

Étudiant : Maxime Chaillou



Faculté des Lettres, Langues et Sciences Humaines

MÉMOIRE DE RECHERCHE
MASTER 1 LANGUES ÉTRANGÈRES APPLIQUÉES

*“ London, a Capital fully connected across the world :
Between Realities and Challenges “*

Sous la direction de Monsieur John Cassini

Année universitaire 2014 / 2015

Ce mémoire de recherche a été soutenu publiquement devant un jury composé de professeurs chercheurs le 10 Septembre 2015 à l'Université d'Angers.

La copie ou la reproduction, même partielle, de tout texte, extrait, image ou graphique présents dans ce dossier est interdite sans accord préalable de son auteur.

© Copyright 2015 - Maxime Chaillou

Je soussigné Maxime Chaillou, étudiant en Master 1 LEA - Affaires et Commerce à l'Université d'Angers (année universitaire 2014 - 2015) certifie sur l'honneur ne pas avoir effectué de plagiat à partir de sites internet, d'ouvrages, d'articles, de cours ou autres sources.

Je m'engage à citer précisément chaque source utilisée conformément aux normes indiquées dans le document "Mémoire de Master 1" du département LEA de l'Université d'Angers et aux principes élémentaires de l'honnêteté intellectuelle.

Le 21 Août 2015,

Maxime Chaillou

Acknowledgments and Declaration

These acknowledgments are dedicated to all people who facilitated my research and helped me to redact this academic report during the first year of the Master's Degree.

The opportunity I had to incorporate Buhler Group was a great chance because it is located next to the London City Airport where I founded much information about the organisation of the British aviation system thanks to employees at the airport.

First of all I want to express my gratitude to Robert Egli, the managing director at Buhler London who was also my tutor during the work placement. He guided me to elaborate a relevant redaction plan in relation with the subject and helped me in case of any need.

It is also important to place on record my best regards to Sarah Read - Marketing and Personal Assistant and Phil Johnson - Customer Service Team Leader for their careful and precious guidance.

I would like to thank the University of Angers for their valuable advice both in Angers and abroad, and especially Mr John Cassini, my academic director for their precious support and benevolence during the second semester realised in the United Kingdom.

Last but not least, it is important for me to thank all organisations and libraries that allowed me access to relevant information, in particular the following as mentioned :

- The British Transport Department and its Airports Commission (20 Great Smith Street - London)
- The British Library (96 Euston Road - London)
- The London Library (14 St James's Square - London)

London, a capital fully connected across the world : between realities and challenges

Problematic : In a competitive context, how the British transport strategy plans to maintain London as a global hub example in terms of connectivity and dynamism ?

Introduction	P.1
I. One capital, five main airports and a segmented market	
A. Heathrow Airport : long hauls and international destinations	P.3
B. Gatwick Airport : the fast growing airport	P.5
C. Stansted and Luton Airports : bases for low cost airline companies	P.7
D. London City Airport : business travellers and facilities	P.9
II. New aviation challenges : infrastructure expansion in the London region	
A. A program motivated by increasing demand	P.12
B. Four expansion solutions under discussion	P.15
C. Impacts and consequences on Business at the local level	P.19
III. A transport scheme defined according to competitors and urban development	
A. Eurostar : an alternative to travel in Europe	P.23
B. New entrants : Megabus, the low cost bus revolution	P.26
C. Introduction of innovative urban projects	
o Crossrail trains in service from 2017	P.29
o Europe's first bike superhighway	P.31
Conclusion	P.33

The 2012 London Olympic Games highlighted the efforts to preserve the development of London as a globalized and leading city in the 21st century. The position of London as a business and commerce centre explains by no means London continued success. It is more than a symbol to welcome a global event. The London Games followed the 2008 event in Beijing in China and preceded the next Olympic Games in Rio de Janeiro in 2016, two countries with important growth potential which are becoming powerful worldwide.

Indeed London is the unique British global city that drives national economic growth. In the 1940s, the population of London was about 7.5 million people. These figures will reach 9 million in 2018 and the last estimations forecast a city of 10 million people in 2030¹. This fast-growing population phenomenon is recent. It has been climbing since the 1990's when London's recovery was completed. This demographic and economic development has created at the same time increasingly urgent challenges and issues, in particular in the transport field.

The United Kingdom is an island which is dependent for its success on frequent and predictable travel to and from London. Road, air and rail transport infrastructures link the capital to the rest of the world, as they have for decades. But today a pressure continues to grow because of congested infrastructures and a real lack of capacity. Since 2000, the aviation market has becoming saturated and new transport entrants are becoming strong competitors to airline companies.

In the London region, this debate became a centre of interest for a lot of citizens and professionals which new perspectives coming under study. In 2013, the six airports totalized 110 million passengers per year. London's air network is considered as one of the largest and strongest air systems in the world. The number of intra-European flights increased by 140% between 1972 and 2010. In this sense, in a competitive context, how the British transport strategy plans to maintain the capital of London as a global hub example in terms of connectivity and dynamism ?

¹ Addleshaw Goddard, *London 2030*, [Document : online], www.addleshawgoddard.com/cdc, (accessed 02/02/2015)

The British government plans to adapt these infrastructures to changing mobility needs by adjusting the transport program in the long term period to be the most attractive.¹ First, an analysis of the current aviation system is necessary to demonstrate the singularity of the London model based on its segmented market. The increasing air transport demand as presented in the second chapter, is such that today an expansion is pivotal to preserve the London air network. Recently the entrance of new road and rail players offers henceforth different transport solutions while the introduction of innovative transport projects will seek to facilitate urban and suburban travels in the coming semesters in Greater London, as explained in the third section.

After presenting the current system of transportation in the capital of London and its segmented market, a study of new airport infrastructure expansion will lead to an analysis of transportation policy designed to answer the needs of urban development. In other words, we are going to demonstrate how the London transport scheme meets a growing multicultural population with urban, suburban, national, European and international solutions while maintaining a high level of quality and competition. London strives to become a world capital of transport, what about in 2015 ?

This subject dealing with the London's transport program is part of my personal and professional future project oriented to the transport sector activity. The choice of this subject is also linked with my 4-month stay in London. This network is remarkable by its diversity and complementarity thanks to bold and innovative decisions. This is an area of interest to study the mobility and transport scheme, especially in a developed and innovative capital such as London.

¹ London First, *Airports Commission*, [Document : online], www.londonfirst.co.uk/our-focus, (accessed 10/01/2015)

SECTION 1 : One capital, five main airports and a segmented market

The aviation model is segmented in 5 main airports¹ in the region of London as presented in this first part. Today each airport platform is focused on a specified market. This aviation organisation fully meets numerous transport needs, different from one passenger to another, from an airport to another... The National Civil Aviation Authority is regulated by the British law system which imposes restrictions on the aviation sector.²

A. Heathrow Airport : long hauls and international destinations

Heathrow is the sole hub in Great Britain. When you analyse this large segment and also when you discuss with Londoners, we understand why this airport is so important to connect London to all major economic towns. It is the second busiest airport in the world in terms of international passengers behind Dubai (figures in 2014).

Heathrow airport is located in West London : 12 mi (22km) from Central London. The London underground (Piccadilly line) reaches it, as well as TFL buses and private means of transport (cabs, private cars, rental cars, ...). It has been constructed in the green belt of the London Metropolitan area and is actually a 2 runway aviation platform. Last year, more than 72 million passengers transited through the Heathrow Hub. This is the first airport in terms of passengers and flights in the United Kingdom and is indexed among the top 10 of world airports. The year 2014 was a key year because of the opening of the fifth terminal named "Queen's terminal".

85% of these movements are long haul flights. Heathrow Airport is positioned in the high yield segment with a majority of legacy carriers.³ For instance British Airways, the

¹ In this report, London airports system refers to the following airports: Heathrow, Gatwick, Stansted, Luton and London City

² International Transport Forum, *Expanding Airport Capacity*, [Report], p.17

³ Civil Aviation Authority, *UK Airports Market*, [Working paper], p.24

largest British airline company is the first one in service at Heathrow. Regarding the passenger profile, business travel represents around 30% of the total, 70% of passengers travel for leisure purposes, mainly for non-European destinations.

Daily they offer more than 1250 flights by 82 airlines for 180 destinations. The top 5 destinations are :

- | | |
|-------------------|--------------------|
| 1. New York - JFK | 4. Singapore - SIN |
| 2. Dubai - DBX | 5. Frankfurt - FRA |
| 3. Dublin - DUB | |

Today Western, European and British flights are in decline instead of these following destinations : USA and BRICS countries where the demand is increasing.

So we deduce that Heathrow hub allows to connect the British or foreign passenger to all main airports in the world. It represents a total of 191 000 passengers per day (arrival and departure). That why it is considered as the second busiest airport in the world¹.

In this sense, the growth capacity is actually very limited because of its 2 runway system used to 98% of its maximum.² In the last decade, the growth rate was only +0,2%. To surpass this challenge, airline companies operate with larger aircraft and use them more efficiently as the Boeing 777 (rotations, maintenance, ...). Furthermore the night flight regime limits both departures and arrivals between 11.00PM and 6.00AM. Obviously this creates a peak period for loading just after 6.00AM and prohibits any development at night.

The over-saturation directly impacts air congestion. This is detrimental to the sector's activity : it reduces the market to legacy carriers. A low-cost airlines introduction at Heathrow airport is almost impossible; congestion charges exceed their operational and commercial margins...

¹ Robert Wicks, *Heathrow Airport - 1929 onwards*, Operations Manual, [Book], Haynes

² International Transport Forum, op. cit. p. 35 and 42, cf p.3

At the Heathrow hub, airlines are focused on medium and long haul flights. They offer to the existent possible connections to the main British airports. Today 7% of all movements are domestic.¹ British Airways provides most of these short flights. Considering Heathrow experts, this is an exclusive long haul airport. The road feeder service has not been extended. The transfer hub share is about 35%. Some British regions are not fully served (case of Liverpool). Since 1990, domestic connections are decreasing while international flights are booming : a business logic ? Margins and profits are more greater on long haul flights.

An international airport involves a large number of jobs and sector activities. We underline that cargo activity represents a part of these operations but is still limited. The aviation hub allows intercontinental connections but the cargo activity has been stagnating since 2000. Emerging countries are a business potential for British forwarders. Their strong presence and quality services are two competitive advantages at Heathrow.²

Finally we note that 40% of passengers choose the Heathrow platform because of its location and surface access, 30% because of routes and frequency.

B. Gatwick Airport : the fast growing airport

More than 34 million passengers pass through Gatwick each year, the second largest airport in the United Kingdom. Gatwick is gaining market shares thanks to the development of the air transport services.

Gatwick Airport is located in South London. It is connected to central London by the national rail and bus services. 2.5 million of people live within 30 minutes travel time of the airport. Its location is singular : half way between central London and Brighton-

¹ Heathrow Airport, *Key facts and figures 2013*, [Report], p.1

² International Transport Forum, op. cit. p. 29, cf p.3

Hove, the East Sussex County. It is ranked as the second largest airport in the United Kingdom and is a single runway airport.

Historically Gatwick platform dates back to 1941 when it was a flying club (Surrey Aero Club). Gatwick was the name of the manor on the site, derived from goat (gat) and dairy farm (wic), thus goat farm¹. Over the decades, it has grown to be a major airport for European and now international passengers.

This is a point to point airport² for European cities (short hauls with a relatively low transfer rate). The National Aviation Agency reports that 90% of the traffic is local. The combined profile explains its particularity : low cost traffic and legacy network carriers. The lower yield leisure segment attracts mainly British or foreign tourists. As it serves many holiday destinations in Europe (Barcelona, Rome, Paris, Seville, Malaga, ...).³ Low cost companies in service at 65% ensure the leisure traffic. They are very sensitive to the rise of charges which represents a key operational cost.

In the same time, the development of the long haul market represents a growing opportunity. These flights are about 15% of the total, mainly in the leisure and lower yield segments. Traditionally dominated by British Airways, different airline companies have launched new routes to Indonesia, Vietnam or Turkey... They target passengers quite sensitive to the price who travel to international destinations. Gatwick airport is an appropriate base for this increasing segment thanks to its low operational costs compared to Heathrow Hub. This development is also part of the increasingly important international mobility demand and the over-saturation at Heathrow (no additional possibilities).

The first airline in operation at Gatwick airport is EasyJet. The company maintains its position at Gatwick with more than 85 destinations. British Airways is the second one and has declared recently a “price war” to EasyJet, the largest airline at Gatwick and a direct competitor.

¹ Graham M. Simons, *Gatwick : from a flying club to a major hub*, UK 2011 b.11354

² Direct connection between two destinations : direct flight

³ Gatwick Airport, *Facts and Stats*, [Website : online], www.gatwickairport.com, (accessed 08/02/2015)

To sum up, Gatwick airport gathers many segments : leisure, business, long hauls and short hauls. With 55 movements per hour, it is the most intensively airport active in the world. The runway structure is divided in two sectors : both for landing and taking off. Nonetheless the insufficient separation between them does not allow using them at the same time. This is a limit and a barrier to commercial development.

The predominance of leisure and low cost activities is in direct competition with Luton and Stansted : two other airports oriented toward the low cost traffic.

C. Stansted and Luton Airports : bases for low cost airline companies

Stansted and Luton Airports are both located in North London and are connected to central London by national rail services or bus with a 45-minute journey on average. These two airports focus only on low cost traffic, also named point to point leisure services. Luton's overall capacity is only the half of Stansted's. Leisure profile is the most representative: 85% of the destinations are European.

From Stansted or Luton Airports, passengers generally pay a competitive fare compared to the legacy carriers present at Heathrow or Gatwick, but they presuppose some counterparties¹ :

- a longer access and travel time to central London - few surface facilities
- limited solutions for transfer to other cities, in particular to regional airports
- low cost service on board : luggage restrictions, no extras (newspapers, drinks, ...), a paid preferred seating, no business class service : no frills
- tickets are booked only on internet, no sales desk at the airport

¹ International Transport Forum, op. cit. p. 27, cf p.3

Any additional service is payable and not included in the basic booking. These extra services as drinks, luggage or seating preferences can represent up to 25% of the sales margin for the low-cost sector.

This is the concept of low-cost airline companies created in the United Kingdom in the 1990's. Indeed the British and Irish markets were pioneers in the development of an aviation traffic segment sensitive to the price. In 1990, Ryanair was a small Irish company in difficulty and they tried to find solutions to their losses.¹ They invented a low cost service offering cheap and no frills flights. EasyJet launched its own low cost carriers a few years after Ryanair. This is the beginning of the low cost shake-up... They have created a new target customer : people who do not travel by air because of the expensive prices. The main objective is to stimulate demand by increasing aircraft utilization with low operational margins. The fare is about 30% to 50% less expensive than legacy carriers. The success was quick and it began a new and fast growing market that spread all around Europe.

Today low cost airline activity is beneficial for passengers and overall to the whole transport field : Stansted and Luton Airports are only based on this traffic. Also indirect activities : hotels, maintenance and cleaning are sources of jobs and revenue². We note that the on-time performance of both airports : 11%, delay rate on average. This is a consequence of the non-full utilisation of the single runway. If we compare to Gatwick airport where low cost carriers operate too, Stansted and Luton are categorized as ultra-low cost carriers. Ryanair, FlyBe and EasyJet concentrate their no frills flights in both airports. EasyJet possess even its headquarters in the Luton region in the United Kingdom.

As explained, low cost airlines are very sensitive to the rise of charges. This factor creates a dependence on behalf of these airports able to provide reduced charges services. For instance, Ryanair planned to reduce its movements at Stansted last year,

¹ The Telegraph, *Low cost airlines have come a long way, but who will win the battle ?*, Nathalie Thomas, [Document : online], www.telegraph.co.uk/finance, (accessed 10/03/2015)

² Anne Graham, *Managing Airports, An international perspective*, [Book], Fourth Edition

as operational costs kept increasing. A corporate agreement has been necessary to maintain all Ryanair flights in Stansted. The balance is delicate, even more so when the system goes awry...

This is a growing segment. Future challenges are focused on opening new routes at lower fares so as to meet the air demand for travel. Today the key problem is focusing on a new project : Can low cost airlines be successful and profitable for long haul flights ?

Some airline companies launched routes to international destinations but stopped them after several months. Low cost advantages were not gathered as fixed exceeded cost, unadapted airport infrastructures for larger aircrafts, ... Today many low cost leaders are planning to open business and long haul flights in the coming months. The low cost segment is just starting its reconversion...

D. London City Airport : business travellers and facilities

A prosperous, niche market, City Airport is focus on business services that drive and maximise opportunities for local businesses.

City Airport - LCY¹ is located in East London, in the Docklands area. It is a business district : Bank and Canary Wharf are less than 20 minutes travel time in DLR. ExCel Exhibition Centre (the larger exhibition and international convention centre) is just in front of the airport and business facilities are numerous.²

We can consider this airport oriented to an exclusive market : point to point business services. In this sense, the City Airport catchphrase is "Get Closer". The business target is a prosperous opportunity. As proof last year the growth rate increased by +9%. In 2014, 3,6 million passengers used LCY services. This represents £750 million in revenue

¹ London City Airport - IATA code : International Air Transport Association

² LCY Airport, *Transforming East London Together*, [Online report], www.londoncityairport.com, (accessed 26/02/2015)

for the British economy through jobs, shops, services, supply chain, etc... The London Olympic Games in 2012 were a showcase period for the City Airport potential. The main Olympic site in Stratford was closer to the airport, within only 25 minutes.

London City connects Londoners to European cities and vice versa everyday. Timetables are adapted to business passengers, peak hours are around 8:30AM and 06:00PM after work. The single runway is not adapted for larger aircrafts. It reduces the limited capacity. Notwithstanding, to meet customer expectations, London City opened a new international route to New York - JFK in 2009.¹

At London City Airport, business passengers are very sensitive to time, the ticket fare is not a barrier. Congestion costs at London City are very high because of its location and full capacity (thus higher fares)². Moreover many aircraft are small or medium size due to noise restrictions in London.

The urban development in East London also plays a major role in this success. 42% of new buildings are being built in East London. 80 000 new jobs will be created in Canary Wharf by 2031. This is a positive impact thanks to the London metropolitan program to re-boost East London.

The 3 main legacy carriers in operation are :

1. British Airways
2. CityJet (Air France branch - European flights)
3. Swiss International Airlines

¹ LCY Airport, [Online website], www.londoncityairport.com, (accessed 29/03/2015)

² Civil Aviation Authority, *UK Airports Market*, [Working paper], p.16

These figures give a definition of the passenger profile :

- 60% of passengers are inbound from overseas
- 70% of passengers are flying for business purposes compared to 35% at Heathrow
- 90% of passengers are at minimum A.B (degree)
- £92 000 is the average salary of passengers flying for business purposes
- 36% of passengers are senior managers, managing directors or chairmen
- 50% of passengers use the DLR (public transport)

To conclude this first part, we can note a new customer segmentation by class in the air sector. After the success of the low cost segment, various companies have decided to launch a 100% business class experience. For instance, La Compagnie offers this service from London to New York. Thus by targeting professionals, they seek to develop the most profitable class in the air sector. Good business logic ?

SECTION 2 : New aviation challenges : infrastructure expansion **in the London region**

The complexity of the London aviation system generates a segmentation for airline companies and for passengers according to their profiles. Heathrow is considered as the only hub in the United Kingdom. Presently the limited capacity in particular runways in operation cannot improve either services or quality for passengers. A commission has been created by the government in 2009 to re-develop the aviation model. Several factors demonstrate the vitality of this project generating positive and negative consequences for the whole environment and for stakeholders.

A. A program motivated by increasing demand

First of all, as explained in the first part, Heathrow and Gatwick airports are two of the busiest airports in the world. London airspace is complex and congested. Both airports operate at more than 93% of their capacities. This phenomenon is a vicious circle. The full utilization of runways generates a huge amount of charges for airlines. It directly impacts passenger fares. The introduction of new routes or destinations is almost impossible. That is why passengers, airline companies and the British government seek to improve the experience and create better service.¹

The increasing number of passengers is the first challenge. In a global economy, transport facilities are very useful for professional purposes but also for leisure. Tourism revenues represent an important part of the London business model. In this sense, the expansion program will permit tourists and commuters to have a better connections to domestic flights.² Today British passengers expect a hub in order to reach an international airport from regional cities.³ By studying the British market, we

¹ London Assembly, *Airport capacity in London*, [Online report], p.11

² Passengers connecting between their origin airport and destination airport through an intermediate airport

³ Transport for London, *Interim Report : key issues*, [Report], p.2

are surprised by the absence of domestic flights between London airports and Liverpool John Lennon Airport (LPL), the seventh largest city in the United Kingdom. It is not a profitable destination for airlines; other means of transport are competitive (rail network). It amplifies the predominance of the London network over other urban cities where domestic flights could be a source of economic development...

Today transport needs are changing. During peak-hours, air capacity is strictly limited. At Heathrow Airport, we count 88 movements per hour via 2 runways. The Minimum Connected Time (MCT) is important to develop suitable connectivity. Compared to other European hubs such as Roissy Charles de Gaulle in Paris, Frankfurt or Amsterdam, the transfer rate is poorer. A flight must be a good experience for passengers.¹

When you manage a complex and saturated air system, a flight delay can impact a lot of other movements. The new construction will certainly reduce delays if not assure on time flights. At Heathrow, there is on average a delay of 15 minutes per flight at taking off because of the congestion. These minutes are crucial ("time is money"). For the airline company, time at the airport between two flights are short (a delay on arrival impacts all following departures). According to different satisfaction studies in European airports, time is the most important variable for travellers. That means they dislike waiting at the airport. Minimizing transfer time is the main objective of the extension project.

Currently Heathrow Airport serves many long haul destinations. In reality this is the only airports. International passengers have no suitable alternatives, except for Gatwick to few cities. All British airports try to gain market share by offering regular service to a large number of destinations. For instance destinations to the Middle East or Turkey are increasingly in demand, a prosperous and future challenge !²

¹ Mayor of London, *Gateway to our future*, [Report], p.13

² Transport for London, *Why the UK needs a new hub airport*, [Online document], www.tfl.gov.uk, (accessed 20/03/2015)

Nevertheless we underline that both capacity to Stansted and Luton Airports are existing rather at 40% / 50%. The opposition of this project argues regarding a use of the system than building another facility. But by 2040, analyses and forecasts realised by the government (transport department) show gridlock. No more capacity will be available in the 5 main airports in the London region. For the moment all organisations are increasing the capacity of the current system and anticipate a future when all airports will be full in 2040.

They must consider all needs of mobility and passengers targeted by this program :

- Business, leisure, international passengers (purpose)
- Occasional, regular, frequent trips (frequency)

This is an opportunity for cargo operators to set up a cargo marketplace with better facilities. As described in the first part, the demand from the corporate sector is really great and should increase in the next semesters. Integrators do not use the London system as a hub because passenger flights are too numerous and they are used to operating at night. The British aviation commission imposes movement restrictions between 23.00pm and 7.00am.¹ For example, aircraft noises affect a population of 45000 people in the Heathrow area. It is one of the noisiest airport in the world compared to New York JFK where 36 000 citizens are exposed to comparable noise levels. The London periphery is extensive because of the increasing population and the real estate prices in central London. Heathrow is not in service during night hours, or rather arrivals and departures are limited according to quotas set for each season by the government. Luton is the only unregulated airport for night landings.

Comparing the London infrastructures to others European airports (Amsterdam, Paris or Frankfurt)², the British configuration is unique. All London airports possess a single runway system, excepting Heathrow. Amsterdam AMS is a six runway system, Paris CDG and Frankfurt FRA : a four runway system. Circulating so many such planes in a narrow configuration seems to be an operational achievement !

¹ Civil Aviation Authority, [Online website], www.caa.co.uk, (accessed 17/04/2015)

² Airports located in the European Economic Area

B. Four expansion solutions under discussion

In order to anticipate the future, the British government with a committee in the Transport department (located in London Victoria) is discussing this problem for the short, medium and long terms. They have done much research and data analysis to understand the development of the air segment and are forecasting for the coming years.¹ The impact for inhabitants and the economic spin-off for stakeholders (impacts and consequences) are obviously part of these studies. We can note the difficulty on predicting the future, changes are subject to a lot of factors and future data are based only on statistics...²

In reality this is a long standing debate. Already in 1979, an agreement was reached with the West Sussex County not to build a second runway before 2019. In 2012, the government decided to expand the Stansted and Heathrow infrastructures but not Gatwick Airport. The decision was reviewed further to a judicial decision pointing to the unfair and irrational policy choice. We understand all consequences and impacts of an extension in the future site.

The capacity of runways is actually too limited to develop suitable and reliable service for passengers to travel all around the world. Moreover, except for the airports of Luton and Stansted, infrastructures for long haul flights are the busiest used in the world (more than 90% of the maximum capacity during peak hours). First of all, the transport commission has not acted in favour of an extension at Stansted or Luton. The current capacity is not full but it should be a project for the near future considering the 2040 forecasts. In addition to the niche market for business travellers, an extension at London City Airport is geographically complicated. The landing zone is too close to London Central (noise impacts would affect a lot of citizens in East London) and its location in Gallions Point Marina does not allow an enlargement of the airstrips (River Thames and urban/private infrastructures : no additional land).

¹ Airports Commission, [Website : online], www.gov.uk/government/organisations/airports-commission, (accessed 17/03/2015)

² Airports Commission, *Consultation Document*, [Report], p.8

For all these reasons, the Transport commission has launched a feasibility study for four airport expansion solutions.

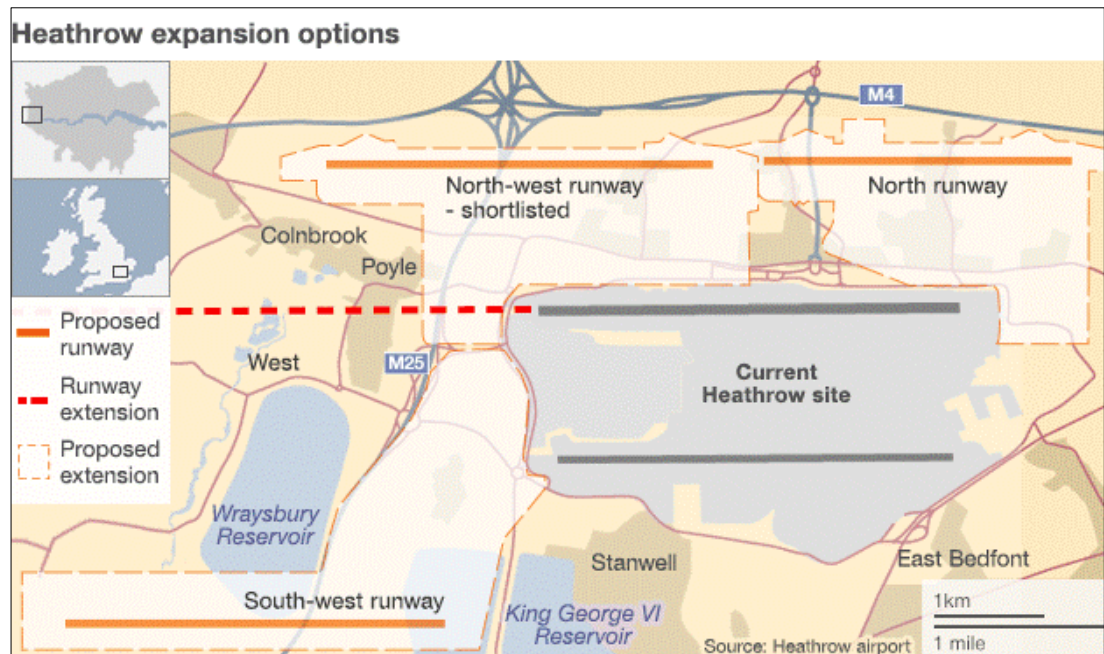
1. An additional third runway at Heathrow Airport
2. An extension of one of the existing runways at Heathrow Airport
3. An additional second runway at Gatwick Airport
4. A new four-runway hub airport in the Thames Estuary (East of Greater London)¹

Further consultation, the Airport commission rejected the last project in the second semester of 2014 to build a new airport in the Thames Estuary. They have many doubts, in particular the huge cost and risks of this airport (between £80 billion to £100 billion) compared to the other solutions (for instance Gatwick project would cost about £10 - 15 billion). The environmental impacts would be detrimental. The estuary has many protected areas and flood risks. Its remoteness does not fully meet the needs of passengers : transport path, connectivity, geographical situation in the estuary. It would be around 33 miles from central London (compared to 15 and 25 for Heathrow and Gatwick) with no direct transport facilities in service requiring a new high speed line. The problem requires a new additional infrastructure in the South of London (west or east district). They consider that the demand for additional capacity is urgent, so the committee is focused on an affordable and deliverable solution.

As the Thames Estuary option has not been shortlisted, in November 2014, the Transport Commission presented all possibilities as explained in the next page, for the Gatwick or Heathrow platform.

¹ Transport for London, op. cit. p.8, cf p.11

✚ Heathrow expansion projects



1

As explained in the map above, the first option is to provide a new 3500m runway to the North-west of the current site. The total cost is estimated at £19 billion.

The second possibility is to extend the current Northern runway to the west by at least 6000m. In that case, aircrafts operate in two separate parts, one part for landing and the other for taking off. The extension cost is around £14 billion.²

By developing infrastructures at Heathrow Airport, the project reinforces the competing unique hub situation. 128 movements per hour would step up long haul route density. Both projects implicate a development of the two main passenger terminals to welcome passengers in secure conditions. For cargo operators, the location and the doubled capacity are attractive. In total, Heathrow could provide more flights per year up to 740 000.

¹ BBC News, *Airports Expansion : what are the three options ?*, [Document : online], <http://www.bbc.com/news/uk>, (accessed 17/02/2015)

² Heathrow Airport, *Our third runway proposal*, [Document : online], www.heathrowairport.com, (accessed 16/03/2015)

Nevertheless the solution would be not suitable for the low cost segment : Heathrow is an international airport. This profile is not compatible with the low cost business model. Some professionals argue that Heathrow is allergic to this segment and is dedicated to long haul flights.

Both options are also subject to long term forecasts : for 2030 to 2050. Experts foresee that the 3 runways will be full shortly and the capacity issue will again be back on the agenda.

Gatwick expansion project



The Gatwick option is to build a second new runway of at least 3000m¹, far away from the existing one for fully independent operation.² In the map above, the third option has been pre-shortlisted (yellow runway) which is far away from the existing orange runway. Gatwick's second runway would cost around £10 billion.

¹ BBC News, op. cit., cf. p.15

² Gatwick obviously, *The UK's next runway*, [Document : online], www.gatwickobviously.com, (accessed 16/03/2015)

The Gatwick option would create a second hub carrier in the London area : network growth. This is the most beneficial project for the competition and in particular for low cost airlines. The profile would allow to aircraft to take off from low cost to legacy carriers. As expected, airline companies should offer a large choice of services for travellers. The new runway would support larger aircrafts as those in service at Heathrow. Legacy carriers would develop long haul flights. The connectivity (transfer traffic) between flights would be worth.¹

In return, the rail network must be improved to provide a strong connection between London central stations and Gatwick Airport which implies a substantial budget, currently not on the agenda.

Before dealing with the impact and consequences, we must take into account and repeat that the priority of the Transport Commission is a financeable, affordable and operational extension for 2030.

C. Impacts and consequences on Business at the local level

The transport commission ranked the three shortlisted solutions in the context of benefits and disadvantages. This is a long term period analysis (2050+) to fully meet future mobility needs. They collaborated with all stakeholders to identify their requirements and consider the overall environment, in particular the socio demographic context.

First, the project will influence airline companies. By increasing air capacity, demand will rise and travellers will become increasingly demanding. A new route created develops a competition between airlines, resulting in cheaper commercial fares. Statistically it will double or triple many routes already in operation, such as flights to or from New York JFK.

¹ International Transport Forum, op. cit. p. 71, cf p.3

Therefore an expansion will result in increased charges at the expanded airport because of the number of movements per hour, so tax operations rise. As described, airline companies would be less sensitive to a rise of charges at Heathrow than Gatwick. If the project is viable at Gatwick or otherwise at Heathrow platform, experts project that Stansted and Luton airports will gain market shares due to the competitive operational costs. It will boost these two low cost airports : an impact not explicitly quoted by reports but clearly perceived.

Concerning the cargo marketplace, an extension at Heathrow would double the cargo activity, impacting directly the corporate environment in an international context. This supposes new forwarders and obviously a creation of jobs in the sector activity.¹ The main goal is to meet the increasing demand in particular from emerging markets.

Just as with any substantial projects, local inhabitants will be affected.² Expropriations are unfortunately necessary to enlarge the actual airport and operate in safe conditions. At Gatwick Airport, Charlwood and Hookwood are two cities concerned by demolitions at the northern site. Moreover noise impact is key for the population. Hundred thousand people will be affected by the levels of noise. Figures and data detailed in many official reports differ depending on the stakeholder's point of view and the noise level chosen, thus it is difficult to obtain an objective analysis. Nevertheless, we can assert that the air noise in the London region is the worst in Europe. It influences the local quality of life and results in health problems. The situation is much better around Gatwick than Heathrow. The transport commission forecasts with a population within the 57^{L_{AEQ}} contour³ adding to more than 6,500 persons by 2030, currently estimated around 3,200 (double by 2).⁴ The Heathrow forecasts for the same noise level predict more than 150,000 citizens affected. These figures include reductions of air noises due to technological and operational improvements (aircrafts, infrastructures, runways, ...). It remains tricky. In fact, the

¹ York Aviation, *Implications for the air freight sector*, [Report], p.14

² Transport Commission, *What are an airport's impacts ?*, [Report], p.2-1

³ L^{AEQ} is the noise measure used to describe the average sound level experienced over a period of time

⁴ Airports Commission, *Appraisal framework*, [Report], p.54

commission will not escape this aspect in the final decision because a third runway at Heathrow would expose 20 to 30 times more people than an expansion at Gatwick in 2050.

More globally this project will support competition in the United Kingdom, promoting the employment and local growth. 40 000 new skilled jobs at Heathrow would be created, tackling youth unemployment. The number of jobs created is a key indicator. Further research concerning the impact on employability, the table below summarizes the total of jobs created per 1 million passengers.

Airport	Number of jobs per 1 million passengers
Heathrow	1 000 (10%)
Gatwick	760 (7.6%)
Stansted	500 (5%)
Luton	930 (9.3%)

The Gatwick option would create lower additional jobs than an expansion at Heathrow Airport.

Even if both airport managers claim that the expansion project is fully funded by private third parties¹, it will require an additional cost for the British taxpayer in the United Kingdom.

Finally a major hub requires direct and fast transport facilities from the hub platform to the centre of London, obviously adapted to the number of passengers in transit everyday. Surface access is important, but risk severe congestion.² It is a challenge in the London metropolitan area when you know the saturation of the London Underground during peak hours. Today Heathrow surface access is largely more

¹ The Guardian, *Heathrow and Gatwick expansion plans more costly than airports claim*, Gwyn Topham, [Document : online], www.theguardian.com/uk-news, (accessed 09/04/2015)

² Airports Commission, op. cit. p.49 to 54, cf p.19

developed (Piccadilly line underground and Heathrow Express with high frequency). In this sense, we can wonder whether : the Crossrail service under construction to serve Heathrow will trigger the decision process for the committee ? More explications about the Crossrail project will be presented in the third section.

Opinions are divided... Further analysis, meetings and debates, the final decision is expected during the summer 2015.

“From a commercial aviation backwater to an aviation system of distinction, the future looks bright ! ”

SECTION 3 : A transport scheme defined according to competitors and urban development

In London the transport is largely dominated by air. The United Kingdom is an island, so ground transport is strictly limited. However since the creation of the channel tunnel, different means of transport have been developed. Today a price war has been declared by low cost bus companies to European destinations. It would revolutionize practices in terms of transport between London city and European major towns.

A. Eurostar : an alternative to travel in Europe

Historically the development of the Eurostar service has been an important step to reinforce the strong relationships between France and the United Kingdom. This train was introduced after the construction of the Channel Tunnel. It is composed of 3 separated channels for rail service : 2 single tracks for the circulation each way and one track for maintenance or in case of emergency. The Tunnel idea dates from 1751. It facilitates movements between North Europe and the United Kingdom. Freight business is considered as a profitable activity for both parties.

It is important to note that Eurostar is the brand name for the high speed passenger service. The Eurotunnel Shuttle is in operation for road vehicles, the largest shuttle transport in the world, and international freight trains. The tunnel is connected end-to-end with the LGV Nord (French National Railways) and high-speed railway lines. In total the line length is about 149 kilometres, or 50.5 km (31.4 mi) per single track, from Folkestone in the United Kingdom to Coquelles, near Calais in France¹.

The construction was realised between 1987 and 1993, at a cost of £4million per day, at this moment, it was one of the most expensive projects in the world.

¹ Peter Waller, *From the Footplates : Eurostar a driver's eye view of the channel tunnel*, [Book], UK 1998 b.9006

The table below is an overview for all destinations in service today.¹

From London King Cross St Pancras			
To Paris	To Brussels Midi	To Marseille	To Bourg St Maurice
2h15	2h00	6h15	6h45
<i>Daily</i>	<i>Daily</i>	<i>5 times/week</i>	<i>During holidays</i>
Ebbsfleet	Ebbsfleet	Lyon	Marne la Vallee Chessy
Ashford	Ashford	Avignon	Moutiers
	Calais Frethun		Aime la Plagne
	Lille Europe		

Everyday the Eurostar offers service in majority from Paris to London and also from Brussels to London via Lille Europe. It connects three major European cities within a shortened journey travel time. London, Lille, Brussels and Paris are well accessible to further destinations because they offer a developed national rail services².

Regarding passenger profile in the Eurostar train, it gathers both business and leisure travellers. In 2014, 80% of the Eurostar market share is for Paris - London, against 66% 10 years ago whereas the low cost companies now offer cheap journeys.

- Business journeys are numerous between France, the United Kingdom and Belgium. Moreover they link these towns from city centre to city centre without a long additional transport time (compared to airport locations). All stations are well located (Gare du Nord in Paris, King Cross station in London or Brussels Midi station).

- Leisure journeys (40% of the total) are increasingly important, London and Paris are two touristic cities. Many British or French citizens take advantage of these connections to discover a new country and its culture abroad. Young passengers, students and seniors are targeted. In addition the Eurostar service is useful for tourists who first visit Paris and then London or vice versa. There are permanent flows of

¹ Eurostar, [Online website], www.eurostar.com, (accessed 10/04/2015)

² Simon Pelow, *Eurostar*, Ian Allan Publishing, [Book], UK 1998 b.8434

Brazilian, Chinese and Korean tourists (doubled in the last five years). One of the great benefits to travel by Eurostar is the fact that there is no luggage restriction on board - you have just to carry your own luggage onto the train.

For all these reasons, Eurostar offers passengers 3 types of tickets¹ :

- Standard : 30-minute check-in, selection of payable food at the bar buffet, power sockets in some coaches, non-refundable.
- Standard Premium : 30-minute check-in, spacious seats, dedicated carriages, course meals and drinks included.
- Business Premium : 10 minutes fast track check in, business lounges at the station, spacious seats, gourmet meals, ... exchangeable and refundable.

To sum up, the service carried more than 10.4 million passengers in 2014. The Eurostar service, a 750-seat passenger train (the equivalent of two Boeing 747) is positioned in Europe as a real alternative to air transport in terms of journey time from city centre to city centre. Recently the railway company has revealed the design of the new Eurostar train (from the constructor Siemens) and the refurbished train that includes more comfort and services for a better journey and an additional 150 seats per new train; comfort represents a weakness as well as the price (in case of non-anticipated booking, low cost flights may be more attractive)². The new fleet will be in service before the end of the year, as well as the first direct route to Marseille in France and certainly to Amsterdam in the future with connection to the German market. This could reinforce the attractiveness of London in Europe and even influence more passengers in their transport choices - or almost ...

The Channel Tunnel plays also a major role for vehicles (cars, bus, lorries, ...) and freights thanks to the Eurotunnel Shuttle. This is a conveyance for citizens who seek a

¹ Eurostar, [Online website], cf. p.24

² Eurostar, *The future of European train travel*, [Document : online], www.eurostar.com/uk-en/about-eurostar, (accessed 17/04/2015)

way of mobility in Europe and for companies to facilitate the European and international freight flows. In fact it is another alternative face to the pressure on the aviation sector.

B. New entrants : Megabus, the low cost bus revolution

In London, it is hard to miss Megabus advertisements, displayed in many places such as London Underground stations, main national rail stations (Waterloo, King Cross, London Bridge, ...), on Megabus vehicles, ... Indeed Megabus claims that they sell coach tickets for £1,00 (really £1,50 because of the booking fee). The Stagecoach Group, the owner of the Megabus brand¹ is extending its services to revolutionize the transport in the United Kingdom and also in Europe.

Stagecoach Group is a British company based in Perth, Scotland. It is a major company in this region, listed on the London Stock Exchange. They operate express coach networks, trains, tram links, and ferries lines in the United Kingdom and abroad (North America and New Zealand). It was created in 1980 by the current president, Brian Souter and his sister, Ann Gloag.

Where are these £1 fares ? In reality they sell very few of these cheap tickets. Nevertheless they offer numerous tickets for £10 to £15. These loss leader prices are the basis of the Megabus strategy. Indeed they have assimilated the philosophy of the low cost airline companies by creating a new parallel coach market. In order to provide a journey at the cheapest price, they minimize associated costs and risks thanks to one driver, no frills, modern, large vehicles, single or double deck coaches, street stations (except from London Victoria's station) and online booking.

The number of destinations and new routes is increasing. The coach operator provides a great choice for passengers with more than 80 destinations. It is a domestic city to

¹ Stagecoach Group, [Online website], www.stagecoach.com, (accessed 23/04/2015)

city service. Megabus seeks to improve the transport experience with a cheap, smarter offer. Young people and students are targeted by Megabus and also family and tourists who need to travel in the United Kingdom.

Today their success is impressive, last year more than 5 million passengers travelled by Megabus in the United Kingdom.

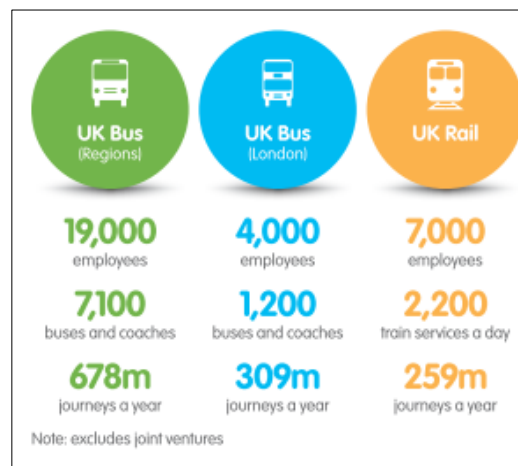
In response to this rapid success, Megabus is widening its horizons to Europe. They have just created new European routes at ultra cheap fares. For instance, the new route London to Paris or Barcelona will cost between £1 and £35 per passenger per journey. Amsterdam, Brussels, Boulogne or Madrid are various destinations in service or projected in the coming semesters¹. In France, Megabus development is related to the recent Macron law adopted by the government. It seeks re-boost the domestic growth and activity due to simplifications for numerous sector activities. Transport by coach was until now limited by complex authorizations, it is now liberalized. Mr. Macron, the French economy minister made it a symbol. It makes travel easier. The Eurostar train is expensive while coach transport is 8 to 10 times cheaper than railway services.

Megabus is becoming a strong transport player in Europe but they are seeking to consolidate their position in the United Kingdom. Recently they launched MegabusGold brand, a premium coach service in circulation both during the day and at night. Indeed each bus is convertible to offer comfortable travel during the day and a sleeping service by night : folding seats to hanging beds. The day service increases the capacity of the traditional Megabus routes in the United Kingdom (London-Cardiff; London-Plymouth for example), offering a premium and exclusive on board facilities : free Wi-Fi, power, snacks and refreshments served by a support staff (stewards)². The night service differs because coaches circulate from the London capital to Scotland (Glasgow, Edinburgh, Dundee, Aberdeen, Inverness, ...). It is a long distance journey, around 8 hours, more easily accessible at night.

¹ Institut of Logistics and Transport, *Megabus - Why coaches have become cool*, [Book], 2012

² Megabus Gold, [Online website], www.megabusgold.com, (accessed 23/04/2015)

In fact, everyday thousands of Londoners, English and foreign people make a trip from London Victoria coach station. The satisfaction rate is rather high for a basic service, around 90%. To sum-up this revolution, Megabus is tackling transport players in the United Kingdom and recently in Europe. The intercity bus service meets the passenger needs : travelling at a cheaper price with no frills but in safe conditions. They cover a large part of the island by providing a choice of destinations and the latest announcements from different European governments could reinforce the position of the Megabus brand - Stagecoach Group in the transport sector activity. We can note the similar business model as presented in the first part for the low cost airline companies. Moreover, the competition is now increasing and numerous companies are taking advantage of this growing market : National Express, EasyBus, GreenBus, TheTube between London and Oxford, ...



Megabus Brand

C. Introduction of innovative urban projects

In studying these analyses, it is clear that the transport scheme in London region is being developed in a star-shaped pattern for travel in the United Kingdom, to Europe and for all main international cities in the world within road, rail or air. London constitutes a global hub because all means of transport meet the diversity of

passenger's profiles. The challenge to maintain this high level of service is unique in Europe due to the impressive number of passengers travelling or in transit in London every day.

These existing and developing transport infrastructures around London are creating an integrated transport strategy that supports the commercial and cultural vitality of London. In this sense, the interconnection between each infrastructure and the urban circulation in London area are becoming a subject of interest in maintaining all facilities. The British government and its transport department dialogue with all local actors introducing innovative and sustainable urban projects. We have selected two of them to present below.

Crossrail trains in service from 2017

The Crossrail Act was signed in 2008, date when the Parliament of the United Kingdom authorised the construction of the Crossrail railway from Maidenhead and Heathrow Airport (West part) to Shenfield and Abbey Wood (East part). Engineering works began in 2009 on the central part in London and it is still under construction. Indeed it is one of the largest rail construction projects in Europe. At the peak of the construction up to 13 000 people are expected to be working on it with simultaneously eight tunnelling machines.

It will open at the end of 2018 with a total of 37 stations, the entire service will be effective in 2019. It is a 118km route which will reduce the crowding on the main lines of the Underground. During peak hours, forecasts predict 72 000 passengers per hour. In total, it estimates 200 million of passengers on Crossrail a year. The overall cost is estimated at £14.8 billion.¹ The Crossrail project is a suburban service connecting the West and the East of London via the central part. It includes stations at Canary Warf, Liverpool Street, Bond Street, Paddington. The high frequency will provide a commuter and suburban passenger service from West to East. The pressure is important on the

¹ Mayor of London, *Crossrail*, [Website], www.crossrail.co.uk, (accessed 30/04/2015)

London Underground, especially the Central or District Lines. From a socio-demographical analysis, we consider that Londoners are willing to live in Inner London because the real estates in the central part is overpriced.

So the Crossrail is a quicker and direct transport opportunity thanks to the construction of these new railway lines and tunnels. It is included in the program of reduction of congestion (better journey for less pollution).

This is an innovative rail project :

- A 10% increase to the actual rail capacity
- 250m in length to accommodate passengers
- 200m trains
- Design and ultra-modern train
- Step free access
- Combined Surface and Tunnel line with high connectivity
- Latest information systems on board
- Larger entrances and faster journey times

This is a faster way to reach London central : one station in each neighbourhood which is connected to public transport (fewer stations for a quicker journey). It cuts journey times and improves the speed of commuting. The train will run over 100km/h, this is a challenge in a saturated city. Approximately 1.5 million people will be connected to London central within a journey time of 45 minutes maximum.¹

Examples of journey time in 2018 :

- Custom House for Excel to Bond Street : 15 minutes instead of 25 minutes
- London Heathrow to London City : 30 minutes instead of 55 minutes

¹ Transport for London, *Crossrail*, [Website], www.crossrail.co.uk, (accessed 30/04/2015)

It is innovative also by its expedient path that means a connections for work, leisure, travel, tourism or shopping. It will link the main business towns (Bank, Canary Wharf, Custom House for Excel Centre, ...), Oxford Street for leisure or tourism in the central part, also Stratford (the first shopping centre in Europe - ex. Olympic Games site) or different rail stations (Liverpool Street station, Paddington station, ...). So we deduce that it is a new means of transport promoting economic development. In this sense, we discover that the Crossrail line will serve Heathrow Airport (with 2 stations). It is important to remember that on the extended air project, the connection from the airport to London central is considered as a key factor. Is it a precursor in the decision-making process by the transport department ? We have not found relevant information about this subject but it could be a sign of development at Heathrow Airport because all projects are thought out following the urban transport strategy.

Europe's first bike superhighway

Urban development may be a source of increased pollution. To create these new projects, the air quality has been significantly degraded. The government has decided to revolutionize transport habits to favour green and environmentally friendly travel. This project is expected to reconcile development, environment and displacement.

The British transport department is setting up an innovative mobility program for the entire population of London including travellers, tourists, workers, students, ... It is ultra-innovative because it meets mobility needs of each citizen while respecting the latest environmental expectations.¹ At the end of January 2015, Boris Johnson, the city's mayor, announced the ambitions of the London's cycling superhighway, a unique project in Europe.

This is a green and ecological mode of transport which has been increasing over the last 10 years. More and more Londoners travel by bike since 2000 : the number has more than doubled in 15 years. For instance, between 2008 and 2009, the growth was

¹ Mayor of London, *Vision for Cycling in London*, [Online report], p.5

about +9%. Biking become a part of the transport network. Mr Johnson declared : “it should be a normal part of everyday life”. For cyclists, it will be a safe and easy means of transport available 24 hours a day, also pleasant for the environment. Benefits are numerous for users : social, environmental, financial, healthy activity ...

In the United Kingdom, there is an awareness of the importance of the bicycle in the near future. The bike superhighway program will secure streets and spaces so as to respect each road users rights in London and create cycle parking. The new routes will be designed according to the stakeholder behaviour : Metropolitan Police, NHS London, British Cycling Associations.¹

In reality, this is a response to the urban needs of citizens in central London. The high employment there is combined with short journeys, easily made by bicycle. Despite the limited road spaces, the new routes will be a pleasant alternative to other means of transport. And this program is not limited to central London... The government is planning to provide a fast and convenient alternative for Inner London, so biking is seen as a solution for both professional or leisure journey purposes from West to East through London Bridge, North to South trough Westminster. This program will reduce the traffic congestion on the road : fewer cars but more bikes, thus the necessity to regulate the co-operation.² Impact will be also visible on the Underground and should reduce saturation of all public transport.

Finally we can compare this cycling program to a true Crossrail for the bicycle. The high potential could be reinforced by the utilisation of underground tunnels not in use today, as the article entitled “*London's cycle highways?*” explains, published in February 2015 from CNN. Many ideas and projects are planned to be developed above and under ground... Maps are just beginning to be redesigned !

¹ Mayor of London, *Cycling Revolution London*, [Online report], p.4

² Mayor of London, op. cit. p.18, cf p.31

To conclude this analysis, London's population is growing faster than anyone expected. Today's challenges are diverse and essential to preserving the British capital as a global business and economic centre in the world. Challenges are complex and mobility needs evolve progressively according to the dynamism of our society and our economy.

Indeed the fast growing population in the Greater London area is a vector for projects in the transport field. In the 21st century, these have never been so many. The Transport Commission decided to launch a huge mobility scheme both for Londoners and foreign travellers.

As the United Kingdom is an island, the air transport is the most accessible way from the city of London. This is a singular market because each of the five main airports meets a specific traveller profile to reach national, European or international destinations. The entrance of low cost airline companies has again upset the market, so that today it is saturated. The air capacity is such that an expansion of facilities is necessary.

The increasing demand requires a new business and network air structure. The Transport Commission conducted analyses and forecasts to select three possible expansion solutions at Gatwick or Heathrow Airport. Each project is under study to measure the economic and social impacts at the local level for citizens and to provide the best option to facilitate air movements from London. The final decision is expected in the coming weeks.

The congested market has also been beneficial in developing competition to travel in Europe. For many years, the Eurostar train has been circulating from London to Belgium and France, offering great connections to many European capitals. More recently, the new entrant like Megabus may change transport habits at low cost fare, relying on the British success. In order to facilitate urban transport for Londoners and foreign travellers, the transport department has introduced various innovative projects. Green and public transport will be promoted in London, such as the huge European urban project in construction : the Crossrail network. In this sense, we deduce that

urban and suburban transport aims to fully support the growing population and air mobility needs.

We can assert that this star-shaped network is characterized by its dynamism, innovation and connectivity with numerous interconnected transport solutions. However we must be careful because we have no certainty if this model is relevant in the long term both financially and from forecasts. This is a scheme still limited because after the expected expansion, the aviation market will again be saturated in the 2030's. The end of a major debate, the beginning of another!¹

The environmental issue is also a matter of debate in London. This is one of the Mayor's key objectives to promote London as a green and sustainable city in terms of air quality, biodiversity, waste and energy. It is another complex challenge to improve the environment and the quality of life in a growing and global capital. How can the British economy and the environment interact ? They are establishing models to constructive environmental strategies. In 2015, the European commission has elected a British city : Bristol, as the European green capital². This is an efficient city with a growing green economy, Bristol offered 4.7% growth in the green economy in 2012... Can this be an example ?



From a phone box to a solar box, red to green, a revolution ? ³

¹ Transport for London, op. cit. p. 4 and 5, cf p.11

² European Commission, 2015 - *Bristol*, [Document : online], ec.europa.eu/environment, (accessed 01/06/2015)

³ European Commission, *SolarBox*, [Picture : online], ec.europa.eu/environment, (accessed 01/06/2015)

Bibliography



Sources mentioned in the report

- Addleshaw Goddard, *London 2030*, [Document : online], www.addleshawgoddard.com/cdc, (accessed 02/02/2015)
- Airports Commission, [Website : online], www.gov.uk/government/organisations/airports-commission, (accessed 17/03/2015)
- Airports Commission, *Appraisal framework*, [Report], April 2014
- Airports Commission, *Consultation Document*, [Report], June 2014
- Anne Graham, *Managing Airports, An international perspective*, [Book], Fourth Edition, 2001
- BBC News, *Airports Expansion : what are the three options ?*, [Document : online], <http://www.bbc.com/news/uk>, (accessed 17/02/2015)
- Civil Aviation Authority, *UK Airports Market*, [Working paper], September 2011
- Civil Aviation Authority, [Online website], www.caa.co.uk, (accessed 17/04/2015)
- European Commission, *2015 - Bristol*, [Document : online], ec.europa.eu/environment, (accessed 01/06/2015)
- European Commission, *SolarBox*, [Picture : online], ec.europa.eu/environment, (accessed 01/06/2015)
- Eurostar, [Online website], www.eurostar.com, (accessed 10/04/2015)
- Eurostar, *The future of European train travel*, [Document : online], www.eurostar.com/uk-en/about-eurostar, (accessed 17/04/2015)
- Gatwick Airport, *Facts and Stats*, [Website : online], www.gatwickairport.com, (accessed 08/02/2015)
- Gatwick Obviously, *The UK's next runway*, [Document : online], www.gatwickobviously.com, (accessed 16/03/2015)
- Graham M. Simons, *Gatwick : from a flying club to a major hub*, UK 2011 b.11354
- Heathrow Airport, *Key facts and figures 2013*, [Report]
- Heathrow Airport, *Our third runway proposal*, [Document : online], www.heathrowairport.com, (accessed 16/03/2015)
- International Transport Forum, *Expanding Airport Capacity*, [Report], 2014

- Institute of Logistics and Transport, *Megabus - Why coaches have become cool*, [Book], 2012
- LCY Airport, *Transforming East London Together*, [Online report], www.londoncityairport.com, (accessed 26/02/2015)
- LCY Airport, [Online website], www.londoncityairport.com, (accessed 29/03/2015)
- London Assembly, *Airport capacity in London*, [Online report]
- London First, *Airports Commission*, [Document : online], www.londonfirst.co.uk/our-focus, (accessed 10/01/2015)
- Mayor of London, *Gateway to our future*, [Report], 2014
- Mayor of London, *Vision for Cycling in London*, [Online report], March 2013
- Mayor of London, *Cycling Revolution London*, [Online report], May 2010
- Mayor of London, *Crossrail*, [Website], www.crossrail.co.uk, (accessed 30/04/2015)
- Megabus Gold, [Online website], www.megabusgold.com, (accessed 23/04/2015)
- Peter Waller, *From the Footplates : Eurostar a driver's eye view of the channel tunnel*, [Book], UK 1998 b.9006
- Royal Aeronautical Society, *Bridging the gap for the next decade*, October 2014, [CD]
- Simon Pelow, *Eurostar*, Ian Allan Publishing, [Book], UK 1998 b.8434
- Stagecoach Group, [Online website], www.stagecoach.com, (accessed 23/04/2015)
- The Telegraph, *Low cost airlines have come a long way, but who will win the battle ?*, Nathalie Thomas, [Document : online], www.telegraph.co.uk/finance, (accessed 10/03/2015)
- The Guardian, *Heathrow and Gatwick expansion plans more costly than airports claim*, Gwyn Topham, [Document : online], www.theguardian.com/uk-news, (accessed 09/04/2015)
- Transport Commission, *What are an airport's impacts ?*, [Report]
- Transport for London, *Crossrail*, [Website], www.crossrail.co.uk, (accessed 30/04/2015)
- Transport for London, *Interim Report : key issues*, [Report]
- Transport for London, *Why the UK needs a new hub airport*, [Online document], www.tfl.gov.uk, (accessed 20/03/2015)
- York Aviation, *Implications for the air freight sector*, [Report]

Additional sources and documents

- Brent Council, *Stanmore to Thames Cycle Route*, [Report], October 2014
- City of London, *Cycle Superhighways*, [Report], October 2014
- Civil Aviation Authority, *Noise Monitor Positions*, [Report], June 2012
- Copenhagen Economics, *Airport Competition in Europe*, [Report], June 2012
- Department for Transport, *Adding capacity at Heathrow Airport*, [Book], January 2009
- Department for Transport, *Britain's transport infrastructure : Adding capacity at Heathrow*, [Report], January 2009
- European Union, *Modernising the European sky*, [Report], 2015
- Heathrow Airport, *Heathrow Finance presentation*, [Report], October 2014
- Luton Airport, *Noise Fact Sheet*, [Report], 2015
- Managing Airports, *An international perspective*, Anne Graham, [Book], Fourth Edition, 2013
- Mayor of London, *A new airport for London*, [Report], November 2011
- OAG Commission, *www.oag.com*, [Website]
- Rail Travel Agency, *Executive Summary*, [Report], 2015
- Robert Wicks, *Heathrow Airport : 1929 onwards*, [Operations Manual], 2011
- Royal Aeronautical Society, *UK Airport Capacity : bridging the gap for the next decade*, [CD], October 2014

Géographiquement Londres se situe à un carrefour majeur en Europe du commerce international, entre les Amériques et l'Asie. L'accroissement de sa population urbaine et périurbaine, visible depuis les années 1980 est désormais source d'enjeux et de problématiques pour l'ensemble des acteurs économiques. Afin de répondre à la multiplicité de ces enjeux, le schéma de mobilité en matière de transport a été entièrement repensé et restructuré. Londres souhaite ainsi préserver son excellence en matière de transport, une réelle dynamique dans son développement économique, culturel et touristique.

Le Royaume Uni est un pays insulaire, de ce fait, les transports ont longtemps été concentrés via le système aérien. Composé de 5 aéroports majeurs et distincts, la capitale londonienne offre un large choix de vols face à la diversité des passagers : affaires, touristes, familles, low cost, ... C'est d'ailleurs le système aérien le plus important au niveau mondial juste derrière Dubaï.

Cependant le transport aérien présente aujourd'hui ses limites, victime du phénomène de congestion qui entrave son fonctionnement tant au niveau national qu'international, et limite son développement sur le plus long terme. En charge de ces problématiques, la commission des Transports du gouvernement a mené de nombreuses études pour augmenter la capacité aéroportuaire. Face aux contraintes techniques et budgétaires, et du pouvoir des parties prenantes, trois projets d'extension ont été présélectionnés afin de maintenir la capitale britannique comme un véritable hub aéroportuaire international.

La construction du tunnel sous la Manche dans les années 90 a également été un précurseur important dans sa dynamique, notamment dans sa relation avec l'Europe. Aujourd'hui l'Eurostar circule entre Londres et Paris mais aussi vers Bruxelles, offrant de nombreuses connections vers les réseaux ferroviaires européens. Les nouvelles liaisons vers Marseille ou Amsterdam sont attendues pour de nombreux passagers. Cependant la récente libéralisation du transport par autocar risque de chambouler les modes de transport. Megabus, largement présent au Royaume Uni, prévoit de s'étendre au reste de l'Europe en proposant des liaisons à des prix très attractifs. L'engouement national est-il en marche vers un succès européen ?

Le schéma global des transports a aussi été repensé au niveau local afin de faciliter les déplacements de tous les habitants. La mise en place du service Crossrail, l'équivalent du RER français, d'ici 2017 est attendue par de nombreux citoyens. Ce chantier considéré actuellement comme le plus important en Europe est remarquable de part de ses futures performances temps/trajet. Les transports doux et respectueux de l'environnement sont devenus une nécessité afin de limiter l'empreinte de l'homme sur l'environnement. De nombreux aménagements sont en cours afin de faciliter la vie quotidienne des cyclistes.

En adoptant un tel schéma de transport, la ville comme le gouvernement positionne Londres comme un hub majeur au niveau international. Son réseau de transport allie d'une part l'économie à l'environnement et d'autre part la densité à la mobilité.