of number of employees in this sector within the local area: 2000: 7,000 2008: 8,000 2013: 9,000 2030: 11,000 2050: 13,000	Small increase in economic activity in this sector in the local area as a result of direct, indirect and induced employment from the hub airport. Modelling predicts the following number of additional employees in the local area in this sector: 2030: 280 2050: 230 It is considered that economic activity in this sector may increase regionally and more widely, largely as a result of agglomeration effects of a hub airport.	✓	Permanent impact	Oxford Economics modelling undertaken in support of Mayor's Aviation Work Programme. The telecommunications sector is one of the most air intensive sectors of the UK economy with spend per employee on air transport at £419 and percentage of transport spend on air travel at 26.9% (York Aviation, 2011, referenced in Greater London Authority, A New Airport for London, November 2011)
Financial and insurance activities	Baseline data and projections of number of employees in this sector within the local area: 2000: 14,000 2008: 11,000 2013: 9,000 2030: 9,000 2050: 8,000	Small increase in economic activity in this sector in the local area as a result of direct, indirect and induced employment from the hub airport. Modelling predicts the following number of additional employees in the local area in this sector: 2030: 430 2050: 630 It is considered that economic activity in this sector may increase regionally and more widely, largely as a result of agglomeration effects of a hub airport.	✓	Permanent impact	Oxford Economics modelling undertaken in support of Mayor's Aviation Work Programme. The banking and finance sector is listed as the biggest spender on air transport with a 15.6% share of air transport spend by sector. (ONS, 2010, referenced in Greater London Authority, A New Airport for London, November 2011) In addition, the banking and finance sector spent 66.6% of its travel spend on air travel with £2,178 spent on air travel per employee on average. (York Aviation, 2011, referenced in Greater London Authority, A New Airport for London, November 2011)
Real estate activities	Baseline data and projections of number of employees in this sector within the local area: 2000: 3,000 2008: 5,000 2013: 6,000 2030: 8,000 2050: 9,000	Small increase in economic activity in this sector in the local area as a result of direct, indirect and induced employment from the hub airport. Modelling predicts the following number of additional employees in the local area in this sector: 2030: 2000 2050: 2000 It is considered that economic activity in this sector may increase regionally and more widely, largely as a result of the demand for housing and business premises due to the catalytic development expected as result of the new hub airport.	✓	Permanent impact	Oxford Economics modelling undertaken in support of Mayor's Aviation Work Programme. The "estate agent activities" sector spent 21.3% of its travel spend on air travel with £42 spent on air travel per employee on average. (York Aviation, 2011, referenced in Greater London Authority, A New Airport for London, November 2011)

IMPACT OF NEW HUB OPTIONS ON BUSINESS LOCATION, FDI AND ALIGNMENT WITH STRATEGIES

Aspect/sub- aspect	Summary of Baseline Conditions	Predicted Impact	Scale of Impact	Duration	Evidence
Professional, scientific and technical activities	Baseline data and projections of number of employees in this sector within the local area: 2000: 12,000 2008: 17,000 2013: 23,000 2030: 29,000 2050: 36,000	There is expected to be a substantial increase in economic activity in this sector in the local area during the construction phase of the hub airport. Modelling predicts the following number of additional employees in the local area in this sector during construction (either directly employed in this sector, or employed through indirect or induced effects as a result of the hub airport): 2021: 4,000 2023: 3,000 2025: 3,000 There is expected to be a small increase in economic activity in this sector in the local area during operation of the hub airport. Modelling predicts the following number of additional employees in the local area in this sector during operation (either directly employed in this sector, or employed through indirect or induced effects as a result of the hub airport): 2030: 1,000 2050: 1,000 It is considered that economic activity in this sector may increase regionally and more widely, largely as a result of the agglomeration effects of a hub airport.	✓✓	Permanent impact	Oxford Economics modelling undertaken in support of Mayor's Aviation Work Programme. The research and development sector spent 34.4% of its travel spend on air travel with £197 spent on air travel per employee on average. (York Aviation, 2011, referenced in Greater London Authority, A New Airport for London, November 2011) Helsinki Airport has the Technopolis development located strategically only 700 metres from the airport in the Aviapolis area. There are more than 130 companies operating at the site with a floor area of 23,100 m2. In addition, the Avia Tower, is currently being developed, a 21-storey 20,000m2 high rise building that will anchor a number of knowledge-based companies in the area. (Global Airport Cities, J. Kasarda, 2011)
Administrative and support service activities	Baseline data and projections of number of employees in this sector within the local area: 2000: 26,000 2008: 33,000 2013: 33,000 2030: 42,000 2050: 49,000	Small increase in economic activity in this sector in the local area as a result of direct, indirect and induced employment from the hub airport. Modelling predicts the following number of additional employees in the local area in this sector: 2030: 4000 2050: 5000 It is considered that economic activity in this sector may increase regionally and more widely, due to the catalytic development expected as result of the new hub airport.	✓	Permanent impact	Oxford Economics modelling undertaken in support of Mayor's Aviation Work Programme.
Public administration and defence; compulsory social security	Baseline data and projections of number of employees in this sector within the local area: 2000: 19,000 2008: 23,000 2013: 20,000 2030: 18,000 2050: 17,000	Small increase in economic activity in this sector in the local area as a result of direct, indirect and induced employment from the hub airport. Modelling predicts the following number of additional employees in the local area in this sector: 2030: 3000 2050: 4000 It is considered that economic activity in this sector may increase regionally and more widely, due to the net population increase expected due to the hub airport and the corresponding demand for public services, and also the catalytic development expected as result of the new hub airport.	✓	Permanent impact	Oxford Economics modelling undertaken in support of Mayor's Aviation Work Programme.
Education	Baseline data and projections of number of employees in this sector within the local area: 2000: 26,000 2008: 33,000 2013: 37,000 2030: 35,000	Small increase in economic activity in this sector in the local area as a result of direct, indirect and induced employment from the hub airport. Modelling predicts the following number of additional employees in the local area in this sector: 2030: 1000 2050: 2000 It is considered that economic activity in this sector may increase regionally and more widely, due to the catalytic development expected	✓	Permanent impact	Oxford Economics modelling undertaken in support of Mayor's Aviation Work Programme. At Frankfurt Airport, the HOLM House of Logistics and Mobility competence centre – considered the world's first airport university campus – will be built at Gateway Gardens in the next few years. (Global Airport Cities, J. Kasarda, 2011)

IMPACT OF NEW HUB OPTIONS ON BUSINESS LOCATION, FDI AND ALIGNMENT WITH STRATEGIES

Aspect/sub- aspect	Summary of Baseline Conditions	Predicted Impact	Scale of Impact	Duration	Evidence
	2050: 35,000	as result of the new hub airport. Jobs in the primary education sector are may increase in line with the increase in the population associated with the catalytic development expected as a result of the hub airport. The higher education sector, however, may be boosted further by the hub airport due to the competitive advantage given to UK universities by additional connectivity to more global locations. In addition, there may be some benefits to the higher education sector from agglomeration effects whereby large clusters of research and development, scientific and technical companies are located close to each other, enabling knowledge sharing			
Human health and social work activities	Baseline data and projections of number of employees in this sector within the local area: 2000: 35,000 2008: 43,000 2013: 52,000 2030: 54,000 2050: 61,000	Small increase in economic activity in this sector in the local area as a result of direct, indirect and induced employment from the hub airport. Modelling predicts the following number of additional employees in the local area in this sector: 2030: 2000 2050: 2000 It is considered that economic activity in this sector may increase regionally and more widely, due to the net population increase expected because of the hub airport and the corresponding demand for health service and social workers, and also the catalytic development expected as result of the new hub airport.	✓	Permanent impact	Oxford Economics modelling undertaken in support of Mayor's Aviation Work Programme.
Arts, entertainment and recreation	Baseline data and projections of number of employees in this sector within the local area: 2000: 9,000 2008: 10,000 2013: 10,000 2030: 12,000 2050: 14,000	Small increase in economic activity in this sector in the local area as a result of direct, indirect and induced employment from the hub airport. Modelling predicts the following number of additional employees in the local area in this sector: 2030: 2000 2050: 4000 In addition it is considered that economic activity in this sector may increase regionally and more widely, largely as a result of tourism.	✓	Permanent impact	Oxford Economics modelling undertaken in support of Mayor's Aviation Work Programme. Three quarters of the UK's 30 million annual inbound visitors arrive by air. (Greater London Authority, A New Airport for London, November 2011) Hong Kong International Airport has Hong Kong Disneyland, approximately 10 minutes from the airport, which attracts Asia-wide tourists. (Global Airport Cities, J. Kasarda, 2011)
Other service activities	Baseline data and projections of number of employees in this sector within the local area: 2000: 10,000 2008: 10,000 2013: 9,000 2030: 10,000 2050: 9,000	Small increase in economic activity in this sector in the local area as a result of direct, indirect and induced employment from the hub airport. Modelling predicts the following number of additional employees in the local area in this sector: 2030: 1000 2050: 3000 It is considered that economic activity in this sector may increase regionally and more widely, due to the net population increase expected because of the hub airport and the corresponding demand for services, and also the catalytic development expected as result of the new hub airport.	✓	Permanent impact	Oxford Economics modelling undertaken in support of Mayor's Aviation Work Programme.
Foreign direct investment (FDI) to the UK	Over the last decade the UK has been both the second largest recipient of FDI and the second largest source after the USA, though there has been a decline in recent years with UK being the 3rd largest recipient of FDI in 2009. In 2010-11, UK dropped to 7th place in the global league. The UK had FDI net inflows of £41bn in 2010 and FDI created and	Substantial impact: The improved connectivity provided by a hub airport would significantly boost FDI to the UK as a whole.	✓✓	Permanent impact	IATA survey shows that 63% of international business leader stated that air transport was vital or very important to investment decisions, while a further 24% said it was somewhat important. Bannò, Mutinelli, & Redondi (2011): FDI increases by 50% after a first direct connection to a foreign region University of Brescia: European inward European FDI increased overall by 33.7% in the two years after the

IMPACT OF NEW HUB OPTIONS ON BUSINESS LOCATION, FDI AND ALIGNMENT WITH STRATEGIES

Aspect/sub-aspect	Summary of Baseline Conditions	Predicted Impact	Scale of Impact	Duration	Evidence
	safeguarded 94,000 UK jobs (paid 37 per cent more than those in domestically-owned ones)				opening of new routes while, in the same period, FDIs in the control group decreased by 16.6% Frontier Economics: UK is at risk of falling further behind European competitors: Paris and Frankfurt already boast 1000 more annual flights to the three largest cities in China than Heathrow. There are 21 Emerging Market destinations with daily flights from other European hubs that are not served from Heathrow.
Foreign direct investment (FDI) to the region and local area	UK FDI projects between 1999 and 2009 was estimated to average 33% bringing more than 500,000 jobs to London which is 13% of all jobs. In 2008, FDI contributed £52bn to London's economy in 2008 and foreign-owned businesses created 42 per cent of London's economic growth between 1998 and 2004	Substantial impact: An Inner Estuary airport hub could, with associated road and rail infrastructure investment, offer great potential for the development of an 'Eastern Growth Wedge' stretching from Southend in the east through central London to Heathrow in the west. Such a development corridor would likely attract additional FDI and strengthen the competitiveness of London and the South East as a business location. With this, there is a potential to transform London into a polycentric centre (central London and an eastern development corridor encompassing local areas around the Inner Estuary such as Medway, Southend, Thurrock and Dartford). An eastern growth wedge, would also offer the potential to rebalance the local economies and close the income gaps which currently exists between the east and the west in London and the South East.	✓✓	Permanent impact	London First survey: 90% of foreign-owned businesses surveyed stated that international air links are critical to their business and that these links would need to grow in the long term for London to remain globally competitive Examples of large international businesses choosing to relocate to cities with strong connectivity, including KPMG. The company recently moved its European Headquarters from Canary Wharf, London and Marie Curie Strasse (north of Frankfurt) to a business centre location adjacent to Frankfurt Airport located south of Frankfurt.
Local and regional economic strategies	The following strategies have been reviewed: Gravesham Local Plan & Corporate Business Plan 2010-2015; Maidstone Economic Development Strategy (for 2028); Medway Economic Development Strategy 2009-12; Swale Draft Core Strategy for 2031; Thanet Draft Economic Growth Strategy; Tonbridge and Malling Core Strategy ; London Plan (2011) Broadly all these strategies are targeted towards achieving sustainable growth.	Broadly these strategies will be supported, as airports support economic growth. The scale of growth will be much larger than is assumed in plans and, strategies would require revising to maximise benefits, possibly being targeted towards achieving more ambitious objectives.	✓✓	Permanent impact	Matrices of compatibility have been prepared, comparing objectives relating to economy in the reviewed strategies against the construction and operation of a new hub airport.

IMPACT OF NEW HUB OPTIONS ON BUSINESS LOCATION, FDI AND ALIGNMENT WITH STRATEGIES

APPENDIX 3: IMPACT ASSESSMENT TABLE FOR OUTER ESTUARY LOCAL AREA

Aspect/sub-aspect	Summary of Baseline Conditions	Predicted Impact	Scale of Impact	Duration	Evidence
Agriculture, forestry and fishing	Baseline data and projections of number of employees in this sector within the local area: 2000: 4,000 2008: 3,000 2013: 3,000 2030: 2,000 2050: 2,000	There is not predicted to be any significant change to the number of employees either directly employed in this sector, or employed through indirect or induced effects as a result of the hub airport. However, overall, there may be a decrease in the number of employees in the agriculture, forestry and fishing sector due to the amount of agricultural land that is likely to be claimed for business and residential development as a result of the hub airport and its catalytic effects. It should be noted that there are only small number of people employed in this sector in the Stansted local area and therefore the impact is likely to be small in nature, and in context this is not considered to be significant, i.e. overall neutral	Neutral	N/A	Oxford Economics modelling undertaken in support of Mayor's Aviation Work Programme.
Mining and quarrying	Baseline data and projections of number of employees in this sector within the local area: 2000: 400 2008: 100 2013: 100 2030: 50 2050: 25	There is not predicted to be any significant change to the number of employees in this sector as a result of the hub airport and therefore the impact on employment in this sector is considered to be neutral.	Neutral	N/A	Oxford Economics modelling undertaken in support of Mayor's Aviation Work Programme.
Manufacturing	Baseline data and projections of number of employees in this sector within the local area: 2000: 18,000 2008: 13,000 2013: 13,000 2030: 10,000 2050: 7,000	There is not predicted to be any significant change to the number of employees either directly employed in this sector, or employed through indirect or induced effects as a result of the hub airport. Although modelling suggests that employment in this sector is, in general, declining, there may be an increase in employment in this sector as a result of catalytic development due to the hub airport. This is due to the tendency of manufacturing companies, in particular food manufacturers, to benefit from proximity to an airport.	✓	Permanent impact	Oxford Economics modelling undertaken in support of Mayor's Aviation Work Programme. "Air freight is used for around a quarter of the value of the UK's international goods movements by value. In 2007 the value of UK air freight exports to non EU countries was £31.3bn. It offers important benefits through improved production processes and access to markets, including for sectors with high economic growth potential." (Greater London Authority, A New Airport for London, November 2011)
Electricity, gas, steam and air conditioning supply	Baseline data and projections of number of employees in this sector within the local area: 2000: 100 2008: 430 2013: 100 2030: 80 2050: 60	There is not predicted to be any significant change to the number of employees in this sector as a result of the hub airport and therefore the impact on employment in this sector is considered to be neutral.	Neutral	N/A	Oxford Economics modelling undertaken in support of Mayor's Aviation Work Programme.
Water supply; sewerage, waste management and remediation activities	Baseline data and projections of number of employees in this sector within the local area: 2000: 2,000 2008: 2,000 2013: 2,000	There is not predicted to be any significant change to the number of employees in this sector as a result of the hub airport and therefore the impact on employment in this sector is considered to be neutral.	Neutral	N/A	Oxford Economics modelling undertaken in support of Mayor's Aviation Work Programme.

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Aspect/sub- aspect	Summary of Baseline Conditions	Predicted Impact	Scale of Impact	Duration	Evidence
	2030: 2,000 2050: 1,000				
Construction	Baseline data and projections of number of employees in this sector within the local area: 2000: 9,000 2008: 13,000 2013: 13,000 2030: 15,000 2050: 17,000	There is expected to be a substantial increase in economic activity in this sector in the local area during the construction phase of the hub airport. Modelling predicts the following number of additional employees in the local area in this sector during construction (either directly employed in this sector, or employed through indirect or induced effects as a result of the hub airport): 2021: 19,000 2023: 19,000 2025: 21,000. There is expected to be a small increase in economic activity in this sector in the local area during operation of the hub airport. Modelling predicts the following number of additional employees in the local area in this sector during operation (either directly employed in this sector, or employed through indirect or induced effects as a result of the hub airport): 2030: 7,000 2050: 6,000 Although the construction sector is not usually considered to be an aviation dependent sector, the catalytic development expected as a result of the new hub airport may require an increase in construction activity to facilitate that development.	✓✓	Permanent impact	Oxford Economics modelling undertaken in support of Mayor's Aviation Work Programme.
Wholesale and retail trade, repair of motor vehicles and motorcycles	Baseline data and projections of number of employees in this sector within the local area: 2000: 27,000 2008: 30,000 2013: 30,000 2030: 32,000 2050: 31,000	There is expected to be a substantial increase in economic activity in this sector in the local area. Modelling predicts the following number of additional employees in the local area in this sector (either directly employed in this sector, or employed through indirect or induced effects as a result of the hub airport): 2030: 11,000 2050: 14,000 In addition it is considered that economic activity in this sector may increase regionally and more widely, largely as a result of the expected increase in tourism and business tourism that a hub airport will bring.	✓✓	Permanent impact	Oxford Economics modelling undertaken in support of Mayor's Aviation Work Programme. Three quarters of the UK's 30 million annual inbound visitors arrive by air. (Greater London Authority, A New Airport for London, November 2011) The highest average spend per person per visit to the UK is £2,253 for visitors from the UAE, £1,690 from China and £1,158 from Russia. (ONS, 2011) The Washington Dulles Aerotropolis is the second largest retail market in US
Transportation and storage	Baseline data and projections of number of employees in this sector within the local area: 2000: 6,000 2008: 8,000 2013: 9,000 2030: 10,000 2050: 10,000	There is expected to be a substantial increase in economic activity in this sector in the local area (including more than a doubling in the number of employees in this sector). Modelling predicts the following number of additional employees in the local area in this sector (either directly employed in this sector, or employed through indirect or induced effects as a result of the hub airport): 2030: 54,000 2050: 76,000 In addition it is considered that economic activity in this sector may increase significantly, regionally and more widely, largely as a result of catalytic development.	✓✓	Permanent impact	Oxford Economics modelling undertaken in support of Mayor's Aviation Work Programme. J. Kasarda, 2011 Global Airport Cities: Memphis International Airport has been ranked the world's busiest cargo hub for 18 years. FedEx World Hub is situated on approximately 121 hectares and processes 94% of Memphis' total airfreight. Major national and international distribution facilities have located in Memphis largely because of the FedEx hub. Frankfurt Monchhof Logistics Park will be an integrated "cargo city" (mixed use logistics, office and retail operations) with excellent transportation links because of its proximity to Frankfurt Airport and direct access to the A3 and A67 autobahns as well as the B43 federal highway.
Accommodation and food service	Baseline data and projections of number of employees in this sector within the	Substantial increase in economic activity in this sector in the local area. Modelling predicts the following number of additional employees in the local area in this sector (either directly employed in this sector, or	✓✓	Permanent impact	Oxford Economics modelling undertaken in support of Mayor's Aviation Work Programme.

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Aspect/sub- aspect	Summary of Baseline Conditions	Predicted Impact	Scale of Impact	Duration	Evidence
activities	local area: 2000: 7,000 2008: 12,000 2013: 13,000 2030: 13,000 2050: 13,000	employed through indirect or induced effects as a result of the hub airport): 2030: 9,000 2050: 13,000 In addition it is considered that economic activity in this sector may increase regionally and more widely, largely as a result of tourism and business tourism.			Three quarters of the UK's 30 million annual inbound visitors arrive by air. (Greater London Authority, A New Airport for London, November 2011) Hounslow Local Economic Assessment (2011): The major corporates that are located in west London attract large numbers of visitors to their offices, there are examples of sizeable hotels whose local business is built almost entirely around the visitors to the sites of these firms. For example, it is estimate that GSK House attracts 200-500 visitors per day.
Information and communication	Baseline data and projections of number of employees in this sector within the local area: 2000: 2,000 2008: 3,000 2013: 3,000 2030: 3,000 2050: 3,000	Small increase in economic activity in this sector in the local area as a result of direct, indirect and induced employment from the hub airport. Modelling predicts the following number of additional employees in the local area in this sector: 2030: 240 2050: 300 It is considered that economic activity in this sector may increase regionally and more widely, largely as a result of agglomeration effects of a hub airport.	✓	Permanent impact	Oxford Economics modelling undertaken in support of Mayor's Aviation Work Programme. The telecommunications sector is one of the most air intensive sectors of the UK economy with spend per employee on air transport at £419 and percentage of transport spend on air travel at 26.9% (York Aviation, 2011, referenced in Greater London Authority, A New Airport for London, November 2011)
Financial and insurance activities	Baseline data and projections of number of employees in this sector within the local area: 2000: 3,000 2008: 2,000 2013: 3,000 2030: 3,000 2050: 2,000	Small increase in economic activity in this sector in the local area as a result of direct, indirect and induced employment from the hub airport. Modelling predicts the following number of additional employees in the local area in this sector: 2030: 310 2050: 270 It is considered that economic activity in this sector may increase regionally and more widely, largely as a result of agglomeration effects of a hub airport.	✓	Permanent impact	Oxford Economics modelling undertaken in support of Mayor's Aviation Work Programme. The banking and finance sector is listed as the biggest spender on air transport with a 15.6% share of air transport spend by sector. (ONS, 2010, referenced in Greater London Authority, A New Airport for London, November 2011) In addition, the banking and finance sector spent 66.6% of its travel spend on air travel with £2,178 spent on air travel per employee on average. (York Aviation, 2011, referenced in Greater London Authority, A New Airport for London, November 2011)
Real estate activities	Baseline data and projections of number of employees in this sector within the local area: 2000: 1,000 2008: 2,000 2013: 2,000 2030: 3,000 2050: 3,000	Small increase in economic activity in this sector in the local area as a result of direct, indirect and induced employment from the hub airport. Modelling predicts the following number of additional employees in the local area in this sector: 2030: 1000 2050: 2000 It is considered that economic activity in this sector may increase regionally and more widely, largely as a result of the demand for housing and business premises due to the catalytic development expected as result of the new hub airport.	✓	Permanent impact	Oxford Economics modelling undertaken in support of Mayor's Aviation Work Programme. The "estate agent activities" sector spent 21.3% of its travel spend on air travel with £42 spent on air travel per employee on average. (York Aviation, 2011, referenced in Greater London Authority, A New Airport for London, November 2011)

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Aspect/sub- aspect	Summary of Baseline Conditions	Predicted Impact	Scale of Impact	Duration	Evidence
Professional, scientific and technical activities	Baseline data and projections of number of employees in this sector within the local area: 2000: 5,000 2008: 7,000 2013: 10,000 2030: 13,000 2050: 15,000	There is expected to be a substantial increase in economic activity in this sector in the local area during the construction phase of the hub airport. Modelling predicts the following number of additional employees in the local area in this sector during construction (either directly employed in this sector, or employed through indirect or induced effects as a result of the hub airport): 2021: 4,000 2023: 4,000 2025: 3,000 There is expected to be a small increase in economic activity in this sector in the local area during operation of the hub airport. Modelling predicts the following number of additional employees in the local area in this sector during operation (either directly employed in this sector, or employed through indirect or induced effects as a result of the hub airport): 2030: 1,000 2050: 1,000 It is considered that economic activity in this sector may increase regionally and more widely, largely as a result of the agglomeration effects of a hub airport.	✓✓	Permanent impact	Oxford Economics modelling undertaken in support of Mayor's Aviation Work Programme. The research and development sector spent 34.4% of its travel spend on air travel with £197 spent on air travel per employee on average. (York Aviation, 2011, referenced in Greater London Authority, A New Airport for London, November 2011) Helsinki Airport has the Technopolis development located strategically only 700 metres from the airport in the Aviapolis area. There are more than 130 companies operating at the site with a floor area of 23,100 m2. In addition, the Avia Tower, is currently being developed, a 21-storey 20,000m2 high rise building that will anchor a number of knowledge-based companies in the area. (Global Airport Cities, J. Kasarda, 2011)
Administrative and support service activities	Baseline data and projections of number of employees in this sector within the local area: 2000: 6,000 2008: 11,000 2013: 10,000 2030: 14,000 2050: 19,000	Small increase in economic activity in this sector in the local area as a result of direct, indirect and induced employment from the hub airport. Modelling predicts the following number of additional employees in the local area in this sector: 2030: 4000 2050: 5000 It is considered that economic activity in this sector may increase regionally and more widely, due to the catalytic development expected as result of the new hub airport.	✓	Permanent impact	Oxford Economics modelling undertaken in support of Mayor's Aviation Work Programme.
Public administration and defence; compulsory social security	Baseline data and projections of number of employees in this sector within the local area: 2000: 8,000 2008: 8,000 2013: 6,000 2030: 6,000 2050: 6,000	Small increase in economic activity in this sector in the local area as a result of direct, indirect and induced employment from the hub airport. Modelling predicts the following number of additional employees in the local area in this sector: 2030: 2000 2050: 4000 It is considered that economic activity in this sector may increase regionally and more widely, due to the net population increase expected due to the hub airport and the corresponding demand for public services, and also the catalytic development expected as result of the new hub airport.	✓	Permanent impact	Oxford Economics modelling undertaken in support of Mayor's Aviation Work Programme.
Education	Baseline data and projections of number of employees in this sector within the local area: 2000: 15,000 2008: 23,000 2013: 25,000 2030: 24,000	Small increase in economic activity in this sector in the local area as a result of direct, indirect and induced employment from the hub airport. Modelling predicts the following number of additional employees in the local area in this sector: 2030: 1000 2050: 2000 It is considered that economic activity in this sector may increase regionally and more widely, due to the catalytic development expected	✓	Permanent impact	Oxford Economics modelling undertaken in support of Mayor's Aviation Work Programme. At Frankfurt Airport, the HOLM House of Logistics and Mobility competence centre – considered the world's first airport university campus – will be built at Gateway Gardens in the next few years. (Global Airport Cities, J. Kasarda, 2011)

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Aspect/sub- aspect	Summary of Baseline Conditions	Predicted Impact	Scale of Impact	Duration	Evidence
	2050: 25,000	as result of the new hub airport. Jobs in the primary education sector are may increase in line with the increase in the population associated with the catalytic development expected as a result of the hub airport. The higher education sector, however, may be boosted further by the hub airport due to the competitive advantage given to UK universities by additional connectivity to more global locations. In addition, there may be some benefits to the higher education sector from agglomeration effects whereby large clusters of research and development, scientific and technical companies are located close to each other, enabling knowledge sharing			
Human health and social work activities	Baseline data and projections of number of employees in this sector within the local area: 2000: 16,000 2008: 25,000 2013: 26,000 2030: 26,000 2050: 29,000	Small increase in economic activity in this sector in the local area as a result of direct, indirect and induced employment from the hub airport. Modelling predicts the following number of additional employees in the local area in this sector: 2030: 1000 2050: 2000 It is considered that economic activity in this sector may increase regionally and more widely, due to the net population increase expected because of the hub airport and the corresponding demand for health service and social workers, and also the catalytic development expected as result of the new hub airport.	✓	Permanent impact	Oxford Economics modelling undertaken in support of Mayor's Aviation Work Programme.
Arts, entertainment and recreation	Baseline data and projections of number of employees in this sector within the local area: 2000: 4,000 2008: 4,000 2013: 5,000 2030: 6,000 2050: 6,000	Small increase in economic activity in this sector in the local area as a result of direct, indirect and induced employment from the hub airport. Modelling predicts the following number of additional employees in the local area in this sector: 2030: 2000 2050: 4000 In addition it is considered that economic activity in this sector may increase regionally and more widely, largely as a result of tourism.	✓	Permanent impact	Oxford Economics modelling undertaken in support of Mayor's Aviation Work Programme. Three quarters of the UK's 30 million annual inbound visitors arrive by air. (Greater London Authority, A New Airport for London, November 2011) Hong Kong International Airport has Hong Kong Disneyland , approximately 10 minutes from the airport, which attracts Asia-wide tourists. (Global Airport Cities, J. Kasarda, 2011)
Other service activities	Baseline data and projections of number of employees in this sector within the local area: 2000: 4,000 2008: 5,000 2013: 5,000 2030: 6,000 2050: 7,000	Small increase in economic activity in this sector in the local area as a result of direct, indirect and induced employment from the hub airport. Modelling predicts the following number of additional employees in the local area in this sector: 2030: 2000 2050: 3000 It is considered that economic activity in this sector may increase regionally and more widely, due to the net population increase expected because of the hub airport and the corresponding demand for services, and also the catalytic development expected as result of the new hub airport.	✓	Permanent impact	Oxford Economics modelling undertaken in support of Mayor's Aviation Work Programme.
Inward investment to the UK as a whole	Over the last decade the UK has been both the second largest recipient of FDI and the second largest source after the USA, though there has been a decline in recent years with UK being the 3rd largest recipient of FDI in 2009. In 2010-11, UK dropped to 7th place in the global league. The UK had FDI net inflows of £41bn in 2010 and FDI created and	Substantial impact: The improved connectivity provided by a hub airport would significantly boost FDI to the UK as a whole.	✓✓	Permanent impact	IATA survey shows that 63% of international business leader stated that air transport was vital or very important to investment decisions, while a further 24% said it was somewhat important. Bannò, Mutinelli, & Redondi (2011): FDI increases by 50% after a first direct connection to a foreign region University of Brescia: European inward European FDI increased overall by 33.7% in the two years after the

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Aspect/sub-aspect	Summary of Baseline Conditions	Predicted Impact	Scale of Impact	Duration	Evidence
	safeguarded 94,000 UK jobs (paid 37 per cent more than those in domestically-owned ones)				opening of new routes while, in the same period, FDIs in the control group decreased by 16.6% Frontier Economics: UK is at risk of falling further behind European competitors: Paris and Frankfurt already boast 1000 more annual flights to the three largest cities in China than Heathrow. There are 21 Emerging Market destinations with daily flights from other European hubs that are not served from Heathrow.
Inward investment to the regional and local area	UK FDI projects between 1999 and 2009 was estimated to average 33% bringing more than 500,000 jobs to London which is 13% of all jobs. In 2008, FDI contributed £52bn to London's economy in 2008 and foreign-owned businesses created 42 per cent of London's economic growth between 1998 and 2004	Substantial impact: An Outer Estuary airport hub could, with associated road and rail infrastructure investment, offer great potential for the development of a growth zone across a large part of the south east, stretching from Thanet town in the east through Canterbury, Swale, Medway, Gravesham, Bexley, Woolwich, Thamesmead and Central London through to Heathrow in the West. The Outer Estuary option would generate a significantly more geographically dispersed development zones than would likely be the case for Inner Estuary and Stansted options. While this geographical dispersion might provide challenges of optimizing agglomeration effects, the location option offer the potential to rebalance the local economies and close the income gaps which currently exists between the east and the west of London and the South East.	✓✓	Permanent impact	London First survey: 90% of foreign-owned businesses surveyed stated that international air links are critical to their business and that these links would need to grow in the long term for London to remain globally competitive Examples of large international businesses choosing to relocate to cities with strong connectivity, including KPMG. The company recently moved its European Headquarters from Canary Wharf, London and Marie Curie Strasse (north of Frankfurt) to a business centre location adjacent to Frankfurt Airport located south of Frankfurt.
Alignment with local and regional economic strategies	The following strategies have been reviewed: Canterbury Core Strategy Report for Consultation 2010 Canterbury Economy and Tourism Strategy 2008-2012 Harlow Local Development Plan 2006 Swale Draft Core Strategy for 2031 London Plan (2011) Broadly all these strategies are targeted towards achieving sustainable economic growth.	Broadly these strategies will be supported, as airports support economic growth. The scale of growth will be much larger than is assumed in plans and, strategies would require revising to maximise benefits, possibly being targeted towards achieving more ambitious objectives.	✓✓	Permanent impact	Matrices of compatibility have been prepared, comparing objectives relating to economy in the reviewed strategies against the construction and operation of a new hub airport.