Report Prepared for Heathrow Airport Limited

Projections on Future Airline Business Models

& Response to International Transport Forum Report-
Expanding Airport Capacity: Competition and Connectivity

Submitted additionally by

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Introduction and Overview

I have written this Report as someone who has worked in the airline industry for over 32 years, deeply involved in the methodologies of airline route planning and network strategy. I have witnessed from the outset the changes which have formed the industry as we see it today including the emergence of the Gulf carriers, the successful development of the short haul low cost model and the process of consolidation amongst legacy carriers. I have hands on practical experience across the different airline business models and in particular my work for and with Low Cost Carriers (LCC's) has fundamentally shaped my thinking about the industry's dynamics and its likely evolution in the coming decades. I have worked with airlines based at Gatwick, Heathrow and Stansted, giving me a clear understanding of the business drivers at each of these airports.

Now is the critical moment when the UK has to make the best informed decision about new runway capacity in the Southeast with the Airports Commission facing the very real challenge of projecting the future shape of the airline industry. My purpose in writing this report is to add clarity to this task based on my broad industry insight and experience.

The report looks firstly at the short haul LCC model finding that it is well established not only in market presence but with the leading European players (easyJet and Ryanair), in good financial health. It notes the serious level of interest by these leading players to operate at Heathrow to exploit market opportunities (easyJet) or to evaluate profitable ways to feed long haul legacy carriers (Ryanair). The report also notes that legacy carriers, with the exception of IAG, are failing in their own attempts to set up successful LCC's or to find long term solutions to reducing losses on the delivery of their essential feeder traffic.

I then examine the emerging concept of long haul LCC highlighting the many challenges to its financially successful implementation as compared to the short haul model and looking at the actual experience of airlines in this sector today. I conclude that even the "best in class" players, AirAsia X and Norwegian, who are profitable in the short haul arena, are facing enormous challenges to delivering stable profitability in their long haul ventures and that the need for feed and the risks of relying on seasonal leisure traffic are likely to impose significant limits to the model's adoption.

The report then examines the role of new generation long haul aircraft, finding that these are being most widely used to assist hub airlines to open up new routes from their hubs, supported by feeder traffic. Even with improved economics some point to point markets are simply too small to support direct services. I note that amongst the new generation aircraft large orders are expected not only for smaller aircraft (Airbus A350 and Boeing 787) but also for "medium wide bodies" led by the Boeing 777X. The exceptional economics of this large aircraft will be ideally suited to hub airlines, supporting the development of new markets for European groupings including IAG and Lufthansa.

The report then demonstrates the continued importance of hubs and the strategic role of transfer traffic in protecting airlines against economic down cycles and external shocks. Lastly the role of the Gulf carriers is briefly considered concluding that concerns about their growth are a distraction and misplaced in the context of needing increased hub capacity at Heathrow. IAG's British Airways, is in fact developing a successful relationship with its Gulf partner, Qatar Airways.

1. The Short Haul Low Cost Model

The short haul LCC model is now widely established around the world and in Europe Ryanair and easyJet have become the two leading and profitable players in the LCC sector. Both have sizable aircraft orders which will take their respective fleets to around 520 and 300 aircraft respectively by the early 2020's.

The model has shown considerable evolution and has largely reached maturity in North America and Europe as shown in the table below:

		Seat Growth	
		LCC	**Non LCC**
Worldwide	2013 v 2012	5%	4%
	2008-2013 CAGR	8%	3%
	2003-2008 CAGR	18%	5%
North America	2013 v 2012	1%	1%
	2008-2013 CAGR	1%	-1%
	2003-2008 CAGR	3%	1%
Europe	2013 v 2012	1%	2%
	2008-2013 CAGR	4%	2%
	2003-2008 CAGR	27%	7%
Asia/Pacific	2013 v 2012	11%	8%
	2008-2013 CAGR	20%	7%
	2003-2008 CAGR	55%	8%

Source: CAPA, OAG data

Contrary to the hypothesis put forward in the International Transport Forum report of December 2014 suggesting that LCC's will find little or no attraction to operate at Heathrow, there is now clear evidence that there is in fact serious strong interest.

easyJet

- The easyJet business model has been very focussed on appealing to business travellers over a number of years and this has been progressively refined over time.
- A large number of its routes and bases are at congested primary airports and hubs such as Amsterdam, Paris Charles de Gaulle and Rome Fiumicino where it operates multiple frequencies on numerous routes in competition with legacy carriers.
- The airline has overcome the challenges of congestion and higher charges in these airports by carefully managing its own costs (including striking volume deals with some airports) and by achieving higher unit revenues than it could in secondary airports.
- This strategy has seen it deliver a substantial jump in profitability in the last two years.
- It is useful to reflect on easyJet's development at Gatwick airport. It selected Gatwick originally to compliment its position in North London at Luton Airport.
- The step change in easyJet's position at Gatwick came when it bought GB Airways, a former franchise partner of British Airways, from its owners in 2008.

- More recently in 2014 it bought 20 slot pairs from Flybe to reinforce its position and now has around 60 based aircraft at Gatwick.
- easyJet believes it can further enhance its London market position through the introduction of flights from Heathrow and establish a profitable business there if a third runway was to be available and hence removing constraints in terms of slots and delays.
- From a market viewpoint easyJet is conscious that Heathrow has the largest local catchment of all the London airports and particularly for business customers. It also notes that British Airways has been successful in operating to new short haul leisure destinations at times of weak business demand such as on Saturdays and in the summer period. This provides it with a vast pool of leisure demand too.
- easyJet sees no reason why the LCC model should not work at Heathrow and sees an opportunity for it to generate good regional access and to compete with lower prices on routes served by legacy airlines.
- From an operational perspective easyJet has much experience in successfully operating in large hub airports including Paris Charles de Gaulle and Amsterdam Schiphol where it will open a new base this spring. It has experience of co existing alongside hub carriers such as Air France and KLM.
- It has, in any event, had to modify its operating patterns at Gatwick, due to the impact of congestion on punctuality. The company has had to sacrifice some aircraft productivity (longer turnaround times) in order to maintain punctuality at acceptable levels.
- It believes that even with higher airport charges that its own lower cost base of up to 40% as compared to legacy carriers, would allow it to compete profitably and grow the market at Heathrow.

An easyJet operation at Heathrow would be a clear contrast to the losses experienced (prior to acquisition by IAG) by British Midland on its largely short haul network. It was a higher cost airline, not easily able to differentiate on price and heavily reliant on low yield connecting traffic from other airlines.

Ryanair

- In the last year Ryanair has begun to change its model with an increased focus on attracting business travellers.
- As well as changing its product to include flexible fares it is increasing frequencies on a number of routes attractive to business customers.
- Most importantly, in a significant change in strategy, it is moving into more primary European airports.
- CEO Michael O'Leary has stated that 50% of growth in the next 10 years will come at primary airports. (1)
- A number of smaller hub airports are included in this shift including the establishment of aircraft and crew bases at Copenhagen, Brussels and Rome.
- Ryanair has indicated that it is close to establishing a potential base in Munich, one of Lufthansa's key hubs.
- It is also open minded as to the possibility of operating in Air France's Paris Charles De Gaulle hub (2), even if this is not an immediate priority.

- CEO Michael O'Leary is clear "We have no desire to fly to Heathrow; it's not part of our business model" (source: The Independent 23rd January 2015). Having said this, he has been equally adamant that Heathrow should be permitted to expand, along with other London airports, recognising that this is to the competitive benefit of LCC's.
- Ryanair is also open to examining commercially viable ways to feed long haul carriers such as British Airways (see below) from Heathrow so this has to be factored into future scenarios.

Legacy Carrier attempts at Short Haul LCC

- There is little evidence that legacy carriers, with the exception of IAG, are being successful in establishing their own LCC operations to become competitive in short haul services and eliminate losses in feeding long haul services.
- **Lufthansa** handed all its short haul services to Germanwings in 2014-15 but has specifically *not included those feeding its hubs in Frankfurt and Munich*. It is currently in the process of revising the model by setting up another low cost operation with Eurowings at costs 20% cheaper than Germanwings. This suggests that results so far have not been satisfactory.
- As the parent company battles to reduce its own costs it has been engaged in costly pilot strikes whilst Ryanair plans to expand strongly in the German market.
- **Air France KLM** has established Transavia France to take on some of Air France's leisure routes out of Paris Orly and some other French airports *but it is explicitly not designed to provide feed into the Paris Charles De Gaulle hub.*
- Plans to roll out Transavia around Europe are currently suspended following Air France pilot strikes. The model, if it were to go ahead, looks fragile relying as it does on leisure travel and facing potential tough competition from Ryanair and easyJet.
- Only **IAG** has seen success, purchasing the previously independent and profitable Vueling. This airline is being managed at arms length from IAG and operates a mainly point to point business model. *It is not designed as a feeder to either the Heathrow or Madrid hubs.*

LCC's feeding long haul

- When it comes to the concept of delivering feed to long haul airlines the problems of complexity, cost and weak revenues for standalone LCC's remain serious impediments.
- The US carrier Jet Blue is sometimes cited as an LCC which has feeder agreements with a number of long haul airlines at its New York JFK base. However, it is not truly an LCC of the type which has been successful in Europe but more of a hybrid carrier: it currently configures its Airbus A320's with 150 seats (offering some more roomy seats) where European LCC's easyJet and wizz have 180, its load factors are significantly lower (more spare capacity to accommodate feeder traffic) and its fares are higher than those currently achieved by easyJet and Ryanair. Its feed traffic only accounts for around 1% of its total activity.
- Using conventional methods of revenue sharing (ticket proration), between long haul and short haul airlines there is very little left for the short haul operator when considering price competitive economy cabin itineraries. There is no incentive for a highly profitable airline like easyJet, which achieves > 90% average load factors *throughout the year,* to accept feed traffic at half the unit revenues it can generate on its own point to point activity whilst introducing complexity and cost exposure.

- easyJet is willing to co operate with self connect products offered by airports but has seen negligible take up of such services at Gatwick.
- Ryanair's former Deputy CEO Michael Cawley was quoted as saying "If someone was willing to pay us for feed, we would be very happy to talk to them," He indicated that Ryanair would require "a big cheque to do it" and that a partner airline would have to take all the responsibility: "We would not want any complexity, and the passenger would have to transfer their own bag." (3)
- As discussed, CEO Michael O'Leary has now provided further indications that Ryanair is open to feeding if long haul airlines were willing to provide the right conditions and specifically cited the scenario of doing so for British Airways at Heathrow.
- There is little doubt that as legacy carriers wrestle with losses on their short haul feeder services that there will have be further evaluation of ways in which independent LCC's might provide a solution.
- It is also clear that for such a relationship to develop and succeed commercially then it is far more likely to do so at a major successful hub like Heathrow where there is already strong demand for long haul traffic including high yield premium passengers. This gives legacy airlines potentially more room to manoeuvre in negotiations on revenue share with any potential LCC feeder.
- The corollary of this scenario is that the long haul LCC model with its lower yields, is trapped with the problem of insufficient revenue to share with an independent feeder partner.
- In turn this leaves it highly unlikely that any emerging long haul LCC's would be able to obtain vital connecting traffic unless, like AirAsia X or Norwegian, they are prepared to invest in their own feed capacity at their home bases.

2. The Long Haul Low cost Model

Long Haul LCC

There is much discussion about the position of Long Haul Low Cost in the future structure of the airline industry. It will play a role but there are numerous reasons to be cautious when hypothesising about the extent of activity. The recent CTAIRA report for Gatwick (4) argues strongly the importance of this model for the future whilst itself acknowledging "there will inevitably be challenges, and indeed airline failures" (in this segment). Whilst Short Haul LCC has been widely and successfully adopted its business dynamics are very different. The key characteristics which underpin the success of the short haul business model are much more challenging in the context of the long haul model or cannot be applied at all:

- Achieving higher aircraft /crew utilisation per day

For short haul it is possible to cut turnarounds between flights & extend the operating hours with earlier starts and later finishes in order to operate more flights per day. There is also no need to plan flights to connect, as is the case for hub carriers, which removes a significant constraint on utilisation.

Every additional daily flight operated reduces average unit costs and provides an additional revenue opportunity for both ticket and non ticket (ancillary) revenue.

In the long haul context an aircraft requires a 24 interval to accomplish a round trip mission. E.g. London-Los Angeles requires around 21 flying hours return plus turnaround time. A Europe- Asia trip requires more than 24 hours. Even a short east Coast North Atlantic trip such as London-New York requires around 14 flying hours plus turnaround time. This means that at best, on a "short" trip an aircraft may be able to start another outbound journey but this is not something incremental only available to a long haul LCC, it is something which is practised by existing legacy long haul carriers which already achieve 14-16 flying hours per day.

Trying to achieve an incremental two to three hours productivity per day is hypothetically possible but it brings serious issues of reliability and punctuality by eliminating any flexibility to recover from delays and disruptions. It also is more theoretical than practical when considering international time zones which can bring aircraft into airport night closure limitations, legal constraints on crew operating duties, not to mention very unpopular flight timings from a commercial customer perspective.

AirAsia X achieves 16 hours/day utilisation of its A330 aircraft (5) as compared to British Airways which achieves 14.7 & 15.6 hours/day on their long haul Boeing 777-200 & 300 aircraft respectively in 2013 (6). Such modest differences do not translate into meaningful productivity gains or cost advantages.

Norwegian has already experienced the difficulty of trying to push for higher utilisation with its new long haul LCC operation. There have been numerous extensive flight delays and the need to rent in aircraft capacity from other airlines to recover from problems. This has negatively influenced public perceptions and resulted in substantial additional unplanned costs for the airline. In its recent third quarter 2014 results the airline reported a 31% fall in profits of 269m Norwegian Krone (approximately £23m) compared to the previous year, citing 202m Krone (£17m) of costs related to long haul flight disruptions(7). This is normally the strongest performing quarter.

- Cutting airport handling costs, cleaning/loading

On short haul flights it is possible to reduce cleaning and handling activity between flights, for example getting cabin crew to tidy the cabin and discouraging passengers from bringing baggage. On long haul flights there is a clear requirement for a full cleaning of the aircraft between flights , including toilet maintenance and baggage loading/ unloading. It is not possible, therefore, to achieve the same percentage reductions in costs with third party handling agents or indeed in the total time taken for a turnaround. Legacy carriers can already turn around long haul aircraft in around 90 minutes.

- Operating out of smaller secondary airports

This has been a major means to cut costs and improve operational efficiency for short haul LCC's, particularly for airlines such as Ryanair. It has been a significant element in achieving a unit cost advantage but it is not one which is as easily available to long haul airlines. There are fewer such airports available to offer alternative lower cost/more efficient operations in the long haul context and at the same time offering proximity to customer catchment areas.

- No Crew Night Stops

Short haul LCC's largely avoid the costs of putting crews in hotels over night by ensuring that crew return to home base at the end of their duty. This is another cost which cannot be avoided for long haul operations. It doesn't matter where crew are based, they have to end up night stopping in a hotel away from base as part of their regular operating pattern. To operate *one* daily long haul service to a given destination could, at a cautious estimate, result in night stop costs of at least £0.5 million per annum (10 crew x £150 hotel/meal/expenses costs per night x 365).

- One Cabin Service

Short haul LCC's largely operate a single cabin service which means they have more seats per aircraft than legacy carriers. This reduces unit costs (cost per seat) and increases revenue potential per flight. The same cost advantage cannot be achieved in the long haul model. Legacy airlines already tend to have high density seating in their economy cabins and provide competitive pricing. They also offer complimentary catering and in flight entertainment making it more difficult for long haul LCC's to charge for these elements on similar routes. If aircraft are configured to higher densities then the ability to offer any premium seating is reduced or lost. This dramatically reduces the prospects for sustainable profitability. It is noteworthy that Ryanair's CEO Michael O'Leary acknowledges the need for some sort of business class if a long haul LCC is to succeed. (See discussion below on offering a business/premium cabin).

- Point to Point traffic

Short haul LCC's can achieve high load factors and profitability from point to point traffic alone. easyJet had an annual 90.8% load factor at December 2014 with Ryanair achieving 86%. (monthly passenger statistics, company websites). Neither profitable company had to rely on or get involved in the cost and complexity of connecting traffic. By contrast if long haul LCC's do not seek connecting traffic then the viability and sustainability of their business model is significantly undermined due to insufficient market size for point to point traffic alone and/or seasonality issues (see later commentary on new aircraft types) .

AirAsia X achieves 80% load factors out of its Kuala Lumpur base but it relies heavily on connecting traffic from its short haul partner airline AirAsia. Close to 50% of passengers make connections (8). Without these passengers the business model will not work. As of January 2015 the airline is yet to demonstrate sustainable profitability.

- Ancillary revenues

Short haul LCC's have managed to become increasingly successful in generating discretionary additional revenues on top of ticket prices ranging from meals and drinks to priority boarding, seating and baggage charges. Ryanair generated 15.27 euro's per passenger (approximately £11.75), (9) in 2014 from this source. It is much more challenging to do this for long haul low cost where customers are much more likely to want to consume food and drink, check in a bag and enjoy entertainment. All of these services are offered as part of the fare for legacy airlines in the economy cabin. Fare competition is already high and any additional charges weaken the perceived price advantage which long haul LCC requires to drive customer volume. Even if successfully charged, revenues from such fees add proportionally much less to overall revenues and have less impact on profitability than on short haul.

- No Business Class

Whilst short haul LCC's broadly avoid offering a business class this would be a risky strategy for long haul. On short haul certain business class attributes such as seat choice, catering and priority check in can be offered for a fee, generating more revenue, *without* sacrificing capacity on board. For long haul a business or premium product is necessary to maximise average revenues but inevitably reduces the total number of seats which can be offered on board the aircraft. This in turn raises the average cost per seat as costs have to be divided by fewer seats. Hence the overall unit cost advantage which a long haul LCC can achieve compared to a legacy carrier is reduced.

- Cost efficient aircraft

Short haul LCC's have been able to acquire large fleets of efficient Airbus and Boeing aircraft and negotiate substantial volume discounts. In the case of long haul it is only the new generation Boeing 787, 777X, Airbus A350 and A330 NEO which offer the step change in cost efficiency which long haul LCC's are looking for in an assumed high fuel cost environment. Operating costs will be lower but acquisition costs are high. In the case of the 787 and the A350, order books are now full for several years ahead (the overwhelming majority from legacy airlines seeking to take advantage of the cost savings they will deliver) and the ability to negotiate discounts on what are leading edge and in demand aircraft is extremely limited. The Boeing 777X is currently a paper aeroplane with larger capacity which present more risk for new routes and markets under the long haul LCC model. New aircraft types will be discussed in section three.

Ryanair has stated that it does not see an opportunity to launch long haul LCC services in the foreseeable future due to non availability of efficient aircraft at the right price. It also sees a need for scale, suggesting a fleet of 40- 50 aircraft and recognising the need to have a business class. easyJet has also stated that it does not intend to move outside of its successful short haul LCC model.

Summary Table: Weaknesses of Long Haul LCC model compared to Short Haul LCC model

Business Attribute	Short Haul LCC	Long Haul LCC
Higher Aircraft Utilisation / greater crew productivity	More flights per day than legacy airlines	Difficult to increase productivity within a 24 hour operating period for a long haul return trip
Lower handling costs, use of smaller more efficient airports	Simpler, cheaper handling requirements than legacy airlines, potential use of smaller more efficient & lower cost airports	Need for a full turn around handling after long haul flight. Limited opportunity to use alternative more efficient and cheaper airports
No crew over night accommodation costs	Lower cost than legacy airlines	Still need crew accommodation & associated "away from base" costs
More daily flights	Lower unit costs, increased revenue opportunity	Similar operating costs per flight, not possible to operate more flights per day than legacy long haul airlines
More seats per flight	More seats per flight due to one cabin service. Lower unit costs, higher seat revenue opportunity than legacy airlines	Either: Similar economy cabin density to legacy airlines (but no free "service" meals/IFE so competitive disadvantage) & lose business/premium opportunity OR offer premium cabin and lose total capacity & therefore reduce seat cost advantage versus legacy airlines
One Cabin Service	Easier for LCC's to tap into business & leisure traffic without sacrificing cost efficiency from having a separate business class	Greater risk of reliance on price sensitive leisure traffic making profitability more difficult to achieve & more vulnerable to cost changes. Difficult to compete for more profitable business traffic
Point to point traffic	Can comfortably fill flights without connecting traffic & so avoid cost & complexity	With no connecting traffic, much harder to fill flights with sufficient traffic at profitable revenues, a key weakness for several long haul LCC's
High Ancillary Revenue Opportunities	Increasing range of profitable ancillary revenue opportunities for short haul LCC's	Additional revenues on meals, seating, baggage etc are more marginal versus overall costs for long haul. Also more difficult to justify when competing with strong legacy economy cabin offers
Cost Efficient Aircraft	Short Haul LCC's like easyJet and Ryanair have obtained volume deals on Airbus A320 and Boeing 737 equipment giving them a distinct cost advantage	Difficult to obtain efficient aircraft at right price. Boeing and Airbus have several years order backlog on 787's and A350's. Prices are high. Ryanair is prepared to wait for the right cost deal

The real world experience of Long Haul Low Cost

There are other challenges limiting the scope of long haul LCC and its chances of achieving profitability:

- Price sensitive leisure traffic is the natural target for long haul LCC but this leaves the model very exposed. It produces the lowest revenues and these are at risk from rising fuel prices, ticket taxes and competition, all of which eat into slim margins.
- There are, in any event, long haul charters which already offer capacity to a number of long haul leisure markets including the USA, Caribbean and Asia. Leisure airlines such as the TUI Group are acquiring Boeing 787's.
- To avoid making too optimistic assumptions about how big a role growing inbound Asian traffic will play in potential long haul LCC development, the downside risks of economic cycles must be factored in.
- Current concerns about overheating and/or slowing down in the Chinese economy and devaluation of a number of Asian currencies are amongst the risk indicators of predicating airport capacity plans on the assumption that Long Haul LCCs will deliver consistent high volume leisure traffic from such markets.
- Exposure to similar risks would dictate the cutting and redeployment of capacity, something which LCC's are quick to do and would be disastrous for the London market if airport capacity was significantly reliant on this source of traffic.
- Japan provides a salient illustration. Formerly a buoyant market to Europe, airlines could hardly provide enough capacity. The Boeing 747 was the staple aircraft. But as the Japanese economy fell into stagnation traffic plummeted and airlines cut both frequencies and capacity.

UK-Japan Traffic : Peak and Trough Years

1997	2001	2010	2011	2013
1.46m	1.1m	0.68m	0.65m	0.69m

Source: CAA Airport Statistics

- As the data shows, the market has still not remotely recovered to more than 50% of peak levels after more than 16 years.
- Leisure traffic is also affected by strong seasonality. This means that without the ability to smooth out the weak periods with connecting traffic, point to point long haul LCC airlines are vulnerable to heavy losses and the need to withdraw capacity from the market. (See also section four).
- When AirAsia X flew to Stansted (and briefly Gatwick) from Kuala Lumpur, 25% of its traffic was connecting to/from Asia and Australasia (Source: CAA Passenger survey data). It needed this traffic to fill the aircraft and was able to do so by providing its own connections in Kuala Lumpur.
- Competition in the UK Asia/Australasia markets is intense, putting pressure on yields. This poor revenue performance combined with the higher costs of ultra long flight sectors contributed to AirAsia X's decision to terminate the loss making route.
- Long haul LCC's can combat the risks of reliance on purely price sensitive leisure travel by offering a premium or business class service. (See discussion above). However it is harder to

break into this market, even with favourable price differentials to legacy carriers, when the latter offer higher frequencies and schedule flexibility/convenience. Many business travellers have global corporate deals with these airlines and are locked in. They are also influenced by loyalty card affiliations.

Market place experience Long Haul LCC

There have been a number of failures already including:

- **Zoom**: attempted to exploit the UK-Canada leisure market but suffered from intense competition and relied wholly on point to point and highly seasonal traffic.
- **Oasis Hong Kong:** Operated Hong Kong-Gatwick but failed to establish a position in a very competitive market with no connecting traffic at either end of the route.
- **FlyNas: A Saudi Arabian LCC** which concentrated previously on the Saudi domestic and Gulf markets, attempted to establish long haul routes from Jeddah to Gatwick and Manchester in 2014. The business was dependent on attracting Hajj pilgrim traffic to Mecca but this market is subject to considerable seasonal variation and is by nature price sensitive. There was no opportunity to tap into additional connecting traffic. Services have since been suspended.
- **Premium Long Haul:** Three premium long haul LCC's, **EOS, Maxjet and Silverjet**, all with slightly different business models, attempted to penetrate the lucrative London-New York business travel market. All went into liquidation, being unable to win sufficient traffic for profitability. Operating in isolation at Luton and Stansted, they lacked the frequency, timetable flexibility and aircraft back up expected by premium customers. Unable to penetrate the corporate market and lacking connecting traffic, they were doubly hit by the onset of the financial crisis. (See contrast with British Airways experience, section four).
- **Hong Kong Airlines** also failed in the premium long haul LCC segment when it operated Gatwick-Hong Kong for a matter of months in 2012.

Those long haul LCC's which have a clearly defined business model, recognise the need for connecting traffic and have a rigorous focus on low operating costs are still encountering significant problems in achieving profitability:

- **AirAsia X** : Commenting in a press release on a large order for new Airbus A330 NEO's (new engine option) CEO Tony Fernandes acknowledged the fundamental importance of connecting traffic, "The symbiotic relationship between the short haul and long haul businesses will definitely play a key role in enabling AirAsia X to maintain its position as the long haul low cost leader."(10)
- As discussed, the airline abandoned its London service (& that to Paris) despite the support of connecting traffic.
- It is fair to say the routes were flown with old generation four engine Airbus A340's & that the new A330 NEO aircraft ordered will be more efficient but so far the airline has found it more effective to focus on a flight radius of 9 hours from its Kuala Lumpur hub to other points in Asia and Australia rather than engage in the long 14 hour haul to Europe.
- The airline also had plans to open a mini hub in Abu Dhabi but scrapped these before launch.

- The airline acknowledges in its Q3 financial report for 2014 the challenge of local competition and over capacity in the market leading to pressure on average yields. (11)
- Of the last four reporting years AirAsia X has lost money in two and where it has been profitable, margins have been slim (see table below).
- Load factors, whilst respectable, have not been exceptional and have relied on the near 50% transfer traffic between its own services and those of short haul sister company AirAsia.

AirAsia X Annual Results 2010-2013

	2010	2011	2012	2013
Net profit (loss) margin	11.4%	(5.2%)	1.7%	(3.8%)
Average Fare (GBP estimate)	95.83	106.65	102.74	97.26
Ancillary Revenue per passenger(GBP estimate)	23.20	22.72	26.37	26.85
Load Factor	76.5%	80.1%	83.8%	82.1%

(GBP exchange rate assumptions 5.4 Ringgit/GBP 1.00)

Source: AirAsia X Annual Report 2013

- AirAsia X sees its biggest growth opportunity in the Intra Asia Pacific, 4-9 hour, medium-long haul market segment where LCC's currently have only a 20% penetration. Its strategy is..."concentrating in and dominating our core markets in North Asia and Australia..." (12) It expects to need its 90 newly ordered Airbus A330 NEO's to resource this.
- The fact that the AirAsia Group is such a successful profitable short haul LCC operator only serves to underline the challenges faced with the long haul LCC model.
- **Norwegian**: The airline is the first to use the new generation Boeing 787 in the long haul LCC model in Europe.
- Despite the aircraft's improved economics the airline has so far experienced operational problems, in part due to ambitious scheduling, which have resulted in significant costs. Combined with falling yields, reflecting price competition, the airline has seen deteriorating profitability during 2014.
- In a mature fleet, Norwegian will have 17 Boeing 787's which will be dispersed around a number of hubs, this could affect the ability to maintain reliability (easier when resources are concentrated in one place) and may lack sufficient scale to successfully penetrate and operate profitably in a number of diverse markets. (For comparison, British Airways has approximately 120 long haul aircraft based at Heathrow alone, whilst easyJet has around 60 short haul aircraft based at Gatwick alone.)
- Norwegian's CEO Bjorn Kos has stated that "the large growth in the future will be the leisure market...point to point mainly from the large cities in Asia...". (13)

- The challenges of reliance on the leisure market and point to point have been discussed. There is a need to attract feed traffic.
- Norwegian has a base at Gatwick but it is not a hub. It has numerous short haul flights throughout the day from European destinations, but most of these do not connect with its long haul schedules or are from Scandinavian points, where Norwegian has already commenced direct long haul flights. In essence, there is little feed achieved.
- At its Scandinavian bases the airline is much better placed to exploit connections between its long haul and short haul networks.
- Bjorn Kos has also spoken about the ability to connect with Ryanair and easyJet at Gatwick. The complexity and lack of motivation to do this by the short haul players, particularly in the context of long haul LCC, has been discussed.
- Initial load factors on Norwegian's long haul flights have been high but given the evidence of falling yields, lack of feed traffic and the very competitive nature of the London market, price pressure is likely to be intense as the airline expands its presence.
- One other question remains which is how well Norwegian will be able to establish itself in the Asian market. Significant investment will be required in brand building and in generating confidence in expectations of quality and reliability.
- **Lufthansa long haul LCC.** Plans were announced in 2014 to launch a limited long haul operation based in Cologne from late 2015. An initial three A330/Boeing 767 aircraft will be used, rising to seven.
- The concept will be focussed on leisure markets and the only connecting traffic option will be self connection from Lufthansa's short haul LCC subsidiary, Germanwings.
- In the context of the earlier discussion of weaknesses in the long haul LCC model, this venture appears challenging.

Postscript: Legacy reaction to long haul LCC threat

I have had the opportunity to discuss the potential emergence of long haul LCC with both IAG and Virgin Atlantic:

- In discussion with IAG senior management, it is apparent that the "best in class" legacy long haul airlines are not waiting to see how widely or successfully long haul LCC becomes established, they have learned from the costs of complacency towards short haul LCC's. Hence they are adapting their models, cutting costs and dealing with competition from the Gulf carriers which already have lower cost bases.
- In an interview which I undertook with Virgin Atlantic CEO Craig Kreeger he stated:

"I don't think it (long haul low cost) changes the basic economics of our business. More new markets will be added when there are customers who are transiting added to the customers in the local market to create demand to fly to new places. There may be new markets that can be flown economically point to point...but there will always be even more value of adding connecting customers to create new markets that otherwise wouldn't be big enough to be served." (14)

Whilst these views might be expected from the legacies, it is the Gulf carriers who have been the drivers of long haul growth for upwards of the last ten years, growing and creating new markets with a (relatively low cost) hub model, not long haul point to point. In the decade since 2004 Emirates, Qatar Airways and Etihad have seen their combined annual traffic grow from 13 million passengers per annum to in excess of 80 million passengers per annum.

3. Future Aircraft Fleets and Usage

Small point to point markets

There is much assertion (including the recent CTAIRA report) (15), that new generation aircraft such as the Boeing 787 and Airbus A350 will permit the opening of numerous new point to point routes reducing or negating the need for hub capacity to facilitate transfer traffic (15). These aircraft typically offer less seats (in the region of 250-300 seats) than large aircraft (Airbus A380, Boeing 747) and have 20-25% improved fuel economy compared to older aircraft which they replace (Boeing 767 and Airbus A330). In the case of the A330, Airbus has recently announced the A330 NEO which will update the fuel efficiency of this model and provide a cheaper development option for airlines.

Boeing and Airbus are also offering new generation smaller aircraft, the Boeing 737 Max and the Airbus A321 NEO. These will largely provide replacement and growth capacity in the short haul market but will offer longer range than their predecessors allowing them to operate some shorter long haul routes in the range of 3,500 to 4,000 miles.

- The idea of using smaller aircraft on direct long haul markets is not new. Current aircraft like the Boeing 757 are already used on some long haul routes today, notably between Europe and closer North American points.
- While new generation aircraft will offer additional range and fuel efficiency improvements, being able to service smaller markets does not, of itself, mean that markets are large enough or produce sufficiently high revenues on point to point traffic to be profitable.
- Point to point markets can still be too small and/or too low yield to be viable.
- This is clearly demonstrated by the use of Boeing 757s on many routes from the UK regions to the USA. They are flown by US carriers relying on their home base hubs and are characterised by weak high yield (business cabin) traffic compared to London and much more pronounced seasonality. Some cannot be sustained year round, or for an entire summer or even justify a daily frequency.
- For example, United dropped its Bristol-Newark service despite feeding into its powerful New York hub. Its route to Belfast was only saved when the level of Air Passenger Duty was reduced in Northern Ireland.

Evidence of usage of new generation Boeing 787 and Airbus A350 aircraft

- Many routes which are beginning with these new generation aircraft are in dense markets on very thick established routes such as London-Los Angeles or London-New York, (even then subject to seasonality) or on new routes from existing hubs.

- The majority of orders for the two types are from the world's hub airlines, both to replace less efficient aircraft and to grow. IAG, for example sees the Boeing 787 and Airbus A350 as allowing it to add new routes to its hubs, adding breadth and making other existing routes more sustainable.
- With respect to developing new markets and routes there is a growing list of examples using the Boeing 787 aircraft out of existing hubs:
  - JAL opened a new Tokyo-Boston route.
  - Qatar Airways has opened a Doha-Edinburgh route.
  - United Airlines has opened Los Angeles-Melbourne (previously served as an extension of a Sydney service rather than as an independent operation).
  - United is developing new Chinese market opportunities from its San Francisco hub and has added a Chengdu route.
  - All these services are supported by connecting traffic at the respective carriers hubs.
- At Heathrow, British Airways uses the 787 on its new route to Austin. It has acknowledged publicly that Austin is only viable thanks to the economics of the 787 and the ability to fill seats with connecting traffic. CAA survey data clearly demonstrates this:

British Airway Heathrow-Austin Route performance First-Third Quarter 2014		
Point to Point Traffic	Connecting	Total
26,693	42,214	68,907
38.7%	61.3%	100%

Source: CAA Passenger Survey

- Several airlines introducing flights to new Chinese gateways are finding these difficult to develop and this includes a recently introduced British Airways Chengdu service. Achieved load factors, even on a Boeing 787, have been low and CAA survey data, though subject to statistical error due to limited sampling, indicates a very high reliance on connecting traffic.

Links between new emerging markets

- One very interesting development is the opening up of routes between completely new emerging markets supporting developing trade and economic flows.
- Leading African hub airlines Ethiopian Airlines and Kenya Airways both operate Boeing 787's and are launching new routes to Latin America, China and other Asian cities from their respective hubs in Addis Ababa and Nairobi.
- This will be an increasingly important source of future growth and one which is completely distinct from point to point markets to/from London or transfer markets in which London logically participates. There is no adverse switch in traffic flows which may have routed via London and no cannibalisation, because these markets did not previously exist. (See later comments on Gulf carriers).

The Structure of New Aircraft Orders

- While much attention is given to the number of new aircraft being ordered in Asia and to the theoretical growth of long haul LCC's this should be put in context.
- Much of this forecast demand is for short haul aircraft to be used *within* the Asia Pacific region for domestic and intra regional travel as a function of economic growth and rising per capita incomes.
- Boeing still sees network carriers as accounting for 56% of the world market in 2033 compared to 62% today (16).
- This is a relative rather than an absolute decline . When London's vast point to point market and geographic attractiveness as a transfer point is factored in, its absolute importance for network carriers will increase.
- Similarly, in its 2014-2033 Forecast, Airbus highlights the *relative* decline of air transport capacity provide by European domiciled airlines from 25% to 20% but achieving an *absolute* doubling of capacity produced. This supports the hypothesis that European hub carriers will continue to grow alongside growth in short haul LCC activity. (17)
- Airbus projects Chinese propensity to travel to catch up with European levels of one trip per capita per annum but does not see any decline in those levels experienced in Europe. This underlines the requirement for continued strong point to point and hub capacity which will be needed in London. (18)
- Whilst acknowledging the continued growth of short haul LCC's in Europe, Boeing states that "Smaller flag carriers and charter airlines will be challenged to compete in an environment where...large network carriers...exploit the cost advantages of mega hubs for long haul traffic" (19)

- It sees significant fleet growth in Europe in both long haul and short haul aircraft types:

European Market Forecast by Category of Aircraft			
Size of aircraft	2013 Fleet	2033 Fleet	Increase
Large Wide Body	180	110	-70
Medium Wide Body	360	640	280
Small Wide Body	350	980	630
Single Aisle	3120	5830	2710

Source: Boeing Current Market Outlook 2014 (19)

- Whilst there is a projected fall in the number of large wide body aircraft (Airbus A380, Boeing 747) this is more than compensated by growth in the medium and small wide body segments
- British Airways currently has over 40 Boeing 747's in service all of which will be retired by the early 2020's
- Due to the importance of premium high yield traffic, these are flown in relatively low density four class configurations compared to other long haul aircraft in the fleet.

IAG Long haul Fleet Cabin Configurations: Source: IAG

Aircraft	Total Capacity	First	Business	Premium Economy	Economy
747-400	315	14	62	33	206
777-200	224	14	48	37	124
777-300 ER	297	14	56	44	183
787-8	214	-	35	25	154
A380	469	14	97	55	303

- IAG has 26 orders and 42 options outstanding for Airbus A350's and 29 orders and 18 options for larger versions of the Boeing 787. (20)
- A large portion of these orders will be allocated to British Airways, more than compensating for the retirement of the larger Boeing 747's.
- The above fleet data also shows how effectively British Airways can exploit high yield traffic flows whilst also being competitive to lower yielding leisure traffic. It is able to do this for both point to point and connecting traffic.

The Importance of new Medium Wide Body Aircraft

- While much discussion has centred on the impact of the small wide bodies, little attention has been given to the importance of the new generation medium wide bodies.
- Boeing's 2013 launch of the 777X is significant. It will be the largest twin jet in the world with indicative seat capacity in the range of 350-400 seats and capable of operating over extremely long distances. It will offer the lowest operating cost per seat of any commercial aircraft .
- The current generation 777, particularly the high capacity 777-300, has become the work horse of network hub airlines around the world, offering almost similar capacity to the 747 but with twin engine efficiency.
- This new version will be ideal for hub airlines, its lower seat costs supporting them in maximising the permutations for filling seats profitably which only a hub provides.
- By contrast it would be extremely risky to deploy such a large aircraft widely in a point to point long haul LCC context
- Orders so far have been from the three Gulf hub carriers and Lufthansa. Boeing sees a net fleet increase in Europe for aircraft of this size of 280 by 2033, indicative of the large scale orders by European hub airlines yet to be placed.
- Despite IAG's orders for Airbus A350's and Boeing 787's it would be surprising if it was not to order the Boeing 777X in addition.

These are the new aircraft of the next twenty-thirty years and as far as it is possible to forecast it seems highly probable that they will support demand for European hub growth and increased new point to point routes. It is not a question of either or.

4. The future of Hubs and the essential role of Transfer Traffic

Hub Performance

- The idea that hubs are in decline is clearly erroneous. Globally there continues to be significant investment in hub capacity including the opening of Dubai World Central, the new Hamad International Airport in Doha, plans for a new hub airport in Istanbul and expansion at airports such as Abu Dhabi, Hong Kong, Chicago and Seoul .
- European Hub airports continue to flourish despite the growth of the Gulf carriers and the increasing in service fleets of next generation Boeing 787's and Airbus A350's
- 2014 was a strong year for performance:
  - Amsterdam: 55m passengers +4.6%, a record figure
  - Paris Charles de Gaulle: 63.8m passengers +2.8% (a record figure despite Air France pilot strikes)
  - Frankfurt: 59.6m passengers (despite Lufthansa pilot strikes)
  - Heathrow: 73.4 m passengers +1.4%
- At the time of writing it has just been announced that Air Vietnam will switch services from Gatwick to Heathrow this spring 2015 in anticipation of accessing more transfer and high yield traffic. Air China also switched its Gatwick services to Heathrow in September 2014.

Strategic Importance of transfer traffic

- Whilst much transfer or connecting traffic is price elastic and heavily contested, this does not mean that it is any less important.
- Transfer traffic is, by nature, fluid. It varies by season, by day of week and even by time of day, acting as a valuable balancer to local point to point demand, controlled by sophisticated airline revenue management techniques.
- For airlines like British Airways it provides a critical safety valve or buffer allowing them to maintain the highest possible load factors and revenues across a broad network, reducing the impact of seasonality, a factor to which point to point airlines are very much exposed.
- The table below demonstrates that though Heathrow's overall annual transfer ratio in 2013 was 37%, this fluctuates significantly by month, rising as high as 42% in weak months such as February and falling as low as 31% in August when point to point leisure traffic reaches its seasonal peak.

Monthly Variation in Heathrow Transfer Traffic 2013				
Month	Transfer	Point to Point	Total	
1	2518212	3938413	6456626	39%
2	1880267	2587191	4467458	42%
3	1760661	3344907	5105568	34%
4	2222637	3856378	6079015	37%
5	2309083	3462934	5772017	40%
6	2535826	4107094	6642920	38%
7	2345253	4691404	7036657	33%
8	1966985	4350645	6317630	31%
9	2737961	4221878	6959839	39%
10	2331639	4356012	6687651	35%
11	2342906	3678136	6021042	39%
12	1536488	3148676	4685164	33%
Total	26487920	45743667	72231587	37%

Source: CAA survey data

- It is perhaps surprising just how much transfer traffic is carried on long haul routes at Heathrow with a figure of 50% not uncommon.
- The year round high frequencies in major markets such as New York and Los Angeles are supported by the high volume of feeder traffic into which the operating airlines are able to tap:

LHR-New York (JFK & Newark) All carriers				
Year	Transfer	Point to Point	Grand Total	
2008	1210493	2542295	3752788	32.3%
2009	1153102	2328457	3481559	33.1%
2010	1153376	2455029	3608405	32.0%
2011	1193457	2683369	3876826	30.8%
2012	1562615	2425900	3988515	39.2%
2013	1690243	2504587	4194830	40.3%
2014*	1106185	1964984	3071169	36.0%
Total	9069471	16904621	25974092	34.9%

LHR-Los Angeles All carriers				
Year	Transfer	Point to Point	Grand Total	
2008	693801	851522	1545324	44.90%
2009	669949	689802	1359751	49.27%
2010	606174	700627	1306802	46.39%
2011	673946	669743	1343689	50.16%
2012	699472	525372	1224844	57.11%
2013	683728	581126	1264854	54.06%
2014*	453446	518732	972178	46.64%
Total	4480517	4536924	9017441	49.7%

Source: CAA survey data, 2014 = first 9 months only

- Perhaps the most strategic value of transfer traffic is the way that it functions as an insulator in the face of external shocks and dilutes the impact of economic down cycles.
- This is demonstrated clearly by British Airways' experience when the financial crisis hit in 2008.
- The airline saw a significant drop in point to point travel, not least the loss of profitable business from London's financial sector.
- Fortunately for the airline it had, by that point, moved most of its operation into Terminal Five, greatly strengthening its position to compete for transfer traffic.
- It was able to turn on the taps to compete in the transfer market and do so at a time when the pound weakened significantly against the euro making it particularly profitable for British Airways to compete for euro denominated transfer traffic.
- Its success in doing this is shown by the figures below and demonstrates how British Airways, using its strong hub position at Heathrow, was able to use transfer traffic to protect its financial performance despite local market weakness.
- Transfer traffic was grown dramatically, by as much as five percentage points, in 2009 and 2010 making up for a significant proportion of lost local traffic.

January 2008 £1 = 1.35 euro's	January 2009 £1= 1.08 euro's	January 2012 1= <1.15 euro's

British Airways Transfer Traffic at Heathrow				
Year	Transfer	Point to Point	Grand Total	
2008	13055467	14311192	27366659	47.71%
2009	14176664	12677672	26854336	52.79%
2010	13609973	12255839	25865812	52.62%
2011	14053258	14806271	28859529	48.70%
2012	16302338	15323797	31626135	51.55%
2013	17599905	16315292	33915197	51.89%
2014*	13450022	12846772	26296794	51.15%

Source: CAA survey data, 2014 = first 9 months only

- The data also clearly shows how, when IAG acquired British Midland in 2012, it was able to further boost both point to point and connecting traffic and turn previously loss making routes for British Midland, into profit.
- Airlines which rely on point to traffic do not have recourse to this safety net of traffic and hence face much higher financial impact from external shocks leading to consequent risk of service instability or failure.

5. Gulf Carriers

- The Gulf carriers have shown enormous growth in the early part of the 21st Century and continue to invest in Hub and fleet capacity.
- They benefit from good management, efficient operation and some cost advantages, particularly labour costs, as compared to European carriers.
- In some ways they function as long haul LCC's in offering competitively priced long haul capacity yet are supported by powerful hubs.
- Whilst some airlines complain of unfair competition and damage to their business, there is no evidence that they have adversely impacted growth in the London market or indeed damaged British Airways.
- In fact British Airways is strengthening its links with Qatar Airways via the one world Alliance and this is cemented overall by the recent announcement that Qatar Airways has taken a 9.9% stake in IAG. Joint ventures between the two airlines are likely in the near future
- It is fundamentally important to understand the dynamics of the Gulf carriers business model as I have explained in an article for the *Harvard Journal of Middle Eastern Politics and Policy:*

  " In the global economy, the most rapid growth is taking place in Asia, Africa, Latin America, and the Middle East. The demand for air travel linking these global regions is also growing rapidly, and long-haul carriers in the Gulf have a clear geographic advantage in exploiting this potential. For markets, such as China-to-Africa or Asia-to-Latin America, it makes no geographic or commercial sense to travel via Europe or North America. Conversely, the Gulf carriers offer logical flight routes, while their purpose-built hubs provide numerous itinerary permutations between these markets, maximizing revenue from these emerging economies." (21)

- In other words a significant part of the Gulf carriers network development is irrelevant to the question of hub capacity in London as it concerns markets and traffic flows which are mutually exclusive to those to and from London and where London is an effective connecting point.
- These carriers will continue to grow but not at the expense of growth to and from London.

6. Closing Comments

Taking account of the evidence presented, it can only be concluded that the most likely airline response outlined in the International Transport Forum Report would be scenario number three: *Point-to-point growth at Heathrow and Gatwick, Heathrow remains the network hub.*

- All the evidence points to continued long haul airline preference for Heathrow, recognising the continued likely future importance of the hub model.
- Considering the numerous commercial and operational risks of long haul LCC, outside of certain well adapted market conditions and parameters, its scope appears limited particularly for ultra long and leisure reliant sectors to Europe from Asia.
- Smaller new generation wide body aircraft, the production lines of which are booked up five to six years ahead, are largely being ordered by legacy hub airlines.
- Additionally new medium size wide bodied aircraft like the Boeing 777X will strongly strengthen the hand of hub carriers and the rationale for the hub model.
- easyJet's clear statement of interest in operating to Heathrow discounts the theory that short haul LCC's will not seek to develop at Heathrow, Ryanair's willingness to consider feeding long haul carriers there adds weight to this.
- A second carrier establishing a hub at Heathrow seems unlikely, (*Airline response two: Two hub operations at Heathrow, point-to-point growth at Gatwick.*) Lufthansa had a perfect opportunity to do this with British Midland and did not succeed. Virgin Atlantic could make some progress but has struggled with this and is abandoning its own short haul operations.
- The successful establishment of a second hub at Gatwick has failed in the past and long haul legacy airlines continue to move or seek to move to Heathrow. (*Airline response four: Hub operation at Heathrow and a competing hub operation at Gatwick*.) More long haul LCC is likely to develop but the problem of achieving feed will remain. Short haul LCC is likely to continue to be a majority part of Gatwick's customer base hence leaving the challenge of obtaining feed.
- The evidence on new aircraft models, how they will be used, the continued investment in and appetite to use hubs, including by leading short haul LCC's, shows that the future is not about picking a specific airline business model but about providing capacity which allows the market to operate.

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