The responses of traditional airlines to low cost airlines

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***Abstract* — The significant growth in low-cost carriers has generated a lot of competition in the airline industry. Traditional airlines have come under pressure with a collapse in profitability while many low-cost carriers have enjoyed profits. The low cost airline business model can cut costs to 40-50% of traditional airline costs while the traditional airline business model has been challenged to cover costs. Major airlines have attempted to reshape their business model to boost revenue, cut costs and react to competitive threats from low-cost carrier. These strategies include establishing their own low cost airlines, increasing labour efficiency, intimate low cost airline operation, and introducing charges for catering and luggage. This paper aims to investigate the responses of traditional airlines to low-cost carriers. Secondary sources of information for this paper will include a review of current academic literature and published industry sources.**

Keywords- low-cost carriers; airline; competition

I. INTRODUCTION

Over the past two decades, the traditional network model for scheduled airline service has delivered market growth and in good years, modest profits (Morrell, 2005). However, with the emergence of low cost carriers the aviation industry has changed. The Low Cost Carrier Model is a revolutionary change to the airline business which threatens traditional airlines. The challenge being that low cost carriers attract passengers with a simple business model, low fares; in turn these lower fares then increase air travel demand. Furthermore, while the low cost carrier's target market is the leisure traveler, due to simple economics some business travelers also turn to the low cost carrier. In this way, low cost carriers not only generate new airline passengers, those who would not otherwise travel by air, but also steal passengers from traditional airlines.

As a result low-cost airlines have enjoyed profits and growth while traditional airlines' profitability has collapsed (Dennis, 2007). This situation challenges traditional airlines to revisit their business model, forcing them to reinvent themselves. Traditional carriers' reaction to the new situation is crucial as it increases the airline industry's competitive environment. This paper aims to investigate the responses of traditional airlines to low cost carriers. Strategies include significant cost cutting, establishing their own low cost airlines, outsourcing, intimating low cost airlines operation, and instituting new charges for catering and luggage.

II. REMOVE SIGNIFICANT COST

A. *Airline Operating Costs*

Airline operating costs can be divided into two main categories, direct and indirect. Direct operating costs consist of flight operations, maintenance cost depreciation as shown in this following table.

Table 1: Airline Operating cost categories

Direct Operating Costs
1. Flight operations:
• Flight crew salaries and expenses
• Fuel and oil
• Airport and en-route charges
• Aircraft insurance
• Rental/lease of flight equipment/crews
2. Maintenance and overhaul:
• Engineering staff costs
• Spare parts consumed
• Maintenance administration
3. Depreciation and amortisation:
• Flight equipment
• Ground equipment and property
• Extra depreciation
• Amortisation of development costs and crew training
Indirect operating costs
4. Station and ground expenses:
• Ground staff
• Buildings, equipment, transport
• Handling fees paid to others
5. Passenger services:
• Cabin crew salaries and expenses
• Other passenger service costs
• Passenger insurance
6. Ticketing, sales and promotion
7. General and administration
8. Other operating costs

Source: (Doganis, 2002)

• Direct Operating Costs

There are five items in flight operation costs: flight crew, fuel, airport charges, aircraft insurance, and leasing costs. Flight crew costs include direct salaries, travelling and stopover expenses, as well as allowances, pensions, insurance and any other welfare payments. Cockpit crews' salaries depend on aircraft type, as in general the larger the aircraft the higher the salaries are. Flight crew costs can be calculated on a route-by-route basis or expressed as an hourly cost per aircraft type. Therefore, the total flight crew costs for a particular route or service can be calculated by multiplying hourly flight crew costs of the aircraft being operated on a route, by the block time for the route. For fuel costs, this cost element is aircraft specific. Fuel consumption varies by aircraft type, number and size, or thrust of engines and type and age of those engines. During operations, actual fuel consumption varies by sector length, aircraft weight, wind conditions, cruise altitude, and so on. Fuel consumption is usually calculated based on the number of engines on the aircraft flying the route multiplied by the hourly consumption for that engine and by block time. In addition fuel costs also include fuel charges levied by some airport authorities and government levied fuel taxes. Next cost item is airport charges which have two elements a landing fee and a passenger charge. The landing fee relates to maximum take-off aircraft weight and a passenger charge levied on the number of passengers boarding at an airport. Some airports collect the fee directly from each passenger on departure, which does not appear as an airline cost. Airlines also have to pay en-route navigation charges to cover the cost of en-route navigation aids their aircraft use while flying. This charge relates to aircraft weight and distance flown over a country's air space. For aircraft insurance, the annual insurance premium is calculated as a percentage of the full purchase price which may be between 1.5 per cent and 3 per cent. The annual premium can be converted into an hourly insurance cost by dividing it by the total number of expected block hours during the year. The last item in this category is the rental/ lease of flight equipment/crews. Leasing aircraft is increasingly widespread among airlines. There are two types of lease: operating and financial leases. Operating leases are generally five years or less then after leasing aircraft ownership remains with the lessor, while financial leases are 10 years or more, which after ownership transfers to the airline. The second category for direct operating costs is maintenance and overhaul. Maintenance costs include both routine maintenance and maintenance checks carried out between flight or overnight, but also more extensive periodic overhauls and major checks. Major costs here are the cost of maintenance staff and spare part consumption. Depreciation and amortization are the last cost element in this cost category which includes amortization and depreciation of capital leases, office/flight/ground station equipment and other fixed assets (Doganis, 2002).

- Indirect operating costs

Indirect operating costs include station and ground expenses, passenger services costs, as well as ticketing, sales and promotions, and general and administrative costs. The first groups of indirect operating cost are station and ground costs involving airline services provided at an airport. These include salaries and expenses of all airline staff at the airport base, lounges, ground handling equipment, ground transport and office equipment. The second item for indirect operating cost is passenger services, passenger services costs can also be divided into three groups. The first group is pay, allowances and expenses related to aircraft cabin staff such as hotel and other costs associated with overnight stops. The second group is costs directly related to passengers for instance in-flight catering, transit passengers' accommodation, meals, other facilities provided on the ground for passenger comfort and expenses incurred due to delayed or cancelled flights. Finally is the annual premium insurance charge for passenger liability insurance and passenger accident insurance which depends on each airline's safety record.

Ticketing, sales and promotion costs are the third item which included commission of fees paid to travel agencies for ticket sales, credit card companies, global distribution systems, as well as the cost of retail ticket offices and all promotional expenditure. Finally, General and administrative costs normally include only those cost elements which cannot be allocated to any categories (Doganis, 2002).

B. Cutting staff costs

This section will analyze cost elements traditional airlines have eliminated. Table 2 shows the distribution of total operating costs between various cost elements. As discussed before, staff costs are associated with many other cost elements so it is summarized as one cost element representing total staff costs. It is clear then that staff costs are the most significant cost element in airline operating cost followed by fuel cost and rental (Dempsey and Gesell, 2006).

Table 2: Breakdown of airline operating costs 1969- 2004

Cost	*1969*	*1973*	*1980*	*1990*	*1995*	*2004*
Staff salaries & benefits	40.9	45.6	37.3	33.8	36.3	31.5
Equipment rentals	n/a	n/a	1.8	7.1	15.5	8.7
Fuel & Oil	12.4	12.1	31.0	17.7	11.6	18.0
Travel agent commissions	2.5	3.2	3.4	10.0	9.3	1.6
Food	3.6	3.9	n/a	n/a	3.4	2.0
Landing fees	1.9	2.6	1.7	1.8	2.2	2.2
Advertising and other promotions	2.9	2.4	1.7	2.1	1.7	0.8
Interest on debt	3.8	3.3	n/a	n/a	n/a	n/a
All others	32.0	26.9	21.2	27.2	20.0	35.2

Source: Adapted from Dempsey (2006)

It also shows staff costs are the largest proportion of operating cost for both low cost and traditional carriers. As shown in table 3, Morrell (2005) compares airline operating costs between Southwest Airlines and US Airways. This shows Southwest's staff cost as 39% and US airways' as 40.8% which differ by 1.8 %, followed by fuel and maintenance costs.

Table 3: Operating Cost for Southwest and US Airways

Cost Category	Southwest (%)	US Airways (%)	% point different
Staff costs	39.0	40.8	-1.8
Fuel	14.9	9.8	+5.1
Maintenance	7.6	5.1	+2.5
Sales commissions	1.1	1.6	-0.5
Landing/rents	6.8	5.4	+1.4
Aircraft rent/ depreciation	10.6	10.3	+0.3
Other	19.9	27.0	-7.1
Total	100.0	100.0	

Source: Airline annual reports, Morrell 2005

Most costs categories depend on external environment for example, fuel and oil, interest rates, landing fees or aircraft costs which are difficult to control. It seems staff costs are potentially the most controllable operating costs. Traditional airlines focus closely on staff cost elements and service costs to cut airline operating costs (Doganis, 2001). So, controlling staff costs is seen as key for airlines success.

Staff costs typically range between 30-40% of operating costs which is the biggest single airline expense. Staff cost elements include salary, benefits, payroll taxes for management and any associated social charges. According to several airlines, management and administrative staff often account for about 10% of labour costs, pilots 31-35%, flight attendants 13% and mechanics about 13-16% (McCartney, 2002). Traditional airlines have tried to reduce staff costs through salary and benefit reductions, and productivity improvements. Several legacy airlines have attempted to freeze or reduce salaries or benefits, employ new staff on less general terms and conditions or even lay off staff. According to the Association of Flight Attendants there are about 100,000 flight attendants in the United States down from about 125,000 in 2000 and their income has decreased by 20 percent (Higgins, 2008).

In 1994, Delta Airlines planned to reduce its operating cost of flying a seat one mile (available seat mile or ASM) from 9.26 cents to 7.5 cents by 1997, by slashing its costs 19% over three years. Delta achieved this target by using aggressive restructuring plan to eliminate 20% of its work force, outsourcing, and reducing staff benefits (O'Brian, 1994). Delta then eliminated 4,500 full time customer service employees, and in 2005 announced it would outsource nearly half its major airline maintenance and overhaul work. This contract aimed to save $240 million a year and cut its heavy maintenance costs by 34% over five years but 20% of staff would lose their job (Field, 2005). These changes ruined the Delta corporate culture of labour management harmony, service levels dropped sharply, hundreds lost luggage and angry passengers abounded (Dempsey and Gesell, 2006).

III. Outsourcing

Some airlines outsource labour intensive activities such as ground handling, ticketing, catering, cleaning and maintenance services to control salaries and benefits. They have long contracted other airlines to provide activities where larger airlines have operations and which leads to economies of scale. British Airways outsource ground transport at Heathrow and Gatwick airports and sold catering department to Swissair's Gate Gourmet. In turn Aer Lingus sold its entire maintenance division to FLS engineering (Doganis, 2001). Low-wage airlines like Continental and American West have outsourced functions as such maintenance services. ValuJet outsourced heavy maintenance and reservation. United contracted out sky cap and cleaning services then sold off its catering unit to Dobbs, for $120 million. As a result it saved $71 million of catering renovation resulting in savings of $320 million over 7 years. Airlines may even outsource staff from lower salary countries. For instance, Japan airlines outsourced staff from Thailand and Singapore, which are lower salary countries or from the UK and Germany which are relatively lower wage countries. A Thai flight attendant is paid about 10% of a Japanese flight attendant salary but is well paid in comparison to other jobs in Thailand. Japan Airlines offered local staff as much as $600,000 to quit their job and stopped employing Japanese flight attendant in 1992 then replaced them with overseas staff on less favorable terms and conditions. In 1989 4% of staff were non Japanese by 1998, 28% of all staff were not Japanese (Reitman and Sapsford, 1994). Singapore Airlines and Austrian Airlines also outsourced overseas staff members while the former employed staff from Malaysia and Indonesia the latter employed accounting staff from India (Dempsey and Gesell, 2006).

IV. Fuel Price Hedging Program

Fuel costs represent 10-20% of operating costs which is the second biggest cost element. It is difficult to manage this as fuel costs are an external factor. Over the past several years fuel costs have risen substantially, putting a pressure on airlines to control operating costs. In 2000 West Texas Intermediate Crude stood at $30.30 per barrel and it increased to 63.27 per barrel by 2006.

Table 4 Price of West Texas Intermediate Crude Oil

Year	*Price per Barrel ($ USD)*
2000	30.30
2001	25.92
2002	26.10
2003	31.14
2004	41.44
2005	56.48
2006	63.27

Source: Air Transport Association of America

However, airlines can protect themselves against the risk of rising fuel costs by fuel price hedging programs. A fuel price hedge program is a contractual tool where an airline commits to buy fuel at an agreed upon fixed price at some point in the future, regardless of the market price at that time. If the market price is above the agreed upon fixed price, the buyer gains. If the market price is below the agreed upon fixed price, the buyer loses (Barton, 2008). Table 5 shows fuel expenses and hedging strategies for US domestic airlines.

Table 5: The fuel expense and hedging strategies for the US domestic airlines.

Company	*ASM FY 2003 (in Millions)*	*Fuel as a % of Operation costs FY 2003*	*Avg % of Fuel Hedge FY 2004*	*Avg % of Fuel Hedge FY 2005*
Airtran Holdings	10,046	21.5	35	**12**
America West	23,373	16.4	11	**0**
American	165,209	15.2	12	**4**
ATA	21,126	19.2	0	**0**
Continental	78,385	14.5	0	**0**
Delta	134,000	13.8	32	**0**
Frontier	2,841	17.9	7	**0**
JetBlue	13,639	17.8	40	**0**
Midwest Air	2,968	19.6	0	**0**
Northwest	88,593	15.9	0	**0**
Southwest	71,790	15.2	82	**60**
United	136,630	13.7	0	**0**
US Airways	**58,106**	**11.7**	**30**	**5**

Source: Company SEC filing and Carter et. Al. (2002)

From table 5, in 2003 fuel cost averaged over 16% of total operating costs for US domestic airlines. Southwest airlines and JetBlue were industry leaders in fuel hedging with 82% and 40% of expected 2004 fuel consumption hedged as of December 2003, both airlines stated fuel hedging is key to their low-cost strategy and believe this strategy forms a competitive advantage. Across 2001 – 2003, Southwest cut its annual fuel costs by $171 million, $45 million, and $80 million, respectively, through its fuel hedging program. Like Southwest, JetBlue managed their fuel costs by using fuel hedging program. In 2002-2003 JetBlue reduced its annual fuel costs by $4 million and $1 million respectively (Cobbs and Wolf, 2004). While some major airlines did not use fuel hedging program such as American, United or Northwest. These airlines risk taking rising fuel price into their business model. They pass fuel costs on to passengers by adding fuel surcharges to airfares. However, when fuel prices rise dramatically airlines cannot pass all of the cost on to passengers (Zea, 2002).

Fuel hedging programs have several advantages. Firstly, hedging airlines can better predict future expense and earning, which help increase financial market confidence. Secondly, hedging lets airlines take advantage of investment opportunities when fuel prices are high. Carter and Simkins (2002) show measurable fuel hedging by airlines can increase the value of the firm an estimated 12-16%. There is therefore a positive correlation coefficient between airline valuation and the airline's fuel hedging levels.

V. Charge for Catering and Luggage

Some network airlines cut their costs allowing them to lower their airfare by no longer offering a free meal. Cutting all catering reduces both direct and indirect costs. When airlines have no catering service they can reduce turnaround time as the aircraft does not need to be cleaned and catered. They can also gain more seats when galley space is replaced by seats. Further, cabin staff can be reduced to the safety minimum. The US Airways Group was the first major American airline to charge for coffee and sodas, although the Association of Flight Attendants objects to collecting the $1 and $2 fees for non-alcoholic drinks. United Airlines no longer offers a free meal on short-haul economy flights. However, fresh food menu or snack box options are available for purchase $7USD and $5USD each. Alcoholic beverages are also available for purchase.

Low-cost carrier success has forced a revaluation of short-haul product by traditional airlines. Low cost airlines either offer no catering or a basic paid-for-service and their airfares are only half or less of the network airlines. Then, suddenly free catering became the most visible symbol of difference between operators. Traditional airlines have gradually reduced economy class free meals. This not only saves money but increases business class product differentiation. The argument being that no-one buys an air ticket because of the food. So if ticket prices can be cut through cutting out food, commercial success will follow. However, the danger for traditional airlines is that they can never match cost levels and average fares of low cost airlines. If inclusive economy class catering is eliminated, passengers may then see no reason for using these

airlines. Dennis (2008) argues legacy carriers have rushed to strip out catering provision on short-haul flights. They believe the Frequent Flyer Program is the only frill valued by passengers. Most of these airlines have performed very poorly, not helped by negative passenger perception coming from no in-flight service, disillusioned staff and fares often higher than Southwest or Jet Blue

In the United States, in May 2008, five of the six major airlines started charging passengers up to $25 for a second bag. This new fee was levied by Continental, Delta, Northwest, United and US Airways. American Airlines announced that it would charge a $15 fee for the first checked bag, on top of the $25 second bag. United Airlines and US Airways then applied this fee as well. While Delta did not join the other major airlines charging for the first bag, it doubled the fee for a second bag from $25 to $50. United estimated that new baggage fees would generate about $275 million revenue a year. Although full service airlines in the US attempted to charge passengers more and more, Southwest, the largest low fare US airline, did not join other airlines in charging fees for previously free features, such as checking bags, and turned its decision to forgo them into a marketing campaign. "Bags fly free," the airline declares on its Web site that passengers can check two bags free, and must pay for the third. Gary D. Kelly, Southwest's chief executive said the airline remains reluctant to add baggage charges, even though it is studying whether to impose other fees, which the industry calls "ancillary revenue." This situation even gives it a big advantage over those airlines to gain more passengers (Maynard, 2008).

VI. ESTABLISH A SUBSIDIARY LOW COST CARRIER

In one competitive response to the growth of new entrants, traditional airlines establish their own carriers using the low-cost no-frills business model. Of many attempts to set up a no-frills low-cost carrier as a subsidiary of a traditional airline however, most have failed. Table 6 shows an overview of both inactive and active low-cost subsidiary airlines where their mainline also operate both a full-service network carrier and low cost carrier business model.

Table 6: closed down and active low cost unit in the same airline grouping

Closed down		Active	
Airline Grouping	**Low-cost unit**	**Airline Grouping**	**Low-cost unit**
Continental Airlines	Continental Lite	British Midland	Bmibaby
United Airlines	Shuttle by United	KLM	Transavia (Basiq Air)
United Airlines	Ted	Lufthansa/Eurowings	Germanwings
Delta Airlines	Delta Express	Qantas Airways	JetStar
Delta Airlines	Song	Qantas Airways	JetStar Asia
US Airways	MetroJet	Japan Airlines	JAL express
KLM	Buzz	Thai Airways	Nok Air
British Airways	Go	Singapore Airlines	Tiger Airways
Lufthansa	Lufthansa express		
Frontier Airlines	People Express		
Austrian Airlines	"Austrian Bratislava"		
Air Canada	Zip, "Tango" 2004		
SAS	Snowflake		
Finn air/Nordic Air link	Fly Nordic		
LOT	Central wings		
Qantas Airways	Australian Airlines		
Air New Zealand	Freedom Air		

Source: Compiled from Graf (2005) and Airlines' website

Continental Airlines, the US' fifth largest carrier, established its subsidiary low-cost carrier Continental Lite to compete in the low cost carrier market. Before it closed down Continental Lite offered low-cost flights, primarily east of the Mississippi River. Continental then changed its pricing structure, moving away from many of the bargain-basement fares which had cut into the airline's profitability. In 1994, Continental Airlines suffered a monthly loss of about $55 million, of which up to 70% could be attributed to Continental Lite. Kevin C. Murphy, an airline analyst at Morgan Stanley, stated that Continental Airlines is a business where trying to do one thing well is difficult enough (Bethune and Huler, 1998).

United Airlines announced low cost service called Shuttle by United in 1994 to compete primarily with Southwest Airlines. Shuttle operated along the West Coast of the US and offered fares as low as $62 for every seat on every flight, some of which are comparable to Southwest's fares. But the Shuttle's customer received some frills, like a seat assignment at the airport and the right to earn mileage in United's frequent flier program. Shuttle eventually shut down in 2001 because it could never get costs low enough. After Shuttle, United Airlines attempted to launch another low-cost airlines, Ted. Ted was established in November 2003 based in Denver, serving 23 destinations in the United States and Mexico with 57 Airbus A320 aircrafts 156 seats with all economy class. Ted served the market for 5 years, and was shut down in June 2008 due to the jet fuel crisis.

Delta Airlines launched Delta Express as no-frills airlines in 1996 based in Orlando international airport serving 31 domestic markets, then replaced it with Song in 2003. Song was a subsidiary of Delta Airlines targeting leisure passengers, flying to 21 destinations in the United States and Caribbean. Delta discontinued Song in 2006.

British Airways set up GO in November 1997 based in London Stansted to compete in the European low-cost market, dominated by Ryanair easyJet and Debonair. In 2002 it was eventually taken over by easyJet with the reason given being that BA wanted to focus on the business it understood best, that of a full-service carrier.

The idea of running two different and actually conflicting airline business models simultaneously often leads to poor quality, dissatisfied customers, and discouraged employees (Porter, 1996). Many subsidiary low cost airlines' cost structure is the same as the mainline operation, which means lower fares might not even cover costs. One critical factor seems to be the degree of independence the low cost operation is given by the mainline operation. If a subsidiary low cost carrier is given an independent management it can build its own cost structure and business plan. The low cost airline can generate substantial cost savings by separate labour contracts, choose its own distribution channels even develop an independent network and timetable (Dietlin, 2004). However, when highly independent management is permitted cannibalization is inevitable. The low cost operation then competes directly with the mainline operation, since the low cost carrier operates point to point routes which are likely the same as the network carrier. Since a network airline has a very

dominant position in the market the low cost airline will start cannibalizing mainline operation in these markets. This was one of the main reasons why British Airways sold its low cost subsidiary airline GO (Dietlin, 2004).

VII. Intimate Low Cost Carrier Operation

Some traditional airlines in the US or Europe intimate economy class operations of low cost airlines. For instance, Swiss International Airlines changed its economy class on all its European flights in 2003 to make it more similar to the low cost carrier product. The Swiss economy class fare was reduced to match that of the low cost carrier. Booking online was introduced and only provided a purchased meal. This strategy let Swiss International Airlines' load factor increase 16 percent while revenue per ASK rose 3.2 percent, however yield decreased 11 percent (Dietlin, 2004).

One aspect of concern regarding the conversion of the short haul economy class product to a low cost offering is the seat availability of connecting passengers. The low cost operation which leads to a lower fare stimulates demand for travel. However where an airline is part of a global network with connecting flights between short haul and long haul flights, it might be that new passengers displace connecting traffic to the airline's long haul flights. If these connecting passengers do not obtain seats on the short haul connecting flight they will also miss the airline's long haul flight. This is very important because long haul flights may not maximize revenue and this will jeopardize mainline operation yield (Dietlin, 2004).

Conclusion

The competitive strategies adopted by the traditional airlines in reaction to the competitive threat from low cost airlines included setting up a low cost carrier subsidiary, introducing charged for catering and luggage, reducing staff cost and intimating low cost carrier operation. Reducing staff cost and improve staff productivity are successful strategies for the traditional airline because staff cost is the great proportion in airline operating cost. This strategy causes a little negative impact to passengers. While setting up a low cost subsidiary is a very inefficiency option because running two brands under the same umbrella leads to incompatibilities of business management.

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