Report for Heathrow Airport Limited

Analysis of Global Hub Airports - Why no city supports more than one hub

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October 2013

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Introduction

In preparing this report I have drawn upon my own extensive experience in airline network planning, having worked at each of the major London airports with a range of airlines and business models from network/legacy to low cost to overseas hub carrier.

I have researched the views of a number of leading airlines using the hub model globally today. The findings are incorporated into the report though not necessarily referred to directly.

Overview

Section One examines the consumer arguments for having more than one hub in the Southeast of the UK. It finds that whilst short haul competition has been effective and sustained between airports, this has not been the case for any business model applied to long haul. Attempts at hub operations outside of Heathrow along with long haul all business class and long haul low cost services have all failed.

Section Two explores the question of whether any cities around the world support two hub airports and finds conclusively that this is not the case. Even in New York which has a significant presence from three of the world's largest network airlines which use the hub model, only one airport, Newark, functions as a hub whilst JFK is a point to point airport. In Japan there is a stark difference between the international role of Narita and the largely domestic role of Haneda. In Paris there is clearly only one hub with Charles de Gaulle (CDG) playing this role. Orly is almost exclusively a point to point domestic and short haul airport. In Moscow, which has two main international airports, neither is a hub, other than for domestic transfers.

Section Three highlights the dilemma for hub airlines in needing short haul feed but facing substantial losses incurred on the short haul networks themselves. Other airlines cannot justify such networks without the long haul feed imperative. The dynamics of low cost carriers (LCC's), focussed on point to point traffic, high productivity and minimal cost mean that they are not likely to become large scale feeders at European hub airports.

Section Four explains the reasons why an alliance grouping cannot be relied upon, per se, to create a hub. Alliances are subject to fluid membership and do not as entities have the right to jointly plan their schedules and pricing.

Section Five examines the future scenarios of "hub by pass" resulting from new technology aircraft such as the Boeing 787 and Airbus A350 and the potential growth of the Low Cost Long Haul model. It finds that neither is likely to have significant impact on the requirement for hubs. Lastly it examines what other leading economies are doing to keep ahead and finds there is substantial investment in new single hub development.

1. The consumer argument:

One argument that is advanced to support the case for two hub airports is that it will be good for consumers. The evidence, however, shows that when consumer choice has been offered, demand has been inadequate to support this.

Certainly consumers do benefit from a wide choice of airports in London and the south east and the competition between them, when it comes to short haul services. This has particularly been the case with the rapid growth in low cost services from the late 1990's.

Development of Short Haul Low Cost Services in London market

These largely domestic and European services are operated on a point to point basis, relying entirely on local customers for their profitability. The large and geographically diverse catchment area of the southeast combined with aggressive pricing and marketing has allowed carriers such as Ryanair and easyJet to operate successful services from several airports but in particular from Gatwick, Stansted, Luton and more recently for easyJet, Southend. Indeed these two LCC's account for the majority of traffic at these airports. Recently easyJet announced a deal to purchase all of Flybe's slots at Gatwick airport from summer 2014 as well as a commercial deal to strongly increase its activity at Stansted. Similarly Ryanair has announced a new ten year deal with Stansted to increase its traffic at the airport by over 50%. Consequently the share of activity accounted for by these point to point short haul airlines is set to increase dramatically over the coming years.

The choice and number of these services has increased over time to the undoubted convenience and benefit of consumers. They have been financially successful for the airlines in question. Airlines such as Ryanair and easyJet are very profit focussed and are willing to cancel services which are not performing.

Development of Long Haul Services in London market

This is very much in contrast to the experience of long haul service development. The same choice of airports and capacity has been available to long haul carriers (over the period in which low cost services have developed) but the evidence is that where services have been introduced away from Heathrow that they have not been successful. This applies across all long haul business models and indicates that when consumers have been presented with new choices, there has been either insufficient demand or inadequate demand at prices which have delivered profitability for the airlines operating the services.

Long Haul Network Carriers

Both American and Continental Airlines (predecessor to United) have attempted to establish services at Stansted (American to Chicago in the early 1990's, in 2007 to New York and Continental to New York Newark in 2001). Even with feed from their respective hubs, both carriers were unable to achieve sufficient year round traffic from the local market and particularly premium fare business customers. In the absence of local market support, inadequate financial performance was compounded by lack of short haul connections to the UK and Europe in order to top up traffic.

Numerous network airlines offering full service long haul flights have operated across the decades at London Gatwick Airport but when given an opportunity to move to Heathrow, almost all have taken it.

The 1977 **Traffic Distribution Rules** denied access to Heathrow for any carrier that had not been serving the airport in 1977. When the Traffic Distribution Rules were scrapped in 1991, long haul airlines who had been obliged to use Gatwick, including Virgin Atlantic, Cathay Pacific and Air New Zealand, took the opportunity to move progressively more services to Heathrow in the following years.

The reasoning for this was that "The airlines forced to use Gatwick found that services operated from there achieved passenger yields and load factors that were significantly lower than those achievable on the equivalent routes from Heathrow." (1)

Only services to the US covered by the 1977 US-UK Bermuda II bilateral air services agreement, whereby all new routes between the US and London after that date had to operate from Gatwick, were obliged to remain there.

Premium traffic (first class, business class) is particularly important to the financial viability of long haul services but this has proved a particular challenge to airlines selecting London airports other than Heathrow.

The evidence of stronger local demand, particularly in the premium segment and the ability to better feed flights at Heathrow was seen when the new **US-Europe Open Skies** accord came fully into force during 2010. This removed the limitations of Bermuda II and within the following three years airlines have chosen to move all remaining services to key US gateways to Heathrow. Those that remain at Gatwick reflect strong consumer demand for leisure services to Florida.

Long haul All Business Class Services

During the last decade three different airlines, with variations in product, attempted to offer ***all business class services*** between London, New York and other US gateways. Two carriers, EOS (backed by ex British Airways management) and MaxJet, operated from Stansted whilst a third, Silverjet, operated from Luton. All offered lower regular fares than the incumbent carriers and quality high end product offers.

Despite London-New York being one of the densest markets for business travel in the world, none of the three managed to secure sufficient consumer support to sustain a viable service. (Notwithstanding undertaking promotions such as "two for one" fare offers)

All three airlines subsequently liquidated in 2007 & 2008.

As recently as 2012, Air Hong Kong attempted to offer ***a business class only*** service from Gatwick to Hong Kong but after the same difficulty in obtaining sufficient consumer demand, the service was suspended after a matter of months. The UK-Hong Kong market is not known for high volumes of premium traffic as compared to some other Asian routes and even at Heathrow, the operating airlines are reliant on topping up from connecting flights & offering onward market connections at Hong Kong.

Long Haul Low Cost Services

Similarly when consumers have been offered ***long haul low cost services*** at Stansted and Gatwick, these too, have failed to work. Oasis Hong Kong offered a low fare service to Hong Kong from Gatwick which also offered a competitively priced premium cabin but was forced to withdraw the service due to losses. Air Asia X introduced a similar concept on services between Kuala Lumpur and Stansted. Even though this service was able to obtain (self) connecting passengers from sister company Air Asia in Kuala Lumpur, it was relocated to Gatwick, ostensibly due to better short haul (self) connecting services from easyJet's wide network. Nevertheless some months later, London services were withdrawn entirely after reported substantial losses.

Consumer choice and airport competition is of course desirable but in order for it to be sustained, it has to be financially viable for the airlines operating the services.

All the evidence indicates that regardless of business model and unlike successful multi airport short haul services, these have all failed due to insufficient consumer demand, even when the market has been confronted with highly competitive fares and excellent product propositions.

2. Do Any Global Cities Support Two Hub Airports?

The argument that for London to have two hubs or a constellation of airports would be beneficial to the UK's global air transport and hence economic position, is refuted by evidence from around the world.

There are other global cities which have two major airports but in each city where this is the case, there is only ever one hub airport.

In cities where there are two large airports, either there is no significant competition between them due to differences in how the airports are used or, if it exists, it is driven by the size of the local point to point market.

Hub competition between two airports is not simply a function of available capacity but about sustainable connections between flights which provide meaningful additional itineraries for consumers and which are profitable for airlines to provide. To deliver this connectivity effectively requires either a carefully planned integration of schedules by a specific carrier or access to capacity on another carrier at prices which are commercially acceptable between two carriers who are sharing a passenger itinerary. (see section three). The scale and financial sensitivities of making this work explains why there are so few hub airports in the world, let alone two competing hubs in the same city.

New York

New York is served by two major airports offering domestic and international flights, JFK and Newark. A third airport, La Guardia, is a principally domestic airport.

Newark and JFK do not compete as hubs. Only Newark is a hub airport whilst JFK is a point to point airport with limited connectivity. The three largest American network carriers have bases in New York: American and Delta at JFK and United at Newark. However, as the evidence below shows, United is the only one which actually has a full scale hub.

With a city population in excess of 8 million people (very similar to London) and an urban population in the region of 19 million* (much higher than London), New York can comfortably support two international gateways. The large population provides a strong demand for point to point services with significant but largely distinct catchment areas, (other than Manhattan which is overlapping). British Airways view is that "... JFK, as the point-to-point airport, is best located and Newark, the 'focal' airport, is not as well located. As a consequence JFK is New York's primary airport despite not operating a hub model." [(2)]

There is evidence that whilst having two gateway airports, New York is less well-connected than might be expected. While New York's population and economy is much bigger than cities such as Frankfurt and Atlanta, it has fewer short haul destinations than Atlanta and fewer long haul destinations than Frankfurt.

JFK

JFK has largely a point to point long haul focus. Despite the large population, the diversity of JFK's long haul network is much more narrow than a European hub, being dominated by North Atlantic services (almost 50% of flights), Caribbean/Central & Latin American destinations (34%) and limited Asian services (7%) The absence of an effective hub at JFK means that it is much less well connected to developing and emerging global markets than should be the case. There is a noticeable paucity of Asian services for example.

JFK is successful because of its proximity to the financial and business communities in Manhattan which generate large volumes of premium traffic- New York is one of the largest global markets for business travel and JFK is the best located airport to tap this. Additionally over half of the international flights operated are flown by overseas carriers, principally serving the point to point market and being supported with connecting traffic **from their own hubs** at the other end of the route. New York Port Authority data (3) in the twelve months to June 2013 shows 52% of passengers were on international flights with 48% on domestic flights, some of which provide feed for long haul services. However only 28% of flights operated are long haul and only 18% of passengers actually make transfers. (OAG 2012 data, JLS research)

Delta, the largest network carrier at JFK, has its major hubs in Atlanta and Minneapolis. Delta's presence in JFK is modest, accounting for just 16% of the airport's international traffic and 23% of its total traffic. The percentage of connecting passengers between its domestic and international flights is not high. Delta focuses its domestic flights at La Guardia, so JFK is more a complement to this.

The other network carrier is American, which has its major hubs in Dallas and Chicago. American only accounts for 13% of JFK's international traffic and 15.4% of total traffic.

Together the two US network carriers account for less than 30% of JFK's international traffic, very short of meaningful hub status. International flights by US carriers account for only 16% of scheduled movements at JFK, while total international flights account for 38% of movements.[3]

*United States Census Bureau 2012

The Port Authority of New York & New Jersey
JFK: 12 months traffic to June 2013

Airline	Domestic	% share	International	% share	Total Traffic	% share
	23,912,090	48.2	25,657,381	51.8	49,569,471	
jetBlue	9,231,354	38.6	2,516,905	9.8	11,748,259	23.7
Delta	7,257,420	30.4	4,161,652	16.2	11,419,072	23.0
American	4,350,853	18.2	3,325,471	13.0	7,676,324	15.5
British Airways			1,251,239	4.9		2.5
Air France			911,521	3.6		1.8

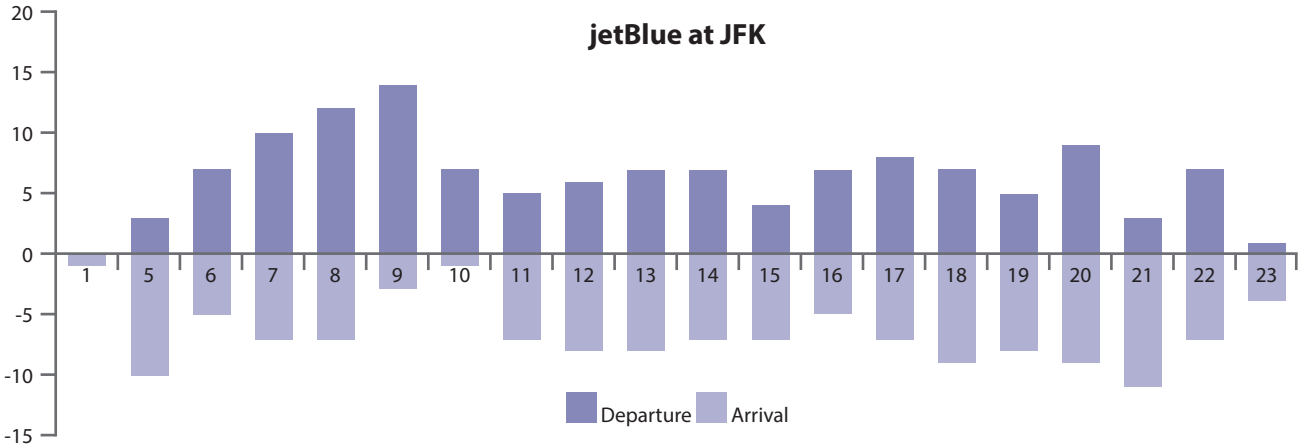
The largest airline at JFK is jetBlue, a point to point Low Cost Carrier which accounts for 24% of passenger volume and 39% of domestic volume.

When jetBlue was founded in 1999, its business model was based on using significant spare capacity at JFK in the daytime hours when most long haul flights were not operating (evening is the peak time for these services). As such it was granted seventy five takeoff and landing slots in these off peak periods when it commenced operations in 2000.

Whilst today jetBlue has established traffic partnerships with over 20 other airlines, the nature of its schedule still limits its ability to act as a feeder as does the fact that it is almost the sole operator from JFK's Terminal Five. Hence the airline partnerships which it has established account for < 1% of its total business (*source: IATA IS booking data)

Is it a wild card? Not really. It is difficult for Low Cost Carriers to maintain their business model if they attempt to offer connections and to share revenues with other airlines. ***(see section three for an explanation)***

Sample jetBlue flight distribution by time of day (OAG data)



The limited nature of connectivity at JFK is in sharp contrast to Newark. It is clear that JFK does not compete as a hub against Newark.

Newark

United is by far the dominant airline at Newark, accounting for 70% of both international and domestic traffic. Its actual traffic ratio of two thirds domestic, one third international, provides it with a very powerful ability to feed its long haul services. 47% of passengers make transfers at Newark, compared to JFK's 18%.

(International flights account for only 24% of total scheduled movements at Newark and 33% of traffic.)

When the passenger volumes of United's key Star Alliance partners Lufthansa and SAS are added to its own, they account for almost 77% of international traffic. The three airlines also enjoy a powerful Joint Venture on North Atlantic services allowing them to co ordinate pricing and capacity. Almost 60% of international services at Newark are in the North Atlantic market.

This makes Newark airport a very powerful operation for United and not one where other airlines would willingly choose to compete. This is reflected in the fragmented and minority position of other international services by other carriers.

The Port Authority of New York & New Jersey
Newark: 12 months traffic to June 2013

Airline	Domestic	% share	International	% share	Total Traffic	% share
	22,897,323	67.2%	11,171,905	32.8%	34,069,228	
United	16,380,491	71.5%	7,613,512	68.1%	23,994,003	70.4%
Delta	1,333,032	5.8%	124,762	1.1%	1,457,794	4.3%
jetBlue	1,339,655	5.9%				3.9%
US Airways	1,309,516	5.7%				3.8%
Southwest	1,170,165	5.1%				
American	1,034,973	4.5%				3.0%
Lufthansa			521,486	4.7%		1.5%
SAS			452,203	4.0%		1.3%

Tokyo

Tokyo's two international airports do not compete as hubs. There is a sharp distinction in role for each, with Narita being the international gateway and Haneda a largely domestic airport, with limited international flights during night hours.

The recent history of Tokyo's airports is wrapped up in capacity shortages and changes in government policy. Tokyo's population of over 13 million people and 35 million for the metropolitan area easily supports two airports but the structure of their operation and airline preference means that they do not compete as hubs.

Narita, some thirty five miles and a one hour journey from Tokyo, opened in 1978 due to capacity constraints in the more conveniently located Haneda Airport and the difficulty of expanding it. Haneda was designated as a domestic airport and international flights by home and overseas carriers were obligated to use Narita. Due to a booming Japanese economy and much overseas travel during the 1980's, capacity became increasingly tight despite further runway and terminal developments. The constraints were compounded by a night curfew. Airlines grabbed all available capacity at the airport as it proved easy to fill seats and obtain high average prices (yields).

Japan Airlines moved its international hub from Haneda to Narita as did US carriers Pan Am and Northwest. Both held extensive historical intra Asian traffic rights which were used to connect with their US services. These regional hubs are maintained today by Delta and United.

Haneda's proximity to central Tokyo and its financial district (a fifteen minute monorail ride) is a key advantage and makes the airport much more popular with time sensitive business travellers and up market leisure travellers. This is a key market impetus for international airlines desire to operate at Haneda given such passengers typically pay high margin business class fares.

From 2010, the opening of a new runway at Haneda , policy liberalisation, and an Open Skies agreement with the US resulted in limited slots being made available for international flights between 11pm and 7am, limits also apply to points served. International carriers have been keen to use these slots and there has already been movement of some services from Narita. Additional slots will be made available for international services in 2014 and this is the subject of contention, such is the desire of carriers to switch to Haneda, (Air France will move half of Narita services to Haneda in summer 2014 and Virgin Atlantic, all its services).

The situation bears many similarities to the end of the UK traffic distribution rules referred to in section one. When unconstrained, airlines will go where the profit is, this means that given the convenience of Haneda, they would move most if not all long haul flights there if it were possible. (LCC excepted).

Japan's local market

In the local point to point market, the airports compete for different market segments with lower fare tourist traffic willing to accept the longer journey times to Narita. There is also an advantage for Low Cost Carriers too (new to Japan) due to space being available for the development of LCC terminals. The younger market segment in Japan (aged 16-30), which has not had the opportunity to travel frequently or cheaply before and whose disposable income is growing, are key users of these services . However there is no conceivable way that the two airports compete as hubs

Connecting traffic, as far as it exists in Narita, is in the form of either very low frequency connections between international and domestic flights for home carriers JAL and ANA or, international connections based on the "mini" intra mini Asian hubs of Delta and United but these are built around one "bank" a day in each direction for US-Asia traffic. As the table below clearly shows, only 17% of passengers make a connection.

Passenger Traffic Tokyo Narita 2012		
International Passengers	29,557,331	90.1%
Domestic Passengers	3,236,265	9.9%
Transit Passengers (within international)	5,705,532	17.4%
Total Passengers	**32,793,596**	
International passenger flights	148,007	81.3%
Domestic passenger flights	33,956	18.7%
Total scheduled flights	**181,963**	

It is conceivable that in the future Haneda, with its massive domestic operation could develop into a hub, as it gains more long haul services from Narita.

Narita would become an increasingly point-to-point airport with expanded LCC activity.

Paris

Paris is the only major European city, other than London, with two large international airports, Charles de Gaulle and Orly. Charles de Gaulle (CDG) is the only hub airport for Paris. Orly is a largely short haul, point to point airport. The evidence is clear, there is no competition for hub status between the two airports.

Air France KLM, along with its SkyTeam Alliance and North Atlantic joint venture partner Delta, operates almost all of its long haul destinations out of CDG (62 Air France, 8 Delta, source: OAG data 2012). Air France KLM, with 58% of all frequencies at CDG, is the dominant operator and the only airline operating a hub at the airport. The scheduling "wave" system of Air France KLM at CDG is explicitly designed to optimise connecting times between its long haul and extensive short haul networks. The airline only operates a minority of long haul services from Orly (four destinations, source: OAG data 2012) to French overseas territories and ex colonial destinations.

Capacity & Traffic Share Paris CDG & Orly
OAG 2012 data

All carriers	Domestic	International	Short haul	Long haul
CDG (by flights)	11%	89%	78%	22%
CDG (by capacity - seats)	8%	92%	63%	37%
ORY (by flights)	51%	49%	94%	6%
ORY (by capacity - seats)	42%	58%	88%	12%

As in the case of Tokyo's Haneda, Orly is the better located airport for central Paris, enjoying a fast transport network and being far closer to both the business district and the more affluent residential areas. It is dominated by point to point short haul flights with Air France operating extremely high frequencies know as the "navette" (shuttle) on its thick domestic routes to Bordeaux, Marseille, Nice and Toulouse. A small number of short haul international flights also serve key "ethnic" markets such as Morocco and Algeria.

Air France accounts for 47% of flight frequencies at Orly and the next largest operators are point to point LCC's easyJet (8%) and Vueling (7%)

Paris Orly is also constrained by an environmental slot limit of 400,000 movements per year making any new service developments at the airport very difficult.

Moscow

Moscow has two principal airports for international traffic, the older and state run Sheremetyevo and the privately owned and heavily renovated Domodedovo. Neither airport can be termed a hub airport, providing high frequency connections to and from leading global markets. At best, Sheremetyevo is a domestic hub (for Aeroflot), but the other Moscow airports are not.

The geographic location of Moscow is not conducive for any of its airports to fulfil a role as a natural global hub, never mind having two airports competing for such a role . Given the amount of nonstop Europe-Asia services and the very competitive indirect offer via Gulf hubs, limited traffic uses Moscow's airports for this purpose. Similarly there is no role to play in other large global markets including Western Europe-North Atlantic, Europe-Latin America or Asia-North America. The only significant connecting flows, given the geographic diversity and distances involved in Russia are domestic.

81% of flights at Sheremetyevo are accounted for by SkyTeam, not surprising with Aeroflot as a member. Aeroflot itself accounts for 73% of flight activity at the airports (JLS research, OAG data 2012). The highest share of a global network carrier is for Air France which accounts for just 2% of flights. 88% of flights are short haul.

61% of flights at Domodedovo are operated by non alliance carriers and 92% of the total are short haul. Local airlines S7 and Transaero account for 47% of flights with the largest global network carrier is Lufthansa with only 3% of flights.

The large move of overseas carriers to Domodedovo in the 2000's reflects that they are making a commercial choice on which airport to use on the basis of market assessment, costs of operation, facilities provided and to a minor degree, Alliance affiliation. Domestic flights are not well timed to make connections with them (flights often leave/arrive at inconvenient times), so Domodedovo is largely a spoke for them. The question of hub competition does not even enter the equation.

3. Importance of short haul feed (&control)

The evidence shows that in each city there is only one hub airport. This finding is to be expected when recognising not only the need for a high density of short haul flights to feed and support a successful long haul operation, but the challenges of achieving it . The network airlines of the world typically lose money directly operating these short haul routes. It is very challenging for any other airline to work with them to provide this feed. The hypothesis that independent LCC's may become significant providers of feed to long haul airlines is not supported by the facts.

LCC's can make money on short haul flights by reducing their operating costs, by carrying only point to point passengers at higher revenues than would be generated by feeding long haul flights and by operating more flights per plane-they don't have to plan flights to connect with other services which reduces productivity.

easyJet has been clear in saying it has a point to point business and is not interested in the costs or complications of long haul connections. easyJet CEO Carolyn McCall told the Airport Commission:

" ...we do not interconnect or interline with any other carrier... Though many airlines would want to... there is no real win in it for us; it is really to feed their networks rather than to benefit easyJet. " (4).

Even hub operators IAG and Lufthansa have recognised that while they can cut losses on non feeder point to point short haul services through ownership of an LCC, they cannot do so whilst undertaking a feeder role as well. IAG now owns stand alone LCC Vueling which does not perform a feeder role at IAG's hubs. Lufthansa has handed its short haul point to point services to its LCC subsidiary Germanwings, but not at its Frankfurt and Munich hubs.

Aside from the cost inefficiencies, there is a serious revenue challenge for an LCC to work with a long haul carrier on a joint itinerary. Given the competitiveness of long haul economy fares (which account for the majority of long haul travel) it is unlikely that an LCC will secure adequate remuneration when the revenue is shared out between the long haul portion of the journey and its own short haul portion.

To slightly over simplify for the purpose of illustration, when the revenue share known as proration is calculated, it is done broadly according to mileage. The table below illustrates the problem that this creates for an LCC (or any independent short haul carrier working with a long haul carrier).

Indicative short haul potential earnings on shared long haul itinerary
(Expedia data selected 29th September for journey 20/01/2014-03/02/2014)

Route	Milan-New York	Milan-Sao Paolo	Milan-Beijing
Lowest economy fare	£428.00	£577.00	£509.00
Direct great circle mileage	4025	5902	5031
London-Milan great circle mileage	598	598	598
% of itinerary	14.9%	10.1%	11.9%
Share of fare for short haul (econ)	£63.59	£58.46	£60.50
one way equiv short haul (econ)	£31.79	£29.23	£30.25
easyJet average rev/pax (company data)	£66.00	£66.00	£66.00

For the itineraries shown, the revenue which would be received is incredibly low for the LCC. Indeed in the three different examples it is less than half what easyJet earned on average per passenger in its last financial year.

The reality is that the figure earned would potentially be much lower as the examples used are based on gross fares including all applicable government taxes.

Given that LCC's normally fill a very high percentage of seats (easyJet, 89% for financial year 2012) there is no incentive to displace a point to point passenger and to enter the risks and costs associated with transfer traffic (delayed flights, baggage problems etc).

The short haul carrier could insist to receive a higher minimum fare but then the overall fare would likely become uncompetitive.

As mentioned earlier, jetBlue has partnerships at JFK but a large part of its core schedule is not exposed to transfer passengers and its agreements only account for 1% of its total business.

"We have...expanded our portfolio of strategic commercial partnerships, which generate incremental customers throughout our network and help to increase load factor during our off-peak travel periods." (jetBlue Annual Report 2012).

It claims to base these partnerships on its own local yield (jetBlue Investor presentation March 2013) and also benefits from operating typically longer sectors relative to its partners, than would theoretically be the case for LCC's in Europe, so being able to claim a larger share of the total shared ticket price. I do not believe this would be a realistic assumption in the highly competitive UK market.

Long haul airlines could afford to pay more to a feed partner for premium business class tickets but such customers expect seamless service and are unlikely to accept the need for "self connecting". Premium itineraries are likely to stay with the same carrier or carriers within an alliance who share common facilities such as through check in and lounge access.

4. Problems of relying on Alliance Groupings

Approximately 50-60 % of the world's air traffic is accounted for by airlines which are members of one of the three alliance groups (Star, Skyteam and oneworld).

One alliance may be dominant in a particular hub but it cannot per se, make a hub work. That can only happen where the airport is a home base of a key alliance member.

Alliances provide a means for airlines to cooperate more closely than would otherwise be the case and without impinging on regulatory constraints.

This cooperation can allow a degree of coordination in schedules (facilitating connections between airlines but not jointly planning or sharing capacity), marketing (such as frequent flyer programmes), through ticketing (but not joint pricing) and sharing facilities at airports such as check in and lounges. This can provide better itinerary options and a more seamless travel experience for consumers and potential revenue increases and cost savings for the participant airlines.

Alliances are, however, fluid.

They are composed of very diverse airlines from global hub carriers to regional specialists to LCC's. Some members are financially healthy whilst others are weak. A number of notable alliance members have gone bankrupt in recent years (e.g. Malev, Mexicana) whilst others have switched alliance affiliation as a function of mergers or takeovers.

They do not require financial obligations between members such as minority shareholdings and critically, they do not permit any joint price or schedule/ capacity planning. There are several cases where larger members of each alliance have been able to negotiate antitrust immunity with regulatory authorities which has allowed them exemption from antitrust regulation and they have been able to jointly plan capacity and pricing in certain markets, notably across the North Atlantic. These have been established as joint ventures (JV's) (British Airways, American Airlines & Iberia in Oneworld, Lufthansa and United in Star and Air France KLM, Delta and Alitalia in Skyteam). These JV's have been primarily focussed on strengthening schedules between the members' key hubs on either side of the Atlantic, they do not apply across other parts of the respective airlines' networks and nor do they apply to all other members of the respective alliances.

When it comes to future business strategy and infrastructure planning, a hub airport cannot confidently base its plans around an alliance.

There are many more uncertainties than when working with an airline or airlines which are part of the same financial grouping.

This has been illustrated recently by the sale of bmi to IAG. bmi was a predominantly short haul operator and the biggest member, by slots held, of the Star Alliance at Heathrow. It operated out of Terminal One and would have used the new Terminal Two facilities. It is now part of British Airways operation, largely located in Terminal Five and with completely different requirements from a schedule point of view. Many of bmi's short haul schedules duplicated those of British Airways and will over time disappear in favour of long haul operations.

This sale has left the Star Alliance in a completely different position at Heathrow in terms of capacity and network composition. From a network point of view it is not able to function in the same way without the short haul feed which bmi previously provided.

It is unrealistic to assume that other future changes in alliance composition will not happen. (Currently the large Brazilian carrier Tam is leaving the Star Alliance to join oneworld as a result of its merger with LAN, another large Latin American carrier.)

Equally for the reasons stated concerning antitrust, alliances cannot jointly plan schedules and prices amongst partner airlines to provide an effective hub with adequate long haul and short haul connectivity away from the home hubs of key members.

Illustration of Alliance weakness away from home base of key member

This problem is illustrated by the failure of Air France's short lived Heathrow-Los Angeles service. Launched after the conclusion of the EU-US Open Skies accord, the services was unable to establish enough traffic at Heathrow as it was isolated from the carriers own feed at its home hub in Paris. Feed from the Heathrow services of its alliance partners proved inadequate to support this service.

Lufthansa had a potential opportunity to establish a London hub at Heathrow via its ownership of bmi. In reality it incurred heavy losses and elected to sell bmi to IAG. It was also unable to leverage the services of its Star Alliance partners to avoid this scenario.

5. Are Future Non Hub Scenarios Credible?

"Hub By Pass" versus The Hub model

Looking to the future, it would be foolish to assume that the hub model will disappear. Smaller more cost efficient long haul aircraft such as the Boeing 787 and Airbus A350 could provide "hub by pass" but these aircraft still require sufficiently large markets and sufficient passengers willing to pay fares which are profitable for the operating airlines. IAG CEO Willie Walsh has already expressed strong scepticism for how many such routes these aircraft will be used on:

"There has been a lot of discussion about aircraft like the 787 Dreamliner. .. In the British Airways case the first eight aircraft were designed as replacement aircraft, so they will immediately replace aircraft that are currently operating. They therefore will primarily operate on routes that are already being served. The next batch of aircraft will then be used to expand our long-haul network. The expansion that we are looking at, principally to Asia and to Latin America, will require transfer traffic. So although those aircraft are more efficient and much more efficient than the aircraft they are replacing they will still require a hub airport to support the destinations that we are looking at. The vast majority of airlines that have ordered these aircraft are traditional hub operators and are likely to use them to replace existing aircraft but to operate out of their hub airports." (5)

British Airways has already announced a new long haul route from its Heathrow hub to Austin Texas using the new Boeing 787 Dreamliner. The success of this route will be driven by the better operating economics of the aircraft but equally by the ability of the hub to support loads with connecting traffic. There is no doubt that such a route would not be viable on a standalone basis.

The Long haul low cost model

This model is far from proven and unlikely to gain wide acceptance.

There have been few low cost long haul airlines to date and at least two have failed (Zoom, which operated between Canada and the UK and Oasis Hong Kong, as discussed in section one). The two which have been most successful to date both rely on feed to their services from short haul operations, Air Asia X in Malaysia and Jetstar, part of the Qantas Group, operating in Asia and Australia.

Nevertheless, Air Asia X has had to make a number of changes to its network where routes have not worked. It abandoned plans for a mini hub in Abu Dhabi and, as mentioned earlier, cancelled its service from Kuala Lumpur to London in 2012 after losing an estimated £4m per year. (6) Services to Paris were also cancelled.

Norwegian (Air Shuttle) has recently started long haul low cost services to the US and Asia from Scandinavia using the new Boeing 787 aircraft. It claims that its key differentiator in making these flights viable is the lower costs which this aircraft offers. However this will be something of a short lived first mover advantage as other airlines introduce the same type in similar markets (British Airways and United Airlines are already using the type on North Atlantic services for example). In its home Scandinavian markets Norwegian also has the advantage of a weak competitor, legacy network carrier SAS.

It will introduce US services to the very competitive London market in summer 2014 with services from Gatwick to New York, Los Angeles and Fort Lauderdale. This is far from a revolution in the model for long haul air travel.

- All three markets have buoyant traffic volumes in summer months
- Each route will have no more than two or three weekly frequencies on an aircraft with a modest 291 seats
- Any airline, with any long haul business model, should be able to fill seats in such circumstances

The real test will be whether Norwegian is able to successfully build up frequencies on each route to beyond daily, on a profitable year round basis. The North Atlantic market is highly seasonal, consequently in winter much lower prices will be required to fill seats as well as great efforts to obtain self connecting feed traffic from short haul services. Norwegian's own short haul network at Gatwick has limited potential to provide profitable feed. The majority of services are from Scandinavia from where it offers direct Trans Atlantic services and it makes little sense to try and offer these via Gatwick. The rest of its services are principally low frequency Mediterranean destinations, many of which will not connect to its US operations. It will be difficult to obtain feed from the principal short haul competitor at Gatwick, easyJet, without losing price competitiveness. This will be compounded by easyJet's stated unwillingness to deviate from its successful point to point model ***(section three above)***.

easyJet is clear that its own business model is based on short, not long haul as its CEO Carolyn McCall has told the Airport Commission

"We have absolutely no plans to stretch our model to long-haul; absolutely none. We think it is a very different business model.

I think if we start going longer haul, fuel becomes a more important factor, asset utilisation becomes diluted: all the things that make our model what it is become more diluted, so it is not for us." (4)

Even Ryanair's Michael O'Leary acknowledges the need to acquire the right aircraft at exceptionally good prices before seriously considering establishing any long haul low cost services. He also sees the need for a business class in order to secure higher average fare levels.

What are other countries doing to get ahead?

Other countries are continuing to invest in the principal of one hub in key cities. **Dubai** is just opening its new Dubai World Central Airport but this will not become fully operational for some years. It is not intended for the new facility to compete with the existing airport.

"We might end up with a situation where two give you less capacity than if you concentrate all your operations on a single airport. If that turns out to be the case, clearly we won't be operating two". (Dubai Airport CEO Paul Griffiths quoted by Bloomberg September 2013)

Home hub carrier Emirates will not split its operation over two airports but will move its operation in its entirety to the new airport sometime after 2020.

Also in the **Gulf**, Qatar is opening a new **Doha** Airport to replace its predecessor and in **Abu Dhabi**, the existing airport is being expanded.

In **Hong Kong**, a key Asian hub, a new airport Chep Lap Kok was opened in 1998 and the old Kai Tak Airport was closed.

Istanbul's Ataturk hub airport has seen demand outstrip capacity in recent years as Turkish Airlines has emerged as a successful hub airline. The city's second airport, Sabiha Gokcen, provides overspill but only for short haul point to point services. The intention is to build a new hub airport with an initial capacity of 90 million passengers rising ultimately to 150 million.

6. Conclusions

- There is no evidence of any city in the world successfully operating a dual hub model.
- By contrast, there are numerous cities with multiple airports supported by the size of local population. Frequently these are divided by business model or function (hub, point to point for example).
- New York is unusual, having three network carriers based at its two international gateway airports yet only one, United Airlines, operates a hub at Newark. JFK operates as a point to point airport.
- The case of Tokyo shows that when capacity is provided and regulation permits, airlines will go where they see the biggest profit potential. The constrained Haneda Airport is more popular with premium customers and offers the possibility to hub between international and domestic services.
- It is clear in the London market that competition between airports for short haul point to point services, has been successful. Conversely, other than a few point to point leisure destinations, no long haul model has succeeded in airports other than Heathrow due to insufficient local demand and lack of access to feed traffic.
- Due to challenging economics it is highly unlikely that LCC's will become significant providers of feed to long haul airlines. To do so would risk the success of their business model.
- Looking to the future, airports cannot rely on alliances as a solution to developing a hub in the absence of a home hub carrier. There is too much fluidity and diversity to their respective memberships and they do not have the legal right to jointly plan schedules and pricing which is required for the effective functioning of a hub.
- New aircraft types are not likely to lead to significant "hub by pass" and nor is the Long Haul Low Cost model likely to become widely established in the way that its short haul equivalent has.
- The hub model will not disappear, in the dynamic economies and growth markets around the world, cities are making heavy investment in new single hub development.
- Ultimately airlines will decide where to put their capacity to optimise profits. The evidence is that when an airport does not have the capacity or market dynamics to deliver this, airlines will avoid using it and deploy capacity elsewhere.

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