Viability of the Premium Airline Business Model - Analysis of business class-only services offered by Eos Airlines, MAXjet Airways and Lufthansa, Swiss, KLM in cooperation with PrivatAir Herausgeber: die

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Herausgeber: die Professoren des Instituts für Transportwirtschaft und Logistik

Abstract

Between 2002 and 2005, Lufthansa, Swiss and KLM in cooperation with PrivatAir, start-up airlines Eos and MAXjet individually, launched scheduled business class-only services between Europe and the US. This paper qualitatively analyses the new business model from the strategic and operational point of view. Different approaches based on pull or push motivation have been identified and the characteristics of the service offerings extensively examined. From the strategic aspect, the analysis has proven that the products have an inherent value benefit for the respective target group. It has been established that short and ultra-long haul routes are not viable for the business model. The main shortcoming of the offering is the lack of connectivity as opposed to network carriers, resulting in dependency on the local demand. For the start-up airlines, establishment of market presence and goodwill is critical. In the area of operating economics, pilot crew and navigation charges have a higher impact than in the mixed class operation. Airport charges and administrative overhead build a larger portion of total expenses in case of traditional airline services. No significant evidence against the viability of the premium airline model could be found.

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1. Introduction

When Lufthansa introduced business class-only flights from Düsseldorf to New York - Newark in June 2002 it was quite a revolutionary move. But was it so revolutionary? In the history of modern aviation, there have been similar milestones. In 1984, Virgin Atlantic challenged the industry by eliminating the first class service, which for the contemporary network airlines used to be a cost, rather than a revenue generator. The airline channeled the costs saved by cutting the first-class into a whole new level of service for the business-class passengers (Kim and Mauborgne 1997).

The same can be said about flying a big airliner with two or even three classes of travel from an industrial conurbation such as the Ruhrgebiet, north of the city of Düsseldorf, that generates sufficient business traffic but the economy compartment suffers from low load factors. If an airline wants to make money on such route, it needs to cut off the back part of the plane and commit the plane wholly to those who are paying for it. After all, they are paying enough. Small and start-up airlines face a similar type of reality. As research studies on small companies suggest, only those firms that are highly specialized[1] survive in today's volatile market (Sandvig and Coakley 1998). The idea behind this is relatively simple – a small firm will neither have sufficient specialists, nor the expertise or resources to be a generalist, i.e. to provide satisfactory service to multiple customer segments. This is particularly true for smaller airlines that compete in liberalized, competitive markets. If a small airline tries to compete against a network carrier in a specific market or route and also tries to serve all customer segments that the established airline is serving, the network carrier is going to beat both their quality and their price. The large extent of the incumbent's operations provides economies of scale and creates opportunities for leveraging expertise throughout the firm on a scope that cannot be matched by a small competitor. However, small players can break into the market by the means of specialization. By focusing on a particular target group and committing themselves to providing a better value to a particular market segment, the better value can in fact be achieved and provide a sustainable competitive advantage.

[1] or bring their core competency to a new market

Let us look back at the Virgin Atlantic example. Virgin was a small airline at the time of their start-up, but it managed to position itself by providing some very special service to the business segment. In Virgin's "Upper Class", business travelers receive specialty services such as hand massages, express pick-up on motorbikes, showers and clothes pressing in the lounges after arrival and other amenities that would be categorized as eccentric when first introduced. British Airways to this day could or did not want to match some of the Virgin amenities. Partly due to the enormous costs the upgrade of their services would cause (because of the larger scale of British Airways' operations) or because these service elements would not be a good fit with their corporate values which are rather conservative, as opposed to the youthful, dynamic Virgin. It needs to be kept in mind that a network carrier has a need for standardization – a certain level thereof is expected by the passengers – and a service upgrade at say the transatlantic route sooner or later needs to lead to an upgrade on other routes as well. A specific quality of service is one component of every airline's brand. Stark differences of quality within the same product range such as the "Business Class" would definitely drive down the value of the "Business Class" brand product. Since substantial standards upgrades are costly to copy for the competitor with large scale of operations, specializing in providing a unique business class-only product seems to be a good source of competitive advantage for a start-up airline. However, this advantage comes with certain conditions. First, that the service truly contains some premium or value added component when compared to the incumbent's/competitor's product. Second, this value has to be costly to imitate on a large scale. The Virgin Atlantic approach applied to the premium airline framework seems to be the best direction. It is possible that starting a premium business airline today is probably a better idea than starting a low cost carrier. The competition in the business class segment is surely as hard as it is in the lower end of the market, but for the competitor it is cheaper to increase the density of the seating and reduce some amenities than to upgrade the aircraft interior and especially, invest into the development of more sophisticated services.

Surely, the level of service has to respect the limitation of the market at the other end. Offering exorbitant luxury will most likely prevent competitors from imitating it, but it might also drive prices to levels that narrow the potential group of customers to a minimum or where sharing a private jet becomes an option. Or, the high costs of the service cannot be recovered at a price that would be accepted by the market. None of the options are attractive, which airline history has demonstrated; lessons can be learned from the examples of Concorde, Regent Air and MGM Grand Air, the predecessors of the single class premium airline model.

A differentiation strategy, i.e. serving multiple customer segments would for a small airline most likely result in insufficient load factors in one or more compartments of the plane. Having just one compartment with mediocre load factors can destroy the whole economics of an airline with a small scope of operations. Only network carriers have the capacities to pursue a differentiation strategy. Some opinions suggest that the differentiation could go even further than today and that four classes of service are going to be the next step, as is already reality with a few airlines (Shaw 1999:123). Nevertheless, small new entrants only have the option of focusing on a specific customer segment and serving it superbly.

This paper was inspired by the emergence of a new type of airline service, hereinafter referred to as the "premium airline model", first pioneered by Lufthansa in cooperation with PrivatAir in 2002 and followed by numerous other established airlines or new entrants adopting the principle. The approach with some variations was also replicated on the traditional London – New York route by the start-up airlines Eos and MAXjet. In all cases, the service is characterized by the long haul characteristics of the route, use of a single space cabin featuring business class standard and is primarily targeted towards business clientele. Like the no-frills model at the low end of the service scale, the premium model also has specific characteristics that are meant to be explored by this paper, since no evidence has been found that this has been done yet either by the academic community or other institutions. In particular, the viability of the business model shall be examined from the strategic considerations as well as the operating characteristics viewpoint. In detail, the following issues are addressed:

1. What are the characteristic features of the current business class-only products?
   (Chapter 2 – Premium Airline Model – Status Quo and Characteristics)

2. Is the existence of the premium airline model justified – e.g. by a presence of corresponding demand, provision of added or better value? (Chapter 3 – Justifications for the Existence of the Premium Airline Business Model)

3. What is the difference between the premium and traditional mixed-class model in terms of operating economics? (Chapter 4 – Operating Economics)

The option of analyzing the premium model from the short-haul perspective was also considered, but abandoned. The reason being is the rapid decline in the short-haul business class market due to cost pressure in companies that see the significantly higher prices for short haul flights as not justifiable. Results of a research survey (Exhibit 1) that was conducted among 20 major European companies have revealed that the allowance for business class on short-haul flights is significantly lower then for long-haul trips (Mason 2002), making the short-haul business class market unattractive for airlines. This has lead to the reduction of quality of the short haul business class service that can be subsumed under the term "Adjustable Curtain Strategy" (Ringbom and Shy 2002) or even full elimination of business class on short haul sectors – an approach chosen for instance by Aer Lingus (BTE 2006) – as opposed to quality improvements such as the flat bed seat in the long haul business class (Michaels 2005).

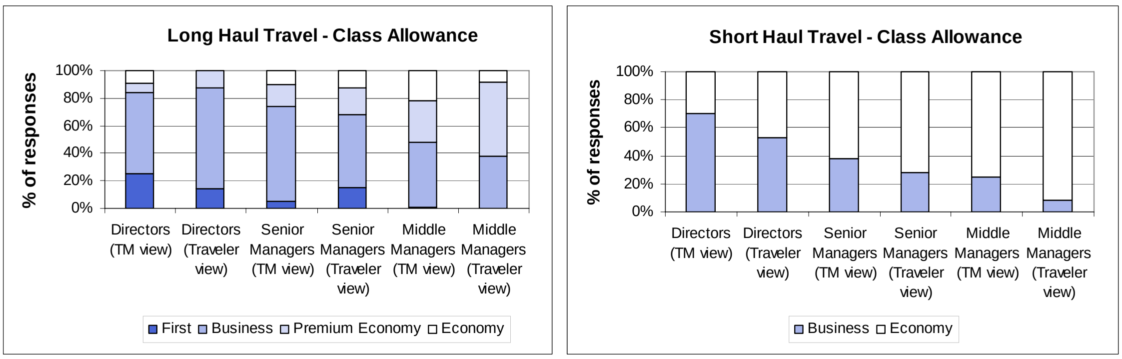


Exhibit 1 – Comparison of short and long haul travel allowance, includes travel manager (TM) and traveler views, in % of responses (Mason 2002)

Another option that was considered was the treatment of private jet ownership, especially fractional ownership or jet cards as a competitor to the premium airline model. However, this option was also abandoned because of the following facts: the share of long range jets is barely over 15% of the total number of jets in service (Rolls Royce in HSH Nordbank 2005) and the vast majority of these belongs to corporations; the focus of the jet sharing and jet card concept being on short and medium haul. The cost of sending a single employee or a small group on a long haul trip using a private jet is multiple times higher than having them travel by a scheduled service[2]. This puts the private jet travel in the segment of first class or higher and it is hence not treated as a competitor to business class airline services. Nevertheless, the jet sharing concept can be seen as a complementary product as offered for instance by Lufthansa in Europe – the passenger travels business or first class on the long haul leg of the route and switches to a private jet for the shorter continental leg of the trip (Lufthansa Private Jet 2006).

[2] I.e. a 5-year 1/8 fraction (equalling 100 annual hours) in a Falcon 2000EX (entry level jet in the segment of transatlantic range jets) is offered by NetJets (NetJets 2006) at a cost of $3.283 million. The monthly management fee (indirect operating expenses) is $24,638 and the occupied hourly fee (direct operating expenses) $2,792. That translates into an effective hourly rate of $11,410. A London-New York round trip (2*~7 hours) would hence incur roughly $160,000 expense – which equals about $32,000 per passenger if occupied by 5. This number would certainly decrease with the acquisition of a larger fraction; however, it would still be significantly above first class fare, notwithstanding the necessity to find multiple business executives needing to travel at the same time.

2. Premium Airline Model – Status Quo and Characteristics

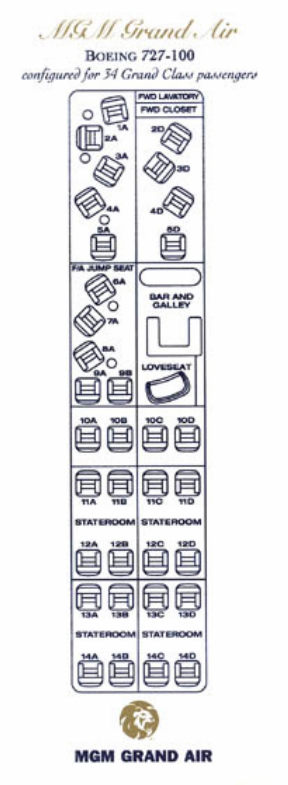
2.1 Predecessors

The history of commercial aviation has been full of examples of luxury in the skies. In fact, the act of flying itself had for a long time been considered a luxury. When tracing back the origins of the premium airline model, one could go as far as the very beginnings of transatlantic aviation. The trips on Zeppelins and Hindenburgs and later Boeing Stratocruisers were acts of expressing one's (family's) status, a social event underlining the exclusive nature of the trip. After World War II the availability of jet engines and the new generation of airplanes based upon these turned intercontinental flying into commodity. The only factor determining the different fares that passengers were paying was the quality of service. This was the time when the standard three (or two) class layout that we know today had developed. At this stage, there were seemingly not so many possibilities left for improving the business or first class passengers' satisfaction apart from two measures – significantly higher speed and a single class layout. Both were addressed by Concorde, a joint project of BAC and British Airways (BOAC at that time) on the British side and Aérospatiale and Air France on the French side.

As the reader may know, the Concorde, entering service in 1976, was the first and only commercial supersonic transport to fly a scheduled passenger service on a significant scale. Obviously, the fact that the Concorde was supersonic had overshadowed one more important landmark in the aviation history – it was also the first modern premium airline business model and featured a single class cabin layout. Moreover, Concorde stayed in service longer than any business airline start-up to that point. Obviously, we would have some problems approximating the economics of a Concorde operation to that of a subsonic counterpart such as Eos Airlines and it should be omitted at this place. A direct comparison to say, Eos Airlines, or any premium-class-only operation is not possible because neither British Airways nor Air France have ever issued any usable financial data about Concorde's operation. Also, we cannot precisely determine what portion of customers utilized the Concorde because of its speed or for other reasons that might be common with the premium model (business / high society ambience) (Trottman 2000). However, it is probably safe to say that the Concorde had revealed the existence of a distinct market segment – executive and other high-yield travelers demanding speed, exclusivity and efficient ground services.

The idea of providing dedicated service to high-revenue passengers had also been tried in the United States (Table 1). However, these trials bear little resemblance to their contemporary counterparts. Two of them worth mentioning are Regent Air (1982-1986, Los Angeles - Newark) and MGM Grand Air (1987-1994, Los Angeles and Las Vegas – New York, JFK). These airlines primarily targeted individuals from the show-business or rich clientele making a few days' trip to Las Vegas or Los Angeles. Both airlines had to close down their operations after a few years of existence and none of them had shown profit. Their lack of success can be attributed to the following factors (Wall Street Journal 1985, New York Times 1985, Wolfe 1995, Travel weekly 1987, Latham 1989, Airline Industry Information 2002, Patterson 2003):

- Lack of financing and lack of profitability resulting in further financial problems leading to conflicts with and action by the regulator
- Weak schedule (twice / four times a day) that offered little flexibility to customers; other airlines combined offered several dozens of flights per day on the same routes
- Fares were ranging between what would be equivalent to $3.000 (MGM) and $6.000 (Regent) in current prices for a round-trip. Especially in case of MGM, the price seems to be not high enough to have covered operating costs
- For the target high profile clientele, renting or owning a private jet is a substitute that provides substantially better flexibility
- Interior design in case of MGM Grand Air (Exhibit 2) is prohibitive to reaching break-even load factors – it is improbable that a required amount of seats at the given layout can be sold
- Not the most efficient aircraft (Boeing 727, Douglas DC-8) used – (during the 2nd oil crisis); additionally, due to obsolescence the Douglas aircraft had issues with complying to noise regulations



	MGM Grand Air	Regent Air	Concorde BA/AF
Period	1987-1994	1983-1986	1976-2000, 2001-2003
Routes	LAX-JFK, LAS-JFK	LAX - EWR	LHR-JFK LHR-IAD CDG-JFK CDG-IAD and other
Clientele	High-profile: actors, sport-stars, politicians	Business executives and high-profile	Business executives and high-profile
Aircraft	Boeing 727, Douglas DC-8	Boeing 727-100	Concorde
Seats	33	34	100/92
Price	$1,000 one way (~ $1,500 in current prices)	$1620 one way (three times the conventional first class, ~$3350 in current prices)	$12,725 round trip

Table 1 - Premium Airline Predecessors, compiled by the author (New York Times 1985, Travel Weekly 1987, Latham 1989, Airline Industry Information 2002, Patterson 2003)

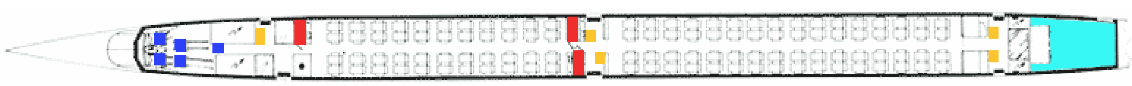


Exhibit 2 – MGM Grand Air cabin layout (top), Concorde cabin layout (single class British Airways version, bottom)

Images courtesy of www.airchive.com and www.concordesst.com

2.2 Status Quo

From the service level aspect, the premium airline product fits into the category of long-haul business class services. In contrast to traditional mixed class service where the cabin is subdivided into different classes of service (economy, business and frequently also premium economy and first class), the premium airline model cabin is designed as a single business class and all passengers receive the same level of premium service. To a larger or lesser extent, the premium airline service shares all features typical to a modern business class offering such as business class legroom (55-80 inch), reclinable seats (some into full flat beds), several course menu and wine selection on board, state-of-the-art in-flight entertainment (IFE), airport lounge access before and after flight, and potentially limousine, escort and concierge service. With the exception of Eos Airlines, the cabin layout (Exhibit 3) corresponds with common business class standards and will thus not be separately treated as such.

Exhibit 3 – Cabin views – 1) Lufthansa/PrivatAir 2) MAXjet 3) Eos Airlines (pictures taken from corporate websites)

Aircraft chosen for this operation are either narrow-body airliners with extended range such as Airbus A319LR (Airbus Corporate Jet), Boeing Business Jet (BBJ) or Being 757 or mid-size wide-body aircraft such as Boeing 767-200. The cabins accommodate between 50 and 100 passengers in business class standard, in contrast to cabins of the same size that would accommodate 150-300 if they were in economy class configuration.

The target customer group is usually well defined, even at the level of specific industries, e.g. automotive, oil and gas, financial services (pull motivation; Baloglu and Muzaffer 1996, Olver and Farris 1989) or the general "value-driven business traveler" (push motivation). Roughly, two types of routes can be identified; they correlate with the concrete type of target group:

1) A thin route, later referred to as the "Whole-Small-Pie Route", established and served exclusively by the premium airline service, motivated by a specific, existing demand (pull).

2) A well-established route, later referred to as "Small-Portion-of-a-Large-Pie Route" already being profitably served by multiple carriers, with the premium airline being a new entrant (push).

The positioning of the service also correlates with the type of route and the target group – traditional business class positioning can be found in the first type of route, a "value business class" positioning is supposed to create the demand in the latter case. The interplay among the type of route, target group and choice of aircraft will be analyzed in more detail later in this chapter. In order to provide a reality based background, the status quo of the current premium airline services will be outlined.

Currently, five airlines offer services that can be described as single premium class products: Lufthansa, Swiss, KLM and the US-based Eos Airlines and MAXjet Airways (Table 2). The first three airlines contract the service from PrivatAir, a Swiss operator specializing in luxury private charters and recently becoming successful as an outsourcer of premium airline operations. Another new entrant in the segment, UK-based Silverjet, has announced launch of its services for January 2007[3].

Airline	Operated by	Routes	Launch
Lufthansa	PrivatAir	Düsseldorf - New York (Newark), Düsseldorf - Chicago, Müchen - New York (Newark)	June 2002
Swiss	PrivatAir	Zürich - New York (Newark)	January 2005
KLM	PrivatAir	Amsterdam - Houston/Texas	October 2005
Eos Airlines	Own operation	New York - London (Stansted)	October 2005
MAXjet Airways	Own operation	New York - London (Stansted), Washington, DC - London, Las Vegas - London	November 2005
Silverjet	Own operation	London (Luton) - New York (Newark)	January 2007 (announced)

Table 2 – Current Premium Airline Operations

Currently, the premium airline service is exclusively transatlantic. The time zone-shift is responsible for the schedules being very similar; the flights in question typically depart westbound from Europe in the morning, land in the United States in mid-afternoon, and take off eastbound for an overnight flight with a morning landing in Europe. The east-west geographic separation and the distance between Europe and North America are beneficial because they enable high aircraft utilization. Airborne times of 15 hours and more a day can be achieved. Newer aircraft with high dispatch reliability are typically utilized 6 days a week, making for a schedule convenient to a business traveler and allowing for a day of maintenance per week. The start-up operators Eos and MAXjet typically keep one reserve aircraft on the ground. Selected flights and their characteristics are shown in Table 3.

[3] Air France has been offering a similar type of product under the brand "Air France Dedicate", utilizing Airbus A319-100 ER for scheduled flights to remote areas in Africa (Congo, Equatorial Guinea), Middle East (Qatar, Saudi Arabia, Kuwait) and Central Asia (Uzbekistan). The target groups are "professionals [in oil and gas industry] travelling to construction projects, production sites and other major areas of economic activity" (Air France 2006). However, the cabin is divided into business class and economy class – economy taking a larger part of the plane, which excludes the product from the definition of single class premium airline services and will thus not be analyzed in this paper.

Operator	**Lufthansa (GER)** operated by PrivatAir	**Lufthansa (GER)** operated by PrivatAir	**Lufthansa (GER)** operated by PrivatAir	**Swiss (CH)** operated by Pri-vatAir	**KLM (NL)** operated by Pri-vatAir	**EOS Airlines (US)**	**MAXjet Airways (US)**	**Silverjet (UK)**
Route	**Düssel-dorf-Newark**	**Düssel-dorf-Chicago**	**Munich-Newark**	**Zürich-Newark**	**Amster-dam - Houston AMS-IAH**	**New York - London JFK-STN**	**New York London JFK-STN**	**LTN-EWR**
Days per week	7	5 (X36)	6 (X6)	6 (X6)	6	7	6 (X6)	7
Primary Clientele	n/a	n/a	Pharma-ceutical	Bank sector	Oil sector	Value driven financial, business	Value driven business	Value driven business
Aircraft Type	A319 LR	A319 LR	BBJ	BBJ2	BBJ	B757-200	B767-238ER	B767-200ER
Seats	48	48	48	56	44	48	102	100
Pitch	58	58	55	60	62	78	60	75
Frequent flyer	Star Alli-ance	Star Alli-ance	Star Alli-ance	Star Alliance	Sky Team	Own, Club 48	Own, MAXflier	n/a
Round-trip	~ $4,000	~ $4,000	~ $4,000	~ $5,000	~ $5,000	$5,000-6,500	$2,000-4,000	~ $2,000 (launch)
Launch	June 2002	June 2003	May 2003	January 2005	October 2005	October 2005	November 2005	January 2007

Table 3 – Selected premium airline routes (compiled by the author from corporate websites)

2.3 Route

The bottom-line of an airline, as of any other business, is achieved by matching demand and supply. Airlines have little influence over the demand, but they can score by supplying quantity and quality that corresponds with the demand (Doganis 2002:6). This can be reached by serving a route where a certain demand is present with suitable aircraft. This is one part of the equation. The other part is that the unit revenues have to exceed unit costs (Doganis 2002:8). On routes with lower level of competition, e.g. the Düsseldorf-Chicago route, premium pricing in conjunction with sophisticated yield management can be applied to maximize revenue. On highly competitive routes, such as London-New York, the price is determined externally. Since routes with little competition are becoming seldom and attract new entrants, airlines have focused their efforts on maintaining control over the costs by shaping the offer in a fashion that it matches the demand. This chapter focuses on the critical components of the premium airline product – the choice of aircraft and route – which is the basis for future financial performance. Once the route and the aircraft have been chosen, the airline will have little influence over cost blocks such as crew salaries, fuel, maintenance costs and aircraft related ground services. Fundamentally, the type of aircraft is primarily a function of the route, apart from the requirements resulting from the desired level of service. Hence, we will first look at the route characteristics and consequently identify the appropriate aircraft types. From the observation of the premium airline market development, we can identify two types of routes:

1) "Whole-Small-Pie Route" (Pull Motivation) is a newly established route originating and terminating in areas with matching industry clusters and at least one endpoint rather unattractive for tourism. Hence, there is minimum demand for leisure travel, but a well-defined demand for business travel. Before the establishment of the route the demand had been satisfied by routing the business travelers into major hubs via feeding flights. It can be assumed that the information about the demand is quite readily available through a Global Distribution System's (GDS) statistics of transfers. To a certain extent the expected demand will be higher than the indication by the GDS data because of non-interlining feeding airlines and a certain portion of travelers using ground transportation to the hub. Also, fresh demand can be stimulated by the convenience of the new route and the demographic impact of the new service. The demand is usually not large enough to attract further new entrants; hence the first mover has the advantage of "eating the whole small pie". An example of such routes would be Düsseldorf-Chicago with the main body of passengers coming from management in the automotive and manufacturing industry and Amsterdam-Houston with a significant share of business travelers from the oil and gas industry.

2) "Small-Portion-of-a-Large-Pie Route" (Push Motivation) is an established major route with enough leisure and business travel to support multiple flights a day offered by multiple carriers. The route is characterized by strong competition but due to large passenger volumes it still attracts new entrants. These hope to take away some of the market share of the incumbents by offering a business product that is different from the established airlines. Possibly, the route is also characterized by growing passenger volumes which gives room to new entrants. A typical example of such route would be the London-New York route (NATS 2006).

As can be seen from the characteristics of the routes and previous discussion of the decline in the short-haul business class, the routes suitable for the business model are exclusively those of long-haul nature (for possible resolution of long-haul, medium-haul and short-haul see AEA 2006:3). It is thinkable that medium-haul routes such as from Europe to the Middle East would still fall into the category; predictors being the growth in the region as well as upgrades in the quality of existing business class products (Curley 2006). Regarding the viability of the model on ultra-long haul routes, i.e. over ~10 hours, the phenomenon of decreasing passenger volumes with increasing sector length needs to be examined.

It can be established that there is generally more exchange of goods and persons on short, medium and long distance than on ultra-long distance. One can illustrate the trend on the example of Germany. Passenger exchange with economies at a similar stage of development and of comparable dimension falls significantly as the geographical separation increases above roughly 10.000 km (Table 4). Whereas the exchange between Germany and its counterparts within the 10.000 km circle is rather high (France – 4.2, UK – 9.1, US – 6.4 million passengers in 2004), the passenger numbers for economies outside this circle are very low (Japan – 0.7, Hong-Kong[4] – 0.3, Australia and Oceania – 0.6 million). Also, it is important to note that the level economic exchange decreases proportionally with the growing distance, implying a similar downfall in business travel. At the same time, there is always a significant share of leisure / visiting-friends-and-family travelers on most of these routes. Hence, the use of mixed class ap-

[4] Hong Kong has a population of only about 7 million, but represents a trading spot for a much larger, international catchment area

proach is a logical consequence. These thin routes are already being served by network carriers who use their extensive networks to feed the passengers into hubs. Based on these observations (and the fact that narrow-body aircraft are not suitable for ultra long-haul operation – see chapter 2.4 Type of Aircraft), it is safe to say that the premium airline model is not viable on ultra long-haul routes.

	France	Italy	United Kingdom	USA	Hong-Kong	Japan	Austr.& Oceania
Air Travelers (m)	4.2	6.6	9.1	6.4	0.3	0.7	0.6
Imports from (m€)	54,627	35,589	39,414	41,342	1,994	21,435	1,263
Exports to (m€)	79,871	54,374	61,681	69,311	4,093	13,330	5,040
Imports + Exports (m€)	134,498	89,963	101,095	110,653	6,087	34,765	6,303

Table 4 – Passenger and economic exchange statistics of Germany in 2004. Compiled by the author from Deutscher Verkehrs-Verlag 2005:196-197, Statistisches Bundesamt Wiesbaden 2006

2.4 Type of Aircraft

The choice of the right aircraft is a crucial decision and has to reflect the following aspects:

- Expected passenger volumes (size)
- Route on which the aircraft is going to be operated (range)
- Favorable operating costs
- Suitability of the type or the type family for future routes

As discussed above, a typical premium airline route will be supporting aircraft capable of carrying between 50 and 100 passengers in business class configuration and the required range will in most cases be between 4.000 km – 10.000 km. This limits the choice among new aircraft to narrow-body extended range airliners of the Boeing 737 or Airbus A320 family and the popular long-range narrow-body Boeing 757-200 (Table 5). Out of the airlines in question, MAXjet and Silverjet, the "value business class" operators, have decided for the medium-sized wide-body Boeing 767-200. Among new aircraft, the Boeing 737 family (Boeing Business Jet 1-3) and the Airbus A320 family (A318 Elite - A319LR/ACJ - A320 Prestige) seem to be the aircraft most suited for the premium airline business model. The individual types within the family possess common cockpits and the majority of the parts are identical. This allows for addition of future routes with slightly different characteristics and easy integration into the existing fleet. The premium airline can thus enjoy the same advantages that low cost carriers have partly built their success on, such as economies of scale in operation, especially in terms of maintenance and pilot training. In addition, both manufacturers offer the installment of a variable number of removable auxiliary fuel tanks for these aircraft families; this way the range and the size of cargo compartment can be varied according to the route requirements and no unnecessary weight needs to be carried.

	Airbus A318 Elite	Airbus A319LR	Airbus A320 Prestige	Boeing Business Jet 1 (737-700)	Boeing Business Jet 2 (737-800)	Boeing Business Jet 3 (737-900)	Boeing 757-200	Boeing 767-200
Availablility	New	New	New	New	New	New	Used	New/Used
Range (km)	7,400	8,300	8,565	9,936	8,853	8,825	7,222	12,223
Cargo volume with max aux tanks	330 cu ft	n/a	n/a	160 cu ft	745 cu ft	n/a	1,670 cu ft	2,875 cu ft
Fuel Burn (gallon/block hour)	n/a	821	886	690	564	n/a	900	1,217
MTOW (ton)	146	169	n/a	78	79	n/a	116	179
Cabin Area (sq.ft)	823	917	1,058	807	1,004	1,120	1,248	1,667

Table 5 – Suitable aircraft (compiled by the author from the manufacturers' websites, Eurocontrol 2006 and ICAO 2000)

As stated earlier, the only relevant routes for the premium airline model are routes with sector lengths with the flight duration between 5-10 hours. That translates into sectors of 4000 km or more and means that a suitable airliner generally has to have intercontinental range. Also, since most of these routes will be at least partly over oceans, an ETOPS rated twin engine airliner or a 3- or 4-engined airliner is a necessity. The last two mentioned can be excluded because they will not be an option due to their significantly higher operating costs as opposed to modern twins. All aircraft in Table 5 are ETOPS certified. Among the used aircraft that would be alternatively suitable for the operation, Boeing 757-200, featuring intercontinental range and state-of-the-art fuel efficiency can be identified as a likely choice. However, the operator gives up on the possibility of using smaller aircraft from the same family in case new, thinner routes are opened. The same applies to Boeing 767-200.

The discussion on the viability of the ultra long-haul premium operation above focused on the demographic restraints. At this place it should be noted that in case of narrow-body airliners, the restraint also lies in the aircraft itself – most of them have insufficient range for such operation and further auxiliary fuel tanks would possibly mean high cost for the certification or even necessary additional strengthening of structural parts or reduce the size of the cargo/luggage compartment to a minimum. This would make an operation with 50 passengers impossible. Substantial reduction of passenger numbers as an alternative to the installation of additional fuel capacities should not be considered. A reduction by 25 passengers in a Boeing Business Jet 2 results in a range increase of only about 1.000km (Boeing 2006).

2.5 Market Entry Barriers

Until recently, and in many countries still, markets for air travel have been difficult to enter because of the presence of a multitude of market entry barriers when compared to other industries. Although a lot of countries and their regulators have done a lot of work in order to open the markets to new entrants and stimulate more competition by the means of liberalization, liberalization is not a universal cure. The remaining barriers are still significant and lie in the nature of the business (Shepherd 1997:76 in Kummer and Schnell 2001:33). Moreover, as a reaction to successful liberalization efforts established carriers have often compensated the situation by creating strategic barriers of their own, turning the character of the markets from contestable to non-contestable again (Joesch and Zick 1994). These barriers include, among others, frequent flyer programs, code-sharing (Kummer and Schnell 2001:36) and Limit-Pricing (Modigliani 1958 and Sylos-Labini 1962 in Kummer and Schnell 2001). Joesch and Zick (1994) established on a sample of 19 US destination markets that

"it appears that the failure of numerous airlines during the mid-and late-1980s allowed the remaining carriers to strengthen entry barriers and gain more control over fares in those markets where there was less competition."

The barriers mentioned above are of relevance mainly to the newcomers such as Eos Airlines or MAXjet and to a lesser extent, they have implications for the new types of services that are introduced by established carriers.

Perhaps one of the most important barriers in respect to newcomers is their lack of goodwill (Baker and Pratt 1989) and the associated sunk costs, most of which need to be spend in the area of marketing. Whinston and Collins (1992) even suggest that it is possible to judge the extent of sunk costs by the movements of stock market in reaction to new routes announced by a newcomer.

As will be discussed later in the chapter 3.3 Provision of Better Value for the Traveler – "Verkehrswertigkeit", the biggest weakness diminishing the value of the premium airline offer is the lack of network effects. This finding is in line with the responses Kummer and Schnell (2001:101) have received when questioning top airline executives about the effectiveness of measures in terms of their contribution to an airline's financial performance. The top 5 measures listed were "Strategic alliances", "Increasing frequency of flights on existing routes", "Code-sharing agreements", "Frequent-flyer programs" and "Adding of new routes"; "Hub-and-spoke system" ranking 6th. It can be seen that measures fortifying network effect are perceived as very effective from the point of view of established airlines. From the customer's viewpoint, the acceptance of frequent flyer programs is especially remarkable. The success of the programs is supported both by the fact that virtually every major airline offers one as well as by research. A study by Long et al. (2003) indicates that frequent business flyers "view accruing points as an accomplishment" and even suggest a link between overall quality of life of a business traveler and frequent flyer programs (Exhibit 4). However, Whyte (2002) claims that

"[frequent flyer] schemes create spurious loyalty and that the issue of loyalty is much broader than merely accepting repeat purchase as a proxy for customer satisfaction. Rather it is the conditions and circumstances surrounding the relationship and how it is maintained that were found to be important factors."

In other words, the instalment of frequent flyer program itself is not the automatic key to success. New premium airlines can still score by designing a program that best addresses the business traveler's expectations.

	Group[a]	Mean[b]	*t*-value	DF	Probability
I'm generally happy with my lot in life	1	1.85	-1.75	177	0.082
	2	2.15			
The benefits received from frequent flyer programmes add to the quality of my life	1	2.17	-1.99	176	0.049
	2	2.55			
In my opinion, the amount of flying I do adds to the quality of my life	1	3.18	-4.42	180	0.000
	2	4.28			

[a] Group 1, happy frequent business travelers; group 2, unhappy frequent business travelers.
[b] Mean scores on seven-point Likert scale with 1='strongly agree' and 7='strongly disagree'

Exhibit 4 – Differences between happy and unhappy frequent business travelers on quality of life variables (Long et al. 2003)

Another important barrier is the lack of information about demand, which translates into a requirement for expensive market research (Kummer 2001). However, this is not necessarily the case of airlines that were founded by former airline executives, such as Eos airlines.

An important barrier can be associated with the phenomenon known as the "ownership of strategic resources" in the form of slots (Kummer 2001) due to the mechanism called "grandfather rights" (explained in CAA 2004), meaning that once an airline "owns" a slot and utilizes it, the ownership is automatically extended in the next periods. This barrier is highly relevant to the airlines operating on the "big pie" routes or in case one endpoint of the flight is a hub airport. Point airports are typically not subject to this problem.

In sum, the above mentioned phenomena lead to a high start-up capital demand, which can be described as a barrier in itself, too. Consequently, the realization of a positive return on investment is typically of long-term nature.

3. Justifications for the Existence of the Premium Airline Business Model

3.1 Existence of a Distinct Market

While the premium airline model has "premium service for a business traveler" as a common denominator resulting in a similar products, the actual strategy background of the market players is different. Michael Porter distinguishes among three generic strategies (Porter 1980:ch.2): overall cost leadership, differentiation, and focus. Generally, it can be said that for an established carrier the new type of service can be seen as a component of differentiation strategy, while for start-up airlines the strategy will inevitably be the focus on a distinct customer segment. Adding another layer, one can identify the cost leadership approach within the focus strategy in case of the newcomers (Exhibit 5).

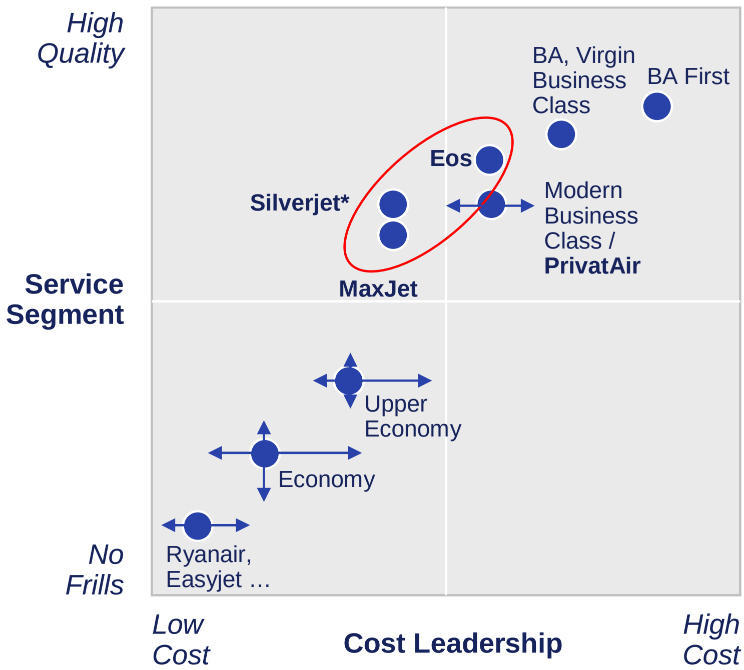


Exhibit 5 – Positioning of the different premium airline products *) Based on Silverjet's launch prices, regular prices have not been known to date

From Lufthansa's or any traditional carrier's point of view, the strategy characterizing their business class-only service is differentiation. By adding a new, different service (in terms of new local availability and form of service) to their broad portfolio of products, they target an important growing segment to capture a bigger overall market share. In the particular case of the business class-only service on a point-to-point or point-to-hub basis, the company draws new passengers that are now willing to travel or travel more because of the new service. But the majority of passengers are not new to the airlines. This specially tailored service, such as Lufthansa's Düsseldorf-Chicago route substitutes existing, less convenient routes for most of the clientele. The product is tailored to suit executives and managers from specific industries who would previously fly to or from the Greater Chicago area to Düsseldorf and the Ruhrgebiet area via Frankfurt or Amsterdam's Schiphol. They would have to drive long distances to the airport or use a feeder flight and change at least once during the whole trip.

Eos airlines, on the other hand, target a very small, distinctive clientele. Price minded New York and London financial districts' and Canary Wharf managers are supposed to constitute the main body of their customers. Since they are virtually the only well defined Eos airlines' target group, it can be said that Eos follows a combination of focus and cost leadership strategy. The 78-inch pitch, guest chair, off-set personal suites and other features position the product between business and first class.

MAXjet, with 60-inch pitch, less fancy interiors compared to cutting-edge business class products and pricing roughly at the level of premium economy class found in other carriers calls their product the "Affordable Business Class". Target customers are "savvy travelers who seek premium service, comfort and value" (MAXjet 2006a). MAXjet does not specify the target group further, but it can be anticipated that the typical customers could primarily be small and mid-size businesses' executives as well as value-driven leisure travelers.

3.2 Existence of the Value Driven Customer

As mentioned above, both market entrants MAXjet and Eos Airlines have built their positioning around the provision of a better value, apart from the premium standard of service (Exhibit 6). This leads to the observation that the strategy creators at these airlines believed in the existence of a value driven, price elastic business customer, regardless whether their assumption was based on scientific findings, industry experience or even a belief in self-fulfilling prophecy and a creation of a new market.

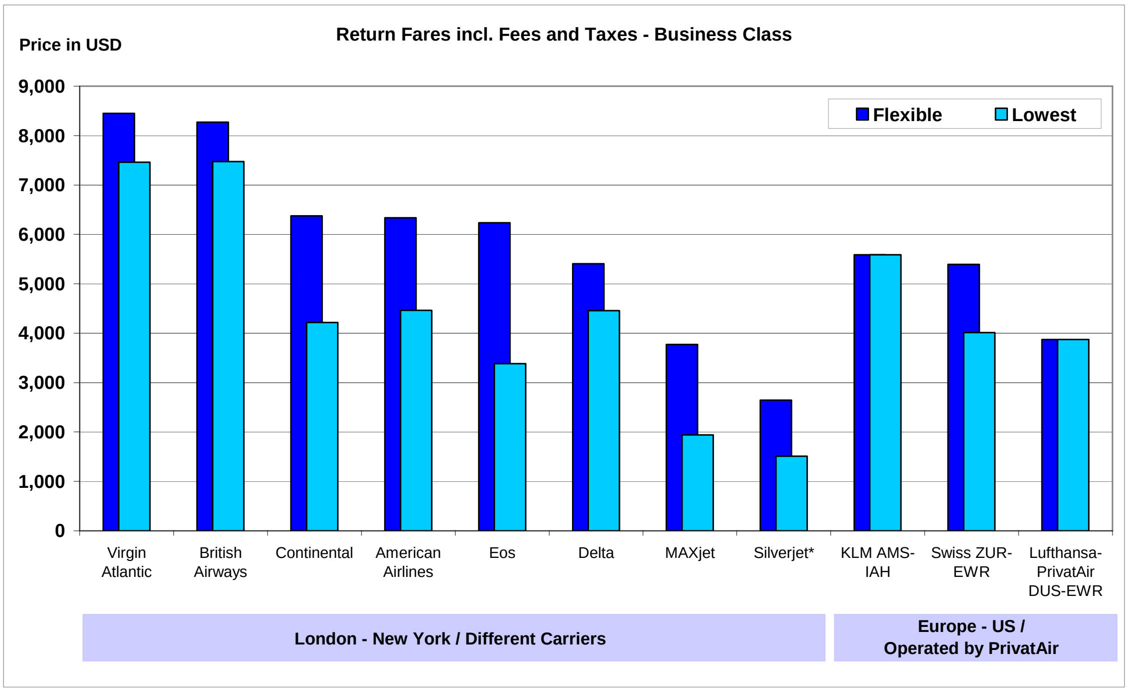


Exhibit 6 – Business class pricing: typical business trip - departure Monday, February 19, 2007; return Thursday, February 22, 2007; queried on November 19, 2006 (3 months prior to the flight) via Orbitz.com (all excluding KLM) and Expedia.com (KLM)

Not surprisingly, there is a lot of scientific support to the popular opinion that demand for business air travel is rather inelastic. The most obvious reasons are the higher cost of time, need for flexibility reducing the number of available substitutes and absorption of the cost by the firm and not the individual (Brons et al. 2001). The Department of Finance of Canada in cooperation with the Wilfred Laurier University in Waterloo analyzed the findings of several studies on demand elasticity in several market segments and came to the observation that long-haul international business travel (mostly Australia-UK) is indeed non-elastic (Gillen, Morrison and Stewart 2004) (Exhibit 7).

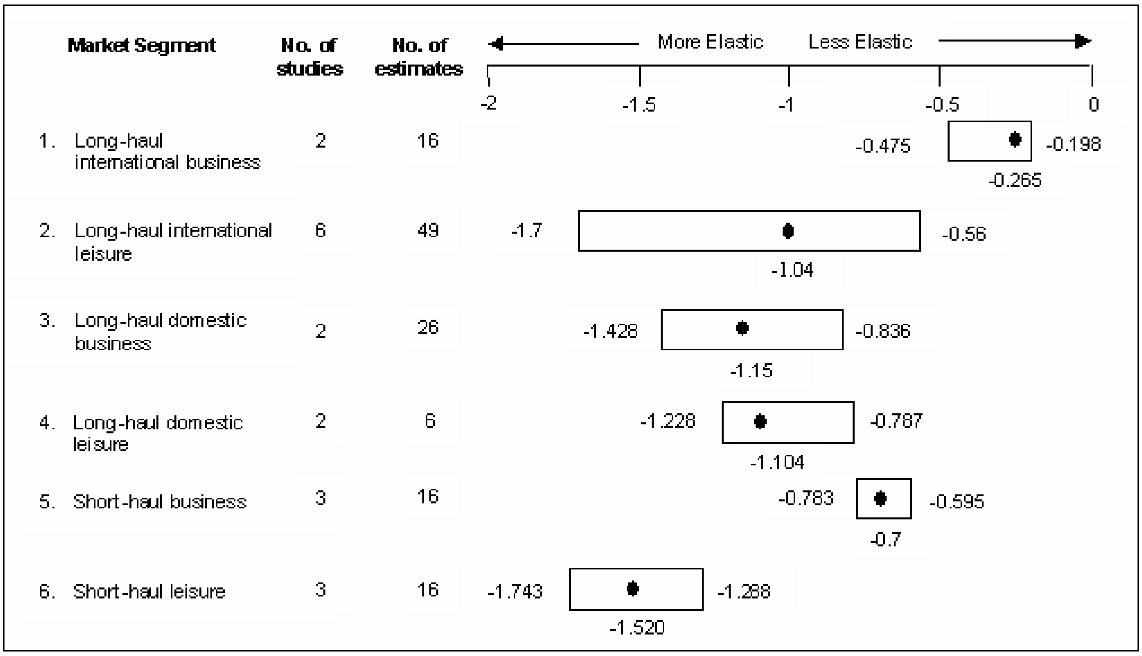
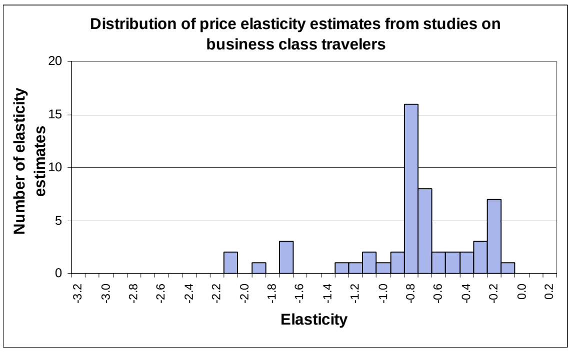


Exhibit 7 – Own price elasticity of demand (Gillen, Morrison and Stewart 2004)

However, the analysis also suggests that interestingly the domestic (mostly North-American) long-haul business travel is often rather elastic. Additionally, the fact whether the elasticity study was conduced focusing on business travelers or all customer segments seems to influence the results. Exhibit 8 shows that studies focusing on the business segment tend to obtain higher elasticity for business travelers than studies treating more segments. Further, it is possible to employ the time factor. A recent research suggests that compared to previous decades, business travel has become less (Brons et al. 2001) or more elastic (Fan and Leung 2005), depending on the market.



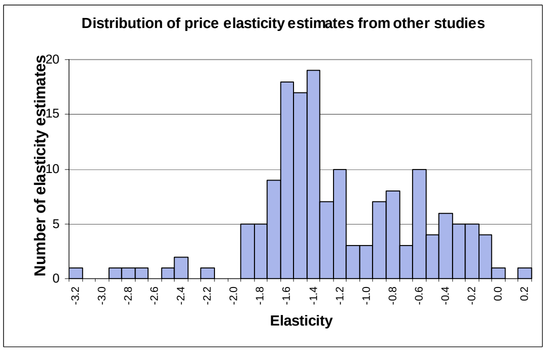


Exhibit 8 – (a) Distribution of price elasticity estimates from studies on business class travelers and other studies (Brons et al. 2001)

Therefore, it seems that it is not possible to establish with absolute certainty, whether there is such thing as the price minded business traveler. However, we can have a look at some basic lessons from micro-economics to help us find out where we might expect the presence of a value-driven business traveler. Generally, products with ready substitutes are more price-elastic than those without them (Samuelson and Nordhaus 2001:68). On the London-New York route with considerable competition and high density we can expect more price sensitivity than on say, the Düsseldorf-Chicago route. This thesis has also been supported by the findings of a recent study (Fan and Leung 2005) which examined the price differences on dense long-haul international routes. One of the conclusions was that the route-specific level of competition had a statistically significant impact on the fares. Put another way, airlines can charge more because the elasticity on a route with less competition will be proportionally lower. Also, according to microeconomic theory, demand becomes more elastic in the long term; this finding has also been confirmed for air travel by research (Brons et al. 2001). Furthermore, as already mentioned above, the cost cutting pressure on the demand side has intensified and has led to reduced spending by companies and new expectations on airlines with cost-relevant implications (Exhibit 9). With these findings applied to the current situation in the aviation industry which since the start of the liberalization processes has been becoming gradually more competitive, we can expect further shift towards price elastic demand, i.e. the phenomenon that we might otherwise call a "value driven traveler".

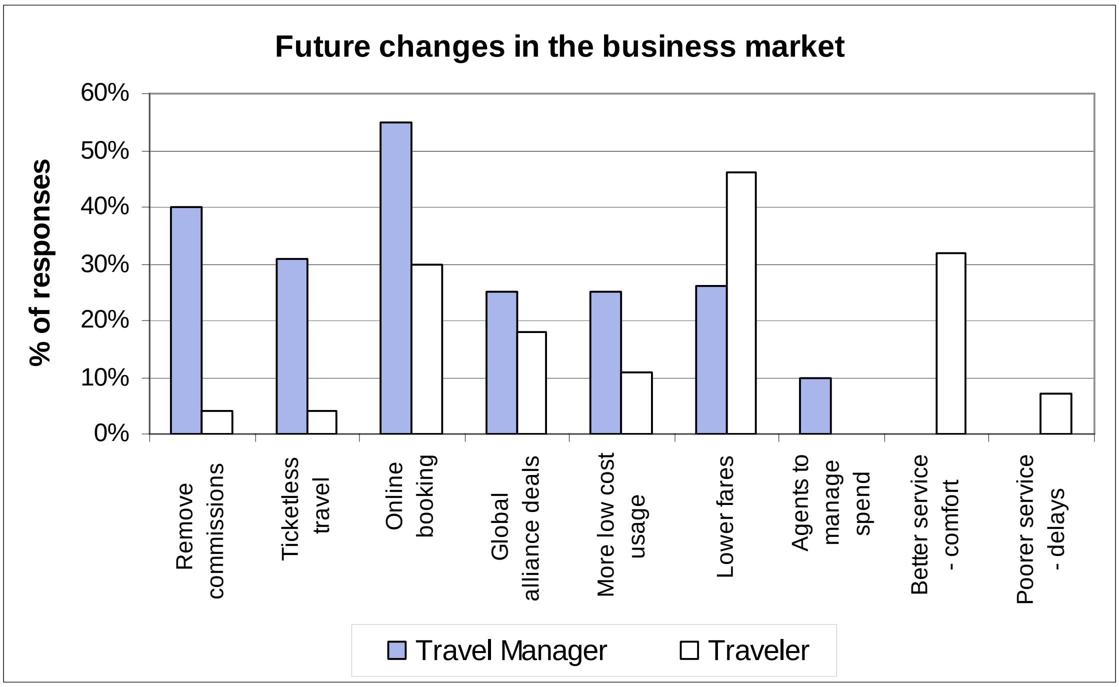


Exhibit 9 – Future changes in the business market (Mason 2002)

In this respect, another factor has to be considered, namely that a considerable portion of business travelers sits in the Economy class of service. Also, many of the corporations that have their employees travel in the economy class have a less strict policy that allows the employee some flexibility as to from which airline the ticket can be purchased as long as the budget for the trip or a respective project is kept. This customer segment is definitely price sensitive when it comes to the possibility of upgrading to business class for a markup that is still within the budget. This group offers the opportunity for low-cost premium class alternatives such as MAXjet. Possibly, and more importantly, the option to attract some of these customers to their premium cabins as long as vacant seats are available is open to the yield management of the airlines. A problem in this respect might be the policy of companies of basing the allowance on the class of travel than on the price tag. A rigid travel policy could in an absurd case lead to the practice of purchasing economy or premium economy tickets at a higher price than discounted business class. A value business class airline should hence be interested in finding on what level they are ranked in companies' and sales agents' allowance hierarchies and take appropriate measures.

3.3 Provision of Better Value for the Traveler – "Verkehrswertigkeit"

The premium airline model has come into existence on the premise of providing a better value for the traveler. In order to verify whether the business model is objectively capable of delivering this promise, it is useful to examine it by a tool called "Verkehrswertigkeit" (Voigt 1965). The academic German term can be simply translated as "value of a transportation service" and will be hereinafter referred to simply as "value". It consists of several factors (or KPIs) which cannot be simply added towards a numeric bottom line, but are meant to be compared individually. The factors involved are: rapidness, mass capacity, connectivity, calculability, frequency, safety, convenience. In the following, the individual components of the "value" will be discussed with focus on identifying differences between the premium and the traditional mixed class business model.

3.3.1 Rapidness

The rapidness factor expresses how fast the traveler gets from door (of his origin) to door (of his destination), i.e. the time of commute to the airport is included. It is be evaluated on a set of two sample trips (Düsseldorf-New York, London-New York) and two different types of passengers – a passenger originating or terminating his trip in the Düsseldorf / London area; a transfer passenger for whom the routes are only a section of the total trip. The evaluation is summarized in Table 6.

The specific characteristics of the business model in terms of infrastructure influences the duration of the total journey. Hub-airports are in disadvantage due to congestion and long walking times. A recent study has concluded that the hub strategy

"has led to increasing congestion both in the air and on the ground and has given rise to frequent flight delays. The congestion wrought by the hub system has eroded air travel's speed advantage, especially on shorter trips...By avoiding large-scale hubs, new carriers are able to provide better service at a lower price." (Frits and Holweg 2003)

This is a referral to the success of low-cost airlines on a point to point basis. Surely, on long-haul routes the time saved by flying a point-to-point or point-to-hub rather than hub-to-hub connection is a significantly smaller portion of the total travel time than on a typical low-cost flight. Also, hub airports profit from the high frequency of flights, which especially benefits transferring passengers. Travelers utilizing a premium flight from a point airport will find it less congested and possibly more accessible depending on their location. However, transferring passengers will often have to re-check-in their luggage due to lack of interlining or wait longer due to lower frequency on these flights. From these patterns it is possible to derive an observation that the premium airline model operating from an alternative airport will be best suitable for serving local demand. This customer group can benefit from less congestion and possibly faster access to the airport. It will generally not be the choice for transfer passengers unless interlining agreements exist and frequencies are increased.

Rapidness				
	Traditional Hub-Hub (e.g. Frankfurt - New York)		**PrivatAir** (e.g. Düsseldorf – New York)	
	Evaluation	**Suggested measure**	**Evaluation**	**Suggested Measure**
Originating passenger	Slower because of congestion	More efficient processes (limited room for improvement)	Faster, no feeding flight to a German or Dutch hub required, less congested airport	No improvement needed
Transferring passenger	Slower transfer due to size of airport, but possibly less waiting time due to higher frequency of flights	More efficient processes around the transfer (limited room for improvement)	Faster transfer due to size of airport, but possibly more waiting due to low frequencies	No economically viable improvement possible

Rapidness				
	Traditional Hub-Hub (e.g. Frankfurt - New York)		**PrivatAir** (e.g. Düsseldorf – New York)	
	Evaluation	**Suggested measure**	**Evaluation**	**Suggested Measure**
Originating passenger	Equal*	More efficient check-in processes possible, however, no significant impact, location of the customer is more significant	Equal*	More efficient check-in processes possible, however, no significant impact, location of the customer is more significant
Transferring passenger	Faster due to higher frequencies, but shortcomings resulting from airport congestion and scale	More efficient processes around the transfer	Slower - no interlining and low frequencies	More efficient processes around transfer, interlining agreements

Table 6 – Rapidness evaluation

*) Depending on the customer's location within London, for a certain group of passengers, one of the airports might be closer resulting in some time saving and the check-in/boarding times resulting from different airports might differ slightly as well. Maximum time saved is estimated to be around 15% (1 hour) under ideal conditions, which might already be an incentive for a passenger to decide for one or the other service.

3.3.2 Mass Capacity

The next factor in the "value" toolset is mass capacity which has been included by its author mainly for the purposes of goods transportation; nevertheless, as an integral part of the toolset it should be equally applied to passenger services at this place. Typically the business class compartment will offer seating for 30-80 business class passengers and additional 10-30 first class seats on a mixed flight using a wide-body airliner. For our use this indicator is of rather low importance since the capacities offered will be proportional to the expected demand (higher for hubs, lower for point-to-point) and the capacity will not be a constraint in most times of the operation. However, in case of peak demand the probability that a seat is available on MAXjet's or Silverjet's "value business class" with a capacity of ~100 passengers is likely higher than in case of the lower capacity mixed flights. This means that these airlines could be possibly less prone to the risk of adverse customer reaction as a response to product unavailability (Wilkinson and Berry 1978).

There is a significant difference in one, in our context rather marginal aspect – the cargo hold capacity. While some transcontinental wide-body jets that are usually used on mixed transcontinental flights can accommodate standard size 8 by 8 feet ISO containers (Shaw 1999:138), narrow-body and some wide-body aircraft cannot. Apart from this, narrow-body airliners with transcontinental reach such as the Boeing Business Jet or Airbus A319LR have additional fuel tanks installed in the bottom section of the fuselage, making the space of the cargo hold shrink to a minimum, thus excluding any additional revenue from cargo operations or even limiting the acceptance of excess baggage. Since cargo capacities on passenger planes are generally sold at prices that are close to marginal costs, the impact of no freight operations is negligible.

3.3.3 Connectivity

Connectivity or the "ability to build networks" is one of the aspects where most premium-class airlines will pull on the shorter end. This phenomenon is enrooted in the following factors:

1. Premium-class model offers only limited frequencies, mostly once or twice a day, as opposed to hub based services offering multiple flights daily in the same direction.
2. Lack of interlining (MAXjet, Eos Airlines) is prohibitive to networking.
3. Small or low-cost airports on one or both endpoints of the route offer limited possibilities for networking.

The disadvantage of the premium-model resulting from the factors above translates into the heavy dependency on traffic originating and terminating at the respective ends of their routes.

3.3.4 Calculability

Calculability is the assessment of the probability that the transport will be executed on time. Air travel takes place in a very dynamic and complex environment and a multitude of factors (weather, dispatch reliability, strikes, delays of connecting flights, etc.) influence whether a traveler will get on time to his/her destination. While airlines have very little control over these external elements, they differ in the degree of readiness for coping with them. Traveler choosing a hub-based mixed connection is more likely to get to his/her destination on time for the following reasons:

1. Usually, more flights daily are available.
2. Interlining makes switching easier in case of denied boarding.
3. Bigger hub-based operations will find it easier to substitute an aircraft in case of a technical failure preventing a departure.
4. If departure or landing is not possible at a particular airport, for instance because of adverse weather conditions or strike, network airline will often be able to offer substitute to a nearest airport.
5. Passenger failing to appear for take-off due to late arrival at the airport will have few or no equivalent substitute from airports like Düsseldorf or Stansted.

On the other hand, point-to-point/hub connections often offer the advantage of less congested airports resulting in a lower probability of delay (Frits and Holweg 2003), also demonstrated by a good record of Eos Airlines in 2006 (Eos 2006a). 71% of Eos' arrivals and departures were on time between January and June 2006, making the airline the most punctual carrier on the London - New York route. In addition, strikes, which are occasionally a source of delays or cancelled flights, are more likely to take place within a strongly unionized network carrier or a hub airport rather than their smaller counterparts. However, as concluded above, hub-based operations are generally prepared better to cope with force-majeure-like situations.

It should be noted that the traveler's awareness of the calculability, especially regarding force-majeure-like events, might be very low and not taken into account when making a travel decision. However, an experienced frequent business traveler is likely to consider this aspect.

3.3.5 Frequency

The frequency-factor is one of the arguable strengths of a hub-based network carrier. Hub based airlines often offer more flights per route daily, thus giving the customer a better choice. Also, in case of denied boarding or any problems with a particular flight there is a possibility for the business passenger to take the next one, provided that capacity is available.

Nevertheless, the premium airline model has an opportunity to at least partly offset this disadvantage by timing the flights in a manner that the departure times are the most convenient for the target group. This is relatively straightforward for transatlantic flights, where an early morning departure westbound and overnight flight eastbound will be most typically chosen. Partnering agreement with other airlines (such as between Eos and MAXjet) can help in case of emergency preventing the departure of a flight.

3.3.6 Safety

All airlines operating at one or both ends of the route in Europe or North America have to adhere to the strict standards set by the authorities of the respective states. From this point of view there is no difference between the premium-class-only operations and mixed airlines and this perception is shared by a well-traveled business passenger. Although there is no recent (younger than 10 years) research on how safe air travel is being perceived by the traveling public, a study from a previous period indicates that thanks to the unnatural environment, mystery of crash causation and other elements (Grose 1995), people might still be sensitive to indicators relating to airline safety. Another research revealed that people's perception of safety is often quite distant from the actual safety performance (Berkman et al. 1982), giving room to airlines to improve their safety image through marketing. Furthermore, it is likely that "business executives and investors are predominantly risk evaders" (Pappas and Brigham 1979 in

Grose 1995) Since airline accidents are most likely to happen during the take-off, climb, approach and landing phases (Aviation Safety Network 2006), it is much more safety-relevant whether the flight is direct or with transfers. If a multiple-stop trip is chosen instead of a non-stop flight, the probability of the accident rises with the number of cycles. Since the statistical probability of an accident for a multi-stop flight is still very low and within an acceptable limit, most passengers being unaware of the multiplier phenomenon, the aspect of safety has no relevance for the differentiation between the premium airline model and its conventional counterpart. However, new entrants, not enjoying the goodwill of established network carriers such as British Airways or Lufthansa yet, are advised to monitor safety perception among their customers as well as the influencing factors, be it marketing or the perception of the age and state of the aircraft interior and exterior.

3.3.7 Convenience / Comfort

The convenience factor encompasses a broad range of aspects and can be defined more or less widely. For the purpose of the study we should concentrate only on those that create a possible difference for the passenger that is making a decision between a premium and a traditional airline.

The time factor, also being part of the convenience perception, has been discussed under "rapidness" and thus will be omitted at this point.

First, passenger choosing to travel from a smaller point-airport using the premium service will be likely experiencing a lower degree of congestion affecting the perception of convenience compared to a hub. Second, many passengers prefer the comfort of the all-business class cabin with a professional atmosphere and no or significantly less children and other potentially loud passengers on board, as opposed to a mixed flight.

This is equally true for transferring passengers with interlining airlines. A business passenger from Berlin, for instance, wishing to travel to Chicago and arrive around 12pm will have the choice of traveling via Frankfurt or Munich using the mixed service or via Düsseldorf with the all business class Lufthansa-PrivatAir product. There is little or no difference in price, departure or arrival times and hence the premium operation will likely be the more attractive option. However, transferring at an airport dominated by no-frills carriers such as London-Stansted requires the traveler to use a low-cost feeding flight which means a lower level of comfort on at least on leg of the trip. Furthermore, the traveler will likely need to re-check-in his or her luggage because of lack of interlining agreements among the airlines present at these airports. These burdens virtually exclude Eos and MAXjet airlines from the possibility of benefiting from transferring passengers at these airports.

3.3.8 Implications

The theoretical analysis of the value of the premium airline service to the customer yields results that are to a large extent in line with the findings of previous field research on low cost airlines; connectivity being perceived as the biggest issue (Exhibit 10). In line with the research on market entry barriers (treated earlier in the chapter 2.5 Market Entry Barriers) which identifies hub-and-spoke networks as responsible for numerous competitive advantages (Kummer and Schnell 2001) that can be as well seen as barriers for new entrants, the lack thereof can be seen as the main shortcoming of the premium airline business model.

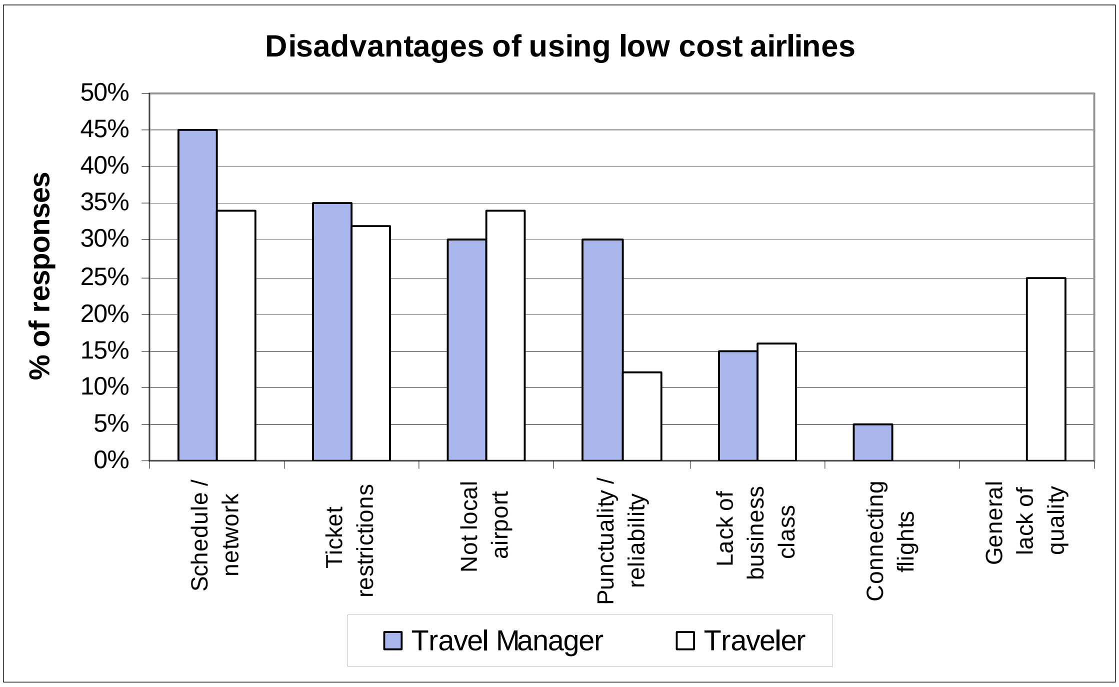


Exhibit 10 – Disadvantages of using low cost airlines (Mason 2002)

In the seven areas examined, the premium airline model currently compensates the lack of network strengths only in one area – convenience / comfort (Exhibit 11). Thus, the airline has to rely solely on the local demand originating in the catchment area of the point airport. This is not necessarily a critical issue if the region is capable of supplying sufficient demand. In case the airline does not choose to or does not have the option of improving its connectivity, the presence of only one significant competitive advantage (out of the ones in the toolset) has significant implications. The airline has to defend the competitive advantage by continuously improving the convenience / comfort elements of their service. Eos Airlines seem to have adopted this approach with the delivery of new, partly difficult to replicate convenience / comfort service elements such as the award winning seating concept, cooperation with a concierge service, "curbside escort", and express security line. Alternatively or complementarily, measures aimed at reducing the negatives resulting from the lack of the network effects can be taken. Eos and MAXjet flights are now available in Global Distribution Systems (GDS) such as Galileo, Sabre or Worldspan. Further, Eos has introduced an innovative loyalty program giving customers the possibility to use earned points (unlike other frequent flyer programs, Eos uses points and not miles as units) for a flight with any major airline and not just a particular alliance. The option of striving for interlining agreements remains open but has a very limited potential in London Stansted, judging by the domination by low-cost airlines and their negative attitude towards interlining. Nevertheless, Southwest Airlines has entered into a code-sharing agreement with ATA (Evanoff 2006); it needs to be kept in mind that Southwest has a stake in ATA. JetBlue has also shown interest in the same direction (ATW 2006). Thus, it would not be a wholly unexpected development in Europe either. For instance, a code-sharing agreement between MAXjet and EasyJet might be a logical step that MAXjet could pursue.

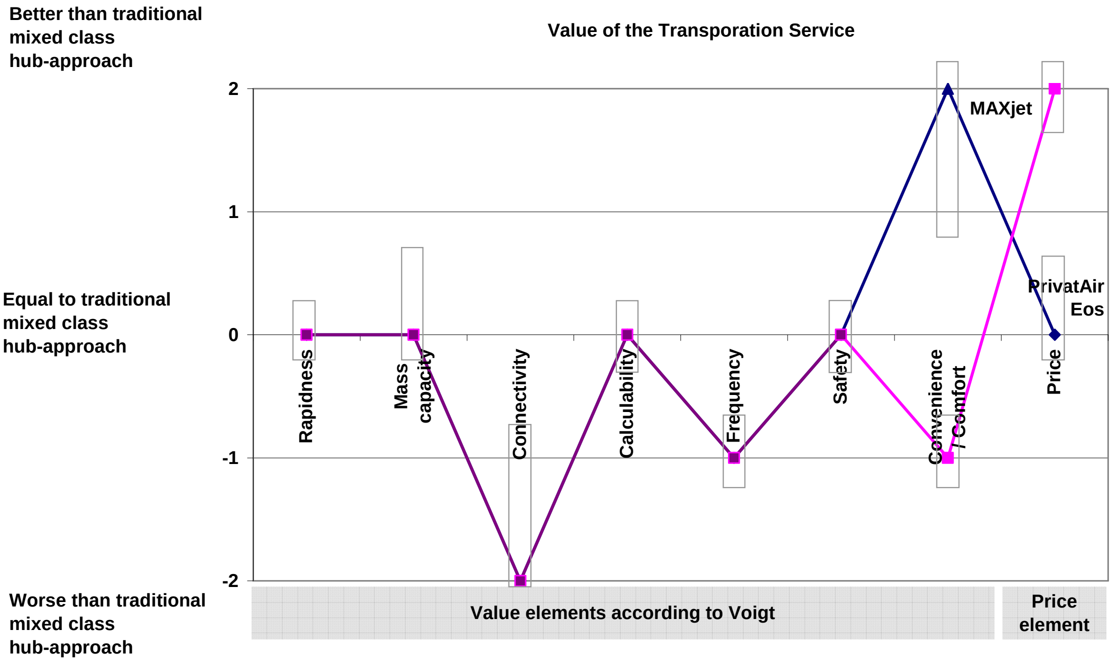


Exhibit 11 – Premium airline service value (author, Voigt 1965)

It should be kept in mind that cost leadership, which can be a valid source of competitive advantage, is not included in the "value" toolset. Although there is not a universal definition of what service value is, it is widely accepted that value does not incorporate only the "get" aspect but also the "give" aspect. A good definition of service value is given by Zeithaml (1988:14): Service value can be understood as

"consumer's overall assessment of the utility of a product based on perceptions of what is received for what is given. Though what is received varies across consumers (i.e., some may want volume, others high quality, still others convenience) and what is given varies (i.e., some are concerned only with money expended, others with time and effort), value represents a tradeoff of the salient give and get components."

Hence, in the evaluation of the service value of the premium airline business model, it is necessary to incorporate the price component. In that case, cost leadership can be a source of competitive advantage along with the service focus on comfort and convenience (Exhibit 11).

4. Operating Economics

In this chapter the operating economics of the premium airline operation will be analyzed and compared to the traditional airline model. For this purpose, a spreadsheet model has been devised. The chapter is divided into the description of the model and the underlying data, followed by the analysis of the output from multiple aspects. Finally, implications are drawn from the findings.

4.1 The Model – Description

In order to make the comparison of the operational economics of traditional airlines and the premium airlines a spreadsheet model has been devised for this purpose (see Appendix – Model Data). The model calculates operating costs on a block hour basis and is divided into an Input and an Output part. The costs were modeled from the outside view, i.e. none of the values or assumptions are based on internal information from the respective companies. The Output part corresponds with the typical airline cost structure used by ICAO (Doganis 2002:79) and represents the cost blocks on a block hour basis computed from the data entered in the Input section. Please note that especially the values of indirect operating costs differ significantly depending on the base airport and home country, being influenced mainly by the different cost of personnel across the base countries. Since it is impossible to judge in how far airlines allocate overhead cost to individual items, the approach of allocating as much as possible towards specific items was chosen (i.e. as if the airlines were heavily outsourcing) in order to achieve highest possible comparability. Consequently, the administrative and general overhead (B.4) is accordingly low.

In the following, the Output items, always starting with a letter, and the underlying Input variables which are numbered (in brackets) will be explained. For detailed description of how the individual Input values were obtained for a particular flight, please refer to 4.3 Input Section (Assumptions) .

4.2 The Model – Output Section

A1.1. The cost of Fuel and Oil is calculated on the basis of the entered fuel burn (6) and the average fuel price (23) for the respective route.

A1.2. The cost of the flight crew (pilots) is calculated as the product of the entered yearly salary for the captain (12) (and first officer (13)) and the associated payroll expenses factor (15) (which includes all the expenses associated with the payroll that the employer has to come up with such as any related taxes, insurance costs, social security, international per diem compensation, fringe benefits etc.). It is assumed that the pilots fly 80 hours a month on average. The block hour cost for cabin crew thus are the salaries of the captain and first officer multiplied by the additional payroll expenses factor and divided by 12 and 80 (12 months, 80 hours a month).

A.1.3.1. Airport charges consist of the landing fee (26) at the destination airport and terminal fees (27, 28) (passenger based, average load factor (20-22) taken into account) at both the departure and the destination airport. In order to obtain the hourly cost these are divided by the flight time.

A.1.3.2. En-route charges are the average navigation charges per block hour (25). These have to be computed for each route because the charges differ across the airspaces of different countries that are being flown over and are typically derived from the MTOW (Maximum take-off weight) of the aircraft.

A.1.5. Aircraft Rental / Lease are the costs of aircraft rental (depreciation is treated separately under A.3.) per block hour (4). If the aircraft is rented under a wet-lease agreement or even with staff, the costs for the respective items, i.e. fuel (23) and crew (12-14) have to be set to zero accordingly.

A.2. Maintenance cost - is entered on block hour basis (7) and depends on the type and age of aircraft used. Airlines and aviation professionals will usually have a good knowledge of what the block hour maintenance rate for their aircraft type is.

A.3. Depreciation – expresses the block hour cost based on a simple linear depreciation scheme where the purchasing price (1), number of years in service (2) and residual value (3) are the input variables. The block hour rate of depreciation is computed for a typical transatlantic operation of 2 flights per day (one westbound and one eastbound) on the same route and 6 weekdays of operation. The annual utilization is around 4,350 hours in case of the London – New York route and close to 5,000 hours in case of the Düsseldorf – New York route. This is in line with utilizations achieved by airlines with primary long-haul focus – i.e. Thai Airways fleet in 1999 had an average utilization of 5,000 hours (Doganis 2002:84).

B.1. Station / Ground Expenses – include the cost of ground operations such as towing, de-icing, ground power and costs of own operations on the ground, etc. The input value (24) is the average per-flight cost of ground operations at the departure and arrival airports combined. The value is then divided by the flight time in order to obtain the block hour rate.

B.2.1. Cabin crew cost is computed in the same way as the pilots' cost – the variables to be entered are the flight attendants' yearly salary (14) and the average number of attendants per flight (16), all other assumptions about flying time and associated expenses factor are identical with those for the flight crew.

B.2.2. Other passenger service cost is the cost of passenger service on board and on the ground. In practice the expense on board is limited to the cost of meal(s) and potentially an amenity kit distributed to the passenger (32-34).

The cost of ground passenger services includes the cost of pre- and post-flight services offered to passengers on the ground. The level of pre- and post-flight service is one of the main differentiators for the different classes of travel (lounge, buffet, escort service). Hence, the cost of service will differ among classes of travel and has to be entered separately for each class (29-31). It is assumed that airlines have a per-passenger flat rate for these services.

To obtain the total block hour cost of passenger services for the flight, the model takes into account the numbers of passengers in different travel classes (17-22) and the flight duration.

B.2.3. Passenger Insurance is the cost of insurance of passengers on a block hour basis. The cost of insurance per passenger (35) is entered as input.

B.3.1. Ticketing, Sales – the costs of ticketing and sales on a block hour basis. The input variable is the average cost of sales and ticketing per passenger per flight (36).

B.3.2. Promotion, Advertising – is the average customer acquisition and retention cost per flight per passenger (37). Customer acquisition and retention cost is typically computed as the overall promotion and advertising expenses of an airline divided by the number of passengers actually using the service. Costs of a frequent flyer program and cost of handling complaints of passengers can be also included in this item.

B.4. Administration and Other Costs - This item includes administrative expenses and all other costs incurred by the airline. The cost is to be entered on a per flight basis (38).

4.3 The Model – Input Section (Assumptions)

1. Aircraft price – price paid for the new aircraft at the time of its purchase was established on the basis of the nominal price quoted on manufacturers' price lists. If not available, articles about purchases of aircraft by airlines were used, also to assess the extent of potential rebates. In case of green aircraft delivery by the original manufacturer, anticipated interior cost is included.

2. The depreciation period was chosen to be 15 years, based on Doganis (2002:83f). Since it is hard to establish a universal period of use and an assumption has to be made (the depreciation policy is solely in the competence of airlines; some prefer to depreciate over very short periods of 10 years and sell the

aircraft for still a good price, e.g. Singapore Airlines; in Doganis 2002:84) whereas aircraft of other airlines (for instance many American carriers) often stay in service for well over 15 years and are subsequently sold cheaply for a couple of years of freight operations. Also it is a common practice to depreciate more in good years so that the book value of the aircraft is substantially lower than its real value.

3. Residual value is assumed to be 10% of the new price. This is in line with reported sales or purchases of aircraft of comparable age and condition (i.e. Hawaiian Airlines reported buying four 767-300 planes at $32 million total; Hawaiian Airlines 2006).

4. A/C Rental – is not applicable, all aircraft in the sample are assumed to be in the ownership of the respective airline

5. A/C Insurance – assumed to be 3% of new aircraft price, based on Doganis (2001:81).

6. The average fuel burn is taken based on ICAO's data (ICAO 2000) and Eurocontrol's Base of Aircraft Data (Crook, Tanner and Anderson 2004).

7. Maintenance cost for PrivatAir's A319 are based on articles reporting maintenance expenses for operation of similar aircraft (Frontier Airlines, having repeatedly received the FAA's Diamond Award for maintenance, report in their SEC-filings maintenance expenses of $600-800 per block hour for a mixed fleet of new A319 and older B737 (Frontier Airlines 2002). A lower rate of $400 was adopted for PrivatAir to reflect the reduced number of cycles and younger age of aircraft. Another source of benchmarks was the analysis of real life examples published in the Airline Monitor (Greenslet 2003).

8. Average cruising speed at operating altitude is needed to compute total operating time for the flight. The total operating time (engines up) is computed by dividing

the sector length (entered under 39) by speed[5] plus a 1/2 hour reserve for taxiing and time spend in holding pattern and such.

9. – 11. Aircraft passenger cabin floor area was established from the data available for the aircraft types on the manufacturer's website, for different classes of travel it was approximated using cabin layouts from the website www.seatguru.com (SeatGuru 2006).

12. Captains' yearly salary is estimated upon online sources such as www.airlinepilotcentral.com (Airline Pilot Central 2006). Apart from the type rating, the geographical location of the respective airline's headquarters (where most pilots are going to be sourced) was considered in the calculations.

13. First Officer's salary – same as 12.

14. Cabin crew salaries are estimated on the base of the salaries reported by the airlines, e.g. (MAXjet 2006b). Geographical base of the airline is taken into account as in the case of captains and first officer's salary.

15. Additional payroll expenses factor (Lohnnebenkosten) – is a factor by which each salary has to be multiplied in order to obtain the real expense of the employee to the airline. The factor includes all the expenses associated with the payroll that the employer has to come up with such as any related taxes, insurance costs, social security, international per diem compensation, fringe benefits etc. For the purpose of this analysis, standard rates of expenses factors for each airline's home country were taken (Huonker 2000). To reflect the higher level of expenses associated per diem compensation of aviation employees the factors was increased by 0.2 flat for every airline.

[5] Mach 1 at FL3XX equals ~ 300 $m.s^{-1}$

16. The number of cabin crew was established upon information available on the respective companies' websites and press releases (Swiss 2006, Flug Revue 2004, Adams 2006)

17. – 19. The number of seats in each class of service was established upon the information available on the respective companies' websites or press releases.

20. – 22. The load factors can be varied in order to see the effect on the economics. In the model situation presented the load factors were chosen arbitrarily at the same level of 70% to enable comparison across the airlines. The load factor in British Airways' First Class was assumed to be 50%.

23. Jet average jet fuel of $1.8 per US-gallon in November 2006, as published by IATA (IATA 2006) in its Jet Fuel Price Monitor was used to enable comparison across the airlines.

24. Ground / Station expenses – this item includes the cost of the airline's own ground operations as well as the cost of contracted services such as towing, ground power or de-icing. The actual numbers used in the model situation were estimated based on adding up the costs of ground handling and de-icing and a markup of 20% on top of these to allow for a reserve for other ground operations.

    The cost of de-icing is one of the most unpredictable items in the calculations of airlines operating from airports located in continental climate zone as is the case for any transatlantic flight in question. In our calculations we will assume that an average of 5% (EFM 2006) departures during the de-icing season (November-March +- 1 month) needs de-icing. Smaller airlines will typically have a de-icing agreement with the de-icing provider at their airport, bigger airlines will have own de-icing operations or will outsource de-icing as well. Both the agreement (often with a base fee paid before the season, independent of the actual need for de-icing services and a variable portion depending on the actual use of de-icing fluid and number of de-icing events) or own de-icing operations have the effect of making the future costs predictable because fixed costs (base fee or own fixed costs) are this way a significant portion of the de-icing budget.

It should be noted that a premium-class operation with the typical utilization of 14-16 hours a day and the aircraft flying eastbound overnight is very favorable in terms of de-icing costs since the aircraft will not be parked at night (coldest hour of the day) and the longest turnaround time takes place at the US airport during afternoon hours (i.e. most likely the warmest hours of the day) thus minimizing snow layer or ice formation during the time on the ground.

Our calculation of the ground/station expenses are on a per flight basis. A yearly de-icing budget for a A319 or Boeing Business Jet will be around $100.000-150.000 per season (depending on airport and de-icing agreement, 5% of departures subject to de-icing, consumption of 200-400 liters[6] of Type-1 fluid and occasional need for Type-4 fluid treatment) translating into an average of $200 per flight (624 yearly flights at 6 flights a week). Further costs include the costs of towing – calculated to be $150 on average and the cost of ground power (needed on average 1 hour before departure due to the regulatory requirement for an air-conditioned passenger cabin) estimated to average at $100 (regardless whether using APU or GPU for power supply). The sum is then multiplied by factor 4 (derived from balance sheets of airlines) to allow for overhead in form of own baggage handling, ground crew, depreciation of own buildings, etc.

25. Navigation charges differ widely across countries, thus any airline will have to compute the exact distance flown in each controlled airspace and apply the appropriate charges for each airspace. Typically the largest portion of the flight will take place over the Atlantic Ocean with the responsible ATC Prestwick and Gander. The rest of the route will be charged according to Eurocontrol's tariffs (Eurocontrol 2006) on the European and the US ATC's on the US side. Generally, a function containing a square root is used such as

$$\text{Rate} * \sqrt{(\text{MTOW} / \text{Factor})} * \text{Distance}$$

[6] About 200 litres are necessary for a light snow cover without icing

leading to a less than linear increase in the charge with growing MTOW. Average charge for Airbus A319LR on a block hour basis (transformed from the distance basis as charged by the authorities) will then be around $500. The same approach has been applied to the other flights.

26. Landing fees differ widely across different airports – up to threefold difference is no exception. Landing fees are calculated as a function of MTOW and allow for a standard turnaround without any additional charge. In case of a longer pause between landing and the next departure additional parking will cost extra (this has been allowed for in the factor of 4 under 24.Ground/station expenses). In our sample routes average fees have been used estimated on the basis of an airport pricing report that was prepared for the Canada Transportation Act Review in 2001 (Gillen, Henriksson and Morisson 2001) as well as official prices as long as available (Port Authority of NY & NJ 2006).

27. -28. Terminal fees are passenger-related charges levied by the airports. For our calculations we assume terminal fees per passenger between $15 and 30 depending on the airport.

29. -31. The average costs of ground passenger service in the airport lounges for business und first class passengers is assumed to be $20 (Business) and $30 (First) for the purpose of our calculations.

32. -34. Meal & Entertainment cost is passenger-related. Airlines usually have a flat rate per passengers for different classes of service. Rates used in this projection were established based on the service descriptions and average between $40 and 50 for Business Class.

35. Passenger insurance – Flat fee passenger insurance per passenger per flight is based on the rate of 70 US-cent per 1,000 revenue passenger kilometers based on Doganis (2002:86), reflecting the situation after 9/11 and conservative approach.

36. Ticketing, sales – similarly as in previous items, in the calculation a flat fee of $30 per passenger for the premium airline operations and $15 for the mixed operation will be used. In reality the cost of ticketing and sales will widely differ across passenger groups depending on which distribution channel is utilized. Direct sales of e-tickets through the airline's website will cost the airline significantly less than provision based sales of business tickets by a specialized agent.

37. Promotion and advertising expenses are very rarely explicitly stated in airlines' profit and loss accounts. Thus, the customer acquisition and retention cost can be established only indirectly on the basis of cost structures reported by airlines. Airlines report differing promotion and advertising costs (Pender and Baum 2000). The cost on short-haul routes appears to be around 3-5% of total operating cost, for a long-haul route a lower portion, around 2-3%, is anticipated. Start-up airlines or new routes or types of services (such as the premium class only service) will have to calculate with higher advertising and promotion expenses because of increased brand and market presence building activities. Flat customer acquisition and retention cost per passenger per flight has been adopted for each airline reflecting its goodwill and market presence. The expense is assumed to be between $40 and 50 for the start-up airlines, $30 for new premium routes by established carriers and $15 for the traditional mixed operation on established routes.

38. Administration and other costs were also estimated indirectly based on cost structure reported by other airlines. For the model situation a flat rate of 2% of total operating expenses for the start-up airlines was taken as a basis and 4% for the traditional airlines. Airlines often report substantially higher overheads; this can be ascribed to either insufficient allocation towards concrete cost blocks or higher portion of short-haul flights in which case the weight of the overhead is much higher.

39. Sector Length is needed to compute the average flight duration. The actual sector lengths used as input in the model were obtained from a mileage calculator on the website webflyer.com.

4.4 Analysis of Operating Economics

The purpose of this analysis is to compare the economics of the premium-class and mixed operations as well as the different premium class variants among each other. The sample chosen for the task consists of five different routes, each operated by a different airline – 3 premium and 2 mixed class flights were chosen (Table 7).

Airline	Route	Aircraft
Lufthansa (Operated by PrivatAir)	Düsseldorf (DUS) – Newark (EWR)	Airbus Corporate Jet (A319LR)
MAXjet	Stansted (STN) – New York (JFK)	Boeing 767-200ER
Eos Airlines	Stansted (STN) – New York (JFK)	Boeing 757-200
British Airways	London Heathrow (LHR) – New York (JFK)	Boeing 747-400
Air France	Paris (CDG) – New York (JFK)	Airbus A330-200

Table 7 – Sample flights

In addition to the comparison in absolute numbers (Exhibit 12), the costs of the single items are compared on a block hour basis as a percentage of the total operating costs (Exhibit 13) in order to achieve highest possible comparability.

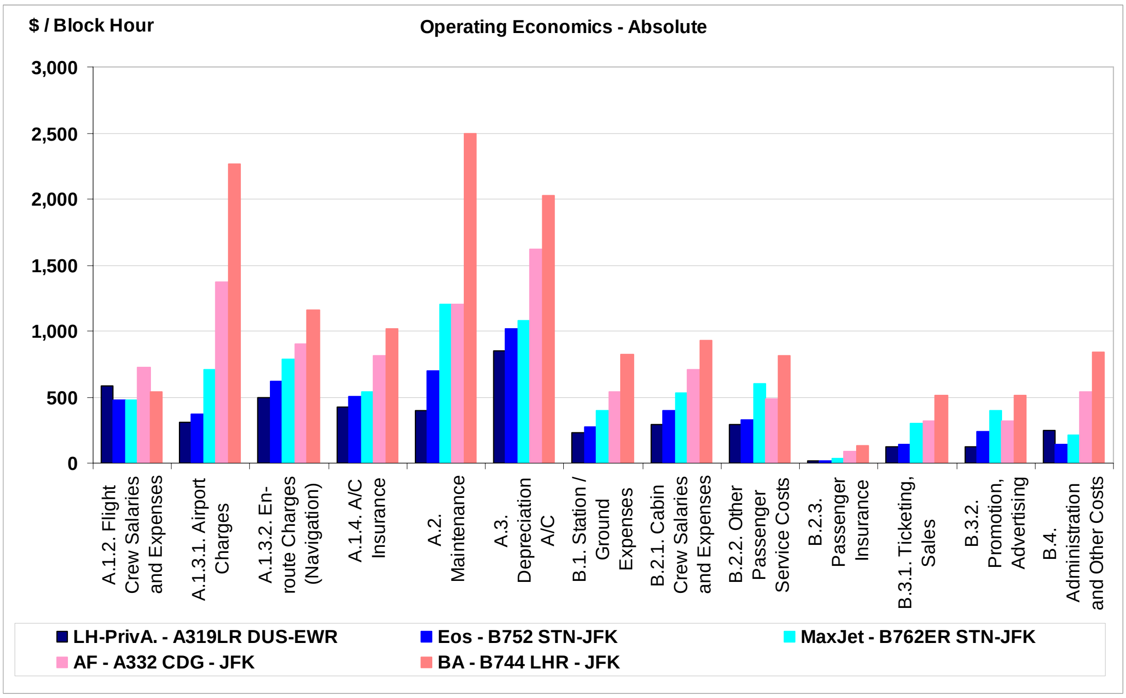


Exhibit 12 – Operating economics (absolute)

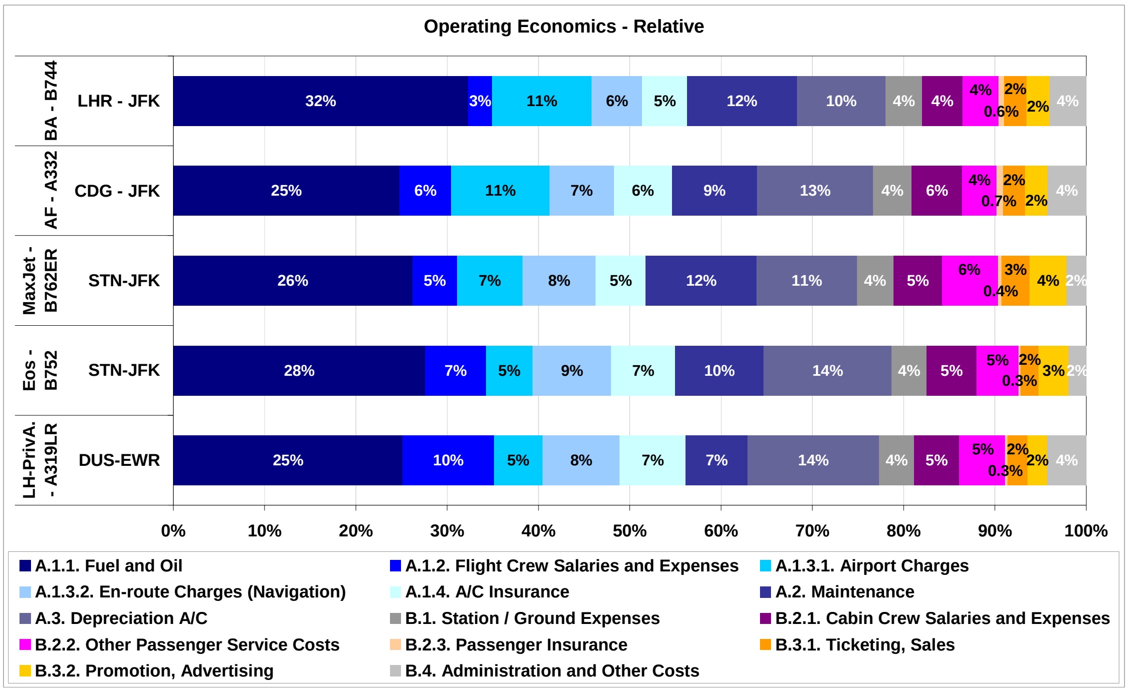


Exhibit 13 – Operating economics (relative, as percent of total cost)

In order to identify significant deviations that characterize a particular flight, a simple variance analysis tool has been devised (Exhibit 14) . It works as following: The value of a cost item for a particular flight is subtracted from the average for the five flights. The differential is than compared to the standard deviation for the five flights and is highlighted in case its value is above or under that of the standard deviation. If the costs are significantly higher (i.e. above the standard deviation), they are highlighted in red. If they are significantly lower, they are highlighted in green. The following analysis is subdivided into the analysis of direct and indirect operating costs, followed by the analysis of selected KPIs and a sensitivity analysis. Consequently, the findings are summarized in the chapter Summary of the Findings, Implications.

O U T P U T	**Variance Analysis**				
	All Business Class			Mixed Class	
OPERATING COST PER BLOCK HOUR / USD	LH-PrivA. - A319LR	Eos - B752 et - B762ER		AF - A332	BA - B744
@ 70% Load Factor*	DUS-EWR	STN-JFK	STN-JFK	CDG - JFK	LHR - JFK
A. Direct Operating Cost	0.2%	1.6%	-2.2%	-0.5%	0.9%
A.1. Flight Operations	1.4%	0.2%	-3.0%	-0.1%	1.5%
A.1.1. Fuel and Oil	-2.1%	0.4%	-1.0%	-2.4%	5.1%
A.1.2. Flight Crew Salaries and Expenses	4.0%	0.7%	-1.1%	-0.3%	-3.3%
A.1.3. Airport & En-route Charges	-1.6%	-1.7%	-0.2%	2.4%	1.1%
A.1.3.1. Airport Charges	-2.5%	-2.7%	-0.7%	2.9%	3.0%
A.1.3.2. En-route Charges (Navigation)	0.9%	1.1%	0.5%	-0.5%	-2.0%
A.1.4. A/C Insurance	1.0%	0.8%	-0.7%	0.2%	-1.3%
A.1.5. Rental / Lease (of A/C, Crew)	0.0%	0.0%	0.0%	0.0%	0.0%
A.2. Maintenance	-3.2%	-0.3%	2.2%	-0.6%	2.0%
A.3. Depreciation A/C	2.0%	1.7%	-1.4%	0.3%	-2.6%
B. Indirect Operating Cost	-0.2%	-1.6%	2.2%	0.5%	-0.9%
B.1. Station / Ground Expenses	-0.1%	-0.2%	0.0%	0.3%	0.0%
B.2. Passenger Services	-0.1%	0.0%	1.6%	-0.3%	-1.3%
B.2.1. Cabin Crew Salaries and Expenses	-0.3%	0.3%	0.2%	0.4%	-0.7%
B.2.2. Other Passenger Service Costs	0.4%	-0.1%	1.4%	-0.9%	-0.8%
B.2.3. Passenger Insurance	-0.1%	-0.2%	-0.1%	0.2%	0.2%
B.3. Ticketing, Sales, Promotion	-1.0%	-0.1%	1.8%	-0.4%	-0.4%
B.3.1. Ticketing, Sales	-0.3%	-0.5%	0.6%	0.0%	0.0%
B.3.2. Promotion, Advertising	-0.7%	0.4%	1.2%	-0.4%	-0.4%
B.4. Administration and Other Costs	1.0%	-1.4%	-1.2%	0.9%	0.7%

Exhibit 14 – Variance analysis

4.4.1 Direct Operating Costs – Findings

Direct operating costs (A) consist of Flight Operations, Maintenance and Depreciation and make up approximately 75% of an airline's total operating cost. The biggest cost block are the Flight Operations (A1) accounting for about 55% of the total operating cost. The choice of aircraft is clearly reflected in the operating economics. Flight Operations are comparatively the biggest block for Lufthansa's Airbus A319LR and British Airways' Boeing 747, although for different reasons – they are mainly driven by the impact of flight crew salaries and navigation charges in case of the small Airbus, and fuel and airport expenses in case of the British Airways operation. In the following, we will look in detail at the individual cost blocks. It should be noted that the analysis is applied exclusively to the lowest level of the cost structure (e.g. for A.1.3 Airport & En-route Charges the findings are only analyzed for the sub-items A.1.3.1 Airport Charges and A.1.3.2 En-route Charges).

A.1.1 Fuel and Oil – the cost of fuel and oil escalates in case of British Airways' Boeing 747 reaching close to over 30% of total operating cost whereas regarding the remaining flights it makes up between 25 and 27% of the total cost. It should be noted that since these numbers are relative, i.e. a percentage of the total costs, they do not necessarily reflect to full extent the efficiency of the different types of aircraft, since the ratio is also influenced by other cost items.

A.1.2 Flight crew – the cost of the flight crew is comparatively high in case of the Lufthansa-PrivatAir operation because the flight crew expenses decrease less than proportionally with the decreasing size of the plane. This information can be confirmed by the database of pilot's salaries as cited on the portal "Airline Pilot Central" (Airline Pilot Central 2006). The difference between a salary of a Boeing 737 pilot and a Boeing 747 pilot is only about 25%. Regardless of the size of the plane, today, the majority of common types are flown by two pilots, so the fixed cost of pilots' expenses has a higher impact in smaller planes. Whereas the flight crew cost contributes to almost 10% of the total operating cost of the Lufthansa-PrivatAir operation, it is roughly 5% in case of MAXjet and Air France, 6.5% in case of Eos and bellow 3% in case of the British Airways operation; the stark difference between British Airways and Air France can be attributed to the much higher level of additional payroll expenses in France. A minor, negligible portion of the variation is caused by the fact that the salaries are assumed to be different depending on the place of the incorporation of the respective airline. However, airlines are not limited to sourcing flight personnel at their home base and a situation with location independent salary inputs (as long as on at least one of the endpoints of the route is located in the same country as the operation it is being compared to) would be also fully valid.

A.1.3.1 Airport charges, computed as the sum of landing fees and airport passenger charges, are usually directly proportional to the size of the aircraft (landing fee) and the number of passengers. Hence, flights with smaller aircraft and low density seating, i.e. single premium class flights, will be economically more favorable in terms of airport charges. While premium airlines' charges make up around 5% of the total operating costs, they make up around over 10% for the typical high density mixed class service of the British Airways and Air France samples. On per passenger basis, the difference is not significant, with the landing and airport fees combined per passenger accounting for about the same amount.

A.1.3.2 Navigation charges represent 5.5% to 8.5% of the total operating cost on a transatlantic flight. They increase less than proportionally with the MTOW of the aircraft and hence favor large aircraft. While they are only 5.6% for the British Airways flight and 7% for the Air France flight, they are over 8% for the premium class flights with smaller aircraft.

A.1.4. Aircraft insurance is a function of the purchase price of the aircraft and is hence favorable in case older aircraft, since aircraft have been nominally becoming more expensive over time. The differences result from aircraft age and are irrelevant to the business model.

A.2. Maintenance – there is no unexpected values regarding this item. Maintenance expenditures are proportional to the age of the aircraft. While the maintenance costs make up between 7 and 10% of the total operating costs in case of the newer twin aircraft, the Airbus Corporate Jet, Airbus A330 and Boeing 757, the number is close to 12% for the four-engine Boeing 747 (average age 12 years) and MAXjet's Boeing 767 fleet aged over 20. Hence, it is safe to say that the maintenance expenditure is a function of the aircraft age and type (twin versus four engine) and has no significant implications on the premium airline business model.

A.3. Depreciation – the choice of aircraft regarding its age and the depreciation policy have a very significant impact on the economics of the operations. While the depreciation of the older Boeing 747 contributes by less than 10% to the total costs, it is in the area of 13-15% for the newer Airbus A319 and A330. However, it can be said that the gains in depreciation are offset by the lower operational efficiency in terms of maintenance and fuel burn and possibly also the perception by the passengers which cannot be quantified. The long term impact on the bottom line will roughly be the same and the question of purchase of new versus older aircraft is rather that of available resources for capital expenditure or the willingness of banks or leasing companies to finance new aircraft, especially to new entrants.

4.4.2 Indirect Operating Costs – Findings

Indirect operating costs consist of station and ground expenses, costs incurred by passenger services, advertising, ticketing and sales as well as administrative costs. They contribute by about 25% to the total operating cost. About half of this amount can be attributed to passenger service related expenses and the other half consists of sales, promotion, station and administrative costs. In the following, the single cost items will be analyzed in detail.

B.1. Station / Ground Expenses – contribute by about 4% to the total cost of the flights in the sample. Since all of them are long-haul flights and the costs are consecutively spread over long sectors, the differences among the samples in particular are not greater than 0.3% and are hence insignificant.

B.2.1 Cabin Crew Salaries and Expenses – constitute around 5% of the total cost of the flight in case of both the premium airlines and the mixed operations. As with the flight crew, there is minor, negligible personnel sourcing location bias with the salary and associated expenses being dependent on the home base country.

B.2.2 Other passenger service cost. While in the case of Lufthansa-PrivatAir and the Eos Airlines flight this item contributes around 5% to the total cost, this number reaches 6% in case of MAXjet. This can be attributed to the higher density seating on the MAXjet flight compared to Lufthansa-PrivatAir or Eos, while the lounge, meal and entertainment expenses per passenger are only slightly lower. In case of the mixed flights, this item represents less then 4% and can be explained by the cheaper meals and no lounge costs for economy passengers.

B.2.3 Passenger insurance adds about 0.7% to the total cost in case of the sample of mixed flights while being only 0.3% in case of the premium flights. Since the insurance rate per passenger is the same regardless of the class of travel, the larger passenger numbers on the mixed flights are the reason for the higher contribution of the insurance to the total costs.

B.3.1 Ticketing, sales – as with most other items in the block of indirect operating costs which are variable or treated as variable costs – the contribution of the ticketing and sales costs to the total costs is proportional to the passenger volume. Although the passenger volumes are substantially lower in case of the premium airline operation, the sales and ticketing cost accounts to around 2-3% of the total cost, which is roughly the same as the mixed flights. The reason is the assumption that provisions are higher on more expensive business class tickets.

B.3.2 Promotion, advertising – it should be noted upfront that the promotion and advertising cost estimates are based on assumptions of the author that are largely based on the analysis of profit and loss statements of airlines and their reported advertising spending as a percentage of the total cost. There is no reliable data on customer acquisition and retention costs available and these numbers are kept secret by airlines. Still, the author believes that the estimates and the underlying assumptions are reasonable enough to allow for a derivation of usable conclusions. Based on the customer acquisition / retention cost of $15 per passenger per flight assumed for the established routes of British Airways and Air France, $30 for Lufthansa/PrivatAir (possibly even lower because of the established customer relationships and advertising channels), $40 for MAXjet and $50 for Eos Airlines (brand is still being built, no economies of scale in marketing), the advertising spending for traditional routes of British Airways and Air France will account for about 2.5% of the total cost. Due to the large number of passengers that need to fill MAXjet's aircraft the customer acquisition and retention cost escalates to the level of almost 4% of the total cost while it is roughly 3.5% in case of Eos. On the other hand, Lufthansa-PrivatAir's service benefits from the low passenger numbers combined with high brand awareness and established distribution channels facilitating direct sales and minimizing the need for large scale advertising for Lufthansa's routes operated by PrivatAir.

B.4. Administration and other costs – Since all the flights in the sample are long-haul flights, the impact of the administrative expenses will be relatively small. This is due to the circumstance that the fixed cost of administration is spread over a longer block than on medium and short-haul routes. In addition, these expenses' share of total cost decreases with the size of aircraft – the absolute cost increases with the size of aircraft and number of passengers, but less then proportionally. This phenomenon puts the administrative costs of the flights of Air France, British Airways and Lufthansa to around 4% whereas Eos Airlines and Lufthansa-PrivatAir operations benefit from the lean structure of a start-up, holding the administration cost as low as 2%.

4.4.3 Levers and Differentiators of the Premium Airline Model

In the following, it will be attempted to identify the levers and cost drivers differentiating the premium airline model from its traditional mixed class counterparts. The differences at the level of single cost items are summarized in Exhibit 15.

COST IMPACT MATRIX

Impact of individual cost blocks on operating economics - comparison between premium and mixed model

OPERATING COST PER BLOCK HOUR	Premium Start-Up	Premium By Traditional Airline	Traditional Mixed
A. Direct Operating Cost			
A.1. Flight Operations			
A.1.1. Fuel and Oil	→	→	→
A.1.2. Flight Crew Salaries and Expenses	↑	↑	↘
A.1.3. Airport & En-route Charges			
A.1.3.1. Airport Charges	↘	↘	↑
A.1.3.2. En-route Charges (Navigation)	↑	↑	↘
A.1.4. A/C Insurance	→	→	→
A.1.5. Rental / Lease (of A/C, Crew)			
A.2. Maintenance	→	→	→
A.3. Depreciation	→	→	→
B. Indirect Operating Cost			
B.1. Station / Ground Expenses	→	→	→
B.2. Passenger Services			
B.2.1. Cabin Crew Salaries and Expenses	→	→	→
B.2.2. Other Passenger Service Costs	↗	↗	↘
B.2.3. Passenger Insurance	↘	↘	↗
B.3. Ticketing, Sales, Promotion			
B.3.1. Ticketing, Sales	→	→	→
B.3.2. Promotion, Advertising	↑	↘	↘
B.4. Administration and Other Costs	↘	↗	↗

Legend	Neutral	Very high impact	Higher impact	Lower impact
	→	↑	↗	↘

Exhibit 15 – Cost impact matrix

The tendency to use smaller aircraft for the premium class operation on long-haul routes has its specific characteristics that are probably known to operators of Boeing 757[7] on thin transatlantic routes between the United States and cities in the United Kingdom other than London. From the direct operating cost perspective these flights suffer from a relatively high flight crew and navigation charges overhead. These two items are most significant since they are variable costs that are being induced by every additional block hour. In the flight operations cost block, fuel, aircraft insurance, maintenance and depreciation do not show a pattern that would be typical for the premium or differ significantly from that of a traditional mixed class operation.

[7] The only narrow-body aircraft that is currently being used on a significant scale on long-haul sectors

In the block of indirect operating costs some patterns are linked to economies of scale and hence favor larger aircraft – this is the case of ground / station expenses, administrative and other costs which are higher than those of their mixed counterparts if compared on the basis of aircraft capacity.

A relevant difference can be found in the block of passenger service costs. For instance, the total cost of passenger services of MAXjet roughly equals the cost of passenger service on the (longer sector and double passenger volume) Air France flight, being about $1.200 per block hour. This is understandable since service is the main differentiator of the premium class operation and incurs corresponding expenses – more flight attendants are assigned per seat, (typically one per 10 passengers as opposed to one per 25-30 on a mixed flight). When compared on the basis of cabin area, one flight attendant is responsible for around 200 square feet on a premium flight and 300 square feet on a mixed flight.

The costs of promotion and advertising show the need for differentiation between a premium operation that was started by an airline specifically set up for this purpose and a premium operation initiated by traditional airlines. Traditional airlines such as Lufthansa (including their premium services) are able to leverage the costs of promotion and advertising across tens or hundreds of flights a day. Start-up airlines are able to spread these costs only over a very small number of flights, while having to spend more on marketing because of the active process of brand building and capturing market share.

Administrative costs also pose a different burden in respect to the type of airline. As long as the start-up airline truly practices lean management, they are lower as those of a traditional airline's mixed operation. A start-up airline has additional advantages of having lower personnel costs because of the lack of presence of labor unions and possibly less costly frequent flyer programs. Since administrative costs are typically fixed costs rather independent of the aircraft size, they will be not much smaller in case of a traditional airline's premium operation, meaning a higher cost per unit in case of the premium operation, e.g. on a cabin area basis.

A very important cost factor that is explicitly not included in the calculation due to its specificity related to the particular airport and the ownership and purchasing method is the cost of airport slots. The slots are very valuable in major hubs and their cost is generally not related to the aircraft size or only to a small extent. The high cost of a slot is spread over very few passengers in case of the premium operation. However, the pricing of slots could become more dependent on the aircraft size with the issue being discussed more heavily with the advent of Very Large Aircraft (Air Safety Week 2001). Especially traditional airlines which plan to launch a premium operation will consider not doing this from a major hub, since the expensive slots are likely to be better utilized by bigger aircraft in absolute profit terms.

4.4.4 KPI Analysis

The analysis of the cost blocks is valuable in terms of putting light on the individual cost items that differentiate the two business models. Nevertheless, in order to gain a better understanding from a broader perspective it is beneficial to analyze a number of high level KPIs. In the following, a number of standard industry KPIs such as CASM will be compared among the business models as well as a number of selective proprietary KPIs devised by the author. A summary can be seen in Exhibit 16.

OUTPUT					
	All Business Class			Mixed Class	
OPERATING COST PER BLOCK HOUR / USD	LH-PrivA. - A319LR	Eos - B752	laxJet - B762ER	AF - A332	BA - B744
@ 70% Load Factor*	DUS-EWR	STN-JFK	STN-JFK	CDG - JFK	LHR - JFK
Total Cost / Sector	46,738	51,394	70,147	94,856	147,898
Total Cost / Sector / PAX	1,391	1,530	982	610	609
CASM ($c) - Cost per available seat mile	26.0	30.9	19.9	11.8	12.2
CASM excl. Fuel ($c) - Cost per available seat mile	19.4	22.4	14.7	8.9	8.2
Total Cost / Block h / Cabin area (sq.ft)	7.1	5.8	5.9	5.3	5.3
Direct Ops Cost / Block h / Cabin area (sq.ft)	5.5	4.6	4.4	4.1	4.1
Flight Ops Cost / Block h / Cabin area (sq.ft)	4.0	3.2	3.1	2.9	3.0
Indirect Ops Cost / Block h / Cabin area (sq.ft)	1.6	1.2	1.5	1.2	1.2
Total Cost / Block h / MTOW (ton)	77.9	66.5	56.2	55.6	55.1
Cost - PAX Service / Block h / PAX	12.5	15.6	11.5	5.8	5.3
Cost - PAX Service / Block h / Cabin area (sq.ft)	0.73	0.60	0.70	0.53	0.48
Cost - PAX Service / Block h / MTOW (ton)	8.0	6.9	6.7	5.6	5.0
Cost - ticketing & sales / Block h / Cabin area (sq.ft)	0.15	0.11	0.18	0.13	0.13
Area (sq.ft) per PAX	17.2	26.0	16.3	10.9	11.2
CASM / Cabin area (sq.ft)	1.51	1.19	1.22	1.08	1.09

Exhibit 16 - Selective KPIs

4.4.4.1 Cost per Available Seat Mile (CASM)

Cost per Available Seat Mile (CASM) gives information about the cost per available seat per traveled mile. Information on CASM of major airlines is widely available[8]. The additional value of investigating the premium airline model CASM characteristics lies in the fact that the findings can also be used as good indicators for the business class of travel on mixed flights, which are rarely published. Both CASM and non-fuel CASM were computed, the latter in order to eliminate the jet fuel price volatility from the benchmarks (Exhibit 17).

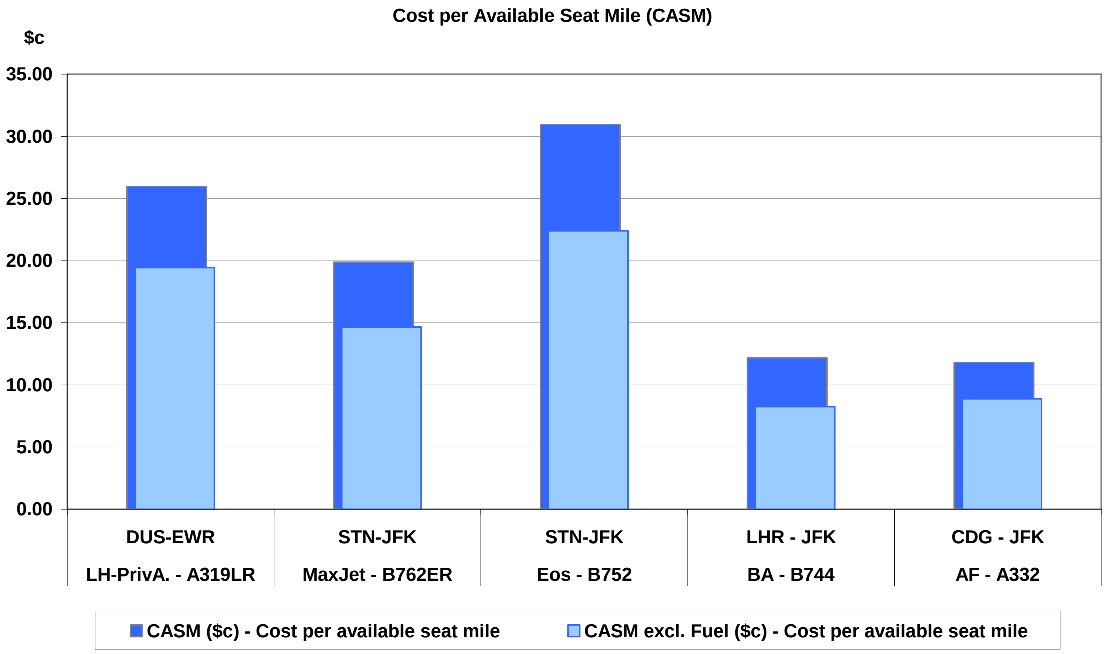


Exhibit 17 – Cost per Available Seat Mile

The British Airways and the Air France flights show similar CASM numbers of 12.2 and 11.8 $cent and a non-fuel CASM of 8.2 and 8.9. The non-fuel CASM represents about 75% of the full CASM in case of the A330-200 based Air France operation and 68% in case of the Boeing 747-400 British Airways operation.

CASM of the premium model reflects the higher cost impact of multiple cost blocks resulting from the nature of the service. CASM of the Lufthansa-PrivatAir,

[8] CASM can be found in annual reports of numerous airlines or their SEC filings

MAXjet and Eos operations is 26, 19.9 and 30.9 $cents and the non fuel CASM is 19.4, 14.7 and 22.4 $cents. Similarly as in the case of the Air France operation the non-fuel CASM represents about 75% of the total CASM. While the aircraft used for the premium operation are similar in terms of construction type, they are smaller in size and hence generally have higher specific fuel consumption (Exhibit 18), which is especially true for the narrow-body Airbus A319LR and Boeing 757. Despite this fact, the ratio of around 75% is identical – this can be explained by higher costs in cost blocks other than fuel in case of the premium airlines.

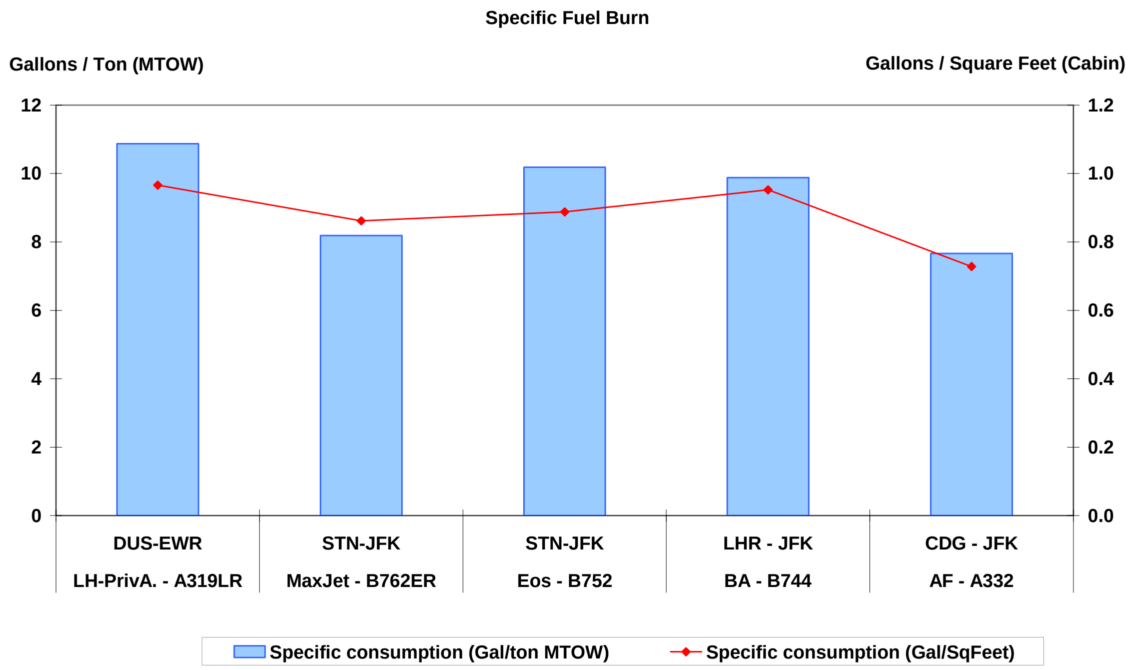


Exhibit 18 – Fuel Efficiency

Among the types of premium models represented by the PrivatAir, MAXjet and Eos models, the differences are clearly reflected in the CASM values. Simplified, CASM is basically a function of average cabin space per passenger and the level of service. Hence, a ratio of CASM and cabin area per passenger provides a good picture about the cost effectiveness of the operation and is further used as a supplemental KPI (Exhibit 16). This pattern is also present in case of all three airlines, where Eos – the airline with the most costly service and also most cabin space per passenger (26 square feet[9]) among the three – has the highest CASM.

PrivatAir offers roughly 17 square of feet of cabin space per passenger, putting its CASM to cabin area ratio to 1.5 $cents per square feet, as opposed to 1.2 $cent in case of Eos and MAXjet and 1.1 $cent in case of the traditional airlines. This can be explained by the slightly worse specific consumption compared to the larger Boeing 757 or Boeing 767, higher employee costs (because of the assumed employee sourcing exclusively in Switzerland as opposed to the US) and the use of relatively new aircraft with calculatory depreciation rates not much lower than those of the bigger Boeing 757 and 767. Passenger services costs are lower than those of Eos but are not enough to off-set the higher impact of the direct operating cost blocks mentioned above.

4.4.4.2 Capacity-related KPIs

In order to indirectly assess the total cost burden in relation to capital employed (this approach is based on the assumption that aircraft size and capacity are generally relatively accurate predictors of its cost) capacity-related KPIs have been devised. These can be most conveniently based on two indicators – the passenger cabin floor area (measured in square feet) and the Maximum Take-Off Weight (MTOW). The cost per cabin area comparison can be seen in Exhibit 19; the total cost has been split into direct and indirect operating costs in order to better illustrate the determining factors.

[9] Please note that this value can vary depending on whether solely the passenger footprint is considered or the floor space of the entire cabin is simply divided by the number of seats, and whether various common facilities are included or not. All approaches are valid and in most cases an equally credible comparison will be possible using both methods.

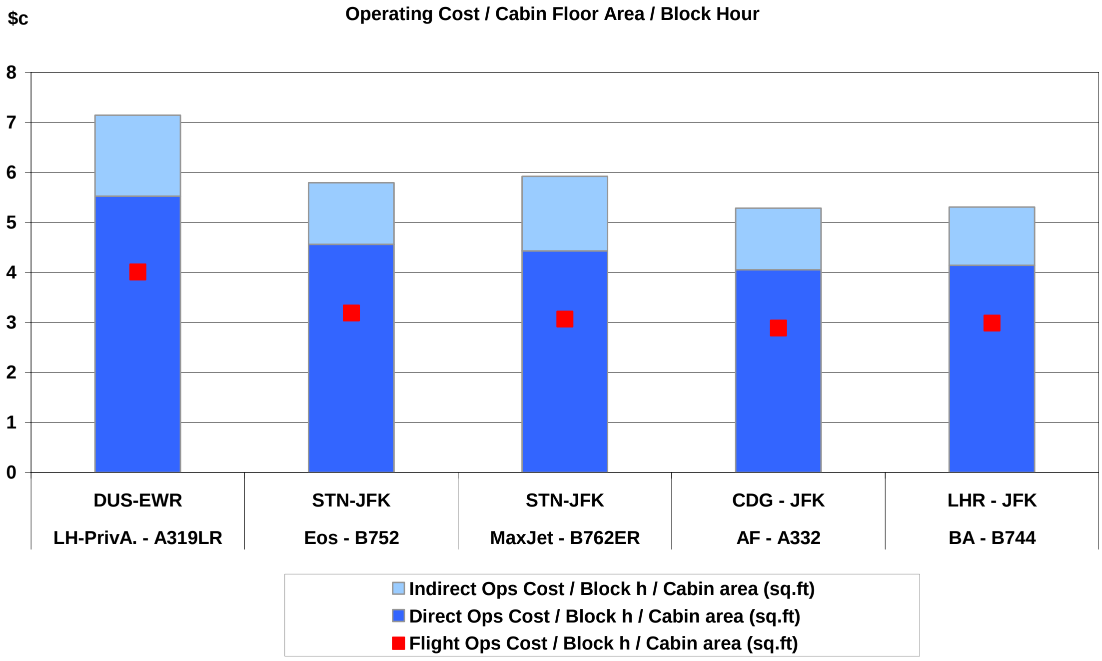


Exhibit 19 – Operating cost measured on cabin floor area

The total cost per block hour per square feet of cabin space is roughly 7 $cent in case of Lufthansa-PrivatAir, 6 $cent in case of Eos and MAXjet and 5.3 $cent in case of the mixed operation of British Airways and Air France. The difference represents about 25% higher costs in case of the Lufthansa-PrivatAir flight as compared to the mixed flight, which can be attributed to the factors described previously in the section on CASM. However, the difference is only 10% when the cost per square feet of MAXjet and Eos are compared to the mixed flights in the sample (Exhibit 20). This finding indicates that it is possible to provide premium service for a total cost not substantially higher than that of a traditional mixed class service.

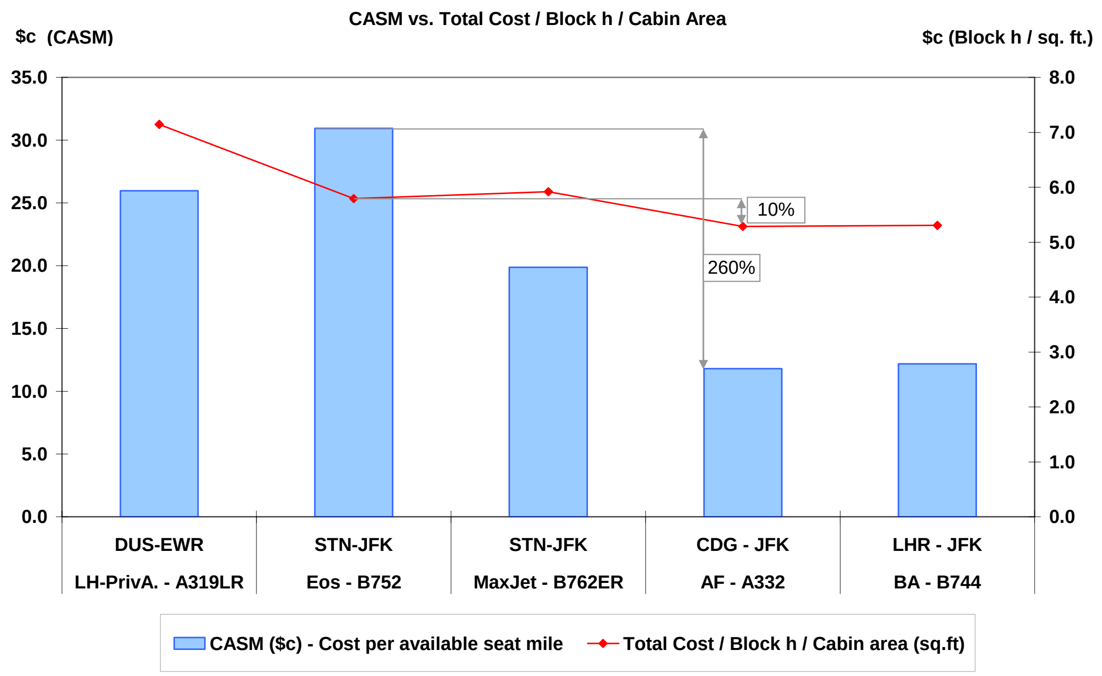


Exhibit 20 – CASM versus Total cost / Block hour / Cabin area

If the total cost is split into direct and indirect costs, one can observe that the cost benefit favoring the mixed operation can be surprisingly attributed to the direct rather than indirect operating costs. Indirect operating cost is in the range between 1.2 and 1.6 $cent per square feet per block hour, which implies that in case of a significant difference in the total operating costs (Lufthansa-PrivatAir), the main contributing factor are the economies of scale (especially in the area of flight operations) rather than the level of service. When the main cost block of the indirect operating cost, the cost of passenger services, is compared on a per-passenger basis, the difference between the premium and mixed operation can be as high as 290% (Exhibit 21). However, when the costs related to cabin area are compared, the difference between the same two flights is only 25% or around 12 $cent per square feet per hour, indicating that the impact of passenger service is marginal compared to the impact of economies of scale within the block of direct operating costs.

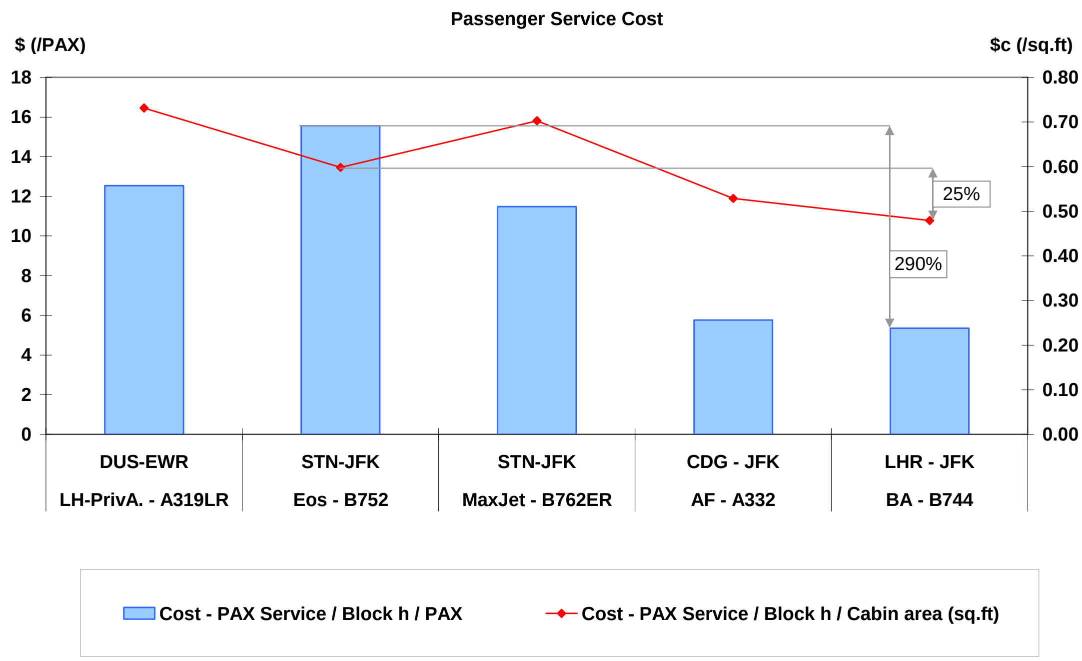


Exhibit 21 – Passenger service cost

Comparison of costs based on MTOW yields similar results. While Lufthansa-PrivatAir's total cost is close to 80 $cents per ton per block hour, those of MAXjet, British Airways and Air France are on the same level of around 55 $cent per ton. Surely, this can be partly attributed to the higher specific weight of MAXjet's Boeing 767, the only wide-body aircraft among the types used for the premium airline operation. Nevertheless, the finding supports the former thesis that the total costs can be held on a similar level as in case of the mixed operation.

4.4.4.3 Total Cost per Sector per Passenger

Total Cost per Sector per Passenger is a high level KPI that can be primarily used as an indication for pricing purposes. From the revenue perspective, it can be seen as the mean revenue per passenger from which the operating margin has been subtracted. It is computed as the total cost per sector divided by the number of passengers at a target load factor. The computed cost per passenger per sector is roughly $1,390 in case of the Lufthansa-PrivatAir operation and $1,530 in case of Eos (Exhibit 22). MAXjet's use of larger capacity aircraft combined with lower cost of service when compared to Eos and Lufthansa/PrivatAir lowers the number to $980, while the traditional mixed class services by Air France and British Airways come to around $610. As mentioned above, the cost per sector value can be used as a basis for establishing the mean ticket price by adding an appropriate margin on top of the costs – however, this is only applicable for the single class concept.

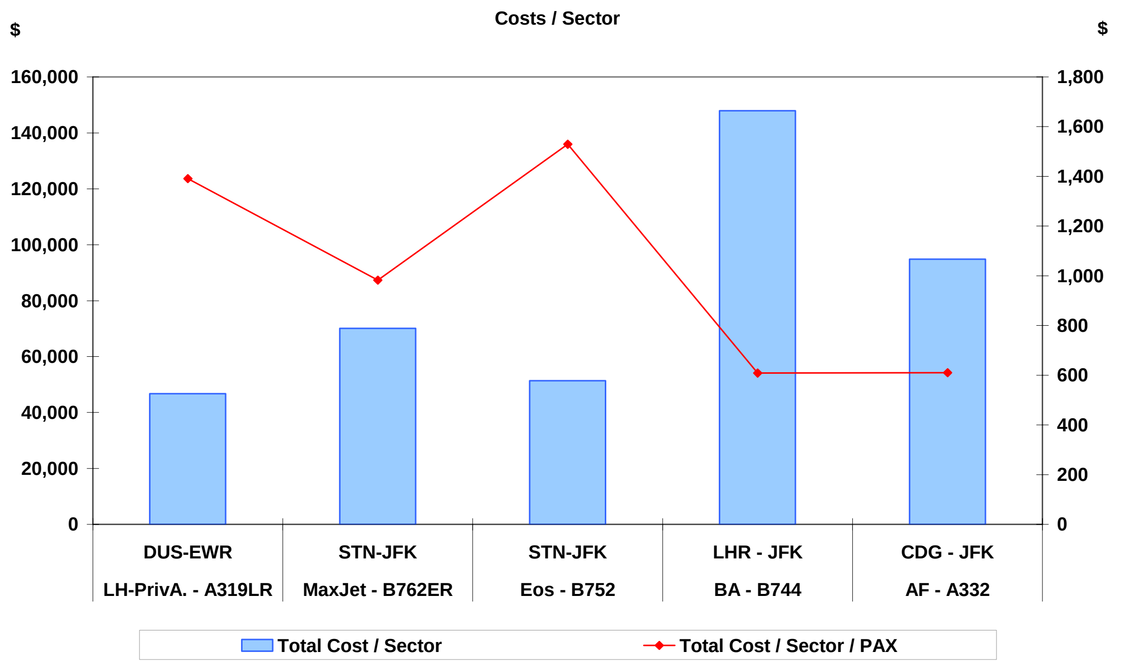


Exhibit 22 – Total cost per sector

4.4.5 Sensitivity Analysis

In order to assess the sensitivity towards external influences and possible differences between the premium airline model and to the traditional mixed class operation, a sensitivity analysis has been concluded. At first, the average fare for each flight was set to a specific level to reach an equal operating margin of 10% (Exhibit 23). Subsequently, the fares were held constant and the impact of the variation in selected input variables on the operating margin was tested. The resulting operating margins were recorded and are displayed in Table 8.

OUTPUT	All Business Class			Mixed Class	
OPERATING COST PER BLOCK HOUR / USD	LH-PrivA. - A319LR	Eos - B752	laxJet - B762ER	AF - A332	BA - B744
@ 70% Load Factor*	DUS-EWR	STN-JFK	STN-JFK	CDG - JFK	LHR - JFK
40 AVG Ticket Price (One Way) Economy				460.0	375.0
41 AVG Ticket Price (One Way) Business	1,545.0	1,700.0	1,092.0	1,670.0	2,160.0
42 AVG Ticket Price (One Way) First					4,050.0

Exhibit 23 – Average fares in $ at 10% operating margin (the distribution between economy, business and first class in case of the mixed flights is arbitrary)

Impact of Selected Input Factor Variations on Operating Margin					
	All Business Class			Mixed	
	LH-PrivA. - A319LR	Eos - B752	MaxJet - B762ER	AF - A332	BA - B744
	DUS-EWR	STN-JFK	STN-JFK	CDG - JFK	LHR - JFK
Fuel 25% up	4.3%	3.8%	4.1%	4.4%	2.7%
Fuel 40% up	0.9%	0.1%	0.6%	1.0%	-1.7%
Fuel 25% down	15.6%	16.2%	15.9%	15.6%	17.2%
A/C Insurance Premium 2% up	5.6%	5.8%	6.7%	6.2%	7.1%
Pilots' salary 25% up	7.7%	8.5%	8.9%	8.7%	9.4%
Business Class LF 10% down (from 70% to 60%)	-3.1%	-3.0%	-2.2%	4.5%	5.6%
Business Class LF 10% up (from 70% to 80%)	19.8%	19.8%	19.2%	14.8%	13.9%
All LFs 10% down (Biz+Econ 70%->60%, First 50%->40%)	-3.1%	-3.0%	-2.2%	-2.4%	-3.5%
All LFs 10% up (Biz+Econ 70%->80%, First 50%->60%)	19.8%	19.8%	19.2%	19.2%	19.9%
Airport & Landing Charges 20% up	9.0%	9.1%	8.7%	8.0%	8.0%
Ticketing and Sales Expenses 50% down	10.9%	10.9%	11.4%	11.1%	11.1%

Table 8 – Sensitivity Analysis (the displayed values are the respective operating margins)

The outcome of the tests supports the findings of the previous analysis of operating economics. The impact of variation in fuel price and insurance premium is a function of aircraft type and age rather than the business model. A rise in flight crew salary has the most significant detrimental effects in case of Lufthansa-PrivatAir, followed by Eos, Air France and MAXjet. The profitability of the British Airways flight is almost unaffected. It should be noted that the margin reduction in case of Eos and MAXjet can be attributed to the business model itself, while it is the result of high additional payroll expenses (34% over the US level) in case of the Air France operation. Variations in load factors produce predictable results. While an isolated 10% load factor drop in the business class compartment leads to a negative profit margin for the business class-only flights, it remains positive in case of the mixed operations. A 10% rise in business class load factor produces substantially higher margins for the premium model than for the traditional operation. Reduction or rise in load factors in all compartments leads to similar levels of margin decline or growth regardless of the type of business model. As stated in the previous chapter, airport and landing charges have a higher impact on the mixed operation because of calculation of landing fees that is proportional to MTOW and higher passenger density. No strong difference could be established in case of a decline in ticketing and sales.

4.5 Summary of the Findings, Implications

In the chapter 2.5 Market Entry Barriers economies of scale and high marketing costs were identified as the main barriers for the establishment of a new airline service. The actual analysis of the operating economics on the sample of five selected flights supports these findings and extends their relevance to the premium airline business model.

The original assumptions about economies of scale by Bailey et al. (1985), Caves et al. (1984) and Kirby (1986) see the use of large aircraft as the way to utilize them. The newcomer is restricted from benefiting from economies of scale because the airline initially cannot generate enough demand or finds it difficult to obtain finance for large aircraft (Kummer 2001). While the impossibility of utilization of economies of scale is common to the premium airline model and the newcomers treated in the previous research, the reasons for this fact are not the same and the difference is inherent to the nature of the premium model. The premium operation does struggle with the problem of a demand volume that does not allow for the use of large aircraft; however, this can be attributed to the natural phenomenon that there are fewest routes with more than 50-100 business passengers traveling at the same time. Thus, the model is limited to the use of smaller aircraft per se and not because of the lack of demand in the initial phase.

The contribution of this analysis is the identification of the individual cost blocks that are primarily responsible for the lack of economies of scale – flight crew salaries, navigation charges on the direct operating costs side and marketing expenditure and cost of slots (treated outside of the model) in the block of indirect operating costs. Surprisingly, passenger service is not a very significant cost driver, it contributes only between 10 to 12% to the total operating costs in the premium model, as opposed to slightly under 10% in case of the mixed operation. Nevertheless, the cost item in absolute numbers is not more then 25% higher compared to the mixed class operation, measured on the basis of cabin area.

While the higher impact of flight crew, navigation and slot expenses is common to both the start-up operation and the premium model launched by an established airline, the implications differ in terms of marketing costs, which are much higher in case of a start-up airline.

Contrary to the popular perception that because larger airliners have better specific fuel burn (a factor contributing to economies of scale) and small aircraft operating on short-haul routes should thus be in disadvantage, no significant impact could be established. Big networks carriers use very mixed fleets in terms of types and age on their long-haul routes with a corresponding variation in specific fuel consumption. Hence, premium airline operation with a unified fleet of relatively modern smaller aircraft should have no disadvantage regarding fuel efficiency. Furthermore, it can be assumed that a network carrier with a large fleet will due to complexity of associated operations and infrastructure find it more difficult to quickly replace its fleet with newer, more efficient aircraft than a small-scale, premium operation.

To sum up, a premium operator does not have to fear significantly higher total cost of operation than the traditional mixed carrier, but needs to address the deficiencies in the identified cost blocks in order to be as competitive as possible. While an airline has virtually no influence over navigation charges, it has some room to control the costs of flight crew through the choice of employee sourcing location and avoidance of labor unions. Expenses can also be avoided by selecting a cheaper airport as a base, as long as alternatives exist – as in case of Eos and MAXjet which operate from Stansted rather than other costly London airports. However, disadvantages, such as limited potential for interlining, which were discussed in chapter 3.3 Provision of Better Value for the Trav-

eller – "Verkehrswertigkeit", need to be kept in mind. Start-up airlines will also have the advantage of being able to replicate the lean management structure of low-cost carriers and this opportunity should not be missed. Nevertheless, the biggest threat, especially to a start-up premium airline, is the potentially inefficient use of marketing, with marketing expenses representing non-recoverable sunk costs. Very careful customer segmentation and appropriate choice of promotion media has to ensure that the customer acquisition costs will be kept at minimum while reaching the targeted mass. Furthermore, even with the right medium chosen, the line between a dollar spent too much or too little is very thin. Hence, marketing might be the critical success factor for a premium airline start-up.

An aspect that has not explicitly been accounted for in the calculations is the impact of keeping back-up aircraft, back-up crew and spare parts. While the associated expenses are close to marginal in case of large network carriers, they currently have a significant impact on the start-up airlines. The arbitrary exclusion of this element has been chosen based on the premises that the young airlines have been gradually expanding their services by adding new routes (MAXjet), increasing frequencies (both) and expanding their fleet, thus spreading the fixed cost of these items over a continuously growing base of operations. Due to the dynamic development, a concrete number might loose its validity within a short period of time and the inclusion of this factor was therefore abandoned. Currently, Eos operates two aircraft and keeps one on stand-by, which, including back-up crew and estimated spare parts cost, has an impact of additional 9% on top of the computed total cost per block hour. In case of MAXjet with its fleet consisting of six aircraft and an average fleet age of above 20 years, this number is lower, roughly 5%. If the expansion continues, it can be anticipated that these fixed costs will become similarly marginal as in case of large network carriers.

5. Conclusion

Premium airline services have not existed long enough to prove their long-term viability. However, they came into existence in a period where the airline industry, slowly recovering from the shock of 9/11, was hit by record oil prices. This has put pressure on margins and driven fares up in case of all market players. If premium airline offerings are able to be attractive to the customer while creating profitable business for the owner in this period of time, they are likely to succeed in the long run. So far, there have been good news – the service of Lufthansa and PrivatAir showed load factors around 60% to 75% on the all business class routes in 2005 (source undisclosed). Similarly, Eos Airlines and MAXjet have reported load factors in the 70%-s in the high season of 2006 (Eos 2006b, MAXjet 2006c). It cannot be agreed with the popular opinion that the model has existed and failed previously, referring to Regent Air, MGM Grand Air and Concorde – these services were substantially different in terms of their time period background, cost structure and the service itself. Hence, no predictions for the current premium airline model can be drawn from their failure.

This paper has examined the business model from strategic and operational aspects. In both cases, there seems to be no significant obstacle that would make the launch and operation less viable than in case of established forms of scheduled services. Two business model approaches which depend on the type of market have been identified: the pull motivated strategy aimed at selective target groups coming from specific industry clusters; this approach is common for the model pioneered by Lufthansa in cooperation with PrivatAir and further adopted by Swiss and KLM. The other way is a push-motivated entry into a competitive route aimed at a niche market, the value driven business traveler. This model has been introduced by Eos Airlines and MAXjet Airways. The analysis in this paper has proven that these services have an inherent value benefit for the target group. It is the convenience and comfort of the point-to-point single business class service in case of the Lufthansa-PrivatAir model and the high get/give ratio in case of the Eos/MAXjet model. The positive responsiveness to the value positioning can be predicted by the results of several price sensitivity studies.

It has been established that short-haul routes are not viable because of reduced willingness of companies to pay for business class on short business trips, resulting in quality downgrades, low load factors and price erosion. The ultra-long-haul market, i.e. roughly over 10.000 km, is also not an alternative either because the thin demand is already being sufficiently served by the network carriers. Moreover, the narrow-body aircraft that would be suitable for the demand capacity-wise have insufficient range. The viable alternatives are the traditional long-haul markets such as the transatlantic, transpacific and possibly also the medium-haul market, for instance Europe-Middle East. However, this option will be likely open only to the Middle-eastern airlines which posses a competitive advantage in fuel and employee expenses and strong government support. Generally, good predictors of potential are quality upgrades in existing business class services in a specific market. In case of north-south alignment of the route possible effects of reduced time zone-shift (as opposed to east-west routes) on aircraft utilization and its impact on economics would further need to be examined. Globally, emerging markets such as Russia, Central Asia - Middle East and China, especially routes that connect industry clusters could be the next to see a launch of a single class premium service. There are still possibilities open in the Europe-US market, cities such as Hamburg, Berlin, Stuttgart, Marseille and industrial British conurbations being candidates for a business class connection with their US-counterparts. However, existing airlines which consider launching a single class premium operation should be expecting a certain degree of cannibalization of their hub feeds.

The decision to enter a certain market has a determining impact on the choice of aircraft. The viability of long- and medium-haul routes for the premium airline model reduces the aircraft choice to the extended range versions of narrow-body airliners of the Airbus A320 and Boeing 737 families for the thin business routes. They feature favorable operating economics and thanks to different available fuselage lengths they also offer flexibility within the fleet in terms of capacity, in case new routes with different characteristics are opened. On the aftermarket, Boeing 757 and Boeing 767 families are attractive especially to the value-positioned new entrants.

The competition to the premium airline model does not come in the form of private jet charters or fractional jet ownership, this form of travel still plays in the cost league above first class. It is the sophisticated connectivity of the network carriers offering high frequencies, redundancy, code-sharing, interlining and added benefits of extensive frequent flyer programs from the customer's point of view, and economies of scale combined with enormous market presence and goodwill from the operator's standpoint. Due to the lack of network capabilities resulting from the scale and choice of point airports, premium airline operations have to rely on local demand. However, the premium airline model is able to offset these shortcomings by the convenience of less congested airports, lean operations and provision of a certain value demanded by the customer. It is not clear whether value driven business class passengers will accept a limited frequent flyer program in turn for discounted fares as it happened with no-frills airlines. Currently it seems to be an important influencing factor in their travel decision making. However, business owners or managers whose compensation is based on the performance of their profit centers might be willing to trade in for the fare savings. On the other hand, an innovative frequent flyer program as offered by Eos Airlines and MAXjet can serve to overcome the lack of networking effects in the customer loyalty area.

In the launch period, the vital point is the efficient establishment of market presence and goodwill. The target group has to be reached and the associated expenses are non-recoverable, sunk costs. The balance between a dollar spent too much or too little is fragile and promotion channels have to be chosen very carefully in terms of reaching and persuading the critical mass of the target group to try the first flight; all this with very limited resources compared to competing network carriers. Apart from advertising, the earliest integration in Global Distribution Systems is necessary in order to leverage the offering through a powerful distribution channel with reach to business travel agents. Possible GDS-rating of a portion of the seats as premium economy should be examined – there is potential to capture the lower end of the market where company policy restrictions are based on class of travel rather than price. This option could be interesting especially for MAXjet and Silverjet. In the long term, replicating the lean management structure of low-cost carriers is vital to the success of airlines that have built their positioning around provisioning of superb value. Climbing costs would translate into rising prices with inevitably diminishing value or shrinking profit margin. The latter could just recently be seen on the example of JetBlue, writing their first red numbers (Forbes 2006).

The analysis of operating economics on the basis of five sample flights yielded results indicating that there is no stark difference in the overall cost structure between the single class premium and traditional airline operation. In the cost block of flight operations, flight crew (pilots) expenses and navigation charges demonstrate economies of scale; their impact can be as high as 10% in case of Lufthansa-PrivatAir while being fewer than 3% of total cost in case of mixed flight on British Airways' Boeing 747. The new entrants have some room to compensate the high impact of flight crew salaries thanks to the lack of labor unions and by sourcing pilots in countries with lower additional payroll expenses. The flight crew cost handicap is further offset by the lower airport charges that are directly proportional to aircraft size and passenger numbers, and tend to be substantially lower at point airports. Despite the expectation of higher impact of higher specific fuel burn of smaller aircraft, this effect is marginal. Network carriers can have even more disadvantageous expense situation as regards fuel and maintenance due to their mixed fleets in terms of age and types.

In the area of indirect operating costs, the cost of passenger service could surprisingly not be identified as cost driver. The cost of passenger service measured as share of total cost and on the basis of cabin floor area is not significantly higher than that of a traditional mixed operation. Start-up airlines will have higher expenses on promotion due to the need for extensive marketing activities during the launch period and beyond because they will (at least partly) use the same channels as the much larger competing network carrier. However, the administrative overhead can be kept down thanks to the replication of low-cost airlines' lean management structure.

Last but not least, every possibility that makes the service more valuable or costly to imitate for a competitor needs to be exploited. Unique seating configuration as seen in case of Eos, syndication of travel miles of multiple passengers in case of MAXjet, or Lufthansa's offering of private jet transport on the continental leg of the trip could be named as examples of competitive advantage sources. Even the start-up airlines can innovatively built a competitive edge in the area of economies of scale. Cooperation with non-competing operators such as logistics companies in sharing the costs of stand-by spare parts for identical aircraft (e.g. Eos and DHL's Boeing 757s) could be thinkable. As long as the airlines manage to preserve their competitive advantages and bring the promised value to the customer, there appears to be no reason why the premium airline model should be more prone to failure than its traditional counterpart.

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Abbreviations

A/C – Aircraft

ACJ – Airbus Corporate Jet

APU – Auxiliary Power Unit

ATC – Air Traffic Control

BAC – British Aircraft Corporation

BBJ – Boeing Business Jet

BOAC – British Overseas Airways Corporation

CASM – Cost per Available Seat Mile

CDG – Paris, Charles de Gaule, Airport (IATA Code)

DUS – Düsseldorf, Airport (IATA Code)

ETOPS - Extended Twin Engine Operations

EWR – Newark, New Jersey, Airport (IATA Code)

FAA – Federal Aviation Administration

GPU – Ground Power Unit

GDS – Global Distribution System

IATA - International Air Transport Association

ICAO – International Civil Aviation Organization

IFE – In-flight Entertainment

ISO – International Organization for Standardization

JFK – New York John F. Kennedy Airport (IATA Code)

KPI – Key Performance Indicator

LAS – Las Vegas, Airport (IATA Code)

LAX – Los Angeles, Airport (IATA Code)

LHR – London Heathrow, Airport (IATA Code)

LR – Long Range

LTN – London Luton Airport (IATA Code)

MTOW – Maximum Take-Off Weight

MUC – Munich, Aiport (IATA Code)

SEC – US Securities and Exchange Commission

SQ.FT – Square Feet

STN – London Stansted Airport (IATA Code)

Table of Exhibits

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Appendix – Model Data

OUTPUT

COST STRUCTURE		All Business Class			Mixed Class	
	OPERATING COST PER BLOCK HOUR / USD	LH-PrivA. - A319LR	Eos - B752	MaxJet - B762ER	AF - A332	BA - B744
	@ 70% Load Factor*	DUS-EWR	STN-JFK	STN-JFK	CDG - JFK	LHR - JFK
	A. Direct Operating Cost	4,546	5,690	7,388	9,807	16,236
	A.1. Flight Operations	**3,299**	**3,976**	**5,106**	**6,986**	**11,707**
	A.1.1. Fuel and Oil	1,478	1,995	2,586	3,172	6,721
	A.1.2. Flight Crew Salaries and Expenses	588	481	481	724	544
	A.1.3. Airport & En-route Charges	810	993	1,499	2,279	3,427
	A.1.3.1. Airport Charges	312	372	710	1,376	2,269
	A.1.3.2. En-route Charges (Navigation)	498	621	789	903	1,158
	A.1.4. A/C Insurance	423	507	541	811	1,014
	A.1.5. Rental / Lease (of A/C, Crew)	0	0	0	0	0
	A.2. Maintenance	**400**	**700**	**1,200**	**1,200**	**2,500**
	A.3. Depreciation A/C	**847**	**1,014**	**1,082**	**1,621**	**2,029**
	B. Indirect Operating Cost	1334	1540	2480	2987	4570
	B.1. Station / Ground Expenses	**226**	**274**	**394**	**540**	**823**
	B.2. Passenger Services	**602**	**747**	**1172**	**1279**	**1878**
	B.2.1. Cabin Crew Salaries and Expenses	288	398	530	710	933
	B.2.2. Other Passenger Service Costs	296	331	603	484	812
	B.2.3. Passenger Insurance	18	18	39	85	132
	B.3. Ticketing, Sales, Promotion	**254**	**378**	**703**	**629**	**1025**
	B.3.1. Ticketing, Sales	127	142	301	314	513
	B.3.2. Promotion, Advertising	127	236	402	314	513
	B.4. Administration and Other Costs	**252**	**141**	**211**	**540**	**844**
	TOTAL Operating Cost / Block Hour	**5,880**	**7,230**	**9,868**	**12,794**	**20,805**

*) Load Factor in BA First Class assumed 50%

OUTPUT OPERATING COST PER BLOCK HOUR / USD @ 70% Load Factor*	LH-PrivA. - A319LR DUS-EWR	laxJet - B762ER STN-JFK	Eos - B752 STN-JFK	BA - B744 LHR - JFK	AF - A332 CDG - JFK
Total Cost / Sector	46,738	51,394	70,147	94,856	147,898
Total Cost / Sector / PAX	1,391	1,530	982	610	609
CASM ($c) - Cost per available seat mile	26.0	30.9	19.9	11.8	12.2
CASM excl. Fuel ($c) - Cost per available seat mile	19.4	22.4	14.7	8.9	8.2
Total Cost / Block h / Cabin area (sq.ft)	7.1	5.8	5.9	5.3	5.3
Direct Ops Cost / Block h / Cabin area (sq.ft)	5.5	4.6	4.4	4.1	4.1
Flight Ops Cost / Block h / Cabin area (sq.ft)	4.0	3.2	3.1	2.9	3.0
Indirect Ops Cost / Block h / Cabin area (sq.ft)	1.6	1.2	1.5	1.2	1.2
Total Cost / Block h / MTOW (ton)	77.9	66.5	56.2	55.6	55.1
Cost - PAX Service / Block h / PAX	12.5	15.6	11.5	5.8	5.3
Cost - PAX Service / Block h / Cabin area (sq.ft)	0.73	0.60	0.70	0.53	0.48
Cost - PAX Service / Block h / MTOW (ton)	8.0	6.9	6.7	5.6	5.0
Cost - ticketing & sales / Block h / Cabin area (sq.ft)	0.15	0.11	0.18	0.13	0.13
KPIs					
Area (sq.ft) per PAX	17.2	26.0	16.3	10.9	11.2
CASM / Cabin area (sq.ft)	1.51	1.19	1.22	1.08	1.09
Direct Operating Cost / Block Hour excl. Fuel	3,068	3,695	4,802	6,635	9,514
Direct Operating Cost / Block Hour excl. Fuel & Deprec	2,222	2,681	3,720	5,014	7,486
Specific consumption (Gal/ton MTOW)	10.9	10.2	8.2	7.7	9.9
Specific consumption (Gal/SqFeet)	0.97	0.89	0.86	0.73	0.95
Average fare round-trip incl. 10% Margin	3,060	3,365	2,161	1,343	1,340
Cabin area / MTOW	11.3	11.5	9.5	10.5	10.4
Average fare one-way incl. 10% Margin	1,530	1,683	1,081	671	670
Est. Revenue	51,912	57,120	77,969	105,364	164,294
RASM ($c) - Revenue per available seat mile	28.84	34.39	22.09	13.11	13.53
Operating Profit	**5,174**	**5,726**	**7,822**	**10,508**	**16,395**
Operating Margin	**10.0%**	**10.0%**	**10.0%**	**10.0%**	**10.0%**
EBITDA	**6,020**	**6,740**	**8,904**	**12,129**	**18,424**
EBITDA Margin	**12%**	**12%**	**11%**	**12%**	**11%**

		All Business Class			Mixed Class	
		PrivA. - A319LR	Eos - B752	axJet - B762ER	AF - A332	BA - B744
		DUS-EWR	STN-JFK	STN-JFK	CDG - JFK	LHR - JFK
	I N P U T					
AIRCRAFT RELATED DATA	1 A/C Price	70,000,000.0	75,000,000.0	80,000,000.0	125,000,000.0	150,000,000.0
	2 No of Years for Depreciation	15.0	15.0	15.0	15.0	15.0
	3 Residual Value	7,000,000.0	7,500,000.0	8,000,000.0	12,500,000.0	15,000,000.0
	4 Or A/C Rental per Block Hour (Instead of 1-3)	0.0	0.0	0.0	0.0	0.0
	5 A/C Insurance per Block Hour	423.4	507.2	541.1	810.5	1,014.5
	6 AC Fuel Burn Gallons per Hour	820.9	1,108.2	1,436.6	1,762.0	3,734.0
	7 Maintenance per Block Hour	400.0	700.0	1,200.0	1,200.0	2,500.0
	8 AVG crusing Speed mach	0.8	0.8	0.8	0.8	0.8
	9 A/C Cabin Floor Space Economy (Sq. Ft.)				1,498.1	2,240.0
	10 A/C Cabin Floor Space Business (Sq. Ft.)	823.2	1,248.0	1,667.0	921.9	980.0
	11 A/C Cabin Floor Space First (Sq. Ft.)					700.0
	12 Captain's Yearly Salary	180,000.0	160,000.0	160,000.0	180,000.0	180,000.0
	13 FO Yearly Salary	126,000.0	112,000.0	112,000.0	126,000.0	126,000.0
	14 Cabin Crew Yearly Salary (1 Person)	40,000.0	40,000.0	40,000.0	40,000.0	40,000.0
	15 Additional Payrol Expenses Factor (LNK)	1.7	1.6	1.6	2.1	1.6
	16 Number of Cabin Crew	4.0	6.0	8.0	8.0	14.0
	17 No of Seats Economy				182.0	299.0
	18 No of Seats Business	48.0	48.0	102.0	40.0	38.0
	19 No of Seats First					14.0
FLIGHT RELATED DATA	20 Load Factor Economy				0.7	0.7
	21 Load Factor Business	0.7	0.7	0.7	0.7	0.7
	22 Load Factor First					0.5
	23 Jet Fuel Price $ per Gallon	1.8	1.8	1.8	1.8	1.8
	24 Groud / Station expenses - i.e. Handling, De-Icing (	1,800.0	1,950.0	2,800.0	4,000.0	5,850.0
	25 AVG Navigation Charge per Block Hour	497.7	621.3	789.1	903.4	1,157.8
	26 Landing Fee	955.1	1,113.0	1,795.4	2,352.9	3,864.9
	27 Terminal Fee per Passenger (origin)	15.0	15.0	15.0	20.0	20.0
	28 Terminal Fee per Passenger (destination)	30.5	30.5	30.5	30.5	30.5
	29 Lounge Cost per Passenger Economy	0.0	0.0	0.0	0.0	0.0
	30 Lounge Cost per Passenger Business	20.0	20.0	20.0	20.0	20.0
	31 Lounge Cost per Passenger First	0.0	0.0	0.0	0.0	30.0
	32 Passenger Meal Cost & Entertainment Economy				15.0	15.0
	33 Passenger Meal Cost & Entertainment Business	50.0	50.0	40.0	40.0	50.0
	34 Passenger Meal Cost & Entertainment First					80.0
	35 Passenger Insurance	4.2	3.9	3.9	4.1	3.9
	36 Ticketing, Sales per Passenger	30.0	30.0	30.0	15.0	15.0
	37 Promotion/Advertizing per Passenger	30.0	50.0	40.0	15.0	15.0
	38 Administration and other costs (per flight)	2,000.0	1,000.0	1,500.0	4,000.0	6,000.0
	39 Sector Length (miles)	3,750.0	3,460.0	3,460.0	3,620.0	3,460.0
PRICING	40 AVG Ticket Price (One Way) Economy				460.0	375.0
	41 AVG Ticket Price (One Way) Business	1,545.0	1,700.0	1,092.0	1,670.0	2,160.0
	42 AVG Ticket Price (One Way) First					4,050.0
	44 AVG Ticket Price	1,545.0	1,700.0	1,092.0	678.0	714.8
MISC	45 Total operating time (h)	7.9	7.1	7.1	7.4	7.1
	No of seats Total	48.0	48.0	102.0	222.0	351.0
	Sq. Feet total	850.0	1,248.0	1,667.0	2,420.0	3,920.0
	MTOW	75.5	108.8	175.5	230.0	377.8

O U T P U T	OUTPUT - Operating Cost as % of Total Cost				
	All Business Class			Mixed Class	
OPERATING COST PER BLOCK HOUR / USD	LH-PrivA. - A319LR	Eos - B752	Jet - B762ER	AF - A332	BA - B744
@ 70% Load Factor*	DUS-EWR	STN-JFK	STN-JFK	CDG - JFK	LHR - JFK
COST STRUCTURE					
A. Direct Operating Cost	77%	79%	75%	77%	78%
A.1. Flight Operations	**56%**	**55%**	**52%**	**55%**	**56%**
A.1.1. Fuel and Oil	25%	28%	26%	25%	32%
A.1.2. Flight Crew Salaries and Expenses	10%	7%	5%	6%	3%
A.1.3. Airport & En-route Charges	14%	14%	15%	18%	16%
A.1.3.1. Airport Charges	5%	5%	7%	11%	11%
A.1.3.2. En-route Charges (Navigation)	8%	9%	8%	7%	6%
A.1.4. A/C Insurance	7%	7%	5%	6%	5%
A.1.5. Rental / Lease (of A/C, Crew)	0%	0%	0%	0%	0%
A.2. Maintenance	**7%**	**10%**	**12%**	**9%**	**12%**
A.3. Depreciation A/C	**14%**	**14%**	**11%**	**13%**	**10%**
B. Indirect Operating Cost	23%	21%	25%	23%	22%
B.1. Station / Ground Expenses	**4%**	**4%**	**4%**	**4%**	**4%**
B.2. Passenger Services	**10%**	**10%**	**12%**	**10%**	**9%**
B.2.1. Cabin Crew Salaries and Expenses	5%	5%	5%	6%	4%
B.2.2. Other Passenger Service Costs	5%	5%	6%	4%	4%
B.2.3. Passenger Insurance	0%	0%	0%	1%	1%
B.3. Ticketing, Sales, Promotion	**4%**	**5%**	**7%**	**5%**	**5%**
B.3.1. Ticketing, Sales	2%	2%	3%	2%	2%
B.3.2. Promotion, Advertising	2%	3%	4%	2%	2%
B.4. Administration and Other Costs	**4%**	**2%**	**2%**	**4%**	**4%**
TOTAL Operating Cost / Block Hour	**100%**	**100%**	**100%**	**100%**	**100%**