

WestminsterResearch

<http://www.westminster.ac.uk/westminsterresearch>

**Strategies of Major Carriers Away from their Main Hub Airports: A
Comparison of the European and US Experience**

Dennis, N. and Stevens, K.

This is an electronic version of a paper presented at the *Air Transport Research Society World Conference*, Bergamo, 26 to 29 June 2013.

The WestminsterResearch online digital archive at the University of Westminster aims to make the research output of the University available to a wider audience. Copyright and Moral Rights remain with the authors and/or copyright owners.

Whilst further distribution of specific materials from within this archive is forbidden, you may freely distribute the URL of WestminsterResearch: (<http://westminsterresearch.wmin.ac.uk/>).

In case of abuse or copyright appearing without permission e-mail repository@westminster.ac.uk

**STRATEGIES OF MAJOR CARRIERS AWAY FROM THEIR MAIN HUB
AIRPORTS:
A COMPARISON OF THE EUROPEAN AND US EXPERIENCE**

Dr Nigel Dennis

Senior Research Fellow, Department of Planning and Transport, University of Westminster
35 Marylebone Road, London NW1 5LS
Tel +44 20 350 66559
E-mail dennisn@westminster.ac.uk

Kenneth P. Stevens

Visiting Lecturer, Department of Planning and Transport, University of Westminster
46 Monte Alto Road, Santa Fe, NM 87508 USA
Tel +1.505.920.1822 (cell)
E-mail kennethpstevens@gmail.com

Presenter: Dr Nigel Dennis

ABSTRACT

As the business plans of European and US legacy carriers mature and adapt to deregulation, open skies and competition from LCCs, new strategies have developed to feed hubs and operate the route system in efficient and more cost effective ways. These strategies appear to differ based on the airline's business plan, hub location, economy, political influence, level of competition and operating environment.

In particular, a wide range of different approaches are apparent to dealing with non-hub services - as this is where the airline's competitive position is weaker. These include use of regional affiliates, low-cost subsidiaries, outsourcing and swaps of slots and assets. Mainline branding may be adopted or a stand-alone brand developed. The role of marketing tools such as FFPs, code-shares and alliances provides an important differentiator from the pure low-cost segment of the market. This paper critically evaluates these operating solutions for selected legacy carriers and network locations. The strategies will be assessed within the context of each country's airline environment. Conclusions are drawn about which approaches are more or less effective given the business objectives of the carriers chosen for analysis.

KEY WORDS

Business Plan, Networks, Costs, Traffic, Market Share

CLASSIFICATION

Airline Economics
Airline Strategy, Management and Operations
Airline Network Development

1. INTRODUCTION

In recent years, airline networks in the US and Europe have become characterised by the traditional network ('legacy' or 'flag') operators concentrating on their major hubs while the rapidly growing low-cost carriers have come to dominate many regional and secondary airports. This paper therefore aims to investigate the strategies of the network carriers away from their main hub airports, as this has been a somewhat neglected area of research. While influenced by both the dominant trends identified above, a number of different developments can be identified. In some cases this stems from the local competitive conditions and in others from variations in the market characteristics (O'Connor and Fuellhart, 2013) or operational environments. It is fair to say however that few of these are major centres of growth for the airlines concerned - it is primarily an exercise in managing decline most effectively. As the US is in many respects a lead market for changes that subsequently filter through to Europe and other parts of the world, this region will be considered first. A review of the European situation follows. Conclusions can then be drawn and the most promising strategies identified for the traditional airlines in the unfashionable 'cinderella' locations of their networks.

2. THE UNITED STATES EXPERIENCE

Economic and competitive pressures since 2000 have changed the way airlines operate hubs and feed passengers into those hubs. Core changes in the business models of major carriers have caused them to transfer Available Seat Miles (ASMs) to independent regional carriers.

2.1 Hubs as an alternative to interline agreements

Airline hubs developed in the 1970s and 1980s. While hubs began in Europe as flag carriers concentrate passenger feed in their capitals or other large cities of commerce, they evolved in the United States as airlines sought a business strategy to survive and prosper after deregulation.

Historically airlines developed "interline agreements" with other carriers. This effectively provides the passenger with a wide selection of destinations to choose from. Passengers could begin their journey on one carrier and transfer to another carrier in intermediate cities to complete their journey. While generally convenient for a passenger, the airlines carrying this passenger on the interline journey had to share the revenue. The portion of the revenue that each carrier in the itinerary received was determined by the conditions of the interline agreement. The evolution of the hub strategy meant that the originating airline could keep the total of the revenue for themselves. The efficiency of the hub is that not only does it keep passengers on a single carrier, it increases the number of city pairs available for sale to passengers by the square of the number of spokes (Doganis, 2010, pp. 244-245).

2.2 Airline operational assumptions at airports

It is important to note that, unlike the privatized European environment, airports in the United States are owned by governmental or quasi-governmental entities. Like the European practice, landing fees are charged to airlines on a maximum landed weight concept. However, terminal charges are based on leases for space within the terminal building, not on a per passenger or ramp use program. While each method has its efficiencies and problems, the approaches and vehicles for capital funding and cost allocation are different. As a result,

risk sharing and capital financing methods impose various costs on carriers' operational business plans in different ways.

Because of the terminal lease environment in the United States, the cost of creating a hub for a given carrier was considerable because additional space at the airport had to be leased. This commitment was often for ten or fifteen years, sometimes longer. Debt service for capital investment on long term projects was also expensive. Gates were leased on an exclusive basis, meaning that only the airline leasing the gate could use it. The lease cost was the same whether the gate was in use all day or only used a couple of times a day. The airport got their money one way or the other. Effectively the exclusive nature of the gate lease kept other carriers from using the gate and protected market share for the leaseholder. This additional cost was deemed worthwhile because of the additional revenue generated by keeping a passenger on the same carrier rather than sharing with another carrier. Spread over the year the additional RPMs generated could be considerable. Further efficiencies were to be gained by higher aircraft utilization.

In practice, however, many gates, especially at cities on either coast, would be empty for a good part of the day after the morning banks left until the evening banks arrived from the other coast. Hubs in the central section of the country (ORD, DEN, DFW, SLC, MSP and to some extent ATL which served flight banks heading north as well as west) experienced several banks per day as flights arrived first going west from the East coast and then flights going east from the West coast.

These hubs located in the mid-section of the US meet the five characteristics for effective hubs identified by Doganis (2010, p.250). They possess: 1) a central geographic location, 2) sufficient runway capacity, 3) a single terminal building for the hub airline (ATL is an exception to this with several unit terminals serving Delta), 4) strong local demand in the hub city, and 5) an airline willing to develop the hub with banks of arriving and departing flights.

From an operational and fleet utilization perspective, it was apparent at an early stage in the evolution of US hubs that many of the types of aircraft being flown by the mainline carriers were too large to efficiently serve smaller cities at the end of hub spokes.

Services were developed using smaller aircraft to fly passengers to and from smaller outlying cities to larger cities with mainline service. These smaller carriers were privately owned and were often hand-to-mouth operations. Though a variety of aircraft were used, generally aircraft used were propeller aircraft with up to 19 seats.

In 1980 there were 247 regional and commuter carriers operating in the United States. In 2011 there were 60. The average seating capacity in 1980 was 16 seats per aircraft rising to 56 seats in 2011 (Regional Airline Association, 2012).

2.3 Economic pressures affecting the hub system

As Southwest Airlines developed and perfected the now well-known Low Cost Carrier (LCC) business model and the evaporation of the dotcom bubble in 2000, the commercial airline economic environment in the United States changed. Capital funding became harder to obtain, and many carriers faced bankruptcy again. Chief among the causes of this industry weakness was too much capacity in the form of too many seats chasing too few passengers. Business objectives continued to be based on a continuing drive for market share rather than

revenue generation exacerbated by loose discipline on the cost side in all areas including lease costs, labor costs and airport costs. These elements were especially apparent at the capital intensive hubs.

Bankruptcy was a way to help lower costs, especially abrogating expensive union contracts. It also presented an opportunity to renegotiate vendor relationships and contracts as well. Mergers could be clumsy, but presented a further opportunity to develop efficiencies of scale and lower unit costs.

On the airport side, the all carriers approached the new environment by seeking to rid themselves of exclusive leased space as lease and operating agreements became due. There was greater use of preferential and common use gate agreements along with shorter lease terms. The airlines realized, to a greater or lesser extent, that a large portion of the cost basis of airport rents was driven by debt service costs associated with large capital projects creating new exclusive use gates and associated infrastructure. In this new milieu airlines were more willing to share preferential gates at a lower lease rate and at a lower term commitment rather than continue to exclusively lease expensive gates inefficiently used. The operative concept here is that with preferential gates a given airline gets first choice to use. In a lease agreement with an airport the more passengers an airline puts through a given gate, the lower the cost of the gate is on a per passenger basis (Cost Per Enplanement – CPE). The effect is to lower unit costs in the terminal environment for the airline.

2.4 The evolution of the airline business model in the hub environment

As the hub business model evolved and matured, the mainline carriers cancelled interline agreements with other mainline carriers. But they continued to enter into interline agreements with regional and commuter carriers (from this point forward we will include smaller commuter and third-level carriers under the general term “regional carriers.”). This relationship was for the regional carriers to supply passenger feed from the outlying cities into the hub as the mainline carriers withdrew capacity. At this stage of development these relationships did not include any equity exposure for the mainline carrier. In very general terms this business model has come full circle as mainline carriers first continued interline agreements with regionals, then developed or bought regionals of their own, and finally divested their equity positions and entered agreements with independent regional carriers on a franchise or code-share basis. Exceptions to this trend include the Alaska Air Group (Alaska Airlines and Horizon Air) and AMR Corp (American Airlines and American Eagle). However, their corporate relationship has evolved too through the use of capacity purchase agreements (CPA).

Evidence of this willingness to tie themselves to regionals with equity interest in the late 1970s and 1980s can be seen as some mainline carriers sought to establish partnerships with regional carriers by creating holding companies and corporations which controlled both the mainline carrier and one or more regional carriers. Each carrier held its own operating license, had its own board and management, and was responsible for its own profit and loss. The objective of the business relationship was to get economies of scale, higher efficiency and market share. The separate airlines had separate pay scales, operating economies and yield capabilities. Examples of this corporate relationship are AMR (American Airlines and American Eagle), the Alaska Air Group (Alaska Airlines and Horizon Air) and Delta Air Lines (Delta Air Lines and Comair).

Other regional carriers such as SkyWest and Mesa remained independent and flew under interline and code share arrangements with a variety of mainline carriers. Sometimes this flying was done in the livery of the mainline carrier (SkyWest flying for United as United Connection). Some flew in their own livery (Mesa flying for America West).

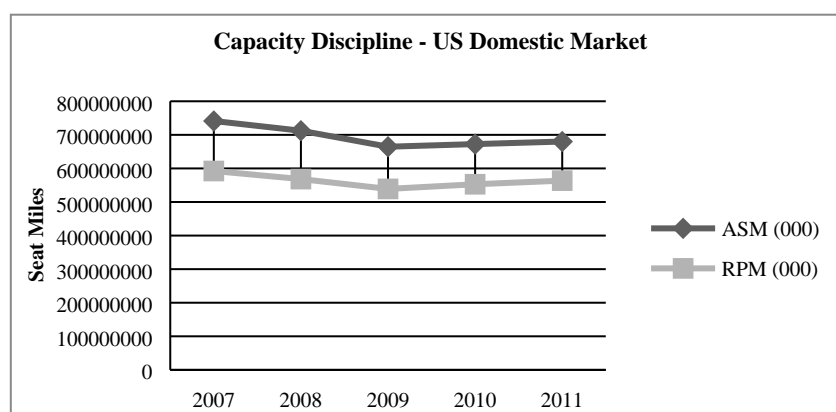
In 2007 it appeared that this strategy had succeeded as the airline business was recovering from the events of September 11, 2001, and the dotcom implosion of March 2000. Profit from domestic operations in 2000 was \$5.4 b. By the end of 2001, however, this number had become a -\$8.7b loss. Then, by 2007 the airline business could report domestic profits of \$4.9b, well within striking distance of 2000 levels. But the financial crisis of 2008 once again contributed to a domestic airline industry loss of -\$3.7b (U.S. Department of Transportation, 2013a). At this point the airline business model began to change dramatically.

A series of bankruptcies and mergers after 2000 set the stage for a re-examination of business strategies. Northwest Airlines and Delta Air Lines declared bankruptcy in September 2005 and, after exiting bankruptcy, merged in 2008. American Airlines, the last major US carrier except Alaska Airlines and Southwest Airlines to avoid bankruptcy, finally followed the other major carriers and declared bankruptcy in November 2011. Once American emerges from bankruptcy, it will merge with US Airways. This will leave four major carriers in the United States: American Airlines, Delta Air Lines, United Airlines and Southwest Airlines. A second tier includes JetBlue and Alaska Airlines.

Airline consolidation and cost pressures from LLCs as well as volatile fuel prices in the recessionary economic environment after 2007 caused most carriers to approach their business in three ways as never before.

2.4 Capacity Discipline

The industry practiced strong capacity discipline in the domestic market. Figure 2.1 demonstrates the ASM decrease as the 2008 recession took hold. The ASMs actually decreased at a faster rate than the decrease in RPMs. As the recovery occurred, the RPMs increased at a faster rate than the ASMs (Figure 2.1).



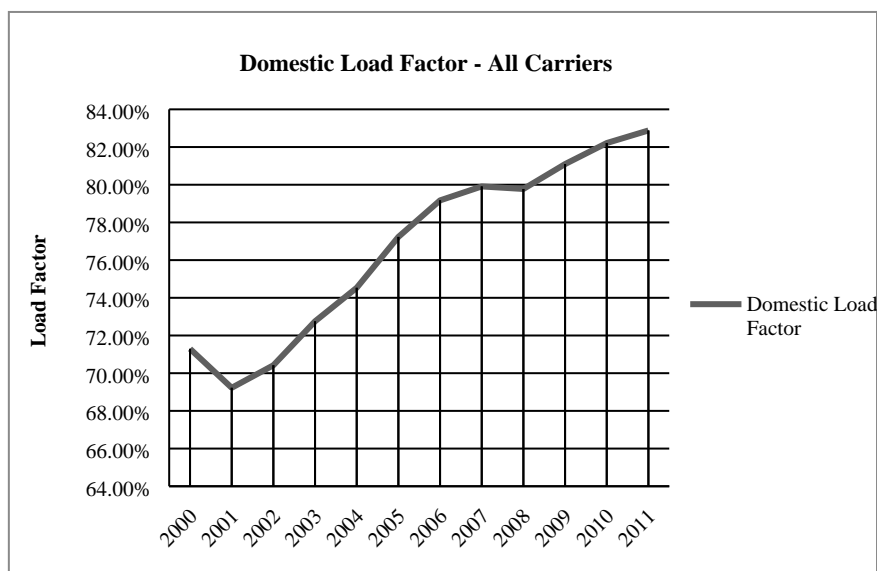
Source: Calculated from U.S. Department of Transportation, 2013a

Figure 2.1

This strategy created much higher load factors (Figure 2.2), but these are considered acceptable in light of the customers demand for low fares. This is a successful strategy with

the ancillary revenue generation business model to bridge the gap between low fares and required profit margins.

To further enhance unit cost efficiency, capacity is deployed strategically using more efficient aircraft and parking less efficient, older aircraft in the desert (Walker, 2013).



Source: Calculated from U.S. Department of Transportation, 2013a

Figure 2.2

2.5 The goal of revenue generation in place of market share

Airline business strategies have shifted from maintaining and increasing market share to a requirement for revenue generation. Historically, the general airline strategy objective was to maintain market share in the face of new competition even if the result was loss of revenue. Strong fare competition in the marketplace in a recessionary economy leaves little room for protecting a market. Because strong cost control required in the face of volatile fuel prices, rising taxes and regulatory fees, fares are augmented on the revenue side with higher load factors supplemented by ancillary fees (Walker, 2013).

In this sense, fares can be considered just a down payment for transportation. Ancillary fees add up to 15% to the base fare for a one way trip. Airlines are profitable today because of the ancillary revenue stream. Under this rubric ancillary fees, which are more or less payment for additional specific services, may be more consumer friendly than traditional fare hikes (Michael Boyd quoted in Pankratz, 2013).

Even with these additional revenue streams available, mainline carriers are now willing to consider the elimination of routes that are not providing enough revenue or return on investment to further strengthen their balance sheets.

2.6 Cost Control

In order to remain a going business concern, airlines must exercise creative and often brutal cost control. Investors and the equities market demand this. Much attention is given to the cost per available seat mile (CASM) in Boardrooms, operations meetings and schedule and

planning meetings at most airlines every day. High load factors can often help lower or maintain a CASM as unit costs decrease.

2.7 The changing relationship between mainline and regional carriers produces capacity agreements

The Capacity Purchase Agreement (CPA) now defines the relationship between mainline carriers and regional carriers to provide for hub feed today. The notable exception is Southwest Airlines which continues to have no relationship at all with regional carriers. Each one of its destinations can be considered a hub or a focus city.

Rather than take an equity position in the regional carriers, the mainline carriers preferred to put their feeder service out to bid. Carriers like SkyWest, Mesa, Republic and others had always franchised their services, mostly to a number of mainline carriers at the same time. Comair, a Delta Air Lines subsidiary, went out of business in the Delta bankruptcy. Horizon Air, sister carrier to Alaska Airlines, evolved from independent flying and an interline type agreement with Alaska to a full CPA agreement. The relationship of American Eagle with American Airlines is still unclear at the time of this writing pending emergence from bankruptcy and merger with US Airways.

In a CPA, a regional carrier contracts to perform flying for a mainline carrier over a certain periods of time with certain operating standards, goals and compensation. The mainline carrier pays the regional carrier a negotiated price which may include incentives and fines based on negotiated operational or financial criteria. For its part, the mainline carrier schedules for the regional and takes all of the revenue from tickets sold. The regional is responsible for its own costs, though some versions of the CPA may allow the regional to park in the mainline leased gates at the hub and may be ground handled by mainline staff. Some CPAs may provide fuel or allow the regional to purchase fuel at the mainline carrier's price. The benefit to the regional is that it has a guaranteed revenue stream, though it must exercise strong cost control in order to make a profit.

One beneficial advantage to a CPA to the mainline carrier is that it can schedule a regional at odd times or even to a city where the mainline is losing money because of inefficient load factors. The regional can provide the smaller number of seats and perhaps more frequency to more closely match the demand in the market. The passenger boardings remain the same or higher. This allows the mainline to schedule the larger aircraft previously used on the route to another city pair where the size and operating economics lower the CASM and perhaps increase the total RPM and revenue over the system. A CPA relationship can essentially have the effect of adding large aircraft and ASMs to the system without the need to actually purchase or lease new aircraft.

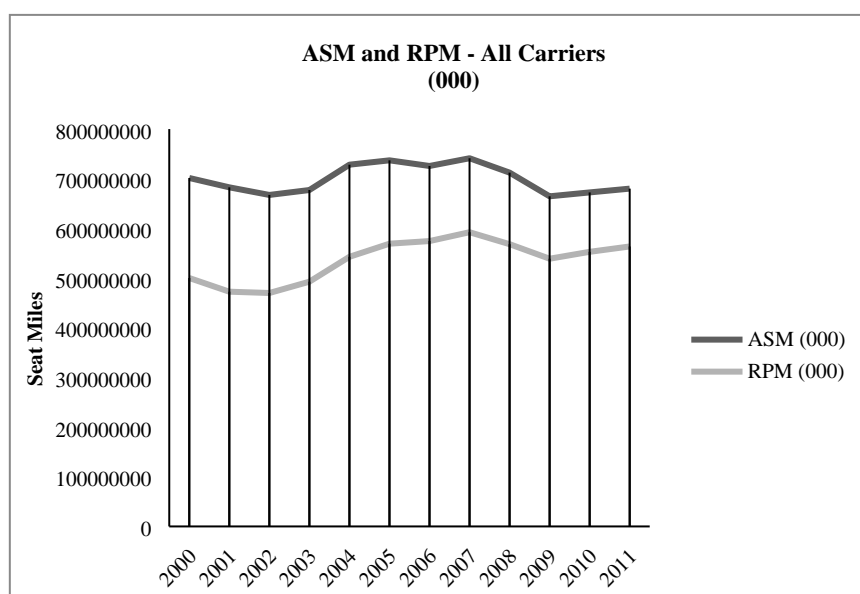
2.8 The effect of declining EAS subsidy on regional carrier operation

There are 242 commercial airports in the United States (excluding Alaska and Hawaii) served by regional aircraft only (Regional Airline Association, 2013). One hundred and twenty five of these regional only airports are served without benefit of government subsidy in the form of Essential Air Service (EAS) grants (Pankratz, 2013). There are 121 cities that do receive EAS subsidies (Pankratz, 2013), including four not on the regional airport list supplied by the RAA.

These non-EAS cities are either self-sustaining with passenger traffic or attract carriers by offering local inducements for service. These inducements can be supplied by local governments or business or both. In revenue guarantee agreement the city promises to pay the airline the difference between actual revenues and agreed to revenues. A seat bank is a plan in which businesses promise to buy a set number of seats for their employees' business travel for certain periods of time. Business organizations and governments might also promise to contribute marketing dollars to stimulate traffic to their city.

2.9 The economic cause and effect of transferring passenger traffic to regional carriers

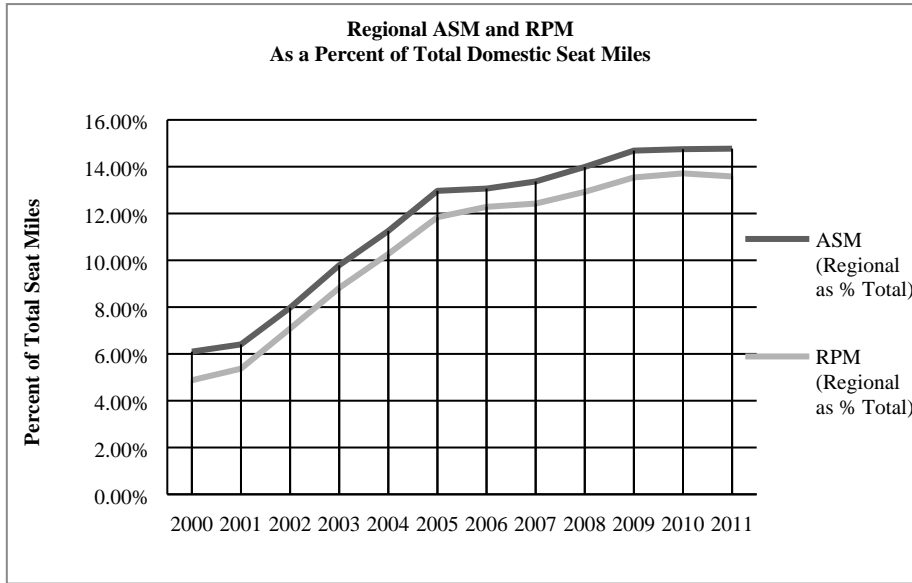
The dotcom bubble burst in 2000 and the effects of 9/11 weakened the economy further. Airlines were quick to shrink capacity. Between 2000 and 2003 ASMs decreased by -5.11%. RPMs decreased slightly faster at -6.42%. After this period of traffic stress there was a general trend of increases in ASMs in US domestic capacity as the industry responded to the economic recovery. ASMs continued to increase as the economy improved until the recession of 2008. Capacity continued to decrease until 2009 (Figure 2.3).



Source: Calculated from U.S. Department of Transportation, 2013a

Figure 2.3

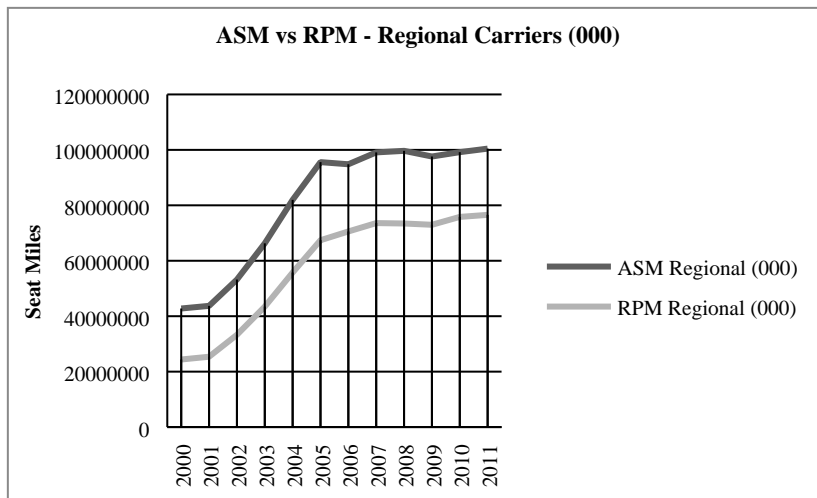
In terms of percentage of total ASMs and RPMs, there is a steady transfer of ASMs from mainline to regional services (Figure 2.4). Revenue generation through RPMs appears to follow this trend very well.



Source: Calculated from U.S. Department of Transportation, 2013a

Figure 2.4

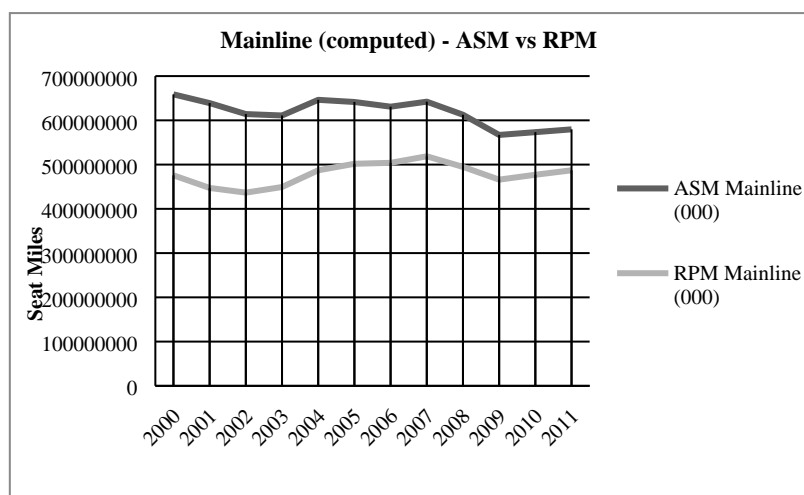
Despite a further drop in industry capacity leading up to the recession of 2008, regional carrier ASMs remained firm at 2005 levels. The strength of this capacity transfer is apparent. As ASMs held steady after 2005, RPMs continued to increase slowly (Figure 2.5).



Source: Calculated from U.S. Department of Transportation, 2013a

Figure 2.5

The mainline ASMs continued to decrease for the 2005 to 2010 period (Figure 2.6), accelerated by the business objectives shift to increased cost control, the evolution from market share to revenue generation, and, most importantly, capacity discipline. This trend has pushed load factors above 80%.



Source: Computed from U.S. Department of Transportation, 2013a

Figure 2.6

2.10 Route shift to regional carriers becomes the new hub strategy

Since 2007 the business model of mainline carriers is to concentrate on hub to hub, long distance and proven heavy spoke routes to hubs. They franchise out medium range thin routes, spoke and speculative routes to regional carriers. Regional carriers provide appropriate aircraft capacity for medium range thin routes at reasonable operating costs. In addition, regional carriers can provide increased frequency which can often mean the difference in keeping a city open.

An analysis of nine cities gives a broad overview of the evolution of hubs and former hubs since 2007. Three tools are useful in bringing clarity and dimension to what is occurring in each city.

2.10.1 Market share

Market share can identify the strongest carrier regardless of the size of the market. A comparison of values in 2007 with those of 2012 is an indicator of the relative importance each carrier places on a city as individual business models and goals evolved in the recession. In some cases the dominate carrier retained or strengthened its position. In others another carrier took advantage of opportunities to strengthen its position. Some cities remained stable with no carrier acquiring a dominate market share that characterizes a true hub.

2.10.2 Departure seats

A look at yearly departure seats in 2007 and 2012 is an indicator of the willingness of carriers to invest capital assets in a city. The comparison of the two years will produce a trend which reflects the strength of the market, especially with the acceptance of high load factors as a given business assumption.

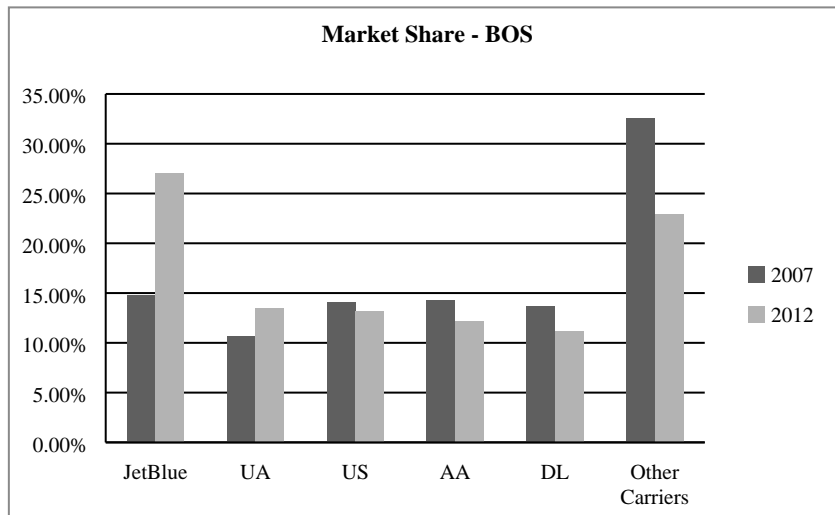
2.10.3 Average seats per aircraft

An analysis of average seats per aircraft will indicate the relative use of regional aircraft in a city. From the point of view of scope clauses in many pilot union contracts a regional aircraft is 100 seats or less. Current regional aircraft have 90 seats or less. An average aircraft

capacity of less than 100 seats will imply a predominance of regional aircraft in a market. Conversely, average aircraft capacity over 100 will indicate more mainline aircraft and of a larger size in a city. A comparison of average capacity in 2007 with 2012 reveals either shifts from one type of aircraft to another or a stable and continuing use of one aircraft category.

2.11 Market share shifts in certain cities between the recession of 2007 and 2012

2.11.1 Boston

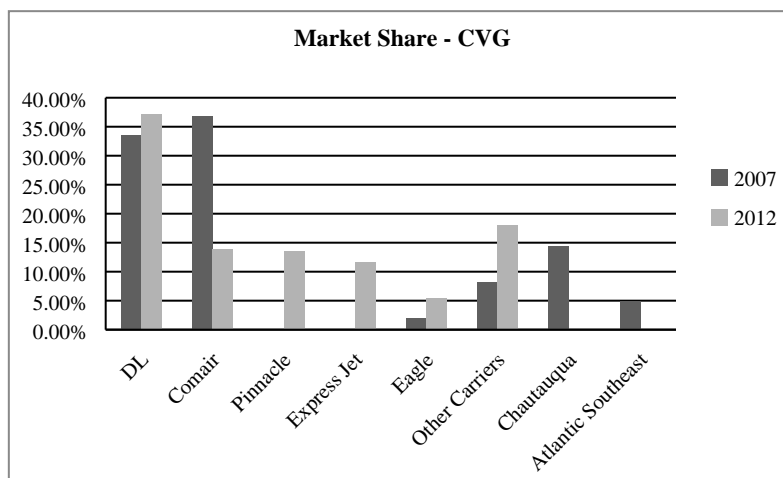


Source: Calculated from U.S. Department of Transportation, 2013

Figure 2.7

JetBlue has taken advantage of other carrier actions in Boston to increase its market share in Boston by almost 13 points since 2007. This includes growth in frequency flown by E195 aircraft taking advantage of the withdrawal of American Eagle. JetBlue has established a hub with over 35 destinations. Departure seats in the market by all airlines have stayed relatively steady between 2007 and 2012 at about 19.2m per year reflecting the investment by JetBlue (Innovata, 2013).

2.11.2 Cincinnati

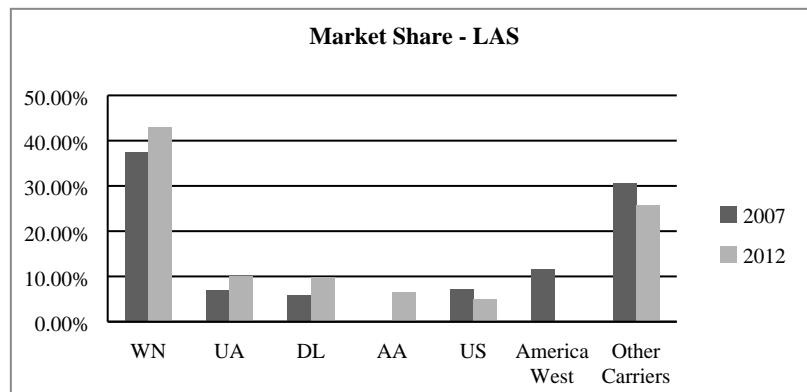


Source: Calculated from U.S. Department of Transportation, 2013

Figure 2.8

In 2007 Cincinnati was a major hub for Delta Air Lines emphasizing feed from its regional carrier Comair. Comair had its own terminal building and maintenance facility at CVG. Delta declared bankruptcy and with it Comair. Delta merged with Northwest Airlines and acquired Northwest’s major hub in Minneapolis and decommissioned CVG as a hub. Comair restructured into a much smaller carrier. Available seats in the market dropped over 63% between 2007 and 2012 to 4m departing seats. However, the average seat capacity per aircraft remained almost constant at close to 70 seats (Innovata, 2013). This demonstrates the continuing reliance on regional service to feed local demand through what remains of this once thriving hub.

2.11.3 Las Vegas

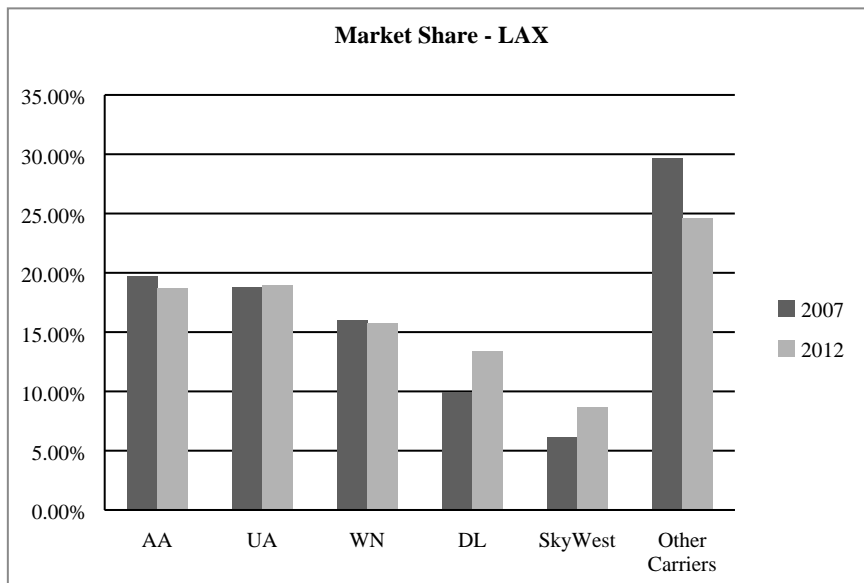


Source: Calculated from U.S. Department of Transportation, 2013

Figure 2.9

Southwest has cashed in on Las Vegas and has made it its own after America West and US Airways merged and closed their hub in 2008. Nevertheless, total departing seats in LAS has declined 15% since 2007/2008. The dominance of Southwest as well as a large 142 average seat capacity per aircraft makes LAS more like a European hub with a single large carrier and few regional aircraft (Innovata, 2013). Southwest feeds itself passengers throughout its system. It does not code share with other carriers. It does not contract with regional carriers to feed its system in any city.

2.11.4 Los Angeles

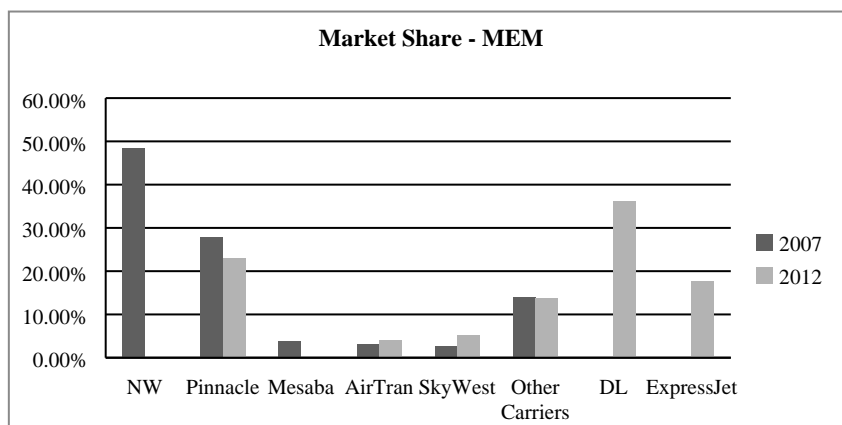


Source: Calculated from U.S. Department of Transportation, 2013

Figure 2.10

The domestic market share at Los Angeles International Airport has remained stable in recent years. Regional carrier SkyWest has always been a major player with their business strategy of remaining independent while performing code share and CPA flying for United and Delta. American Eagle has maintained their own unit terminal at LAX providing regional services to American Airlines. In 2007 regional carrier Horizon Air began flights to LAX in support of Alaska Airlines. Seat investment from LAX has remained stable and the average seat capacity of aircraft has gone from 132 in 2007 to 141 in 2012 (Innovata, 2013). This growth in seats per aircraft reflects the larger aircraft flown by international and mainline carriers as well as the regional carriers feeding the hub.

2.11.5 Memphis



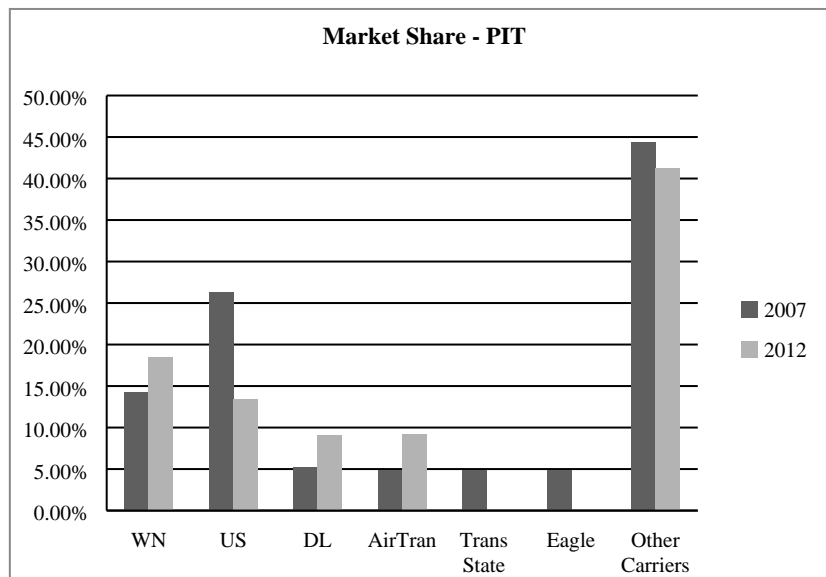
Source: Calculated from U.S. Department of Transportation, 2013

Figure 2.11

Memphis became a hub for Northwest Airlines when it acquired Republic Airlines through a merger in 1986. It served as transfer point for former Republic routes in the Southeastern part of the United States. The hub was dismantled after Northwest’s merger with Delta Air

Lines in 2008, declining from 7.3m departing seats in 2007 to 4.4m in 2012. The emphasis on use of regional aircraft remains apparent as the average capacity per aircraft increased on 71 seats to 74 seats in the same period (Innovata, 2013).

2.11.6 Pittsburgh

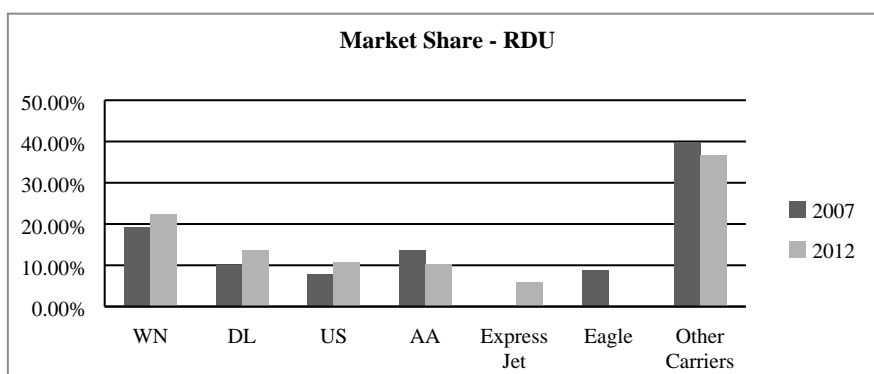


Source: Calculated from U.S. Department of Transportation, 2013

Figure 2.12

Pittsburgh no longer dominated by a single carrier after US Airways withdrew its regional hub. While Southwest has increased its percentage, carriers other than Southwest carry over 80% of the market. Carriers invested 7.1 m departing seats into the Pittsburgh market in 2007. But by 2012 this number had fallen 4.9% to 4.9m departing seats. The average seat capacity rose by 20% to 91 seats per aircraft (Innovata, 2013), well under the lower limit of mainline aircraft of about 110 seats.

2.11.7 Raleigh/Durham



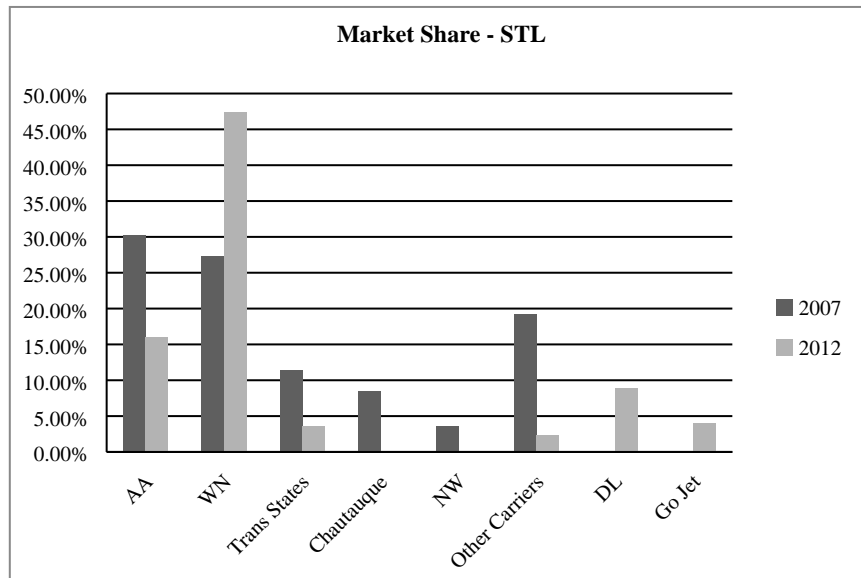
Source: Calculated from U.S. Department of Transportation, 2013

Figure 2.13

Raleigh/Durham is not a hub in the classic sense. Its location on the East Coast denies it the hub requirement of a central location. Southwest, Delta and US Airways have picked up some extra market share at the cost of American. The withdrawal of Eagle was not absorbed in the American Airlines. ExpressJet appears to have picked up some of the Eagle market.

After the 2007/2008 recession, departing seats fell 17.8% to 6m in 2012. Average capacity per aircraft of 93 indicates wide use of regional aircraft raised somewhat by the presence of Southwest capacity (Innovata, 2013).

2.11.8 St Louis

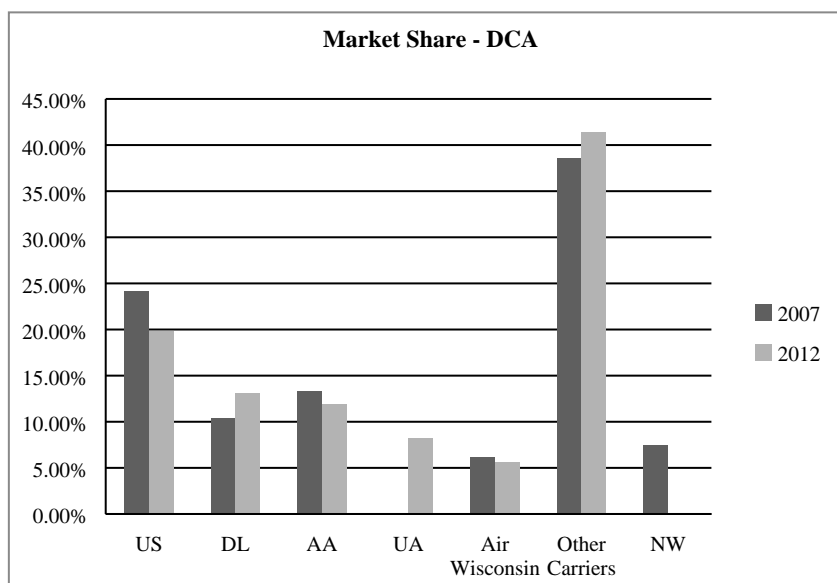


Source: Calculated from U.S. Department of Transportation, 2013

Figure 2.14

Lambert-St Louis Field was the major hub for TWA when it was purchased by American Airlines in 2001. The hub was decommissioned by American and market dominance was taken over by Southwest Airlines. Because Southwest is the only major carrier which does not have regional feed, the average seats per aircraft actually rose from 91 seats in 2007 to 101 in 2012 (Innovata, 2013). This reflects Southwest’s use of a 737 fleet flying almost 50% of the market.

2.11.9 Washington Reagan



Source: Calculated from U.S. Department of Transportation, 2013

Figure 2.15

Washington Reagan traffic has been stable with a diversity of market share. The airport is saturated and a recent slot swap from US Airways to Delta helped Delta gain some market share. Washington Reagan is the closest airport to Washington, DC. Operating at near capacity, every seat into the airport counts. The average number of seats per aircraft has stayed constant at about 93 seats (Innovata, 2013), demonstrating high use of regional aircraft.

3. THE EUROPEAN EXPERIENCE

A number of different strategies have emerged from the traditional European flag carriers in addressing the performance of services away from their main hub airports and cities. Although driven by competitive considerations, other factors such as geography, the type and volume of demand, political pressure and fleet availability also come into play. Some of these approaches also appear to have been more successful than others. The main strategies adopted are discussed in more detail below.

3.1 Offload regional aircraft to a lower cost provider with different branding

British Airways (BA) in the UK regions (primarily concentrated on Birmingham and Manchester but also including some Scottish routes) transferred all services of its regional subsidiary BA Connect to flybe in 2007. BA acquired a 15% stake in flybe as part of this process. Table 3.1 below shows how flybe turned a substantial loss on BA Connect into a marginal profit in the course of two years. This appears to be less due to cost control however than to increasing load factors, cutting headline fares and raising incidental revenues. As flybe was still operating with much of BA Connect's old fleet and staff in 2007-08, the year 2010-11 has also been considered for comparison. This shows no significant further cost reduction however. There has clearly been downward pressure on yields and other revenues have escalated further in an attempt to compensate. Load factors have eased back to 60% with the new larger capacity aircraft being added. Average length of passenger journey has

reduced from 664 km in 2006 to 508 km in 2011 however. This does imply some cost efficiencies at equivalent stage length.

Table 3.1
Unit costs and revenues BA connect v flybe

BA Connect Year to 31 Mar 06	2005-06	Cost per ASK	9.8p
		Cost per ASK ex fuel	8.3p
		Fare revenue per RPK	14.7p
		Other revenue per RPK	0.7p
		Total revenue per RPK	15.4p
		Average aircraft size	66 seats
		Load factor	56%
		Operating profit	-£41.6M
Flybe Year to 31 Mar 08	2007-08	Cost per ASK	10.1p
		Cost per ASK ex fuel	8.6p
		Fare revenue per RPK	14.0p
		Other revenue per RPK	2.6p
		Total revenue per RPK	16.6p
		Average aircraft size	76 seats
		Load factor	62%
		Operating profit	£7.0M
Flybe Year to 31 Mar 11	2010-11	Cost per ASK	10.6p
		Cost per ASK ex fuel	8.9p
		Fare revenue per RPK	13.1p
		Other revenue per RPK	4.3p
		Total revenue per RPK	17.4p
		Average aircraft size	88 seats
		Load factor	60%
		Operating profit	-£2.4M

Source: Calculated from UK Civil Aviation Authority Airline Financial Reports

Flybe has generally lost market share compared to the former BA Connect operation (Table 3.2) with Ryanair and easyJet expanding. BA was just reduced to its London Heathrow and Gatwick routes, the latter also withdrawn from March 2013. BA maintained a code share with flybe for the first few years but this has now gone except on certain routes from Gatwick where there is some synergy in terms of connecting possibilities. flybe itself is withdrawing from Gatwick in 2014. There is a code share with Air France (flybe's original partner) on selected regional routes. flybe has more recently undertaken a similar exercise in taking over the regional flying of Finnair. It is claimed that the Q400 has a similar trip cost to an EMB145 but provides 50% more seats (Kirby, 2011). As it is a faster aircraft than conventional turbo-props, block times are little different on sectors up to 500 miles.

Table 3.2
Air service developments at Manchester 2005-13

	Market share by departing seats		Average aircraft size (seats)	
	BA	flybe	BA	flybe
2005	22%	1%	78	89
2009	6%	10%	138	79
2013	5%	9%	124	82

Source: Compiled from Innovata data

Air France has also made a move in this direction by launching Hop! This incorporates the regional aircraft operations of Brit Air, Regional and Airlinair (Halstead, 2012, 2013). While remaining a wholly owned subsidiary, it has also introduced bag charges and reduced included services. Otherwise nothing much seems to have changed and it is unclear what advantages the rebranding is expected to bring!

3.2 Maintain main line branding but seek lower labour costs

This is the strategy British Airways has adopted at Gatwick and Air France has attempted to introduce to the French regions. BA has simplified its Gatwick fleet by eliminating the smaller less efficient 737-300 and 737-500 series aircraft in place of the larger 737-400 series. These have 149 economy class seats in BA layout, still significantly below the maximum potential of 188. Seat pitch is typically 31-32 inches as against 28-29 inches on an LCC, while galleys and three washrooms take up further space. Operation of a Club Europe cabin on international flights reduces the available capacity further as centre seats are left empty. The aircraft are old and lease rates are likely to be low; this must be offset against higher fuel and maintenance costs however (Kingsley-Jones, 2012). It also means that utilisation is not a primary concern although the carrier managed a respectable 8.3 hours per day on an average stage length of 960 km compared to 8.9 hours and 1076 km on its similarly sized A320s based at Heathrow. easyJet obtains 9.9 hours on an almost identical average stage length of 984 km with its A319s (CAA UK Airline Statistics, 2012). On-board service is the normal BA product including hot meals in Club Europe and cooked breakfast in economy on early morning domestic flights. From March 2012, lower fares without checked baggage have been offered from Gatwick, in contrast to the Heathrow operation. BA's Gatwick flights are heavily focused on leisure destinations, both short-haul and long-haul. Routes with significant business or feeder content such as Toulouse, Marseille, Bologna and Luxembourg have been shifted to Heathrow in recent years, leading to the decline in BA's presence at Gatwick shown in Table 3.3. Glasgow, Edinburgh and Amsterdam are the sole survivors of a once extensive network to major short-haul destinations. Different labour contracts (possibly made easier by the growth of LCC operators at Gatwick which provides an immediate reference point - unlike at Heathrow!) coupled with the outsourcing of ground handling to Swissport in October 2012 gives BA a significantly lower cost base than at its main hub.

Table 3.3
Air service developments at London Gatwick 2005-13

	Market share by departing seats			Average aircraft size (seats)		
	BA	easyJet	flybe	BA	easyjet	flybe
2005	38%	17%^	3%	142	156	105
2009	20%	31%^	6%	151	158	92
2013	16%	41%	3%	160	162	87

^ Includes easyjet Switzerland

Source: Compiled from Innovata data

Air France has undertaken a similar strategy from its regional bases in Marseille, Nice and Toulouse and Paris Orly. These offer the mainline AF branding and product albeit with lower labour costs and faster turn-arounds; a lower fare option without baggage or FFP credits has recently been added (Business Traveller, 2013). This was originally launched in October 2011 as an offensive strategy to resist the incursion of LCCs in the French regional markets. Regional aircraft with high unit costs have been replaced with larger A319 and A320 equipment and new routes launched, typically at low frequencies with variable schedules by day of the week (rather akin to Ryanair). For example, Marseille-Prague operates on Tuesday, Wednesday and Saturday only with Toulouse-Venice on Tuesday, Saturday and Sunday only. At Marseille, Air France's capacity share has risen to 40% from 35% in 2009 and a low point of 32% in 2010, while average aircraft size has increased from 104 seats in 2009 to 149 seats in 2013. Some new routes have already been pulled however and the continuing roll-out put on hold (Centre for Aviation, 2012; Halstead, 2012, 2013).

3.3 Replace main line capacity with a quasi LCC brand using large aircraft

This approach has the benefit of completely segregating the labour forces and saves further by reducing the quality of service to the passenger because there is no longer an obligation to maintain the mainline brand and product specification. As with the transfer of regional operations, the downside is that yields are also likely to go down and connecting passengers may be lost. This therefore makes it more suitable for application away from the main hub airports or cities where there is little network synergy (Suau-Sanchez and Burghouwt, 2012). Iberia has gone down this route by allowing Vueling to take over services away from Madrid (particularly at Barcelona which was previously a main base for the airline - Aviation Strategy, December 2011). Table 3.4 shows how Vueling capacity has replaced Iberia capacity with the exception of the Madrid route (Buyck, 2012). Iberia made a brief excursion into substituting mainline equipment with regional aircraft six years ago that was rapidly abandoned when fuel prices soared. Vueling is far from being a conventional LCC however with many legacy carrier features including code-shares, interlining, multi-class cabin and allocated seats (Sparaco, 2012; Klopheus et al, 2012).

Table 3.4
Air service developments at Barcelona 2005-13

	Market share by departing seats		Average aircraft size (seats)	
	Iberia	Vueling	Iberia	Vueling
2005	41%	5%	130	166
2009	13%	25%^	96	154
2013	6%	36%	159	176

^ includes Click Air

Source: Compiled from Innovata data

Lufthansa has followed by proposing that short-haul services operated by LH mainline from airports other than Frankfurt and Munich will be transferred to germanwings (Buyck, 2012). This was trialled at Stuttgart (Table 3.5) and the plan is to roll it out to other airports such as Dusseldorf, Hamburg, Berlin etc (Halstead, 2013). This had not yet been implemented by Summer 2013 however. If a code-share is maintained then it is difficult to save on areas such as distribution costs and handling of transfer bags. By remaining linked to the major's FFP, loyalty can be tapped and traffic kept in house but again at the expense of higher costs. It is not a good strategy for the main hub airports because the feeder traffic to long-haul services is left with an inferior and uncompetitive product. If someone is booking business or first class to Los Angeles they will not appreciate being squeezed into economy class with no legroom and no free drinks on a full plane for the short-haul connecting leg! This is why the US majors all still maintain first class on domestic routes and have even been adding it to their larger regional aircraft in the last few years.

Table 3.5
Air service developments at Stuttgart 2005-13

	Market share by departing seats		Average aircraft size (seats)	
	Lufthansa	germanwings	Lufthansa	germanwings
2005	23%	14%	75	135
2009	21%	21%	80	140
2013	8%	33%	98	148

Source: Compiled from Innovata data

Aer Lingus has gone in a similar direction by converting the whole airline and brand to an LCC. Business class is no longer offered except on transatlantic, seating densities have been increased while food and bags are on a pay for basis. The airline no longer participates fully in GDS or interlining and withdrew from the oneworld global alliance. It does offer intraline connections between its own services at Dublin however. Perhaps realising that it is throwing away revenue without these measures it is inching back towards code-sharing and through ticketing with a variety of other carriers including United, British Airways and Etihad. It is difficult to see how Ryanair's plans to take over Aer Lingus would improve things as by surrendering much of the Aer Lingus short-haul network for regulatory reasons, the transatlantic flights will either be devoid of feeder traffic - or Ryanair will have to abandon its lowest cost mantra and start offering connections from its own services including the volume of baggage associated with transatlantic flights - or it will have to sign a code-share or feeder deal with the mooted new operators of these routes such as flybe.

Air France/KLM has moved leisure routes to Transavia (Halstead, 2012) which provides another possible compromise - to keep the mainline brand for business focused and major city routes only where competition is fierce and there is a market willing to pay a premium. For holiday destinations where there is little in the way of connecting traffic, alternative routes or the scope for high yields, a more basic product is suitable.

3.4 Other strategies

3.4.1 Replace mainline capacity with regional aircraft

After a period in which all routes were operated with A320 equipment (a similar fleet approach to that of easyjet or Ryanair), Aer Lingus has introduced Aer Lingus Regional in conjunction with Aer Arran and converted many thinner markets, especially between Ireland and the UK where distances are short but an over-water crossing is still involved, to turbo-prop operation with ATR42/72s (Buyck, 2010). Aer Lingus found many of its routes were simply too small for the 150 seaters and frequency is still a useful competitive weapon on short range routes with surface alternatives or substitute airports nearby. It has also enabled them to re-enter markets that had been dominated by Ryanair with large aircraft and low frequencies. This appears to be 'reinventing the wheel' - frequency does still matter! (Table 3.6)

Table 3.6
Change in Aer Lingus operations: Dublin-UK markets weekly frequencies 2009-13

	July 2009	July 2013	Notes
Dublin to:			
Aberdeen	-	7xAT7	New route replacing Ryanair
Birmingham	18x320	20x320, 20xAT7	Competes with Ryanair
Bournemouth	-	4xAT4	New route replacing Ryanair
Bristol	-	17xAT4	New route competing with Ryanair
Edinburgh	13x320	27xAT7, 3xAT4	Competes with Ryanair
Glasgow	7x320	27xAT7, 4xAT4	Competes with Ryanair (Prestwick)
Cork to:			
Birmingham	4x320	14xAT7	
Glasgow	-	5xAT7	New route
Manchester	4x320	14xAT7	Competed with bmibaby in 2009
Shannon to:			
Birmingham	-	7xAT7	New route replacing Ryanair
Edinburgh	-	7xAT7	New route replacing Ryanair
Manchester	-	13xAT7	New route replacing Ryanair

Source: OAG

At Porto, TAP has reduced aircraft size using former Portugalia equipment (the regional carrier was acquired by TAP in 2006) to maintain frequencies in the face of LCC growth (Table 3.7). Although the airport has seen a dramatic increase in traffic this has almost accrued to Ryanair (and easyjet with a 10% market share in 2013) rather than the home carrier. TAP (including Portugalia) has held its total number of flights and route network

from Porto roughly constant over the last decade but market share has slumped from 61% to 30% due to reduced gauge.

Table 3.7
Air service developments at Porto 2005-13

	Market share by departing seats			Average aircraft size (seats)		
	TAP	Portugalia	Ryanair	TAP	Portugalia	Ryanair
2005	39%	22%	4%	145	69	189
2009	44%	-	25%	108	-	189
2013	30%	-	37%	105	-	189

Source: Compiled from Innovata data

There are few other recent examples of this in Europe - where regional aircraft have not found favour to the same extent as in the US. Reasons behind this include congestion and slot shortages at many major European airports as well as airport and navigation charges which are loaded against smaller aircraft. With shorter distances and more alternative travel modes than in the US there is a less captive market for air travel and in many cases business travel volumes are insufficient to cover the cost of small aircraft operations. Where major airlines do have significant established regional operations as with Air France and Lufthansa, the trend is towards larger aircraft at lower frequency. At Milan airports for example, Lufthansa's average aircraft size increased from 88 seats in 2005 to 133 seats in 2013 while at Marseille Air France has gone from 106 to 141 seats over the same time period.

Regional aircraft are perhaps more useful in Europe to maintain hub feed, especially where the local market has been eroded by LCCs, than for secondary bases in the network that cater mostly for point-to-point demand.

3.4.2 Abandon markets to other carriers

Some airlines - particularly those in financial difficulties - have had to restructure by pulling out of secondary markets altogether and leaving other carriers to fill the gap. Alitalia at Milan is one of the best examples. Malpensa was a major hub for the airline ten years ago, taking advantage of its more central position in Europe and high yield local market. It had less local demand than Rome however, leaving Alitalia more exposed to competition from stronger alternative hubs to the north (Beria et al, 2011). Over the last decade, Alitalia has seen its traffic at Malpensa shrink from 59% to 5% of the market (Table 3.8). Many foreign airlines have increased service marginally (Lufthansa attempting to build an Italian presence through Lufthansa Italia that was also abandoned - Halstead, 2011) but easyJet is the main replacement for Alitalia, have grown in the space of eight years to a third of the market. Total capacity from Malpensa peaked in 2007 at 15.8 million outbound seats but has since declined to around 12 million implying that some of the hub traffic has been lost forever.

Table 3.8
Air service developments at Milan Malpensa 2005-13

	Market share by departing seats			Average aircraft size (seats)		
	Alitalia	Lufthansa	easyjet	Alitalia	Lufthansa	easyjet
2005	59%	5%	0%	124	83	-
2009	8%	13%	24%	163	116	155
2013	5%	7%	31%	174	125	160

Source: Compiled from Innovata data

3.4.3 Carry on as before

The remaining strategy seems to be simply soldier on regardless, as if the world has not changed. This may demonstrate that the existing operations are viable or alternatively that the airline is too slow to adapt or under political pressure to maintain services.

This is exemplified by SAS at Stockholm Arlanda (average aircraft size 127 seats unchanged from 2005-13, market share down only slightly from 46% to 43%). SAS at Oslo (average aircraft size up from 143 to 152 seats, market share down from 58% to 42% - eroded by Norwegian). Given the 50% state ownership by Denmark, Norway and Sweden any change is fraught with political sensitivities (Aviation Strategy, March 2011; Flottau, 2011).

Swiss which largely withdrew from Geneva in the wake of the collapse of Swissair has started creeping back in with a market share of around 16% - this is still well behind easyjet with 36% however.

4. CONCLUSIONS

Economic and competitive pressures have caused mainline carriers in Europe and the United States to re-evaluate their business plans. This retrenchment began in 2000 but developed with special urgency in the global recession of 2007/2008. Mainline carriers have responded differently in Europe and the United States (Liu et al, 2013).

In Europe LCCs began to put pressure on legacy carriers in their historical local markets and within the intra-European market. European legacy carriers had to re-evaluate their route structure and protect their hub feed while operating within a developing European Union business environment. A variety of business and survival strategies developed in relationships with regional carriers and second-tier LCCs, including equity stakes, transfer of routes, aircraft and staff.

Launching an LCC brand would appear to be particularly appropriate to airlines where a significant part of their home country demand is away from the main hub airports/cities and they are unwilling to surrender the regional markets completely to other carriers. SAS is a clear case in point - it may have to eventually bite the bullet and change the non-Copenhagen services to a new more downmarket product. TAP could do this at Porto and it may also provide an opportunity for them to re-enter Faro which has been virtually abandoned to LCCs. For Alitalia it is less realistic because the high yield traffic is in northern Italy whereas the main hub is in Rome. Similarly for Swiss where their USP in Geneva is being a full-service carrier in a high yield market. Extensive regional aircraft operations only appear viable under

such conditions unless feeding a major hub. The critical balance as always lies between costs and yields - an LCC brand and product can do much to reduce costs but risks trashing yields in the process.

Because of the geographic size of the United States and its domestic market competition, strategies toward hubs and regional carriers evolved toward changes in basic business assumptions. The trend is to divest equity interest in regional carriers and return to contractual and code sharing relationships. In order to maintain passenger feed and lower costs while maintaining revenue generation, major carriers transfer ASMs to regional carriers by means of CPAs and code sharing. The exception has been Southwest Airlines which continues to find success without the use of passenger feed from regional carriers.

REFERENCES

Aviation Strategy, December 2011. Vueling Airlines: In the eye of a Spanish storm, pp11-15.

Aviation Strategy, March 2011. SAS and Norwegian: Nordic battles, pp7-11.

Berio, P., Niemeier, H.-M. and Frohlich, K., 2011. Alitalia - The failure of a national carrier. *Journal of Air Transport Management*, 17(4), pp215-220.

Business Traveller, 2013. Air France launches low-cost economy offering. 7 May 2013 [online]

Available at:

<<http://www.businesstraveller.com/news/air-france-launches-low-cost-economy-offering>>

[Accessed 7 May 2013]

Buyck, C., 2012. Europe's low-cost imperative. *Air Transport World*. May, pp56-58.

Buyck, C., 2010. Franchising the future. *Air Transport World*. June, pp51-52.

CAA, 2015-13. UK Airline Statistics and Financial Reports.

Available at:

<<http://www.caa.co.uk/erg>>

[Accessed 7 May 2013]

Centre for Aviation (CAPA), 2012. Air France's new regional strategy takes one step backwards as four new routes are pulled back. 2 March 2012 [online]

Available at:

<<http://centreforaviation.com/analysis/air-frances-new-regional-strategy-takes-one-step-backwards-as-four-new-routes-are-pulled-back-69097>>

[Accessed 7 May 2013]

Davis, S. and Polcyn., B. 2012. Essential air service or \$200-million boondoggle? November 11, 2012. [online]

Available at:

<www.Fox6now.com>

[Accessed 17 April 2013]

Doganis, R., 2010. *Flying Off Course*. 4th Edition, London: Routledge.

- Flottau, J., 2011. Looking to Leisure. *Aviation Week & Space Technology*. October 5, p53.
- Halstead, J., 2013. Consolidation, rationalisation and profits. *Aviation Strategy*. March/April 2013, pp1-6.
- Halstead, J., 2012. Air France-KLM: Transforming 2015? *Aviation Strategy*. December, pp1-4.
- Halstead, J., 2011. Lufthansa: Feeding the powerhouse. *Aviation Strategy*. October, pp4-7.
- Innovata data, 2013. Available via FlightGlobal CapStats,
- Kingsley-Jones, M., 2012. Halo Effect. *Airline Business*. July, pp28-35.
- Kirby, M., 2011. Propping up recovery. *Airline Business*, October, pp30-32.
- Klophaus, R., Conrady, R. and Fichert, F., 2012. Low cost carriers going hybrid: Evidence from Europe. *Journal of Air Transport Management*, 23, pp54-58.
- Liu, Y., Hansen, M. and Zou, B., 2013. Aircraft gauge differences between the US and Europe and their operational implications. *Journal of Air Transport Management*, 29, pp1-10.
- O'Connor, K. and Fuellhart, K., 2013. Change in air services at second rank cities. *Journal of Air Transport Management*, 28, pp26-30.
- Pankratz, H. and Leigh Painter, K., 2013. Airline fees: Average true price up nearly 30 percent. *The Denver Post*. 27 May 2013 [online]
Available at:
<http://www.denverpost.com/breakingnews/ci_23154741/air-travel-cost-up-nearly-30-percent-evergreen>
[Accessed 30 April 2013].
- Regional Airline Association. (2012) *2012 Annual Report*. [online]
Available at:
<www.raa.org/Media/Publications/tabid/205/Default.aspx>
[Accessed 16 April 2013].
- Regional Airline Association. 2013. US Airports Served by Regionals. [online]
Available at:
<www.raa.org/Portals/0/Images/AR12_USAirports_Served_by_Regionals.jpg>
[Accessed 17 April 2013].
- Sparaco, P., 2012. Another model for low-fare carriers. *Aviation Week & Space Technology*. November 5/12, p24.

Suau-Sanchez, P., and Burghouwt, R., 2012. Connectivity levels and the competitive position of Spanish airports and Iberia's network rationalization strategy, 2001-2007. *Journal of Air Transport Management*, 18, pp47-53.

U.S. Department of Transportation (US DOT), Research and Innovation Technology Administration (RITA), Bureau of Transportation Statistics. 2013. [online]

Available at:

<www.transtats.bts.gov/airports.asp>

[Accessed 24 April 2013].

U.S. Department of Transportation (US DOT), Research and Innovation Technology Administration (RITA), Bureau of Transportation Statistics. 2013a. [online]

Available at:

<[www.transtats.bts.gov/Data Elements Financial.appx?Data=7](http://www.transtats.bts.gov/Data_Elements_Financial.appx?Data=7)>

[Accessed 7 May 2013].

Walker, K., 2013. Tight Discipline. *Air Transport World (ATW)*, [e-journal] posted 03/14/2013.

Available at:

<<http://atwonline.com/airlines/tight-discipline>>

[Accessed 30 April 2013]