



Centre for Aerospace & Defence Laws (CADL)
Directorate of Distance Education
NALSAR University of Law, Hyderabad

Course Material

**P.G.DIPLOMA (AVIATION LAW AND AIR
TRANSPORT MANAGEMENT)**

1.2.6. AIRLINE MANAGEMENT

Compiled by:
Prof. (Dr.) V. Balakista Reddy
Brigadier (Dr.) B. Chandrasekhar

(For private circulation only)

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MODULE I

INTRODUCTION TO AIRLINE MANAGEMENT

1.1 INTRODUCTION TO AIRLINE MANAGEMENT

1.1.1. MEANING AND CONCEPT

The world air transport industry has developed to become a major element of the world economy due to its significant multiplier effect. Important factors in the industry's success have been the continuing efforts to ensure a high level of safety, security and technological upgradation to run it as a 'global business' with a system that provides the basic standards and procedures for a smooth air travel. Air Travel being a truly international business, the air transport industry requires common world-wide business practices

Aviation provides the only transportation network across the globe and it is crucial for global business development and tourism enrichment. Air transportation is one of the most important services to offer both significant social and economic benefits. By serving tourism and trade, it contributes to economic growth. It also provides jobs and increases tax revenues. Air transportation is essential for the fast movement of people and cargo shipments around the world. Finally, air transportation improves the quality of people's lives by broadening their leisure and cultural experiences. It gives a broad choice of holiday destinations around the world and is an affordable means to visit distant friends and relatives (ATAG 2005).

The use of commercial aviation has grown significantly over the last few decades, estimated to be more than seventy-fold since the first jet airliner flew in 1949 (ATAG 2005). This rapid growth is attributed to a number of factors. First, rising disposable income and quality of life in many parts of the world have encouraged more people in these areas to travel and explore opportunities overseas. Second, deregulation of aviation laws, and bilateral and open-sky agreements between governments have opened new markets for airlines, which make travel easier and cheaper. Third, demand is increasing because of growing confidence in aviation as a safe mode of travel. Fourth, increased efficiency and increasing competition have reduced world airfares and the cost of travel. Finally, globalization has increased the average distance traveled, as people do business in countries which now have improved political and social environments. The impact of these factors is expected to continue, however, at different levels in different parts of the world. The number of air travelers and the volume of air cargo are expected to continue to grow, increasing the pressure on all the contributors to the air transportation service to take advantage of opportunities and efficiently manage their service.

A major player in the air transportation industry is the airline. Current records indicate that there are more than 900 commercial airlines around the world, with a total fleet of nearly 22,000 aircraft (ICAO 2006). Commercial airlines serve nearly 1,670 airports through a route network of several million kilometers. These airlines transport close to 2 billion passengers annually and 40 percent of interregional exports of goods (by value). Also, an estimated 2.1 million people are employed by airline or handling agents: for example, as flight crew,

check-in staff, and maintenance crew (ICAO 2006). Airline services are categorized as being intercontinental, continental, regional, or domestic, and may be operated as scheduled services or charters. In terms of size, airlines vary from those with a single airplane carrying mail or cargo, through full-service international airlines operating many hundreds of airplanes. In many parts of the world, airlines are government-owned or supported. In recent decades, however, the trend has been to move toward independent, commercial public companies by giving more freedom to non-government ownership of airlines.

The increasing number of commercial airline companies has put more pressure on their management to continually seek profits, reduce cost, and increase revenues. Increasing demand for air transportation service has compelled airline management to take advantage of opportunities in different markets. At the same time, increasing competition among airlines necessitates that airline management seek efficiency in all their decisions to promote their profit. It is no surprise that many airlines throughout aviation history have been unable to remain in business, and in most cases, it is agreed that the demise of these airlines has been attributable to deficient management.

Airline management practice has evolved significantly over the past three decades. The development of this practice has contributed to recent advances in computation and communication technologies and, more importantly, the need to reduce costs and increase revenues. Nowadays airlines seek to perform efficiently in a competitive environment that only provides marginal profits. The airline business is characterized as being one of the most complex, involving multiple conflicting decisions that all need to be optimized at the same time. Several tactics have been developed and used to better plan and operate airlines. These tactics bank on scientific approaches available in operations research and mathematics literature to optimize airlines' decision-making processes, and are usually modeled within computerized systems that can automate decision making. Therefore, these scientifically-based tactics promise an easier decision-making practice for the airlines. The need for these tactics becomes more crucial as the size of the airline increases, and making decisions based on individuals' judgment or experience becomes more difficult. The next section highlights the main challenges of airline management that elaborate the complexity of the airline decision-making process.

1.1.2. CHARACTERISTICS OF AIR TRANSPORTATION INDUSTRY

A half-century of evolution has left the air transport industry with a set of unique characteristics

- Performance demands for new systems require continual advancement of the technological frontier, which in turn involves unusual degrees of uncertainty and risk.

- Because the government is the principal customer, the product line is subject to revisions in program levels occasioned by changing requirements and funding availability.
- Equipment that challenges the state of the art is necessarily costly, the more so because requirements generally dictate short production runs, negating the economies of large-scale production.
- Technologically demanding programs require personnel emphasis in the higher skill levels. Hence, labor input per unit of output is substantially larger than in other manufacturing industries.
- The combination of technological uncertainty and long lead times, often 7–10 years and frequently longer, between program initiation and completion, makes advance estimation of costs particularly difficult.
- Because there are few customers and relatively few programs, competition for the available business is intense.

All of these characteristics contribute to exceptional demand for industry capital, yet profits as a percentage of sales are consistently well below the average for all manufacturing industries.

1.1.3. CHALLENGES OF AIRLINE MANAGEMENT

Impact of Other Players in the Industry

Airline management does not work independently of other players in the air transportation industry. Indeed, the decisions of airline management are very much affected by these other players. Figure 1.1 depicts the different entities that interact with airline management and affect decisions concerning government, airports, customers, alliances, suppliers, unions, and competitors.



Figure 1.1 The different players in the air transportation industry

First, airline management must comply with the regulations of the airline's home country. It must also take into consideration and comply with the regulations of the governments of the countries where the airlines fly to and from, and whose airspace they cross. Governments typically watch competition between airlines and control airlines' strategic decisions, such as merging, acquisition between carriers, market entry or exit and pricing, environmental regulations, security regulations, maintenance, and safety requirements. Second, airline management should carefully consider the terms of their agreements with the different airports they serve. Several factors affect these agreements, including available infrastructure (gates, runways, baggage handling, and so on), expected traffic, airport charges and incentives, competition from nearby airports, available landing slots, congestion, and operational curfews. Third, an airline should consider the needs and preferences of its potential customers, the travelers. For instance, the airline should consider schedule convenience, competitive fares, onboard services, punctuality, and efficient customer service. Failing to fulfill the needs and preferences of customers might lead to losing them to other competing carriers or other modes of transportation. Fourth, in many cases, an airline participates in one or more alliances to expand its network coverage or share resources with other airlines. Several forms of alliance are available that reflect the level of cooperation between participating airlines. It is important for an airline to decide which alliance to participate in and how to share its resources efficiently with each member in the alliance to promote profitability. Typically, the airline has to maintain a certain level of operating standards to serve within a worldwide alliance.

Fifth, suppliers are crucial to the continuation of the airline's operation. Airlines depend on suppliers to provide important items such as aircraft, fuel, spare parts, meals, employee uniforms, and so on. Also, in many cases, airlines outsource to vendors some of their jobs and services, such as aircraft maintenance, aircraft cleaning, ground handling, and sales. Therefore, an airline has to keep healthy relationships with its suppliers to continue operating successfully. Another entity in the air transportation industry that an airline has to deal with is unions. Different groups of workers form unions to achieve stronger negotiation power with airline management in terms of salary, benefits, or working rules. Keeping a good relation with labor in order to guarantee smooth operation of the business is one of the main objectives of airline management. Conflicts with unions might typically lead to negative actions by the unions, such as work slowdown or strikes, which usually impair the airline's operation significantly. Finally, in most markets, there is tough competition between several airlines. Typically, airlines continuously monitor the decisions of their competitors that relate to providing capacity, fare levels, fare restrictions, and departure times. In many situations, the decisions of the competing airlines proceed in a leader-follower pattern, where one airline takes an action and the other competing airlines try to find the best way to respond to this action.

1.1.3(a) Case study on Challenges of Airline Management : GE makes major skills investment in India

Developing ever-more fuel-efficient aircraft is one of the most competitive technical challenges in today's aerospace world. Companies are searching the globe for the most talented engineers and research scientists to give them that vital competitive edge which will translate into billions of dollars of new orders.

Some are doing more than searching. The John F. Welch Technology Center in Bangalore, India, is aircraft engine manufacturer GE's first and largest integrated, multidisciplinary research and development centre outside the United States. Over 4,500 scientists, researchers and engineers are working on developing a range of new concepts within the aviation, energy and related businesses.

GE opened the \$175 million research centre in 2000. Since then, the centre's research scientists have produced a number of vital technology breakthroughs. They have made a major contribution to developing an advanced combustor system which reduces emissions of oxides of nitrogen and improves fuel burn efficiency by 20% over legacy designs. The new combustor features in the GENx engine, which powers the new Boeing 787.

The centre has benefited greatly from local access to India's huge resource of highly-trained personnel and now has over 1,000 patent applications to its credit. The centre works closely with the four other GE facilities that form the GE Global Research network, comprising facilities in the US, Germany, China and Brazil. In addition, GE is also investing in a \$200 million manufacturing plant due to be opened at Chakan, near Pune, in 2014 to build a range of aviation and turbo machinery components for the global market.

1.1.3 (b) Case Study on Challenges of Airline Management (Unions and Labour Laws)

One of the challenges for European airline executives is the multiplicity of unions. Europe has a large number of unions in civil aviation and a pilot association in each country. The website of the European Transport Workers' Federation (ETF) lists 84 labour groups that are in civil aviation out of more than 200 affiliates (including several that are in more than one transport sector). In many European countries, there are several unions representing workers in civil aviation. In addition, there are pilot associations in each European country.

The supply of newly qualified pilots globally has not kept pace with demand growth in recent years. Experienced pilots from Europe, in particular, have made the move to better paid positions in the Middle East and Asia Pacific. This, in turn, may also be having a knock-on effect on pilot pay in Europe. Against this backdrop of a tightening supply of pilots and seemingly relentless growth in demand, labour's negotiating position is strengthening. Moreover, while the option to employ labour in lower cost markets can be an opportunity for

some airlines, the fragmented nature of labour law in Europe can add significant complexity to labour negotiations for European airlines with operations in more than one country. Even Ryanair, Europe's leading airline by passenger numbers, was forced to drop its long-held opposition to union recognition and to begin negotiations with pilot unions in late 2017. Almost immediately this led to a series of unprecedented strikes, followed by pay rises. In the year ended Mar-2019, pay rises for pilots and others contributed to a 28% increase in Ryanair's total labour cost – much faster than the 7% growth in passenger numbers.

CAPA's Airline Leader Summit in May-2019, explains the following: the relationship between management and unions in Europe varies. The relationship can be more difficult if senior union leaders do not themselves have a background in aviation. The number of unions representing civil aviation workers in Europe, and the breadth of sectors covered by some of them, makes this inevitable. More broadly, there will always be a tension between unions and management. Unions exist to serve the interests of their members. In a low margin industry such as the airline sector, where labour is one of the largest costs, the industry will always seek to lower labour costs and unions will always seek to resist this. Some would even argue that unions' interests are even further distant from those of the industry; that the unions' main objective is to preserve themselves and the jobs of the officials running the unions. Of course, in the long run, the interests of unions and the industry must be at least partially aligned. Both work closely together on issues such as safety. The industry needs labour in order to serve its customers and labour needs the industry to provide employment. Enlightened unions will work with aviation management to evolve working conditions and achieve greater efficiency for the sake of the industry's financial health and the consequent preservation and growth of employment. Similarly, enlightened management will work with labour representatives to ensure that the workforce is a partner in implementing change.

Interacting Layers of Decisions

Like many other businesses, airlines management faces three levels of interacting decisions. These levels include strategic, planning, and operations decisions.

Strategic decisions typically require a long lead time before implementation and require a considerable monetary investment. They are also expected to have a significant impact on the form of the airline in the long term. Examples of strategic decisions include growth and expansion, fleet sizing (aircraft orders), hub locations, merging with other airlines, alliance participation, and location of maintenance facilities.

Planning decisions are within a few months horizon, and can be defined as the process of efficiently using airline's available resources to maximize its revenue. The resources available to an airline include the facilities and the personnel that operate the business, including, for example, aircraft in different fleets, pilots with different qualifications, flight attendants, maintenance facilities, mechanics, gates, customer service agents, and ramp

agents. The planning decisions include forecasting the demand between every origin-destination (OD), flight schedule development, assignment of flights to the different aircraft fleet (if the airline has more than one fleet type), aircraft routing across the different airports' with its maintenance consideration, planning the line of flight for pilots and cabin crew, crew accommodations, flight-gate assignment, and catering. Other planning decisions include the number of staff required to operate flights at different airports including customer service, ramp agents, baggage handlers, and so on. They also include decisions regarding fare levels in each OD market, fare restrictions, and seat inventory control for each flight. It should be mentioned here that these planning decisions are very dependent on each other, which makes the planning process complex.

The operations decisions for the airlines are those decisions that need to be verified or updated on an hourly or maximally on a daily basis. They include, for example, the response to unanticipated incidents such as adverse weather conditions, flights delays and cancellations, aircraft breakdown, and absence of crew or staff due to illness. Operations decisions also include watching revenues, bookings, and anticipated demand levels in the different markets, matching prices with competitors, and managing seat inventory on each flight on a daily basis.

Strategic decisions are expected to impact on planning decisions, which, in turn, affect the operations decisions. In addition, there is a reverse feedback from the operations phase to the planning phase, which also, in turn, may provide feedback to the strategic decisions phase. For example, the observation of a frequent delay of a certain flight waiting for its inbound aircraft might alert schedule planning to alter the schedule of this flight to give enough connection time for its inbound aircraft. Also, strong demand forecasting in markets might call for a change in the strategic plan regarding expansion and increase of fleet size. As explained in the next section, this book covers in detail the tactics currently practiced by airline management for the planning and operations phase. Strategic decisions are considered to be beyond the scope of this book.

Surrounding Events

The air transportation industry is characterized by the effects of rapid and significant impacts from surrounding events and economic and social changes.

The negative impact on air transportation of factors such as wars, civil unrest, terrorist actions, increasing fuel prices, and epidemics has been clearly observed in several areas across the world. These events necessitate that airline management respond quickly and efficiently to study the impact of these events and take actions to alleviate their impact. To survive in business, in many situations, airlines may be forced to cut schedules, reduce fares, lay off employees, and cut salaries and benefits. For example, serious implications on passenger demand, revenue, average fare, and average yield (revenue per seat mile) for

airlines in the domestic US markets were witnessed following the September 11, 2001 (9/11) terrorist attack. It is clear that these four measures were affected significantly because of this event. At that time, most domestic airlines considered significant actions such as cutting capacity, lowering fares, and discharging employees to respond to these market changes.

1.1.3(c) Case Study on challenges of Airline Management: Civil Unrest: Sweden becomes a case study for global aviation - and a call to action for the industry

“There is only one way to finance costs created by climate change – through taxes”. Swedish Finance Minister Magdalena Anderson’s 20-Jun-2019 comments to a Netherlands-hosted conference on carbon pricing and aviation taxes, represent a growing view among Europe’s politicians and electorates. The conference proposed a jet fuel tax. The Swedish word flygskam, ‘flight shame’ in English, underpins an anti flying movement that has spread from Scandinavia to other European countries. It reflects a growing sentiment, particularly in the developed world, that flying is a source of guilt and shame because of its climate change impact.

Aviation can account for a high proportion of an individual’s CO2 emissions. One long haul flight can exceed an individual’s annual emissions budget. Individuals are starting to make big lifestyle changes to reduce their carbon footprint. The Swedish anti flying campaign Flight-Free is spreading. Swedish passenger traffic is falling. Changing public sentiment supports taxing aviation in Sweden. A jet fuel tax could be next.

Sweden introduced a per trip aviation tax in 2018, but Ms Andersson would like to introduce a tax on jet fuel. Meanwhile, the 2018 tax and public sentiment towards aviation’s climate change impact are depressing demand for air travel in Sweden.

Aviation taxes are damaging to demand, but are a tide that is proving hard to resist.

The threat of increased taxation further raises pressure on aviation to aim for net zero emissions by 2050 (see the previous article), rather than merely halving them, and to catalyse greater and faster progress in the development of the necessary technologies.

Whether this form of government and popular intervention will aid the cause of reducing unit emissions, where the airline industry itself is already bent on doing so, is another question. It certainly sounds an ominous note for many developing markets whose well-being depends on tourism growth.

Many Groups to Contribute

Another challenge of airline operations is the interaction process among several groups of workers who work together to operate the flights. The product that an airline generates is a

passenger seat or a space for cargo. This passenger seat or cargo space is typically a part of a flight that connects between two airports. The number of flights that an airline operates depends on the size of the airline. For large air carriers, the number of flights reaches a few hundred flights a day. Operating each flight requires significant cooperation among several groups of workers who all share the same objective of making the flight ready for departure on time. There are about 12 different groups who work on each flight before its departure. These groups include pilots (cockpit crew), flight attendants (cabin crew), maintenance crew, ramp agents, baggage-handling crew, cargo agents, fueling agents, customer service agents, gate agents, catering agents, aircraft cleaning agents, and operations agents or dispatchers. While the personnel in these groups differ in their qualifications, nature of work, workloads, and salary, they are all equally important for the departure of the flight. It is important for airline management to adequately set the work plan for each group, facilitate their work, and alleviate any possible conflict between them.

A pilot is a certified person who flies the aircraft of a certain aircraft fleet.

Typically, each type of aircraft requires a certain number of pilots with certain specified qualifications. Flight attendants are airline staff employed primarily for the safety of passengers onboard. Their secondary function is the care and comfort of the passengers. The maintenance crew (maintenance) is responsible for servicing and repairing the aircraft to make sure that it is operational. Typically, maintenance performs several pre-specified mandatory service checks on the aircraft before departure, as specified by the manufacturers. Maintenance also performs several scheduled service checks on each aircraft in operation. Ramp agents help guide the aircraft to taxi in, park, and taxi out at the gate. Baggage handlers and cargo agents transport, load, and unload baggage and other cargo to and from the aircraft. Fueling agents provide fuel to the aircraft before departure or at intermediate stops in the flight. Customer service agents assist passengers with check-in, seat assignments, seat upgrades, and itinerary changes. Gate agents ensure that only authorized persons and passengers have access to the aircraft.

Catering agents provide meals and beverages to be consumed on the flight. Aircraft cleaning agents clean the aircraft and the lavatories. The operations' agent or dispatcher coordinates the flight plan, weight, fuel requirements, and any weather-related or operations delays that are issued to the flight.

1.2.ORGANIZATIONAL STRUCTURE OF THE AIRLINE INDUSTRY

In order to avoid confusion about the term industry, it is best to define it at the outset. To clarify the structure of the industry at the outset, it is useful to define the industry.

An industry can be defined as a number of firms that produce similar goods and services and therefore are in competition with one another. In this sense, the airline industry is a segment or part of the broader air transportation industry. Several hundred companies across the world engage in the carriage of persons or goods by air. For example, American Airlines earns revenues in excess of \$20 billion a year, while the smallest may operate a single plane only several months a year. Broadly defined, the airline industry consists of a vast network of routes that connect cities throughout the country, and indeed, the world. Over this network, a large number of airlines carry passengers and cargo on scheduled service.

1.2.1. BASIC STRUCTURE OF THE AIRLINE INDUSTRY

Growth and Regulation

When the initial domestic civil aviation legislations were passed in countries, only a handful of air carriers operated on regular schedules over prescribed routes, and when they received government certification, they became known as certificated route, scheduled air carriers, a term that is used to this day. The act empowered the Civil aviation authorities to structure the interstate airline industry through regulation of passenger fares, air mail rates, route entry and exit, mergers and acquisitions, and inter-carrier agreements. These authorities immediately “grandfathered” the routes of 23 existing airlines, which later became known as trunk carriers (a term borrowed from the trunk railroads of the day). By definition, trunk carriers were airlines certified to operate on medium- and long-haul interstate routes.

These carriers came under Section 401 of the board’s regulations and thus were sometimes referred to as 401 carriers. To be exempt from 401 certification, a carrier could not exceed a take-off weight of 12,500 pounds (roughly the weight of a DC-3), which effectively limited aircraft to 19 passengers. Typically, two or three carriers provided service in a given market, although in some instances routes were covered by only one carrier. The CAB set standard fare levels to ensure cross-subsidization between profitable and unprofitable routes. Carriers were required to charge equal fares for equal distances. Cost increases were passed along to customers, and the CAB allowed the airlines to earn a reasonable rate of return.

Originally, there were two general classes of common-carrier air transportation: (1) the trunk airlines, which provided scheduled service on fixed routes, and (2) small no transport carriers, principally operating from a fixed base, which furnished service on request, without schedules. For the non scheduled carriers, transportation services were incidental to the principal business activities of sale and service of aircraft and flight instruction. After World War II, a number of enterprising aviation entrepreneurs purchased war surplus DC-3s (C-47s) and DC-4s (C-54s) and began to transport people and cargo for compensation or hire with no fixed routes or schedules, much in the manner of tramp steamers. These operations, usually cutthroat in the worst sense of the term, became known as non-scheduled, or “non-skid,” air carriers to the public and as “large irregular air carriers” to the CAB, which was

powerless to regulate them until the Civil Aeronautics Act was amended by Congress. The act was amended after World War II to create supplemental air carriers and supplemental air transportation so that such operations also required certificates of public convenience and necessity. Originally designed to supplement the capacity provided by the trunk carriers, by the 1960s the supplemental air carriers had truly become competitive carriers, and by the 1970s the name supplemental had lost all meaning. Some carriers provided scheduled passenger and cargo services, whereas others concentrated on cargo only.

During the 1950s and 1960s, subsidization of most local-service and many trunk routes continued. Local subsidy costs, exacerbated by fares deliberately set below marginal costs in accordance with the CAB formula, escalated rapidly as the local-service carriers added routes and replaced their original DC-3 aircraft with larger equipment. In an effort to reduce subsidy costs, the CAB at first shifted some low-density trunk routes to the local service carriers. When this approach failed, longer and potentially more profitable routes, often in direct competition with the trunk routes, were awarded. Despite this overlap of local-service and trunk carrier routes, the CAB largely maintained its vision of a bi-level industry. Trunk airlines served long-distance routes between major cities, while local-service carriers provided connecting service from smaller cities to trunk destinations.

Consequently, many itineraries required a change of airlines. Because of poorly coordinated flight schedules, significant delays awaiting a connecting flight were common. Faced with suppressed routing and pricing options, the airlines competed on services such as meals, movies, and seating comfort.

Despite these problems, the industry grew rapidly, enjoying more than a tenfold growth in passengers between 1950 and 1970. Technological advances embodied first in the long-range DC-6 and Constellation aircraft and then in the first-generation commercial jet transports provided steady improvements in productivity. Jet transportation greatly increased the trunks' capacity levels and allowed them to schedule more frequent flights. Airlines that added capacity gained a disproportionate share of market traffic because customers were most likely to call the airline with the widest range of travel options.

The industry's problems worsened during the Arab oil embargo of the 1970s. Between 1969 and 1978, fuel costs rose 222 percent (to 20 percent of operating expenses); inflation boosted labor costs (to 45 percent of operating expenses); and the stagnation of the gross national product curtailed demand growth (from 18 percent to 4 percent per annum).

Calls for regulatory reform first appeared in the early 1970s. Prohibited from competing on fares and routes, carriers responded by increasing flight frequency, lowering seating density, and adding ever more extravagant in-flight service. Anticipating continued rapid traffic growth that accompanied the introduction of jet aircraft, the major carriers placed new wide-body aircraft in service, exacerbating existing overcapacity. Load factors fell from 70 percent

in 1950 to 50 percent by 1970. With the transition to jet aircraft complete, productivity gains that had cushioned the economic consequences of falling load factors slowed. The industry's financial health weakened.

The CAB responded to the deteriorating financial conditions by increasing its regulatory interventions. In addition to the ongoing denial of new carrier applications, it imposed a route moratorium on existing carriers, approved a 20 percent fare increase, and sanctioned capacity limitation agreements among the trunk carriers. These actions raised alarm outside the CAB, resulting in a consensus in government and academia that regulatory distortions imposed unacceptable burdens on the economy and society and did little to address the industry's underlying structural problems.

Sensing a winning issue, Senator Edward Kennedy held congressional hearings in 1975 sharply critical of CAB policies. Studies comparing intrastate airlines operating outside CAB control with the trunk carriers projected fares 50 to 70 percent lower if the industry was deregulated.

Deregulation

In response to the criticism, the CAB reversed its policies, beginning with the approval of new route applications. In 1977, it consented to American Airlines' request for "super saver" discounts some 45 percent below existing coach fares. When American Airlines' traffic grew as much as 60 percent in response, the solution to overcapacity seemed at hand. Other carriers quickly filed and received CAB approval for similar discounts. De facto deregulation was under way.

In 1978, now with the active encouragement of new CAB Chairman Alfred Kahn, Congress passed the Airline Deregulation Act. The act mandated that the CAB phase out its route approval authority over three years and its regulation of fares over five years, and that it pass its remaining functions to the Department of Transportation. The CAB ceased operation at the end of 1984.

MAJOR AND NATIONAL CARRIERS

The immediate consequence of deregulation was that the established carriers faced competition on many fronts. First, they competed vigorously among themselves; motivated in part by the belief that market share would determine the ultimate survivors in a restructured industry. This meant new routes and lower prices, which led to more available seat-miles but lower load factors, as capacity outstripped new passenger traffic, and to lower passenger revenue yields because of the reduced fares.

The competition within the established industry was intensified by three innovations pioneered by the major carriers in the early 1980s that collectively represent a radical change from the regulated era. Although each of the measures offered initial competitive advantage to the first movers, in the aggregate these innovations appear to have contributed to the very high volatility of industry revenues. First, airlines established “hub-and-spoke” route structures, designed to funnel traffic from outlying regions for further transit, at very high load factors, to major destinations. But hubs are very expensive to establish and maintain because of the high infrastructure costs; the high fixed costs hinder easy adjustment of route structures in response to changing patterns of demand, and the overall route structure produces more connections on long-distance routes, which is disfavoured by full-fare business travelers. The hub-and-spoke structure also left the airlines vulnerable in the 1990s to low-fare carriers that fly point to point between destination city-pairs. Among other factors, the point-to-point carriers gain the advantage of higher aircraft utilization than do the hub-and-spoke carriers, which have to provide time in their schedules of long-distance routes for the arrival of feeder flights.

Second, the airlines adopted frequent-flier programs designed to enhance brand loyalty among business travellers and to exploit the differences between regional and national (or international) airlines in terms of more desirable destinations. The frequent-flier programs proved to be expensive to administer, and the potential liability of accruing free travel credits was an unwelcome overhang on an airline’s financial statement. Moreover, the frequent-flier programs came to play a somewhat perverse role in the design of route structures, in which destinations were added or retained to avoid the potential loss of frequent fliers.

Third, the airlines developed sophisticated reservations systems that they used for at least two purposes: (1) to skew in their favor the display of hauling information on the screens that were used in travel agents’ offices and (2) to establish yield management programs. In accumulating data about traffic patterns and demand for particular flights, airlines could engage in sophisticated price discrimination in the effort to maximize revenues. For example, based on historical information and current demand, an airline could decide seat allocations for cut-rate, advance-planning leisure travelers versus full-fare, last-minute business travelers. However, the combination of hub-and-spoke route structures and such efforts at fine-tuning led to complicated rate structures that facilitated price competition (because disciplining defectors from a particular benchmark fare was harder) and thus lowered passenger revenue yields.

Not only did deregulation expose the airlines to powerful competitive forces that undermined profitability, but it also eliminated the implicit protection under government regulation against collapse and bankruptcy. As a result, the industry is making a transition to a new structure.

1.2.2. REGIONAL CARRIERS

Regional air carriers are classified as large, medium, or small, depending on their annual gross revenue and whether they hold a certificate of public convenience and necessity from the DOT. Large regionals are certificated carriers with annual gross revenues between \$10 million and \$99.9 million. Medium regionals are certificated carriers with annual gross revenue less than \$10 million. The small regionals, commonly referred to as commuters, are non-certificated carriers.

Role of the Regional Air Carrier

Today, the regional/commuter airline segment is an integral part of the nation's air transportation system. Regional carriers provide regularly scheduled passenger or cargo service on aircraft predominantly seating fewer than 60 passengers or holding cargo with an 18,000-pound or less payload. Regionals fly pursuant to schedules published in widely used airline schedule guides.

A typical regional flight operates over a trip distance of 100 to 400 miles and at lower altitudes than flights of the long-haul carriers. Regionals operate well-timed frequent flights from outlying communities to the associated hub airports to "interline," or connect, passengers and cargo with other scheduled flights. Seventy percent of all regional passengers make such connections.

Although the growth period of regionals has been relatively short and not without problems, continuing efforts by the industry principals are playing a significant role in helping to forge an integrated and complete air transportation system. Today, 9 out of every 10 airports in the United States receiving scheduled air transportation are served by a regional air carrier. By year-end 2005, regionals provided frequent and timely air service to 664 airports, with 664 of these communities depending exclusively on regional airlines for scheduled air transportation. By contrast, the major airlines served approximately 32 percent of the total.

The 94 certificated regional air carriers provide short-haul air service to small and medium-size communities across the country, typically linking those communities to the nation's larger airports in a hub-and-spoke network. This network of regional air services interconnects each city with others in the system, and the regional airline segment increasingly has become more integrated into the system. Passenger enplanements experienced a massive increase during this period. Revenue passenger miles increased from 2.09 billion in 1981 to 56.21 billion in 2004.

Code Sharing

Approximately 90 percent of regional/commuter airline passengers connect to or from major airlines, saving passengers both time and money, as a result of tight marketing partnerships between regionals and majors known as code sharing. Today, close to 80 percent of U.S. regional/commuter carriers offer their service as part of a major airline network and, in the process, have created an integrated service, making regional/commuter airlines a vital link between small communities and the national air transportation system.

Although the majority of the code-sharing regional/commuter airlines are independently owned and operated, together with their major partners they provide improved service to the small-community passenger. These interline agreements have been attractive to the small carriers, because they offer them access to more passenger traffic, limited airport facilities, financial support, and marketing intelligence. These marketing partnerships enable regional/commuter airline passengers to check in at their local airport, thereby avoiding long driving times and expensive parking fees. In addition, passengers can obtain boarding passes not only for their initial outbound flight but for their entire trip.

The overwhelming success of these partnerships has afforded the opportunity for regional/commuter partners to upgrade their fleets with new-generation aircraft, complete with the same avionics used by the major carriers. With this new equipment have come new industry service standards that mirror the standards passengers have come to expect from major carriers. The integration of regional/commuter and major airline schedules has also meant well-timed flights, providing fast hub-airport connections. Even for those whose destination is the hub city, regional/commuter airline service offers the out-and-back-in-one-day business trip.

These partnerships have also meant tremendous cost savings to regional/commuter airlines as their major partners assume the reservations functions, which, at the same time, increased passenger and travel agent convenience by offering one-stop shopping. In addition, code sharing means lower air fares, with many regional/commuter segments covered by a small “add-on” fare, sometimes as little as \$10. Frequent fliers are also offered mileage credits as much as triple that of the 250-mile average stage length of a regional/commuter airline flight.

In addition, these marketing partnerships mean that small communities, which might otherwise not be served by major jet aircraft, become part of the major airline network. In providing that vital link, regional/commuter airline partners offer savings in both fares and overall transportation costs, frequent departures, convenient connections, and shorter business trips for those not connecting. In short, they have become an integral part of the national air transportation system.

1.2.2(a) Case Study on Code Sharing:

A code-share agreement is an arrangement where two or more airlines share the same flight. A seat can be purchased from an airline on a flight that is actually operated by another airline under a different flight number or code. All major airlines have one or multiple code-share agreements. There are well-known code-sharing alliances, for example the Star Alliance with (currently) 27 member airlines such as Lufthansa, SAS, Singapore Airlines and Swiss, to name but a few.

The code share agreement between Turkish Airlines and THAI Airlines took effect on 15 July 2011.

With the Turkish agreements, Mr. Piyasvasti Amranand, THAI President, said, “This code share agreement between THAI and Turkish Airlines is a significant step forward to expand our respective market presence extensively into Europe and into Asia. By code sharing with Turkish Airlines, THAI can reach many other European cities through Istanbul, which is another gateway for THAI into Europe as well as destinations in Turkey. Both our airlines can look forward to mutual strengthening of potential markets through Turkish Airlines’ extensive route net into Europe and through THAI’s strong network in Asia and Australia.”

Mr. Temel Kotil, Turkish Airlines CEO, said, “Turkish Airlines is pleased to join with Thai Airways International on this code share collaboration, which will expand potential air traffic between Turkey and Thailand. Code-sharing with Turkish Airlines expands THAI’s network to destinations in Turkey and Europe that THAI does not operate . . . This agreement successfully feeds traffic from Turkish Airlines into THAI’s route network, especially to and from Hong Kong, Kuala Lumpur, and Australia. In addition, Istanbul becomes another gateway into Europe for THAI on Turkish Airlines’ route network.

Identification Codes and Airline Designators

Every airline that operates scheduled passenger or cargo services with other airlines requires an identification code. The code is printed as the first three digits of the airline’s passenger traffic documents and cargo air waybills and identifies that airline for interline accounting purposes. Airlines with headquarters in the United States or its territories and possessions request a form code from the Air Transport Association. Airlines with headquarters outside the United States or its territories and possessions request the form code from the International Air Transport Association. Each airline that operates scheduled passenger or cargo services and publishes its schedules in industry schedule guides or that participates in the airline communications networks, such as ARINC or SITA, needs an airline designator. The two-letter airline designators are assigned and administered by the International Air Transport Association on behalf of the airline industry.

Publishing Schedules

The flight schedules of passenger-carrying airlines are published in the Official Airline Guide (OAG), the ABC World Airways Guide, and the American Express Sky Guide; schedules of cargo-carrying airlines are published in the OAG Air Cargo Guide, the ABC Air Cargo Guide, and Hereford's Cargo Guide. There is no charge for publication of direct-flight schedules and fares of commuter air carriers. Members of the ATA's Passenger Council have established the Interline Traffic Agreement—Passenger. All scheduled airlines may become parties to the agreement. The agreement becomes binding between parties upon execution of a concurrence.

The agreement gives each airline party the right to sell transportation at the appropriate fares over the lines of other parties with which it has a concurrence and to issue interline tickets providing for such transportation. Parties are required to honor interline tickets issued by another party with which it has concurred. Where interline tickets have been issued under the agreement, the originating airline agrees to check the passenger's baggage to the final destination at the first stopover point, and the down-line airline agrees to accept and transport such baggage.

Interline Agreements

Interlining of air freight within the industry is an effective means of expanding air freight services to customers. The ATA has two specific air cargo agreements available to major, national, and regional carriers: the Air Freight Procedures Agreement and the Small Package Shipment Agreement. Each is a multilateral agreement that prescribes uniform documents and labelling and handling procedures for regular air freight and small-package services.

Airlines may also participate in the International Air Transport Association's multilateral interline traffic agreements as member or non member carriers.

Universal Air Travel Plan: Begun in 1936, the Universal Air Travel Plan (UATP) card is one of the world's oldest credit cards. During the early years, the UATP card covered only U.S. domestic airlines. It gained worldwide applicability on October 1, 1948, when international routes were brought into the plan. Today, the UATP card is good for transportation on practically all the world's scheduled airlines flying domestic and global routes. As of 2006, anticipating airlines now number more than 220.

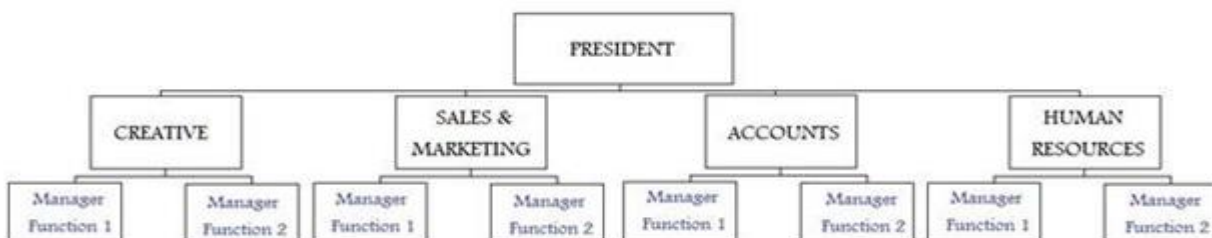
Those carriers desiring to subscribe to this airline credit service can contract through an individual airline by meeting the individual carrier's requirements. Thirty-two airlines ("contracting airlines") are authorized to issue UATP cards, and the cards are honored by all participating carriers. The contracting airline bills the subscriber on a monthly basis for all air transportation used, regardless of the number of airlines involved.

Travel Agencies: As the travel agency industry grew and as travel agents began to generate a larger proportion of airline tickets, a need arose for an efficient system of reporting and accounting for ticket sales. What emerged was the Standard Agent's Ticket and Area Settlement Plan. The plan's most important innovations were a standard ticket stock and a single source to which travel agents reported and accounted for airline ticket sales. Travel agents were issued supplies of standard ticket stock with no carrier identification. In issuing a ticket, the agent fills in the name of the airline on which the seat is being sold. Every week, the travel agent forwards reports of tickets sold to a designated area bank. The agent receives a computerized sales report from the bank for each reporting period. The sales report provides important data on each ticket issued, as well as statistical summaries for the entire reporting period.

The commission paid to travel agents was deregulated in June 1980, allowing airlines to set the commission. With the Interline Settlement of Agent-Issued Documents Agreement, the ATA's Passenger Council has set up a procedure for settling interline service charges at a periodically determined commission rate.

1.2.2 (b) Example of Organizational Structure of the Airline Industry : Malaysian Airlines' Organizational Structure type : Bureaucratic Structure

The company has a pyramidal structure where the board of directors have the highest level of authority and the chain of command goes through different departments and its employees. Malaysia Airlines has a tall organizational structure that means that there are a lot of levels of hierarchy, which indicate the equal status and authority of personnel. Having a narrow organisation structure means that MAS's managing director has a large span of control and puts him under the pressure of managing all the departments under his control. However, he isn't the highest level of authority on the chain of command as the board of directors are even higher on the hierarchy than the managing director and have more delegation to pass down authority and instructions through the entire organizational structure.



Malaysian Airlines' Decision Making Process: Centralized

Due to its bureaucratic structure, majority of the decisions are made by the leaders of each department who are primarily instructed by the board of directors and the managing directors.

Advantages:

1. Senior Managers will take decisions in regards to the whole business and not just individual divisions.
2. Quick decisions will be made as decisions are based on fixed rules and procedures
3. Senior Managers who make decisions will be experienced enough to call the shots
4. Policies will be consistent throughout the business and would avoid conflicts between departments

Disadvantages:

1. Since it's a multinational firm, senior managements cannot make decisions that adhere to each local location. They won't have the knowledge of the local market as well as the local division.
2. Could affect worker morale as they feel like they aren't part of the firm and their opinions are not valued.

1.3. AIRLINE BUSINESS AND MARKETING STRATEGIES

In one sense, the news here is good in that in today's airline industry there is no single, unique strategy which must be followed if success is to be achieved. There is a range of possible strategies available. What is essential, though, is that one strategy must be selected from this range. It must then be implemented well, and continued on a long-term basis. The aim of this Chapter is to set out and discuss the types of possible strategy, and their advantages and disadvantages.

1.3.1. PORTER'S "FIVE FORCES" AND THEIR APPLICATION TO THE AIRLINE INDUSTRY

In understanding these strategic options, a useful start can be made by looking at some of the ideas of the Harvard Professor, Michael Porter. Porter states that in different industries, strategic issues are colored by the interplay of the Five Forces of the rivalry amongst existing firms, substitution, new entry, the power of customers and the power of suppliers. We will examine each of these in turn.

Rivalry amongst Existing Firms

Porter argues that, in many industries, often little of the true competition and the drive for change comes from long-established firms. These long established firms often resemble one another in terms of the strengths which they have, and in their problems and weaknesses. They therefore can only identify benefit from aggressive competition at the margins of their activities.

In the air transport industry, the policies of the long-established airlines of Europe illustrate this point only too well, especially in their short-haul markets. There are now no regulatory reasons which preclude intense competition between them. Since April 1997, the airlines of the European Union have competed in a Single Aviation Market where there have been only the very loosest controls over entry, capacity and fares. This represented a major change when it took place compared with the tight regulation characteristic of the previous system. Yet, one would hardly know that this change had occurred if one had merely looked at the reaction of the old-established airlines to it. They continued to fly mostly similar aircraft (usually drawn from the Airbus A320 family), and placed in them identical or near-identical seating configurations. Frequencies and timings remained very similar, with few airlines prepared to allow their competitors a frequency advantage. The on-board products were mostly comparable, and did not change. Finally and most tellingly, until recently these airlines pursued an almost identical pricing policy. Very high fares were charged for seats in Business Class, and for access to Economy tickets which allowed full flexibility. Lower fares were also on offer, but these had had tight restrictions attached to them, restrictions which were mainly designed to prevent business travelers using them.

The result of such policies was that they made it much easier than it should have been for new Low Cost Carriers to grow in Europe, and for them to have a dramatic effect on the economics of the long-established firms. British Airways, for example, lost nearly £250 million on its intra-European network during its 2002/2003 financial year.

Substitution

Porter argues that disturbance to the competitive equilibrium set up by the long-established firms can come from two possible sources, the first of these being that of Substitution. Substitution occurs when firms in another industry find a new and better way of meeting the same customer needs as are being targeted by the existing players.

There are a number of Substitution issues affecting airlines at the present time. Of these, potentially the most serious is the effect of electronic methods of communication on the market for business air travel. Videoconferencing, teleconferencing and email all have the potential to mean that business travelers will travel less, and still satisfy their needs for effective communication.

Surface transport, especially by rail, also raises important substitution issues. As we have seen, unlike airlines, railways can provide city-centre to city-centre travel, and have been shown to severely impact the business travel market once these city-centre to city-centre journey times can be brought down below three hours.

The air freight industry is also being affected by Substitution issues. Email is substantially reducing the market for the movement of urgent documents by air. Also, newspapers do not provide the lucrative air freight commodity they once did. They still lose their value completely soon after they have been published. The problem is, though, that today media publishers are increasingly reaching their readers through the Internet, or by setting up satellite printing stations which enable newspapers to be printed simultaneously in a large number of different markets. They therefore no longer have to make use of air freight.

New Entry

The second of the forces which may disturb the competitive equilibrium amongst the existing players is that of new entry. In some industries, new entry is difficult or impossible. In others, it is commonplace. In the modern aviation industry, the latter is very much the case, especially in short-haul, point-to-point markets. This is because of the many possible so-called “Barriers to Entry”, most have become low or are now non-existent.

A first possible barrier to entry may result from regulatory limitations. It is true that, there are still regulatory barriers to entry in many international markets, and airlines are constrained in their market entry policies by out-of-date and anachronistic limitations on ownership and control. However, it is now the case that many of the world’s largest domestic markets, such as those of the United States and the European Union, now operate without any significant entry controls, apart from those applying to so-called Cabotage Rights.

In others cases, resources may act as a Barrier-to-Entry. If vital resources are unavailable or very costly, entry will clearly be constrained.

Significant though slot constraints already are, with a likely worsening of them in the future, radical strategies are possible which find a way round them. Slot constraints may provide some comfort to existing airlines in Europe today, but they can derive little more from the remaining possible resource constraints to entry. Especially during downturns such as the one experienced during 2002 and 2003, resources to underpin entry can actually be remarkably cheap and plentiful.

This is certainly the case with the question of the aircraft fleet that will be needed by a new entrant airline. In a recessionary period, aircraft manufacturers will be prepared to strike very attractive deals for the white-tailed aircraft which sometimes result from order cancellations. Also, there will be large numbers of parked aircraft – many of them owned by leasing

companies – where the owners will offer extremely low lease rates in order to get their idle aircraft flying once again.

Staff resources – especially of pilots and mechanics – will also be important. Again, in a recessionary period many trained people will unfortunately lose their jobs, and may well be prepared to take new ones at relatively low salaries and wages in order to obtain employment.

As an overall conclusion to the question of entry, incumbent airlines must prepare themselves for a continuing challenge from new entrants, especially in their short-haul, point-to-point markets.

Power of Customers

Porter argues that the power of their customers will be a crucial determinant of profitability for the firms in any industry. In turn, customer power will be related to two variables: the number of customers a firm has, and the existence – or otherwise – of so-called Switching Costs.

In principle, the point about the number of customers is an obvious one. If a firm has many customers and some of these defects to the competition, there will still be a large number of customers remaining. If, on the other hand, the firm has only two or three customers, the loss of one of them will result in a third or more of its business being lost. In such a situation, customers will have extreme amounts of bargaining power. They will be able to cut deals on terms which are extremely favorable to them, holding down the profits of the companies from which they are buying.

The subject of so-called Integrated Carriers is also an interesting one with regard to the question of customers becoming competitors. Integrated Carriers are freight companies specializing in the movement of relatively small, urgent, packages. When they begin service on a new route, it is normal for them to offer substantial amounts of business to existing combination airlines. This helps the Integrators to grow their traffic. Unfortunately for the combination airlines, once they have done so, it has been common practice for them to then put on their own specialist freighter aircraft, cutting out of the equation the airlines that first helped them to grow.

The question of Switching Costs is an equally difficult one. In some industries, there are very substantial costs associated with switching from one supplier to another. Airline fleet planning illustrated this point very well. An airline only using, for example, Boeing aircraft will have built up a large investment in Boeing spare parts, Boeing-orientated flight simulators, and in the training of its staff to be familiar with Boeing products. There will therefore be a strong financial incentive to continue to buy from Boeing. If Airbus is to break

the stranglehold of Boeing at such an airline, they will have to offer very large discounts on the purchase price of their aircraft, in order to effectively pay themselves for the Switching Costs of moving away from Boeing. They will probably have to offer many other incentives as well, such as large amounts of free pilot training. The problem for airlines is that they do not have the Switching Cost protection which assists aircraft manufacturers in retaining their customer base. An airline may be getting a worthwhile amount of business from a major customer as a result of having a corporate deal with them. It will be a simple task, though, for another carrier to come along and offer the customer a more attractive level of discount, with the result that the corporate deal with the first airline is cancelled and transferred to the second. This will be easy, because little capital investment or training is required to work with one airline rather than with another.

Of course, the first airline will hope that its Frequent Flyer Programme will be of some value in fending off predatory attacks by its rivals, in that many people who actually travel for the firm in question will wish to continue to build their mileage balance, and retain their privileged status, within the programme. Even this, very limited, Switching Cost protection can be addressed by the predator by a 'Golden Hello' tactic of giving out a large number of free miles and Gold Cards in their programme to these people.

Overall, the question of the Power of their Customers is a very difficult one for airlines to address, and goes a long way towards explaining the poor profit performance of many carriers in recent years.

Power of Suppliers

Porter argues – again, the point is straightforward – that when a firm is totally dependent on monopoly suppliers of crucially-needed resources, these suppliers will be able to charge prices which ensure handsome profits for themselves, but which severely limit profits of the firms that they supply. For airlines, the list of suppliers who either actually or potentially have this monopoly power is a depressingly long one. Most obviously, suppliers of Air Traffic Control and airport services may have it, with many airlines having no choice but to pay whatever ATC and airport charges are levied on them. It is most noticeable that at the time of writing airline profits have been severely affected in a major industry downturn, but the pain of this is not being evenly distributed across the industry. Many airports are continuing to show strong financial returns, reflecting the monopoly power that many of them have. Often, it has been necessary to regulate landing fees in order to control the use of this power.

Sometimes, airlines' fleet planning can be affected by powerful supplier issues. The Boeing 747 was introduced into airline service in 1970, and was unchallenged by any other aircraft for the next 25 years. If a carrier's requirement was a long-range aircraft with 400+ seats, the 747 was the only option available to them. Not surprisingly, the aircraft became a very

profitable project for Boeing. In the future, a similar situation may develop with the 555 seat Airbus A380, though Boeing's recent decision to launch a stretched version of the 747 – the so-called 747-8 – will have been greeted with a sigh of relief by many airlines.

Perhaps the best, and most controversial, example of powerful suppliers in the aviation industry has concerned the so-called Global Distribution Systems (GDSs). Since their inception in the late 1980s, the GDSs have provided the switching technology which allows travel agents to make reservations with hundreds of different airlines, hotels, car rental companies and tour operators through a single computer keyboard.

1.3.2. STRATEGIC FAMILIES

Cost Leadership, Differentiation and Focus – The Principles

A Cost Leader firm has a set of clear requirements it must satisfy if it is to be successful. Firstly, it must achieve, and then sustain, significantly lower operating costs than its rivals. If it loses its cost advantage, it will be in serious difficulties. Secondly and crucially, it must correctly identify what its customers are prepared to give up, and what they are not prepared to give up, in order to gain access to cheap prices. There are many examples of firms which do successfully achieve these requirements. Interestingly, (in terms of traditional thinking in the airline industry), such firms are often highly profitable, despite the low prices which they charge.

Cost Leadership in the Airline Industry: Background

The concept of Cost Leadership strategies is by no means new in the airline industry. In 1971, a new carrier, Southwest Airlines, was set up (after a series of drawn out legal battles instigated by incumbent carriers), to serve the intra-state Texan market in the USA. The airline became profitable in 1975, and, remarkably, has stayed profitable ever since. It has remained in the black even during the recessionary periods of 1991-94 and from 2000 until 2005, when the losses made by almost all the other airlines in the USA were very large indeed.

It has been the period since the late 1990s that has seen the rapid spread of the use of Cost Leadership strategies around the world. We now have two large, and rapidly growing airlines employing it in Europe,

Ryanair and Easyjet, as well as many smaller new entrants. A new airline, Jetblue Airways, has appeared in the USA, and has made a successful beginning. This has been no mean feat considering the sea of red ink which engulfed the US airline industry during its early years. Other examples of new entrant Cost Leader players around the world include Westjet in

Canada, Virgin Blue in Australia, Gol in Brazil and Air Asia, a domestic and regional carrier in Malaysia.

Besides these existing players, a high proportion of the start-up proposals being put forward at the present time include Cost Leadership elements in them. It is instructive to ask the question why recent times have seen this explosion in the use of Cost Leadership strategies, when the success of the pioneer, Southwest, had been obvious for many years.

The changing nature of the business air travel market provides a final and interesting explanation for the growth of Cost Leadership strategies. Until the late 1990s, traditional carriers were greatly favored by the fact that business travellers generally paid high prices for expensive, but prestigious travel in Business Class on board airlines which dedicated a great deal of effort to meeting a range of needs centered around prestige and status.

Some of them are still prepared to do this, but a number of changes have now taken place. Recent years have seen an increase in the importance of the so-called “Independent” business traveller. These are people who work for themselves or for small firms, and who feel that the price of an air ticket comes out of their own pocket. Even in the corporate travel market, business travellers are being forced to become more price-sensitive by the corporate purchasing of business travel, whereby companies trade lower fares for loyalty. Even travel agents now join in the quest for lower fares as they seek to prove their ability to get value-for-money, in order to retain their increasingly demanding corporate clients.

Whatever the explanation, the interest being shown around the world in Cost Leadership strategies now makes this the most important strategic development in the industry for many years.

Fundamentals of the Business Model

The business principles that underlie Cost Leadership need hold no terrors for the analyst. They are now very well understood, and remarkably straightforward. Coming to the airline business, the example of so-called Integrated Carriers is instructive. We will cover these firms in detail in the upcoming section, but for the moment what it is important to note is that before their arrival, using air freight for a small urgent package was a complex task, only accessible to experts. Traditional airlines were only interested in the relatively easy job of moving shipments from airport to airport. This left the shipper to make arrangements for collection and delivery, documentation (in itself no mean task in view of the complexities inherent in the documentation requirements dreamed up by airlines) and customs clearance. The result was that large firms called air freight forwarders grew up to handle air freight shipments, because lay people could not undertake the task themselves. Over the years, forwarders have cost airlines immense sums in commissions and in the consequences of reduced market control.

Overall, achieving and sustaining simplicity in business processes is an absolutely fundamental requirement for a successful Cost Leadership strategy. Bearing this point in mind, let us now explore further features of the strategy:

1. Low Fleet Costs

Most successful Cost Leader airlines today are pursuing a so-called “Fleet Commonality” policy, having only one type of aircraft in their fleet. In turn, for many, this one type is the various members of the Boeing 737 family. Whatever this aircraft may now lack (at least according to Airbus) in passenger appeal and the use of the latest technology, it has rugged and proven reliability as its greatest asset. These are exactly the qualities needed by a Cost Leader airline, and both Southwest Airlines (with a fleet now consisting of more than 400 737s) and Ryanair illustrate very well a commonality policy with 737s. By sticking to one type of aircraft, they are gaining substantial economies in such areas as pilot training and maintenance.

Other Cost Leader airlines are pursuing different fleet strategies, but still with the aim of securing low costs. Easyjet began as a 737 operator, but in 2002 signed a very large deal for the acquisition of A319s, a smaller version of the A320. One must assume that the deal offered by Airbus was so attractive that it led the airline’s management to conclude that lower acquisition costs would outweigh the costs associated with a mixed fleet. The airline will also be in a good position to play one manufacturer off against the other when it comes to the question of new aircraft acquisitions in the future.

2. Low Landing Fees

The previous section showed that the key to successful Cost Leadership was for a firm to establish and sustain a cost and through that, pricing advantage over all its rivals. In order to do so, it must address the “big ticket” cost items, those which will have a substantial impact on unit costs. The benefits of using underutilized airports are very great. The airline gains from very low landing fees, as airport operators reason that they are better off having substantial numbers of passengers (who will, in turn, provide commercial income for the airport from such activities as car parking and shopping) rather than none at all. It will also be able to expand rapidly, free of the slot-availability constraints that bedevil congested hubs.

Interestingly, at the present time, not all Cost Leader airlines are sticking to the “pure” form of the model with respect to airport selection. In strong contrast to Southwest, Jetblue Airways has based itself at Kennedy Airport in New York. Easyjet is making use of some congested European airports – notably Gatwick, Schiphol and both Orly and CDG airports at Paris, though the airline has shown itself to be particularly adept at moving quickly when slots at such airports have unexpectedly become available.

3. Short Turnarounds/High Aircraft Utilization

Once uncongested airports have been selected, the Cost Leader airline is well on the way to achieving its next requirement, that of short turnarounds and high aircraft utilization. Southwest Airlines has always scheduled turnarounds of 20-25 minutes, in contrast to the 50 minutes to one hour which the industry has traditionally used. This greatly helps the airline in its aim of achieving low costs, because it allows additional rotations to be operated each day. In turn, this permits a wider spread of capital costs (in the case of aircraft which are owned), or of lease rentals.

Of course, short turnarounds are not the only requirements. These turnarounds must be engineered so that they can be achieved consistently – otherwise an unacceptable punctuality penalty will result. Thus, for example, most Cost Leader airlines do not use air bridges at airports, despite the fact that this leaves their passengers unprotected in wet or cold weather. The benefit of this is that it allows both the front and rear aircraft exits to be used, speeding passenger enplaning and deplaning. Controversially, many Cost Leader airlines do not pre-allocate seats. This leads to jibes about “Cattle Truck Handling” as passengers rush for the seats they want when the boarding process begins. It means, though, that passengers are far more likely to be at the gate at the boarding time, and that they can be encouraged to sit down by the cabin crew in any available seat once they are on the aircraft.

As a further point, the fact that Cost Leader airlines are generally “no frills” (see below) makes galley servicing a very easy and quick process, as is cabin cleaning. Indeed, many Cost Leader airlines require their cabin crews to clean the aircraft during daytime stops, with a thorough clean only being given overnight. This will not be possible for full service airlines where food and other debris will be more of a problem (and trade union resistance highly likely).

4. Limited On-board Service

A short-haul airline, British Midland, spends 3.8% of its costs on “Passenger Services” – the meals and drinks given away free to passengers.

It might at first sight be assumed that Passenger Service costs would only be high for long-haul airlines, where passengers need to be offered generous hospitality because of the length of time they are on board the aircraft. This is not so. Traditional short-haul airlines (especially in Europe) have given passengers a complementary drinks and meal service, even on flights with a duration of only an hour or so. The costs of doing so can then only be spread over a small number of passenger-kilometers, and therefore have a disproportionate impact on unit costs.

Cost Leader airlines have a choice to make with respect to on-board catering. Some have chosen to be completely “no-frills”. This allows cheaper aircraft acquisition costs due to the absence of galley space, speeds aircraft cleaning and allows extra seating. Others – in fact, today, most of them – do offer a meals-and-drinks service, but charge relatively high prices to what are captive customers. Passenger service then becomes a worthwhile source of so-called ‘Ancillary’ revenue rather than a cost item.

5. Point-to-Point Only

One of the most important, but more overlooked, reasons explaining the recent success of the Cost Leader model is that airlines using it have concentrated on point-to-point traffic, eliminating what has hitherto been an unacceptable level of cross-subsidy from point-to-point to connecting passengers.

Any airline offering a transfer and connections product at a hub will incur substantial additional costs. Passengers checking in for a connecting flight will expect to be given a boarding pass not only for their first sector, into the hub, but also for their onward flight. Providing such a service will involve the airline in significant investment in its data processing and communications capability. Passengers will also assume that they can check-in their baggage at their point-of-origin, and reclaim it only at their final destination. All interim baggage handling will be taken care of by the airline, at a substantial cost. Once they reach their hub airport, they will expect to wait for their onward flight in a comfortable and well-appointed lounge.

6. Simple Fares

Cost Leader airlines follow significantly different pricing practices from traditional airlines in other ways as well. As we saw earlier in this section, the disciplines of Revenue Management have led airlines in the direction of greater pricing complexity, with often fifty or more fares being on offer on a particular route, most of them having different, and confusing, conditions associated with them.

Cost Leader airlines do make use of Revenue Management techniques, but generally with one crucial difference compared to traditional carriers. When someone looks at the website of one of these airlines, at the time they do so there is only one fare on offer for the flight in which they are interested. They are therefore faced with a clear “take it or leave it” choice. The fare on offer will certainly vary through time, being generally low well in advance of flight departure and rising as the departure day nears. The fact that there is only ever one fare available at a particular time makes the whole reservations procedure a very simple one, and, as we move onto now, allows the internet to be the cornerstone of distribution.

7. Low Distribution Costs

We will see there that the 1990s saw a rapid and unacceptable increase in the distribution costs of traditional airlines. This was due to the overwhelming domination of one channel of distribution – that provided by the travel agency industry. This near-monopoly caused a rapid increase in the commissions being paid to travel agents, as well as seeing airlines very vulnerable to the pricing practices of the Global Distribution Systems.

Any airline seeking a Cost Leadership position must address the question of distribution costs. If it can eliminate travel agents' commissions, a major step will have been taken towards the establishment and maintenance of a cost advantage, especially when it is born in mind that by the end of the 1990s it was common to find that 12% - 14% of a traditional airline's costs were made up of commissions.

In some sense, the elimination of GDS booking fees has been even more important for Cost Leader airlines. The GDS companies have always charged on a flat rate basis, currently about \$4.50 per booking made. This is a reasonable policy given the structure of their costs, but it means that booking fees fall disproportionately on low fares carriers. \$4.50 on a Business Class return fare of \$3000 is an irrelevance. The same booking fee on a \$50 fare most certainly is not.

The answer to the distribution problem for Cost Leader airlines has, of course, been to use the Internet. In this regard, the UK airline Easyjet has been the pioneer. From its foundation in 1995, Easyjet has paid no commission to any travel agent, and, because of this, no booking fees to any GDS company. The cost savings it has achieved as a result have been immense.

Easyjet has been followed by the airlines set up before it – Southwest and Ryanair – which have progressively eliminated the use of travel agents, and now have almost as high a proportion of their seats sold direct as Easyjet. Later entrants into the market have almost totally relied on internet-based direct sales.

8. Non-Refundable Tickets

In the past, most airlines have had a policy of making their more expensive tickets fully refundable. This makes them very much more attractive, especially for the business traveller whose exact schedule cannot be predicted very far in advance. It means, though, that these airlines have always had a significant no-show problem, which they have resolved, to a degree, by overbooking. All the Cost Leader airlines have a policy of allowing no refunds. Bookings can be changed, in return for a substantial fee (in the UK, generally £25 plus any difference between the fare already paid and the current fare available on the flight to which the booking is to be transferred) but no money is ever refunded. This allows the airlines a better and more certain cash flow, which in turn brings useful savings in interest costs.

Cost Leader Airlines: Current Issues

We have now looked at the different policies which airlines in the Cost Leader sector pursue. They illustrate perfectly Porter's principles of Cost Leadership. Successful players have to establish and sustain a cost, and through that, pricing advantage over their rivals. They must also correctly identify what their customers will, and will not give up to gain access to cheap prices. Cost Leader airlines have discovered that their customers will give up, amongst other things, service from their ideal airport, complementary meals and drinks, seat selection, the opportunity to buy a ticket through a travel agent and ticket refunds. The consequences of such policies, if correctly applied, are remarkable.

Cost Leader airlines seem to be the ones which have found a way round the chronic airline industry problem of cyclicalities. As the business model of Differentiation in the airline industry has generally allowed carriers to make reasonable returns in the buoyant upswing periods of the Trade Cycle. It has left them hopelessly exposed, though, in slow-down and recessionary times when large parts of the high yielding Business Class market – on which these airlines depend – has evaporated.

The essence of Cost Leadership is that firms are able to establish and sustain a cost advantage over their rivals. With low fares subsidiaries of full service (and highly unionized) airlines, concessions may be given in a time of crisis which allow a lower cost base to be established. However, once things begin to improve, it often becomes a major objective of union negotiators to ensure that wages, salaries and conditions of employment at the subsidiary start to move nearer to those which prevail in the mainline operation. The cost advantages are then progressively eroded. Also, the setting up of a low fares subsidiary involves significant branding problems. When someone experiences no-frills service on a low-cost subsidiary it may color their view of what will happen on their next flight with the full-service parent. Finally, low fares subsidiaries will perhaps allow an airline to compete more successfully with Cost Leader players which are challenging its dominance. Another, less desirable, effect is that the subsidiary may take traffic away from its parent, and lead to criticism of the parent's relatively high prices.

1.3.2(a) Case study on Low-Cost Strategy Factors in Airline Industry: The AirAsia Case

The study attempts to illustrate the key success factors that have resulted in the superiority of AirAsia (AA) airline among other LCCs (Low Cost Carriers) airlines in the competitive market of SE Asia. This study shows that the regulatory environment in the region's air transportation business is an important barrier for the development of local LCCs airlines. Hence, AA attempts to cope with these barriers.

SE Asia has an extensive network of low-cost budget airlines that is rapidly developing. As a matter of fact, SE Asia is probably the most developed area for low-cost aviation in Asia. AirAsia (AA) which is, based in Malaysia is a well-known company that is pioneer in implementing the cost-leadership strategy in SE Asia. It can be also considered as one of the largest and most comprehensive budget companies in that area. This paper provides a brief overview on the key success factors that have resulted in superiority of AA airline over other LCCs airlines in the competitive market of SE Asia. In addition, it is pointed out how AA can maintain its profitable LCCs leadership position in the airline industry and become superior over its competitors.

1. Use of Airbus 320: There are several main reasons that can be mentioned for this change. First and foremost, Airbus 320 is technically superior to its well-known competitor Boeing 737 in terms of using smart cockpit that provide more convenience for pilot to guide the plane with more safety and reliability. Secondly, it was the first airliner that used flyby-wire technology that able to convert the fly control orders executed by pilot into electronic signal transmissions. Boeing 737 is older than Airbus 320 and therefore improvement progress in Boeing 737 is less effective than Airbus 320. Airbus provides more discount than Boeing if the airline orders numerous planes in some cases. Overall, all these implications provide cost advantages and flexibility for airlines that uses Airbus 320 in their fleet. AA compared to its main competitors (such as Lion Air that has the second largest fleet size in the region) is therefore more superior as a result using Airbus 320.
2. Reservation and booking are the most pivotal issues in LCC airlines. This type of airline prefers to sell their tickets directly instead of having agents in order to reduce their expenditures. In general, issuing tickets result in extra costs. Therefore, they are more likely to issue their tickets by way of the Internet; in other words, LCC airlines are more likely to go ticketless. In order to achieve this goal, LCC airlines need a comprehensive and integrated IT system that is able to operate through the Internet. All LCC airlines try to perform in this manner; but AA was the pioneer airline to use extensively IT system in its operation that resulted in them becoming the first airline to go to ticketless in 2002. Nowadays, 80% of AA's sales are conducted over the Net and it has been named by Google as the number one travel website in Asia. In addition, AA won many international awards on IT and communication technology such as global ICT in the private sector category and private sector excellence by World Information Technology Service Alliance (WITSA 2010) and PIKOM ICT organization excellence by PIKOM ICT 2008 and etc.
3. AA has some competitive advantages over its competitors in terms of cost-leadership competitive strategy. AA has the largest fleet in terms of number of planes and seats among its competitors. Hence, it operates a vast number of routes in region covering

the whole of SE Asia. Therefore, AA benefits from less overhead cost, more volume negotiating and purchasing benefits compared to other airlines in the region. On the other hand, regulatory environment of SE Asia has resulted in slower progress rate in expanding and the development of LCCs airlines in the region. This situation is worse for airlines where their countries of origin are smaller than others. In order to overcome this disadvantage, AA formed subsidiary airlines in order to expand its operating zone and cover the entire SE Asia region. Establishment of subsidiaries such as Thai AA, Indonesia AA and Philippine AA are the result of AA's efforts for increasing its domination in region. Although, these companies do not completely belong to AA, they carry the AA brand and provide profits and revenue for the original company.

Masterly application of cost-leadership strategy factors by AA have resulted in it becoming an airline with the world's lowest unit cost with plane turnaround time of only 25 minutes thereby showing the capability of AA in the competitive SE Asia market.

“Differentiation” in the Airline Industry

Large numbers of airlines – mainly those which are long-established – in today's airline industry do not seek out a Cost Leadership position for their mainline activity (though, as we have seen, increasing numbers of them have set up Cost Leader subsidiaries). Instead, their argument is that they provide a value-for-money solution to a wide range of customer requirements, exploiting the synergies which become available to a firm producing a range of different products under the same umbrella. Such policies conform very well to the “Differentiation” position of the Porter model.

In recent years, many airlines in the Differentiation sector have suffering chronic financial losses. This has been especially so amongst the airlines of the United States, and to a lesser extent, Europe. Indeed, in many cases, the term “Legacy Airline” is a good description of these carriers, as they have often seemed to be dinosaurs finding life difficult or impossible in a fast-changing world.

This dire situation has, though, only arisen relatively recently. Whilst financial returns in the Differentiation sector have never been good, the period from about 1996 until 1999 was as prosperous a time as many of them had enjoyed in their entire history. Indeed, at the time it did seem that a business model was becoming established which would allow, at long last, a sound and consistent return for shareholders. We need, firstly, to define this model, and then to come onto the difficult and painful question as to why, in a comparatively short time, it was so disastrously undermined.

In order to be successful in the Differentiation sector it has always been necessary for airlines to be innovative. Indeed it is not co-incidence that two of the most successful airlines in this

sector, Emirates and Singapore Airlines, are also the airlines with a strong reputation for innovation. Both are early customers for the Airbus A380 large aircraft, and both have consistently aimed to be at the forefront of new developments in such areas as cabin comfort, in-flight service and in-flight entertainment.

Airline Alliances

Alliance relationships now have a long, and chequered, history in the industry. Throughout the history of commercial air transport, carriers have often preferred the comfort of co-operative rather than competitive relationships, but the modern alliance movement can be dated to 1993. Then, KLM and Northwest Airlines announced their wish to set up a strategic partnership. They were able to move ahead once the United States government gave them immunity from the US Anti-Trust laws, which it did following the signing of an “Open Skies” agreement between the US and Netherlands government.

The KLM/Northwest move was followed in 1995 by Lufthansa and United Airlines proposing what has become the Star Alliance. Again, anti-trust immunity was available once the German government had agreed to a US-style Open Skies Agreement. The Star Alliance grew rapidly in terms of the number of members it had, with it currently consisting of 19 member airlines.

A year later, the formation of the OneWorld alliance by British Airways, American Airlines and Cathay Pacific was announced. Although OneWorld has certainly developed since then, its activities have been hampered by the fact that American and British Airways do not have anti-trust immunity due to a long-running and bitter dispute about aviation policy between the US and British governments. This in turn means that co-operative discussions with OneWorld have always had to stop short of subjects of commercial intimacy such as fares and schedules co-ordination.

The evolution of the modern alliance scene was completed in 1999 when Air France and Delta Airlines formed the Skyteam alliance. Skyteam initially followed a different policy from Star, in that limited itself to a smaller, but, arguably, more manageable number of members. Now, though, attempts are being made to bring Continental and Northwest Airlines into the alliance, with bitter battles being fought to win what is seen as being the necessary anti-trust immunity. It now seems that we are reaching a mature airline alliance scene consisting of three global alliances, Star, One World and Skyteam. There does not seem to be room for a fourth.

There is one final element of the current alliance scene which should not be overlooked. Some airlines have not joined any of the global alliances. Virgin Atlantic and Emirates are both examples. Emirates, in particular, has taken a strong position of preferring to maintain

its independence rather than become enmeshed in what the airline's chief executive has called the straitjacket of membership of a single alliance.

Overall, it is clear that the formation and growth of alliances has been a central theme of the airline industry over the last decade. It is not hard to see why. A combination of theory and practice shows that, potentially, alliances can bring their members significant benefits to their bottom line.

The question of alliance co-operation strengthening airline Frequent Flyer Programmes is a more telling one. Indeed, it can be suggested that in many senses this is the glue which has held the alliances together through all the difficulties that they have experienced – to be discussed shortly. When an airline joins an alliance, it normally agrees to offer the benefits of its FFP to the programme members of all the other carriers. Thus, for example, if someone has a Gold Card issued by one of the other airlines, the new member airline will allow them to use its airport lounges. Reciprocal benefits will also be on offer to its own members. Even more importantly, alliances are able to offer the benefit of “Earn-and-Burn” rights. These mean that someone flying on any of the airlines in an alliance can earn miles in the FFP of which they are a member. They can also use these miles to obtain free flights on any alliance airline.

1.3.2 (b) Case Study on Differentiation Strategy : Virgin America Airline differentiation strategy in US airline industry

Virgin America is a California based airline, began to service in 2007, as a young airline company, how did they break into the market and become successful?

The analysis of Virgin America's Strategy is as follows:

1. As Dallas is a business oriented region, and as it is almost a new market for the American domestic airline industry. Virgin America quickly made a response which has expanded the business to Dallas and started a service from Love Field to Washington Reagan National, San Francisco, Los Angeles and New York in October, 2014.
2. From a technical aspect, Virgin America has set a good example for other airline companies in United States. In order to enhance the in-flight experience, they provide a set of complete facilities on the airplane. The most advanced touch screen system in the airline industry has been installed in-cabin, the company also provides a wide range of music selections, games, movies and free satellite television. Consumers can also order food and beverages in their seats without calling a flight attendant. Besides this, Virgin America is the first airline that works with the Google Gogo program to offer in-flight wifi on every flight since 2009, moreover, each seat is equipped with

Ethernet Jacks and USB slots, business travellers found this very useful, since they can get their work done while in the airplane.

3. Virgin America has brought environmental-sustainable practices into their business model(Carbon Fund, 2015)such as: purely using biofuel on several flights, implementing recycling programs, offering environmental food options in airplanes, giving passengers opportunities to offset their carbon footprint and so on. Moreover, Virgin America collaborates with 4 leading green teams to look for better solutions on reducing airplane carbon footprints. Virgin America is making some effort to achieve its long term environmentally-sustainable plan.
4. By the end of 2010, the expense of aircraft fuel was almost 2 times what it was in 2009. In order to prevent Virgin America from suffering from fuel price rising, Virgin Travel tried to solve the problem with fuel hedging, which allows the company to buy 2 years fuel at the current market price in advance, this avoids the loss from increase in fuel costs (Global Social Media Marketing. 2015).
5. Virgin America created their own culture, the red colour is their signature and well recognised among all airlines in America. Furthermore, being different is one of their strategies, with, excellent consumer service, music, lighting and the airplane's inner design. The safety video of Virgin America made a boring safety introduction become popular, it not only made people aware of the safety in airplane, also became an advertisement, who would have thought that a safety introduction could be watched more than 9 million times? Also, in order to gain more interaction with the customer, they frequently launch social media campaigns on twitter and other social media platforms(PR Newswire, 2013) such as : “fly like a boss”, “office in the air and so on” all the social activities made current customers feel like they are apart of the “Virgin America Family”.

Virgin America VP of Marketing & Communications Luanne Calvert emphasises that the goal of Virgin America is to disrupt the industry and differentiate the airline from all others. (Matthews, 2013) The way Virgin America prefers to operate differently is to bring-up the level of customer satisfaction and enrich the flying experience which helped the company stand out of its depressed state in the market

1.3.3. “FOCUS” STRATEGIES

“Value Added” Focusing

A very good example of “Value Added” focusing in the airline industry is that of “Integrated Carriers” such as Fedex and UPS. Both these firms are now long-established, and both have modified their basic business strategies in recent years to reflect changing market conditions.

They have, though, always had a strong emphasis on a single activity – the provision of guaranteed next-day delivery services for shippers who need to send small, urgent packages.

Such a service cannot be provided cheaply. Indeed, capital investment needs are enormous. Integrators need to invest in very large fleets of freighter aircraft. They generally cannot rely on the services of existing airlines, which, on short-haul routes at least mainly provide capacity in the daytime, in passenger aircraft belly-holds. They also must construct and run costly sortation centres at their hubs, centres which are capable of dealing with millions of packages in a short two-or-three hour window in the middle of the night. Huge investment will be needed in the surface transport vehicles which they will need in order to offer the collection and delivery part of their service. They will also be involved in heavy spending on Information Technology in order to provide the tracking and tracing options which their customers expect.

Another value-adding Focusing proposition has been tried frequently in the airline industry, but appears to offer a much poorer chance of sustainable profits. This proposition is based on the idea of focussing exclusively on meeting the needs of the business air traveller.

At first sight, the strategy appears to be a promising one. Market surveys amongst higher status business travellers show that they expect such things as high standards of seating comfort and in-flight service from the airlines they choose. Sometimes, though, an additional factor emerges. Business travellers often say that they dislike flying with those on vacation, who may be noisy and disruptive. They say that they would prefer their own airline, where their needs and status can be properly recognized.

A final example of Value Added focusing in today's airline industry marks the policies being pursued by many smaller airlines from tourism receiving countries. Airlines such as Air Mauritius and Air Seychelles could be said to be engaging in a form of "Geographical" focusing. They cannot set out to conquer the world, but they can claim to know the particular country where they are based better than anyone else. Someone on holiday choosing them might feel that their vacation was beginning sooner than would be the case on, say, British Airways or Lufthansa where the flight to their holiday destination would be just like any other.

"Low Cost" Focusing

The airline industry does show one good example of firms which use their Focusing expertise to achieve very low costs, rather than to add value.

Europe has a long tradition of aviation activity by "Charter" airlines. Originally, these airlines developed because of a gap in the regulatory blanket enveloping European carriers, whereby Charter carriers were given much more freedom than Scheduled airlines, providing

they kept to the so-called “Inclusive Tour” principle. This meant that they could not retail seats direct to the public. Instead, they were limited to a wholesaling role, wholesaling seats to tour operators. The tour operators would then add in the accommodation and other elements to make up a packaged holiday, and undertake the retailing of these holidays. The rules were essentially introduced as a compromise which allowed the Charter sector to develop, whilst giving a measure of protection

Today, the situation facing Europe’s Charter airlines is a very challenging one. The industry has mostly consolidated into two huge, vertically-integrated firms under the leadership of the German-based TUI and CN Touristic groups. This has made life hard for smaller independents. Also, customer needs have changed radically. Many people do not now require rigid package holidays containing the three elements of airline seat, accommodation and surface transfers. They certainly will not if they have their own accommodation with a villa or a timeshare, but generally now people are more experienced and adventurous, and are often prepared to put together their own holidays using the Internet.

In many ways, the newer Cost Leader airlines are better suited to these trends than the rigid model of traditional Charter airlines, and the Charter carriers have had to respond. Some have set up their own Cost Leader subsidiaries – My TravelLite and Hapag-Lloyd Express were both examples of this, although both have now been re-integrated into their parent airlines. Almost all of them have now set up web-sites to enable at least a proportion of their capacity to be retailed direct to the public. Monarch Airlines and Excel Airways are UK-based examples of carriers which have taken this initiative. In doing so, they have one crucial advantage over the Scheduled airlines. Because competition amongst the Charter carriers has been intense for a long time, these airlines generally do have the low operating costs necessary for them to compete. If they can maintain them, the Charter airlines of Europe do have a sound future, even if their business model will have to be substantially modified.

Overall, the history of the European Charter sector illustrates very well both the advantages and disadvantages of a Focusing approach. By focusing on a single activity, the Charter carriers were able to achieve a great deal of expertise in their single area of activity – expertise which for many years allowed them to hold off the competitive challenge of the ‘Industry wide’ airlines. This was despite the latter having many synergies available to them as a result of being in different markets and offering different products under the one corporate umbrella. The Charter airlines have, though, been vulnerable once demand began to move away from the product that they had become so expert in providing.

“Lost-in-the-Middle”

Porter’s Competitive Advantage model has one more concept we need to consider in the context of today’s aviation industry – that of the “Lost-in-the-Middle” firm. Porter argues that there are firms that do not fit into any of the boxes. Their costs are too high for them to

pursue Cost Leadership and there is too little about them which is distinctive for true Differentiation to be achieved. They are also too broadly-based in their activities to gain the benefits of expertise through Focusing.

Sadly, the airline industry today has an almost endless list of firms to which this description can be applied. As we have seen, the structure of the industry has always been distorted by ownership and control issues, with the result that there are many more airlines in the world today than would be the case if market forces had been allowed to prevail. If ownership and control constraints are eased in the future, (which is now looking increasingly likely), many of them will not survive, especially if rules about State Aid for struggling airlines are more rigidly enforced.

1.3.4. AIRLINE BUSINESS AND MARKETING STRATEGIES – COMMON MISTAKES

We have now almost completed our survey of the strategic options open to carriers in today's airline industry.

Unfortunately, the world's smoothest diplomat could not argue that the industry presents a picture of strategic success. Periods of severe loss-making have occurred regularly throughout the industry's history and, as we have seen, between 2003 and 2005 these losses were at a catastrophic level for many airlines. Bankruptcy has been a common feature, whilst a large number of carriers would not have survived without substantial government handouts.

When an airline fails, it is, of course, a tragedy for those affected. A bankruptcy does, however, at least give an opportunity for lessons to be learned. The problem with the airlines is that they rarely are. Each airline failure does, of course, reflect some unique circumstances, special to a particular case. What is so depressing, though, is that the same issues, mistakes and problems seem to arise time and again. In this last section of the chapter, we review some of these common mistakes made by failed airlines.

Objectives

The writing of classical economists suggests that firms should be viewed as rational entities, lead by entrepreneurial managers whose objective is profit maximization. In the airline business, such a theoretical position is often far from the true one. Airlines are set up and run for many reasons, which often make the achieving of satisfactory profits impossible. Sometimes, these objectives may be imposed from the outside. Equally, they may reflect the failings of the firm's senior managers.

This situation presents itself most clearly in the case of many state-owned airlines. Almost all governments which still own airlines presumably expect that the carrier should be run to

make a profit, to ensure that it is not a burden on the taxpayer. The problem is that either explicitly or implicitly, it is set a series of objectives which make profitability difficult or impossible. Amongst these is the need to maintain services on unprofitable routes for social or political reasons, or to assist economic development of backward regions. Also, airlines may be required to keep domestic air fares artificially low, due to the desire to control inflation, or to maintain unnecessary high levels of staffing because the government wishes to minimise unemployment. Even worse, though not strictly related to the question of objectives, governments often seek to interfere with airline management appointments, with senior management jobs being given to political supporters who have few qualifications to fill these demanding positions. A final, but sadly common problem in the developing world is that government employees and supporters travel a great deal on the national airline, but the government does not then pay the bill for this transportation. Ironically, many state-controlled airlines in developing countries are owed millions of dollars by the governments that own them.

The question of conflicting objectives is most obvious in the case of state-owned airlines, but as an issue it is not confined to them. Many private airlines are in practice operating to a mixed and confusing set of objectives.

Some privately-owned carriers are ego-trips for their owners. This is because aviation is a high profile activity where it is normal to achieve easily a great deal of media coverage. It is remarkable in the airline industry how many small airlines have grandiose names playing on the themes of an “intercontinental” or “world” presence. It is also noticeable that these airlines are often based in an impressive head office described as a “global headquarters” building. A further indication of an airline being driven forward by its owner’s ego is that the owner then ensures that their name is incorporated in the name of the airline and that it is painted on the side of each aircraft in large letters. Ego-driven airlines are rarely successful because they tend to grow based on the owner’s desire for more publicity and a still higher profile rather than on opportunities for profit. Even if the owner has very deep pockets, there will come a point where losses can no longer be sustained.

A further problem with some airlines is that they are essentially hobbies for those that set them up. Besides being a business, aviation also provides a fascinating hobby for many people. It is one thing to pursue this hobby by plane-spotting. It is quite another to take it to the extent of setting up an airline. Hobby-based carriers only tend to survive if the owner is extremely rich and prepared to lose a great deal of money.

A final, difficult objective for an airline to pursue in practice is that of being a vehicle for revenge. There have been a number of cases where someone who has been fired from one airline sets up a rival carrier designed to allow them to get even with the people who

dismissed them. Again, emotion rather than economics will be the driving force behind decision-making and success will be very difficult to achieve.

All-in-all, the foundation for a successful airline must be that the carrier must be profit-based in terms of the objectives it is pursuing. It must also have a clear and agreed strategy, based on the principles which have been discussed in this chapter.

Diversification vs. Specialization

Successful airlines are often those which successfully strike a very difficult balance between over-diversifying and over-specializing.

Over-diversification can take on a number of different forms. In the past, some airlines have diversified into travel-related businesses such as hotel and car rental. At first sight, this appears to be a sound move, allowing carriers to trade on the synergies resulting from being a “One-stop Shop” for the business traveller. It has, though, mostly turned out to be a mistake. It has resulted in a dilution of the top management attention being given to the demanding task of running the airline, and has provided competition for financial resources. More seriously still, it has meant diversification into industries which have exactly the same cyclical problems as the airline business. If airline seats are unoccupied in a downturn, hotel rooms will also be vacant and cars unrented, because suppliers are relying on the same person for each of these activities.

If there is an argument for an airline to pursue a diversification policy into other industries (which is doubtful), a stronger case could be made that they should concentrate on counter-cyclical activities which are likely to remain resilient in a downturn.

Another aspect of over-diversification occurs when an airline tries to cover too broad a route network with too few aircraft. If each route in a network is only served at a low frequency, a great deal of opportunity will still be available for competitors to invade the firm’s markets. Southwest Airlines now has a fleet of more than 450 aircraft, but it still only serves 62 cities in its route network. It has always had a clear policy to build frequency as quickly as possible on a new route, to cement its control of the market. “Do the job properly, or not at all” is a sound maxim.

Despite these arguments, over-specialisation can be an equal problem. It occurs when an airline bets its future on success in a single market. For example, in the past, some airlines (notably so the now-forgotten UK carrier British Caledonian) have tried to build a route network concentrated on serving oil-producing regions. Such a policy will work well when (as at the time of writing) the oil price is high, but will fail disastrously during times of oversupply and low oil prices.

Pace of Expansion

A difficult issue with regard to successful strategies is that of the appropriate rate of growth which the airline should aim to achieve. It will be hard to ensure success without growth, for two reasons. Firstly, as they mature, airlines tend to find that their costs rise. This is mainly because many groups within the airline are paid according to salary scales which mean that their pay increases each year that they remain on the payroll. Growth means that new members can be recruited at relatively low salaries because they will join at the bottom of their pay scale. Secondly, unless an airline grows it will not be taking advantage of new market opportunities as they become available. Besides a possible loss of profit, there is a strong likelihood that these opportunities will be taken up by competitors who will use them to further build the strength of their competitive challenge.

In the airline industry there is another, peculiar factor ensuring that growth opportunities need to be taken, reflecting the way in which airport slots are allocated. If an airport still has slots available, there is strong pressure on an airline to grow and use them because, once they have been obtained, they will be almost certainly be kept forever under the in-perpetuity principle of 'Grandfather Rights' which underlies slot awards. Much the same applies to the route licenses which are still necessary to take advantage of international Traffic Rights negotiated under the terms of Air Services Agreements.

Growth rates can, though, easily become over-ambitious. If a carrier attempts to grow too quickly, it will run the risk of becoming dependent on borrowed rather than equity capital. In turn, this may mean exposure to exchange rate and interest rate fluctuations. Also, over-rapid growth may mean that an airline falls apart operationally. Airlines are a very complex interacting system where all aspects of the system must be functioning well together. If one component fails, then the whole is at risk. At the extreme, this may manifest itself in a poor safety record and the disastrous consequences of a fatal accident. A less severe, but still serious, problem might, for example, be that potential customers are unable to make bookings because of a shortage of reservations capacity.

Of all the airlines that fail, a proportion do so because they do not grow fast enough. A far greater number, though, go out of business because of over-rapid expansion – a salutary lesson, perhaps, for those European Cost Leader airlines which, at the time writing are attempting to grow at rates exceeding 30% a year.

Competitive Response

Successful airlines tend to be those that manage their competitive strategies well, and unsuccessful ones those that fail to do so. This is especially a problem for new, small carriers. When a small, start-up airline first begins to fly, it poses a difficult problem for its larger, more powerful rivals. These carriers may launch a vigorous competitive response, and

make life very hard for the newcomer. If they do though, they will be spending a great deal of money to deal with what is a minor threat to them. In particular if larger airlines respond with aggressive pricing, they will certainly be competing with a smaller rival. What they will also be doing, though, is offering discounted fares to the many customers who would have flown with them anyway. Because of this, they may be reluctant to respond strongly at first to any challenge. They may also fear that, if they do, they will be exposed to court action over allegations of anti-competitive behavior.

Because of these factors, a small new airline may often find that its early days of flying are marked by considerable success. On the basis of this, plans are then formulated for rapid expansion. These plans are usually helped by aircraft manufacturers being willing to offer large numbers of aero planes at low prices, and by suppliers of finance being quite happy to accept risk based on the asset value of these aircraft, or to lease aircraft on flexible terms. Unfortunately, once the expansion has begun, the new airline changes from an irritant to a significant threat to its more powerful rivals. It must then anticipate a strong competitive response, a response which will be especially serious if it coincides with a cyclical downturn as the industry enters a recession. As we have seen, the aviation industry never seems to have a shortage of start-up entrepreneurs, wanting to set up airlines. Even severe recessions do not dampen this enthusiasm – indeed they may increase it due to the cheaply-available resources which are on offer at such times. All the evidence of history, though, says that most of these airlines will fail, many after a very short time. Since the liberalization trend began with so-called US domestic deregulation in 1978, the proportion of failures has exceeded 90%. Many have failed because they underestimated the response of threatened, more powerful competitors. ‘Don’t get into a bleeding match with a blood bank’ is a sound and necessary piece of advice.

“Control”

The “DotCom” excesses of the period from 1998 – 2000 demonstrated many important lessons for airlines. Too often, the entrepreneurs who set up dot.com businesses were seduced by the lifestyle that sudden wealth made possible, and lost sight of the fact that any business needs to meet a worthwhile set of customer needs and to charge profitable prices. The trappings of a supposedly successful business such as expensive cars and prestigious offices make no contribution to this. Airlines have just as much to fear. Some have failed because large sums have been spent on building an expensive head office building and on funding the lifestyles of the Directors and Senior Managers.

Over-optimism/Fall Back Position

Periods of relative prosperity will alternate with times of real difficulty, with recessions and now wars and the threat of terrorism providing daunting challenges. In such an industry, the most fatal business plan of all will be one which is based on the principle, “if everything

keeps going our way, we'll be fine". Business plans have to be resilient to deal with sudden increases in uncontrollable costs such as the price of fuel. They have to address the likelihood that demand and particularly yield will from time-to-time fall away badly as a recession bites or a destabilizing war or terrorism incident affects the industry. They especially have to deal with the likelihood that a whole set of unfavorable circumstances may arrive at the same time, as they often do. In order to be able to do so, they need to have a fall-back position, the components of which will include a number of expedients. They may, for example take a proportion of their aircraft on relatively costly short-term operating leases, allowing for the return of aircraft to lessors if trouble strikes. Also, a proportion of support services can be bought in on a sub-contracted basis, allowing contracts with suppliers to be renegotiated in a down-turn.

1.3.4 (a) Case Study on Airline Business & Marketing Strategies: The new Indian Airlines

The case discusses how Indian Airlines Limited (IA), a public sector undertaking (PSU) in India, lost its grip on the market as a result of the increasing competition from the private air carriers.

It shows how IA, once a monopoly in the airline industry, was reduced to a mere competitor by the early 2000s, as it was unable to match its service levels with those of private airline companies.

The case also looks at the increasing competition being faced by IA from low-cost carriers and other major full-service airline companies in India since the early 2000s.

It explains the various measures taken up by IA with a view to fighting the fierce competition from private carriers especially the low-cost carriers. The case further discusses whether these measures are sufficient to take on the increasing competition from private players.

Issues

1. Gain an understanding of marketing communication campaigns and their components.
2. Gain insights into the factors that contribute to the success of a communication campaign.
3. Appreciate the complexities of tourism marketing.
4. Understand the unique challenges in conducting a worldwide campaign to promote a country as a tourist destination, particularly with regard to the number and variety of stakeholders involved, and their possible responses.
5. Understand the current status of the Indian tourism industry and to analyze its future prospects.

A mere Cosmetic change ?

On December 7, 2005, a brand new A-319 aircraft adorned with a new 'Indian' look joined the Indian Airlines Limited's (IA) fleet in New Delhi. IA, the state-owned airline company in India became 'Indian' on 07.12.2005.

The new brand name was accompanied by a new logo, a partly visible blue wheel on an orange background.

The blue wheel of the logo was a graphic representation of the wheel of the Sun Temple at Konark which represented "timeless motion, convergence and divergence."

Explaining the significance of the wheel in the new logo, Praful Patel (Patel), Minister for Civil Aviation, Government of India (GoI) said, "The wheel symbolises timeless motion and trust that has stood the test of time.

Commenting on the new IA logo, Ajit Shah, executive director at R K Swamy BBDO, the advertising agency which created the new logo, said, "It signifies motion and represents the Indian image perfectly.

The 'new look' aircraft was one of the four A-319 aircraft that the company had leased from Airbus Industrie (Airbus) during 2005. IA was to acquire another 43 new aircraft from Airbus, as per a deal struck in 2005.

Said Patel, "The new aircraft signals a new era for Indian Airlines and the airlines would induct one new plane every month from the latter half of 2006

The makeover of the existing aircraft and the arrival of new fleet of aircraft were expected to be completed over a period of 16-18 months beginning from 2006. The re-branding was to be comprehensive - covering features in-flight and on the ground too.

The aircraft seats, crew uniforms, crockery as well as customer contact points would bear evidence of the new brand 'Indian' and its new logo. Until the liberalization of the airline industry in the early 1990s, IA enjoyed a monopoly in India's domestic air transport. After liberalization, many private air carriers entered the Indian domestic airline industry and began gaining more and more market share. IA's bureaucratic management style caused it additional problems. The airline began making losses in 1989-90, but recovered to post profits from 1997-98. However, in 2000-01, IA again slipped into the red.⁸ By the early 2000s, there was new competition in the form of low cost carriers.

By this time, IA was just one of the players in the industry. Battered by the competition from low cost carriers, full service airline companies like IA started looking for new ways to attract passengers. During the early 2000s, IA undertook various measures to enhance its

position in the industry. For instance, IA embarked on an ambitious fleet replacement program to replace its aging fleet.

To improve the quality of the services being offered, the company conducted training programs for its cabin crew, upgraded the quality of food being offered on board, etc. When faced with competition from low cost carriers, IA reacted by cutting its fares and offering a variety of promotional schemes.

IA became profitable in 2003-04 after posting losses for three years. The re-branding exercise of IA was another move to counter the competition. According to analysts and industry observers, re-branding alone will not help IA beat the competition. Opined R Krishnan, an aviation analyst, "The new name and brand looks expressive, the colour looks impressive.

Overall, the makeover is good. Still, it is only cosmetic. Inside-the-flight and on-ground service levels, punctuality, stability of schedules should improve significantly."⁹ In the words of Kapil Kaul (Kaul), CEO, Center for Asia Pacific Aviation (CAPA), Indian Subcontinent and Middle East, "The airline needs to restructure itself to face competition...

Back ground note

On May 28, 1953, the GoI enacted the Air Corporations Act, and nationalized the nine airlines companies then operating, namely, Airways-India, Deccan Airways, Himalayan Aviation, Air India, Indian National Airways, Bharat Airways, Air services of India, Kalinga Airways and Tata Airlines.

The GoI then established two companies namely, Indian Airlines Corporation (IAC) and Air India International (renamed as Air India Limited (AI) in March 1994), and transferred the assets of the eight airline companies to these two companies.

After this, IAC and AI were the only companies providing air transport services in India. While IAC was a domestic air carrier, AI provided international air services. In addition to domestic services, IAC also provided air transport services from India to certain neighboring countries. In 1986, the GoI introduced the Air Taxi Scheme and allowed private air carriers to offer domestic air transport services...

From Old to new

During 2002-2005, IA took up 'a series of long-term and short-term actions' aimed at improving the quality of services it provided...

The Fleet: Prior to its fleet replacement program in 2005, IA's last acquisition of aircraft was back in the year 1993 when it purchased eleven A-319s. IA had reportedly sent a letter to

aircraft manufacturing companies Airbus and Boeing on January 4, 1997 notifying them about IA's requirement for new fleet of aircraft. However, fleet acquisition became a 'top priority' only in 1999.

Human Resource Management: During 2000, IA re-deployed its existing staff from non-operational departments like stores and finance to commercial divisions where they were required to perform front-line activities...

Utilizing IT: In 2000, IA hosted a new website www.indian-airlines.com through which passengers could gain online access to seat availability status, schedule information and frequent flyer mileage status.

Delighting the Customer

During the early 2000s, IA took various measures such as conducting training programs for its personnel in order to improve the quality of services it was providing...

1.3.4(b) Case Study on Risk Management : The Biggest mistakes and Risk Management Failure : Case of King Fisher Airlines:

1. Maintenance, landing and Navigation Cost of KFA than Jet Airways was 2% higher in 2011 and 3% in 2012. KFAs cost for value added services was much more than other airlines when they focused very little on scheduling, connectivity, low prices, the basic needs of Indian customers.

2. KFA delayed salaries to its employees in 2011, for 4-5months (Oct 2011-Jan 2012). As a result, Engineers refused to sign the 'Tech Log' which is mandatory to certify that the aircraft is fit to fly before every flight. This made its licence getting cancelled subsequently.

3. The biggest mistake is failure to understand and comprehend potential opportunities. Dr Vijay Malya, the well known liquor baron's lack of understanding the airline business. Luxury sells is the biggest mistake in understanding of Indian Aviation Airlines. Both industry and history proves that customers have always been price conscious. The first mistake is lack of understanding of customer requirement and basing on the idea that luxury sells in the industry.

4. Unrelated diversification involved entering into entirely new industry that lacks any important similarities between the firm's existing industries. They did not have any experience in Airline Industry and it was just as taken up as an adventure.

5. KFA showed growth in numbers but not in strategy. Its merger with Air Deccan made it lose its brand image as a Premium Business class airlines. It expanded with the speed of a jet without building a base and resolving its post merger challenges.

The failure of Kingfisher airlines is the biggest example of poor leadership and management which resulted a company with high potential to sink due to its inability to adapt its business with the external environment and change the business culture to suit its demands.

Putting personal image/preferences/ego over the interest of organization and all stakeholders, failure to understand the recent trends, consumer preferences & cost curtailing to improve profitability, expanding beyond the core competencies and failure to communicate priorities in a clear, concise and compelling manner are all the reasons for its failure.

1.4. MANAGEMENT OF AIRLINE PRODUCT MARKETING

Once an airline has its strategy in place, attention needs to shift to the translation of this strategy into the product design process. This Chapter looks at the theory of product analysis in Marketing and discusses the ways in which it can be applied to Marketing in today's airline industry.

WHAT IS THE “PRODUCT”?

At first sight, it might be thought that applying theoretical product principles to the airline industry is inappropriate. These principles have mainly been developed for industries dealing with tangible consumer products. The airline industry's “product” is, of course, an intangible one which is instantly perishable and cannot be stored. This is an argument which can be rejected. The airline industry's product may be intangible and many-faceted. It is still capable of providing – or failing to provide – customer satisfaction. It is also the case that many of the analytical models developed for analyzing products in Fast Moving Consumer Goods industries can also be used in the air transport industry. They do, though, have to be used in an analogous way, to take account of the intangible nature of the airline product.

1.4.1. THE THEORY OF PRODUCT ANALYSIS AND ITS APPLICATION TO THE AIRLINE INDUSTRY

The Product Life Cycle: In all areas of marketing, the processes of product development, product innovation and product management need to be continuous and never-ending.

When a new product is introduced into the market, it is inevitable that it will first go through the so-called introductory stage of the Product Life Cycle. The product is new, so there will not have been time for advertising and promotional work to come to fruition. Also, the product will not benefit from so-called “Imitative Buying”, because few people will know about it, and fewer still will be using it.

The Introductory stage will be a crucial stage in the life of a product. Some pass through it and go on to be successes. A far greater number do not. Instead, sales are disappointing and the product has to be withdrawn from the market after a short time. Somewhere between 60% and 80% of new products eventually come into this category.

Sadly, the aerospace industry illustrates well some of the risks involved in product innovation. For example, Concorde was completely unsuccessful in achieving commercial sales and had to be withdrawn from production as a marketing disaster. The only aircraft operated commercially were those given to Air France and British Airways under the most favorable terms. A more recent case was the Advanced Turbo-Prop of British Aerospace. This aircraft, a 64 seat propeller-driven plane, was abandoned after fewer than 40 had been produced. Even re-naming it the Jetstream 61 failed to change its fortunes. The Saab 2000 aircraft had a similarly short and disappointing Life Cycle, again being withdrawn after very few had been sold. In 2005, Boeing had to stop production of its 717 aircraft after only a relatively short time.

Airline marketing also illustrates the perils of innovation. Many airlines have the experience of launching a new route amidst great optimism, only to find that the financial results are so disappointing that it has to give up very quickly. Some have made an innovation in their in-flight product, only to find that this is unpopular with passengers and has to be quickly withdrawn. An example of this came in 1990 when Lufthansa up-graded product standards in the rear cabin of its aircraft in Europe, and re-named the whole of this cabin “Business Class”. It was a change which was unacceptable to those passengers who had paid higher fares and who felt that they were entitled to greater recognition. Innovation can also be risky in terms of selling or distribution concepts. For example, in the late 1980’s British Airways invested in a new chain of up-market travel shops in Britain’s high streets using the branding of “Four Corners Travel”. Again the concept had only a short life. It was soon discontinued, with, presumably, substantial losses having to be written off.

An example of a failed product innovation which combined together issues in both aerospace and airline marketing occurred in 2006. Earlier, Boeing had launched an initiative to offer airlines the opportunity to give their customers onboard access to email and the internet. This was done using the brand named of Connexion by Boeing. Unfortunately, it did not turn out to be a success. The necessary equipment proved to be costly and unreliable, and added significantly to aircraft weight – a problem which was particularly serious at a time of high aviation fuel prices. Eventually, Boeing had to bow to the inevitable and withdraw the product from the market, after it had been responsible for accumulated losses of more than three hundred million dollars.

There is now substantial literature in the theory of marketing about product innovation. This has largely been derived from the work of the US marketing professor, E. M. Rogers. Using Rogers’ principles, it is possible to suggest that new products must show at least the following characteristics if they are to be long-term successes:

1. Relative Advantage

Clearly, new products must be substantially better value-for-money than those they are replacing, in order for consumers to accept the risks of using them.

2. Compatibility

An innovation is unlikely to be successful if it is a very radical departure from the existing ways in which business is done in the market sector in question, or if it is incompatible with prevailing ethical or moral standards. At the time of writing, this might apply to products which were seen as having an unacceptable environmental impact. For example, if Boeing had moved ahead with the plans announced in 2002 for a so-called ‘Sonic Cruiser’ (an aircraft with a significantly higher cruising speed than today’s aircraft, but with a much higher fuel consumption) Compatibility questions would certainly have affected the likelihood of a successful product launch.

3. Complexity

Some innovations fail because they are perceived as being extremely difficult to use, requiring purchasers to invest a great deal of time and effort in becoming familiar with them. As we have seen, part of the appeal of Low Cost Carriers has been that making flight bookings with them over the internet has been so easy.

4. Divisibility

It is often easier to persuade consumers to take a series of short steps, rather than one very large and risky one. Each small step can then be portrayed as a trial, the successful completion of which allows confidence to be built. For example, in aerospace marketing, it may be much easier to persuade an airline to buy a large fleet of a particular aircraft if short-term leases of one or two aircraft have demonstrated that the aircraft will perform well in the airline’s particular operating environment. The principle of Divisibility is also very well illustrated by the growing popularity of so-called Fractional Ownership schemes for business jets. Here, the manufacturers of these jets hope that experiencing the product through a Fractional Ownership plan will result in a company or an individual eventually buying their own aircraft

5. Communicability

Customers are unlikely to be persuaded to buy a product if the benefits this product will bring cannot be communicated to them persuasively. If these features illustrate some of the requirements of successful product innovation in air transport marketing, it is equally instructive to look at some of the common mistakes that lead to product failure. Products will fail if the size of the market for them has been over-estimated through poor or non-existent

market research. They will also fail if the product cannot be delivered on time, or does not perform well even when it is. Mistakes can also be made in pricing policy, with the product either being offered at a price which is too high relative to the benefits it will bring, or too low (in the case of so-called “Status Goods”) to give the necessary aura of exclusivity. Finally, promotional or distribution policies may be poorly thought-out. For example, advertising campaigns may offend rather than excite potential customers, or the incentives which are given to distribution channel intermediaries may not be enough to encourage them to push the product strongly. All in all, product innovation represents an extremely challenging part of the product management process, with the range of possible mistakes explaining easily why so many products fail to get beyond even the Introductory stage of their Life Cycle.

1.4.2. MANAGING A PRODUCT PORTFOLIO – the “Boston Box”

The management of Product Life Cycles is important in Airline Marketing today. It does not, though, provide the sole basis for effective product management. Most firms do not deal in only a single product. Indeed, any that do are probably dangerously over-specialized. Many firms have a range, or portfolio, of products which may run into hundreds or even thousands of different products. They need a framework which will guide their decision-making so that the contribution of each of the products to corporate profitability is maximized.

The classic method for analysing a Product Portfolio is known as the Boston Box, because it was developed by the US Boston Consulting Group. It was first introduced in 1963, and has remained a cornerstone of product management policies ever since.

The model classifies products using two variables: the size of the total market and the share of the market held by the product of the firm in question. (In some versions of the product then the second variable is the share held relative to the share of the market leader). This allows a division into so-called Wildcats, Stars, Cash Cows and Dogs. Each of these types of product needs to be managed in a different way. In Airline Marketing, an often very instructive use of the Boston Box is to apply it to an airline’s route network. By analogy, this can give some very useful messages as to how each route should be managed.

A Wildcat route is one where the traffic as a whole is growing strongly, but where the airline concerned has only a small share of this rapidly growing market. Wildcats require both patience and continuing investment. Patience is needed because in the short-term a Wildcat may be a loss-maker. If the growth prospects of the route are good enough, these losses should be accepted and a presence maintained. This is especially so given the regulated nature of competition in many air transport markets, and the ways in which airport slots are allocated. In international markets, if an airline withdraws from a route, it may lose its status as its government’s designated carrier on the route in question, with the relevant Traffic Rights instead given to another airline. It may also have to surrender some airport slots, with

the risk that these again will be given to another airline. The overall effect may then be that when it wishes to re-enter the market it will not be able to do so.

For many airlines, routes to India and China are currently exhibiting 'Wildcat' characteristics. The rapid growth being experienced in these countries means that carriers should maintain a long-term presence, even if short-term losses are incurred. The Star situation is one where the overall market is growing quickly and the firm's product has a good share of the market. Star products are obviously strong ones for the firm in question, and they should be a significant source of profit. They do, though, require intensive and costly management. This is because the rapid growth in the total market will provide a continuing incentive for new competitors to enter them. Established firms will therefore have to spend heavily to defend their position. This spending will need to encompass continuing product investment and substantial efforts in the direction of advertising and promotion. Pricing will also probably be very keen, with thin profit margins. All-in-all, Star products are often those which provide a high proportion of a firm's sales volumes, but a significantly lower proportion of its profits.

The aero-engine market illustrates the principle of Star products very well. The market for big-fan engines powering large jet aircraft is a huge one. The competition, though, between General Electric, Pratt and Whitney and Rolls-Royce is intense. All three firms have to spend large amounts on continuous product development and improvement. (Because of this, General Electric and Pratt and Whitney have combined forces in part of the market, to form the so-called Engine Alliance) Pricing is so keen that it is believed that often engines are sold for less than the cost of producing them. The manufacturers then hope to obtain a return on sales of spares and product support through the lifetime of the engine. For each manufacturer, the big fan engine market produces large sales revenues, but often only relatively thin profit margins. For Cost Leader airlines, intra-European routes illustrate Star principles well. The market is very large and growing rapidly, but the growth has attracted an explosion of new entry that, increasingly, is likely to hold down profit margins. The next the Boston Box category is the Cash Cow. This is the one where the product in question still has a good share of the market, but where the total market is no longer growing strongly.

The fundamental difference between Stars and Cash Cows is that the Cash Cow market will no longer be an attractive one for new entrants. Established firms will have invested to gain their place in the market, and should be able to continue to exploit it successfully. New entrants, though, will have to spend especially heavily if they are to challenge the existing players. Entering a new market will always be costly. It will be particularly expensive, though, to enter a market which is not growing. A growing market allows a new firm to hope that it will be able to become established on the basis of new demand rather than by having to take existing customers away from their suppliers. This will not be possible in a stagnant market. Success will only be possible for a newcomer if it succeeds in taking market share

from other firms. It is an undisputable fact that growing with a market can be achieved relatively cheaply. Growing by taking share from others will always be a costly and risky activity, one which is unlikely to yield a return to a new entrant.

For airlines, Cash Cow situations occur on any route where future growth prospects are poor. An example at the moment is the routes between London and Paris and London and Brussels. These routes have been affected by railway competition as a result of the opening of the Channel Tunnel. This competition will become more intense once a fast rail link has been completed between London and the Tunnel in 2008. This will reduce city centre to city centre journey times to below the critical three hours duration.

Because of these poor growth prospects, it would be a foolish airline that decided to enter these markets today. With little traffic growth, they could only establish their position by taking market share from some very strong established carriers. With new entry therefore unlikely, these established airlines should be able to exploit the available demand relatively unchallenged. There may come a time though, when the effect of surface competition means that the route changes from a profitable Cash Cow into the next Boston Box category, the Dog.

Dog products are those where the total market is not growing and the firm has only a low share of the existing small market. Once a product has been finally classified as a Dog, there is a clear product management message. It should be abandoned and the resources which might otherwise have been spent on maintaining it and on attempts to improve market share should instead be devoted to much more promising Wildcat situations.

For airlines, the use of the Dog category is, by analogy, the route withdrawal decision. Almost all airlines find from time-to-time that they have routes where traffic is not growing, where they have a poor market share, and where losses are being incurred. They must give up service on these routes and take the resources used to serve them to more promising situations.

Balancing Risk and Opportunity – - the Ansoff Matrix

The Boston Box allows for some important rules for product management to be defined. One further model is, though, very useful in the search for a complete range of decision-making tools. All firms have to balance risk and opportunity in their product planning decisions. The firm's profits will be a reward for its risk-taking, and too conservative an approach will mean that profits will be foregone and market opportunities will be left open for competitors. At the same time, if too many products are introduced which are risky, the result will be financial disaster if things go wrong.

If what is effectively a “Do-Nothing Case” is unacceptable, firms must do more than simply offer existing products to existing customers. To do so, they must balance risk and opportunity in the way described in Boxes Two and Three of the Ansoff Matrix. Box Two describes taking existing products and offering them to a new market. For example, a firm having a successful range of products selling well in a domestic market might decide to move into exporting. Box Three is the situation where new products are developed for markets where the firm has a sound knowledge of customer requirements and established customer loyalty. For example, we have already referred to Lufthansa’s introduction of All-Business Class corporate jets on routes where it already had a strong presence in the business travel market through its conventional services.

1.4.3. CUSTOMER SERVICE-RELATED PRODUCT FEATURES

Point-of-Sale Service

Point-of-sale service is the term used to describe service offered to the customer at the point where they are actually making a booking. It is an area where revolutionary changes have occurred over the last five years.

Point-of-sale service has always been difficult for airlines because of the large number and wide variety of sales outlets they have used. In the past, some airline customers have wished to deal with them direct. The traditional methods to allow this have been downtown ticket offices, airport ticket desks and call centres. In addition, airlines have had to make themselves accessible to travel agents, with over 80% of bookings traditionally being obtained through agents. A final source of business has been from other airlines on an interline basis. Though the nature of interline relationships is now changing, it is still the case that a passenger wishing to book a multi-sector journey using several different airlines can do so by contacting only the first carrier (assuming that they are proposing to use a relatively expensive flexible ticket). This airline will then contact the others to make the necessary bookings.

Given this range of outlets, the point-of-sale task would always have been difficult for airlines. There can be little doubt, though, that by their own policy decisions traditional ‘Legacy’ airlines made it a great deal harder. In particular, by adopting very complex fare structures and reservations procedures, they increased point-of-sale transaction times and also ensured that the systems could only be accessed by trained experts. In turn, this further increased the proportion of bookings coming through the travel agency system and raised commission and booking fee costs.

Reservations and Overbooking

For most air travellers, a pre-booked reservation they can rely on remains an integral part of the product that they expect from airlines. Today, the availability of cheap computing power means that most of the technical problems associated with providing them have been resolved.

There is still one air transport product where a reservation is not offered. This is with the pure form of the so-called Shuttle concept. Pioneered by Eastern Airlines in the USA in 1961, the idea of the Shuttle is that passengers do not need to book in advance. Instead, the airline guarantees to fly all those who report for a flight. They can do so by keeping back-up aircraft and crews, which are called into action if the number of passengers checking in for a flight exceeds the capacity of the aircraft allocated to it. The Shuttle concept brings a number of theoretical advantages. Passengers are saved the trouble of making reservations, and airlines the cost of recording them. Also, most Shuttle passengers pay at the airport. The business therefore comes direct to airlines with a useful saving in commission costs and some cash-flow benefits. It also helps to cement market control.

An illustration of changing attitudes towards Shuttle services came in the UK domestic market in 1997. British Airways had flown domestic trunk services from Heathrow using the Shuttle principle since 1975. In 1997, though, the guarantee of a seat for all those reporting for a particular flight was discontinued, with all passengers expected to make a reservation. At the same time, the making of reservations was made easier by the adoption of “ticketless travel”, a development.

If reservations are to be required in almost all cases, airlines still have to address another difficult problem: many passengers do not turn up and use the reservation they have made. The proportion of occasions where this is so varies from market to market, but it is quite common to find 10% of bookings coming into the “no-show” category. There are many reasons for this. Some passengers fully intend to get to the airport to check in for their flight but are prevented from doing so. They constitute accidental no-shows. Last minute illness or death will be an obvious reason for accidental no-showing. Other reasons will include traffic delays on the way to the airport and the passenger experiencing a late in-bound connecting flight.

Not all no-shows are accidental, however. Many are deliberate. For example, business travellers who are uncertain about the time at which their meetings will end may book seats on several flights with different airlines. They will then have a convenient return flight whatever the actual finishing time. Another problem may occur when an unscrupulous passenger is holding a Standby ticket for a particular flight. They have an incentive to phone the airline a number of times making false bookings using fictitious names. The result will be no-shows, meaning that the Standby passenger will be accommodated.

Given such a significant no-show problem, it might be argued that airlines are themselves creating the problem by an over-generous attitude to those who book but fail to check-in for a flight. All service industries face the same problem as airlines, that their output is instantly perishable and cannot be stored. Some – cinemas are a good example – require customers to pay at the time of booking and no refunds are given if they fail to show up for the actual performance. Many Low-Cost Carriers take a similar approach. They will only deal with customers who have credit or debit cards. Card details are taken by the airline when a reservation is made and the card is automatically debited. This gives the carrier a guaranteed income and removes the necessity to overbook. Other, less radical airlines are increasingly making some of their lower fares non-refundable.

Despite the attraction of this idea, it is not a practical one for airlines in all circumstances. In particular, business travellers often regard the right to no-show as an important part of the flexibility they are buying when using an expensive fare. If one carrier unilaterally made such fares non-refundable in the event of a no-show it would lose significant market share to its rivals.

If a degree of no-showing is inevitable, airlines have a strong incentive to overbook, and, perhaps perversely, their passengers will also benefit as a result of such a policy. By overbooking, load factors can be increased, which will in turn allow fares to be lower. Also, overbooking permits more passengers to travel on the flight of their choice. If an airline did not overbook, it would only accept reservations up to the number of seats on an aircraft. All other requests for bookings would be refused. However, if, as would be very likely, there were no-shows, the flight would take off with some of the seats unoccupied. Ironically, there would then be passengers using later and presumably less convenient flights who could in fact have taken the flight of their choice.

There are thus clear advantages which will accrue to the customer if an airline practices overbooking which will be lost if it does not. Despite this, overbooking remains unpopular. Of course, an airline should use historical records to help fix the amount by which each flight should be overbooked. If a conservative estimate is made, on almost all occasions there will be no problem. The number of no-show passengers will exceed the amount of overbooking and all passengers will get on the flight. However, no matter what degree of care is exercised, there will be occasions – hopefully rare – when difficulties arise. Then, the random element present in patterns of no-showing means that the number of passengers reporting for a flight exceeds the capacity of the aircraft being used for it. Some passengers will therefore be “bumped”.

In the past, airline approaches to this problem were totally unsatisfactory. Too often, the passengers selected for bumping were the last ones to check in. This was expedient, in the sense that these passengers would not have baggage already loaded into the aircraft lower

holds, which would otherwise have to be retrieved for security reasons. However, these late-arriving passengers would often be business travellers. They would therefore be commercially important to the airline. Also, as business travellers, it would often be vital that they should get the flight on which they are booked, because they had meetings to attend, or onward connections to make.

Today, better-managed airlines are more sophisticated at handling bumping situations. Their aim is to identify, and to compensate, the passengers who are prepared to accept a delay. These are clearly unlikely to include business travellers. If such a passenger is, for example, flying to negotiate an important contract, no amount of compensation will be sufficient to make up for the fact that they miss their meeting. Many leisure travellers, though, will find the offer of compensation an attractive one. It may not matter to them a great deal whether they reach their destination today or tomorrow, especially if they receive a cash payment in compensation. Airlines should therefore seek volunteers for off-loading on those flights where they expect to have problems. In doing so, they can provide a valuable protection for their commercial reputation. A further incentive for them to do so, at least in the European Union is that now substantial compensation has to be paid to passengers who are involuntarily bumped from a flight and face a substantial delay as a result.

Airport Service

As in all other areas of product design, airline decisions about the level of airport service they offer to their customers will be a reflection of their overall business strategy. Low-fare airlines will find airport service a major area where they can achieve economies to ensure that their low fares will be profitable. They often use uncongested airports, which may sometimes impose inconvenience on passengers by being far from the cities they are designed to serve. They may insist on longer check-in times to enable a smaller number of check-in desks to be used, or, increasingly encourage check-in to be undertaken in advance on-line. A simple bag-drop facility is then all that is needed at the airport, though even here, charges are now often made for each piece of checked baggage, both as a way of producing additional revenue and to encourage people where they can to limit themselves to hand baggage only. No special lounges are provided, resulting in a significant cost saving. Finally, the boarding process will be a usually be a simple one on a “first come, first served” basis with no pre-allocation of seats.

For airlines aiming to penetrate the market of frequent business travellers the task could not be more different. Major efforts have been made in recent years to establish airport service as a significant area of product differentiation. Some carriers now provide limousine services to pick up premium-fare passengers at their home or office to bring them to the airport – Virgin Atlantic, Continental and Emirates are examples. Once there, kerbside check-in facilities may be on offer to remove the necessity of carrying heavy baggage into the terminal. If they do

come into the terminal to check-in, a separate, uncongested desk will be provided. There may then be provision for a preferential channel for moving through passport and security formalities, before the passenger is invited to use what will generally be an extremely luxurious lounge with hospitality and business facilities available free-of-charge. At the arrival airport, business travellers can now expect preferential baggage service with their bags arriving on the baggage carousel first. There may also be an arrivals lounge allowing them to freshen up before going to their meeting.

All these advances in airport service do not come cheaply. They involve investment in extra staff and equipment, and in rental payments to the airport operator in respect of lounge space and extra check-in desks. It is essential therefore that airlines are able to raise their fares to pay for them or increase their share of the business travel market as a result of better airport service. It may be harder to sustain higher fares in a recessionary period, whilst increases in market share may only be transient if rival airlines also offer enhanced airport service.

In-Flight Service

Many of the points we need to discuss with regard to in-flight service have been made in earlier sections.. There are, though, a number of additional aspects which will affect the nature of passengers' in-flight experience.

One of these areas is the question of an airline's fleet planning policies. Naturally, all aircraft manufacturers argue that selecting their aircraft will in turn allow airlines to give their customers a superior in-flight product. For example, Airbus claim that their A320 family is better than the B737 because it has a wider fuselage cross-section, allowing for wider seats and wider aisles. Equally, though, Boeing argues that its B767 is superior to the Airbus A330 and A340 because it is designed for 7-abreast rather than 8-abreast seating in the Economy cabin. Airbus replies that its A330 and A340 are optimised at 6-abreast seating in Business Class, in contrast to the 7 abreast of the B777. The latter therefore results in a 'prisoner', in the middle seat of three in the centre of the cabin.

For smaller aircraft, manufacturers of regional jets might argue that these aircraft bring significant benefits compared with turbo-props, at least over longer routes because they give a smoother flight, usually at higher altitudes, though these advantages are reduced with the latest generation of turboprops such as the Bombardier Dash 8-400. There are, of course, many costs associated with in-flight service. However, despite what they spend on items such as food, drink and in-flight entertainment, airlines find that the main costs are those associated with cabin staffing in terms of the salaries paid, the allowances given and the costs of hotel accommodation for flight attendants. The usual linking between the correct policy and airlines' overall business strategy applies.

For low-fare airlines, there might appear to be a temptation to dispense with cabin staff altogether. Because these airlines are generally “no-frills”, the cabin service task is in any case a limited one. Such an option is not, though, a possibility. The primary function of cabin staff is that of ensuring safety on board, and regulatory bodies insist that a minimum number of qualified cabin staff are carried. The rules are rather complicated, but in essence they mean that there must be one cabin attendant per 50 passengers up to 200, and one per 25 passengers over 200. A “no-frills” airline will, though, work with the minimum legal number of cabin staff as will a typical charter airline.

Scheduled carriers will generally have a greater number of cabin staff than the minimum, to ensure more attentive cabin service for First and Business Class travellers. Some airlines, especially from the Far East, will greatly exceed the minimum number. For example, a typical European or North American airline will budget for 14 or 15 cabin staff on a B747. Carriers such as Thai International use 22 on this same aircraft.

Whatever the number of cabin staff employed, a significantly greater issue for airlines – and their passengers – will be the attitudes displayed by cabin staff towards the passengers in their care. Warm, friendly and confident attitudes will constitute a major marketing advantage, whereas uncaring attitudes will be a serious handicap, especially amongst regular business travellers who will fly often enough to be able to compare the reception which they receive on different airlines.

Ensuring the right approach from cabin staff is one of the industry’s intractable problems at the present time. Cabin crew are entitled to expect a career structure like everyone else and in highly unionized carriers in Europe and North America at least, trade unions have often been successful in negotiating this for them. However, there is then a risk that people stay in what is a difficult and exhausting job for too long, when cynicism has long ago replaced the initial enthusiasm that they may once have felt. Also, in recent years, at many airlines, cabin crew have seen their salaries and allowances reduced, as carriers have battled to restore profitability. Though such changes have often been a regrettable necessity, they have hardly helped to improve motivation and commitment.

1.4.4. CONTROLLING PRODUCT QUALITY

Quality control is an essential part of the product design phase of marketing for any airline. Without it, the carrier cannot know which parts of its product are weak, and where improvements are needed. Many aspects of the airline product can be quantified. For example, with point-of-sale service, modern telephone equipment can provide statistics on the proportion of calls answered within a given time period. It can also give information about the proportion of calls that are lost at busy times, in the sense that callers become tired of waiting for someone to help them and abandon the call.

Baggage service – or the lack of it – can also be quantified. The proportion of bags which are mishandled and fail to arrive at the destination at the same time as their owners is one necessary statistic. Also, baggage delivery times can be monitored by recording the time taken for the first bag and the last bag to reach the baggage delivery carousel.

Punctuality and regularity performance should also be studied carefully. The proportion of flights departing and arriving within prescribed limits of the scheduled time is a fundamental measure, with on-time to within 5 minutes a suitable standard for short-haul routes, and on-time to within 15 minutes for long-haul. In terms of regularity (the proportion of flights advertised in the timetable which are actually operated), the standard should, of course, be near to 100%.

Monitoring of customer compliments and complaints should also be undertaken. All airlines receive fraudulent or unjustified complaints. Although these require vigilance, the number of them should be relatively constant. Therefore, comparing the number of customer compliments with the number of complaints will provide a first quality control statistic. Airlines should also investigate the nature of the complaints they receive. If these focus to an increasing degree on only a small number of product components, this will be a strong indicator of the areas where management attention is needed.

The use of in-flight and airport surveys as ways of collecting information about customer requirements. They can also form part of a quality control programme. An in-flight survey will have the advantage that passengers are actually experiencing the product at the time they fill in their questionnaire. If they are questioned at the airport of arrival their memories of the flight will still be fresh. In either case, asking passengers their opinions can have a valuable Customer Relations function, of convincing them that the airline is interested in continuous product improvement.

A further area of quality control work is one which should never be ignored – the opinions of the airline's own customer contact and sales staff. These people will regularly come into contact with customers and will have to listen to their complaints. Their reports can provide an accurate barometer of the airline's performance.

1.4.5. THE AIR FREIGHT PRODUCT

Airlines with an interest in penetrating the air freight market need to spend a great deal of time in detailed planning of the freight product. There are, of course, many differences between the air passenger and air cargo businesses which were set out in section 2:4:1. The basic principles of product planning are, though, exactly the same. Successful airlines will be those that identify correctly their customer's requirements and then make the difficult tradeoff between product quality and costs.

Air Freight Capacity

With questions of air freight capacity the advantages from the customer's point-of-view of an airline investing in pure freighter aircraft. These will allow capacity to be provided on the routings that the freight customer wants, at times which suit their demand pattern. They also offer a greater certainty that goods will actually be flown on the flight on which they are booked.

If it is decided that the provision of freighters will be worthwhile, a decision will have to be made about the type of aircraft to be selected. In deciding this, airlines will need to bring in some of the same considerations they will employ when selecting a passenger aircraft. For example, they will need information on the payload/range capabilities of the different aircraft types in comparison with their route networks and traffic flows. They will need data on capital and ownership costs, fuel consumption, field-length performance and available operating costs. In addition, though, there are two pieces of data which are unique to freight operations and which can be crucial in plane choice. First, cabin door size and cabin cross-section of the main deck of the aircraft will decide what size of consignment can be accommodated. All narrow-bodied jet freighters (such as the freight version of the Boeing 757) can only accept consignments of up to 86 inches in height through their cargo doors. They cannot, therefore, accept the 8 feet by 8 feet rectangular cross-section of International Standards Organization (ISO) standard-sized containers. Of the wide-bodied aircraft, the freighter version of the MD-11 cannot accommodate two of these containers side-by-side in the main deck. The B747F and the A380F are the only freight aircraft at the moment which can do so. The 747F has the added advantage of a nose-loading capability, providing carriers are prepared to accept the higher capital and maintenance costs of an aircraft equipped with this facility. The second important performance measure for a freighter is its design density. Freighters do not only have a weight-limited payload. They also have a fixed volumetric capacity. If an aircraft only has a small volume relative to its maximum payload it will often become volumetrically full before its maximum payload is reached. Older narrow-bodied jets such as the B707 and DC-8 all had significant design density problems because of their inadequate cabin volumes. The Boeing 747 has a design density approximately 40% below that of the 707. This aircraft, though, has a very large payload/range potential so in practice it can only be used on the busiest long-haul services, as can the A380F.

The design of the freight product is an interesting aspect of airline marketing. The total market airline can use the synergies available from the belly-hold space in its passenger aircraft. It can therefore offer flight frequency and cheaply available capacity as its main advantages. The pure freight airline, on the other hand, can supply capacity which will meet the needs of the freight customer without any requirement for compromise. It is these advantages that are becoming increasingly important.

1.4.5(a) Case study on Management of Airline Product Marketing : A Product Positioning Case Study: Southwest Airlines Is Sitting Pretty

Have you ever flown on Southwest Airlines? They're a terrific, low-cost outfit that has a marvelous safety record and gets you where you want to go on time.

In order to keep things simple and offer low prices, Southwest doesn't provide assigned seating. You have to arrive at the airport early or print out a boarding pass get on line at the gate, and then board the plane on a first-come, first-served basis. Survival of the fittest

Very recently, Southwest has started designating your place on line. However, when boarding starts and you get on the plane, it's every man, woman and child for themselves. On a crowded flight, when everyone's got carry-on luggage, it can be a bit like a rugby match.

So how does Southwest handle the fact that they don't offer the convenience of reserved seating? In a brand new TV commercial, they turn it into a benefit! Here's how: The spot starts with Billy being put into a high chair. His mom tells him where to sit. Cut to Billy in school, where his teacher tells him where to sit ... cut to Bill's first day on the job in an office and his boss telling him where to sit ... cut to Bill at the airport. The ticket agent, on some other airline, gives Bill his assigned seat number and tells him where to sit. That does it for the poor guy! The announcer tells us, "So Bill switched to Southwest Airlines. Now Bill sits where Bill wants. Freedom to choose on Southwest Airlines."

Terrific! By using some powerful advertising Jiu-jitsu, Southwest turns a serious disadvantage into a benefit. The free-for-all scramble for a favorite seat is transformed into a liberating expression of individual freedom.

This is an example of the power of positioning—of how a marketer decides to best "position" their product or service in the consumer's mind. Of course, Southwest Airlines, like all companies, can choose from a huge number of positions.

For example, Southwest could have positioned themselves as:

- The on-time airline
- The no-frills airline
- The low-cost airline
- The safety-conscious airline
- The friendly airline
- The we-serve-the-West airline
- The smart flight attendant airlines

The bottom line? In the TV spot mentioned above, Southwest chose a "free-to-sit-anywhere" positioning. Why did they go this route? (No pun intended.) We can only infer that they felt the need to counter an unpleasant customer perception—that Southwest's free-for-all seating policy was a royal pain in the neck.

The point of all this, of course, is not to investigate airline seating procedures, but to demonstrate how a fresh approach to positioning can be used to build a business.

If you can think in a fresh, new way about your product or service, and reinvent it through an innovative repositioning, the world will beat a path to your door.

1.4.5(b) Case study on Customer Service Related Product Features-Indigo

Indigo is an India air line which is a low cost carrier and the largest airline in India in terms of market share. Its strategy is all about customer focus using technology smartly. Indigo's media campaign has focused more on customer service by providing hassle free passenger experience, ontime performance and affordable fares. IndiGo's same-day return flights from major Indian cities, extra seat pitch (2 inches more than India's industry standard) and new aircraft. IndiGo stuck with its policy of offering one class of no-frills service on a single type of plane. IndiGo's success model largely relies on consistent low fares, regular on-time performance and minimal flight cancellations. However, the airline's biggest edge over others is its focus on customer focus. "Would you like to be on time or would you like to be three hours late and have the nicest champagne and caviar on board," Bhatia had asked earlier this year in an interview with ET. Fliers want on time journey at reasonable prices and this has helped IndiGo inch past stalwarts to reach this milestone.

Other airlines advertise low fares, marketing or other promotional offers on their websites, IndiGo only emphasises on-time performance. Indigo has continuously built around this image through its tongue-in-cheek advertisements on television and print media.

Indigo placed the largest order in commercial history in 2011 with airbus for 180 aircrafts, keeping in mind future competition. Online ticket bookings, special assistance for minors, providing wheel chairs, new mobile application for checking flight status, pre booked seats and meals on flight are some of their best marketing strategies.

Even the airline's president Aditya Ghosh has frequently repeated that IndiGo keeps the whole business of flying simple for our customers. Ghosh had earlier explained that "simplified pricing" means one fare, inclusive of all taxes and other charges, an easy-to-navigate website etc. "One of every two of our customers is an infrequent flier and many are first-time fliers. It is important for us to simplify flying for them. So we want to keep flying simple. We have features such as queue busters at most airports, where if you are carrying only cabin luggage, you need not stand in a check-in queue and these queue busters would print boarding cards from hand-held machines quickly."

Indigo has realised that in a services industry, where competition is so cut throat, it needs to deliver on its promise, which clearly seems to be going in its favour, at least domestically.

MODULE II

AIRLINE REVENUE MANAGEMENT

2.1. INTRODUCTION TO AIRLINE REVENUE MANAGEMENT

2.1.1. FORECASTING DEMAND IN AIRLINE INDUSTRY

Every day, at all levels of management within all segments of the air transportation industry, decisions are made about what is likely to happen in the future. It has been said that business action taken today must be based on yesterday's plan and tomorrow's expectations. Call them expectations, predictions, projections—it all boils down to one thing, forecasting. Forecasting is the attempt to quantify demand in a future time period.

Quantification can be in terms of either dollars, such as revenue, or some physical volume, such as revenue passenger miles (RPMs) or passenger enplanements. Plans for the future cannot be made without forecasting demand. Planning also plays an important role in any aviation enterprise, but it should not be confused with forecasting. Forecasting is predicting, projecting, or estimating some future volume or financial situation—matters mostly outside of management's control. Planning, on the other hand, is concerned with setting objectives and goals and with developing alternative courses of action to reach them—matters generally within management's control.

A forecast of revenues is not a plan. There must be goals, strategies for attaining them, alternative courses of action, and a realistic fit with other market conditions. Thus, although forecasting is not planning, it is an indispensable part of planning, a management tool for deciding now what the company must do to realize its profit and other goals for the future.

Not only is forecasting done for a given type of demand independently, but forecasts of may one type of demand also be based on other forecasts. Thus, the projection of flying hours for next year is an element in the forecast of future demand for flight personnel, fuel consumption, facilities, and a host of other considerations.

The Purpose of Forecasting

Each type of forecast serves a particular purpose. Thus, an airline might make a short-term forecast of total passenger enplanements between a particular pair of cities to provide a basis for determining station personnel and ground equipment needed, gate availability, and expenses related to these items. Short-term forecasts normally span a period of one month to one year and cover such day-to-day operations as staffing stations, evaluating current competitive situations in the market, and projecting short-term equipment needs. Medium-term forecasts generally span a period of one to five years and involve such things as route-planning decisions. A long-term forecast spans a period of 5 to 10 years and might involve fleet planning decisions and long-term financial commitments. For example, a light-aircraft manufacturer might make a long-term forecast of demand for an aircraft specifically designed

to serve the commuter air carrier market and then plan to meet the projected demand. The various forecasts are used by companies to carry out three important management functions—analysis, planning, and control.

A word of caution should be noted when forecasting. When obtaining statistical data, it is important to realize different sources have different reporting methods for the same outcome, meaning actual data might not be accurate. It is very important to use data from reputable sources and have a thorough understanding of how the data was collected especially when benchmarking against other sources. Analysis Every company must make choices among the many markets or submarkets open to it, in addition to deciding on the level of service to offer, the type of aircraft to fly on particular routes, and the type of aircraft to purchase. The choice is greatly facilitated by quantitative estimates of demand. The following situations demonstrate the role of forecasting in the analysis function:

A major air carrier is trying to decide whether to purchase the Boeing 787 or the A-350. An estimate of operating costs will be a guiding factor. A regional carrier is trying to decide whether to introduce shuttle service between two cities. The company will be guided by its market research department's estimate of long-term passenger enplanements.

A light-aircraft manufacturer is trying to decide whether to develop a new commuter aircraft. The company will be guided by an estimate of potential sales in this market.

Planning

Every firm must make short-term decisions about the allocation and scheduling of its limited resources over many competing uses; it must make long-term decisions about rates of expansion of capital equipment and funds. Both short-term and long-term decisions require quantitative estimates of demand, as the following situations illustrate:

A line maintenance supervisor for a national carrier in Dallas wants to identify how many workers will be employed for the next calendar year and needs an estimate of the number of departures at his station by month. The advertising director for a major carrier wants to promote a new low fare to selected cities and needs a short-term forecast of enplanements as a basis for assigning funds. The board of directors of a medium-size regional carrier needs a long-term forecast of population growth and business expansion in a particular city to use as a basis for planning future expansion.

Control

A company's actual performance (physical volume or revenues) in the market takes on meaning when it is compared to forecasts. A commercial aircraft manufacturer is disappointed with sales to national carriers. The market research department is asked to

develop a new forecast of company sales potential in this market. A regional sales manager of a light-aircraft manufacturer wants to subdivide a sales territory in which sales are unusually high. The salesperson for that territory objects, arguing that the territory has only average sales potential but that she has penetrated the market to a greater degree than her counterparts have. The sales manager asks the research staff to come up with a sales forecast for the territory. The vice-president of flying for a major carrier asks the administrative staff to estimate the number of pilots who need to be trained on the B-737 over the next three years because the former number appears to be too large in view of delays in delivery schedule since the original forecast.

Forecasting Methods

The choice of forecasting methods should be based on several factors, including availability of data, accuracy of available data, management sophistication, intended forecast use, and availability of electronic data processing. Sophistication in forecasting methods can easily run ahead of data quality and management ability to use the results. Forecasting passenger enplanements for a one-year period on well-established routes, for example, possess a fundamentally different forecasting problem than estimating enplanements on a new route, and forecasting methods must be chosen accordingly.¹ Annual forecasts are provided by various organizations, such as the FAA, IATA, ICAO, aircraft manufacturers, and so on. The following review of forecasting methods is far from exhaustive, but it suggests the range of methods available.

Causal Methods

Causal (model) forecasts are based on a statistical relationship between the forecasted (dependent) variable and one or more explanatory (independent) variables. There need not be a cause-and-effect relationship between the dependent and the independent variables. A statistical correlation alone is sufficient basis for prediction or forecasting. Correlation is a pattern or relationship between the two or more variables. The closer the relationship, the greater the degree of correlation.

In general, a causal model is constructed by finding variables that explain, statistically, the changes in the variable to be forecast. Such variables must have the following characteristics: (1) they must be related statistically to the dependent variable, (2) data on them must be available, and (3) there must be some way of forecasting them, or their relationship to the dependent variable must be lagged (must follow the dependent variable by several months).

Most forecasting methods are based on the assumption that existing patterns and historical relationships will continue in the future. Because this assumption usually holds only for the short term, however, most forecasting methods can provide reasonably accurate forecasts for periods of only one or two years. In the case of aviation, the events of 9/11 led the industry

into a very unpredictable era. Historical data once used for forecasting no longer has the same credibility because, essentially, the industry has started over. The statistical relationship is estimated and verified using statistical analysis. The selection of variables depends on the imagination and resources of the researcher. With the aid of a computer, dozens of candidates can be tested, easily and quickly, once the structure—that is, the mathematical form—of the model has been decided. This, too, may be selected by trial and error.

The availability of data on the variables—or, more specifically, their specific values—is largely determined by the time and resources the researcher has available. Data are the key to specifying the model. Prominent independent variables used in forecasting various segments of the air transportation industry include gross national product (GNP), disposable personal income (DI), and consumer spending on services. Dependent (forecasted) variables might include such things as revenue passengers enplaned, RPMs, and passenger revenues. In the general aviation sector, the level of corporate profits in the economy as a whole correlates well with total business aircraft purchases. Some very sophisticated mathematical models might use 20 or 30 independent variables to forecast a particular set of dependent variables.

For example, let's say we developed the following hypothetical formula, using statistical analysis and based on data covering a 15-year period, that shows the relationship between GNP and the number of active general aviation aircraft in the India:

$$Y = 8.14 + 0.152X.$$

The value of the GNP (X in the equation) is expressed in billions of current dollars, and the resulting estimate of the fleet (Y in the equation), is in thousands of active aircraft.

Once the formula has been established and a high correlation demonstrated, the equation can be used for forecasting purposes. The next step is to obtain current forecasts of the independent variable (GNP in this case). The FAA aviation forecast uses economic forecasts from Chase Econometrics; Data Resources, Inc.; Evans Economics, Inc.; and Wharton Econometric Associates.² These are all highly reputable sources for forecasting major economic aggregates. The forecasted active general aviation aircraft fleet is then determined by plugging in the values for the forecasted GNP over the time period being forecast.

Given unlimited amounts of data, causal models can be constructed that explain almost any market phenomenon. Unfortunately, unlimited amounts of data are rarely available. Shortages of time, money, and personnel; limits on the accessibility of data; deficiencies in measurement techniques—all impose serious constraints on data availability. Often, researchers must be content with secondary data, substitute variables, outdated observations, and inaccurate information. The result is usually an imperfect model, although not necessarily a useless one.

Forecast ability, or a lagged relationship with the dependent variable, is essential, because it does little good to construct a forecasting model if the future values of the explanatory variables are as difficult to estimate as those of the dependent variable. The only alternative is to use independent variables whose present values determine the dependent variable's future values.

Causal models are unquestionably the most sophisticated type of forecasting method used today, as well as the most frequently used. However, as mentioned previously, companies use these forecasted data in developing forecasts of their share of the industry (forecasts used for other forecasts). Although causal models are used quite extensively by the FAA, ATA, GAMA, NBAA, and other industry sources, it is important to recognize their limitations:

No one during the mid-1960s boom period in aviation foresaw the magnitude of the recession that occurred in late 1969 and extended through 1972. All indicators pointed to continued expansion throughout the 1970s. Jumbo jets were ordered based on the mid-1960s forecasts; a major airport expansion program was undertaken; and manufacturers in both commercial and general aviation geared up for a major expansion. And then the bottom fell out. Despite its inadequacies, the science of model building for forecasting purposes has grown increasingly more sophisticated over the past 20 years as a result of the use of computers. Nevertheless, unusual weather conditions, international tensions, labor-management troubles, and a host of other unforeseen factors can disturb an established relationship between variables.

Time-Series or Trend Analysis Methods

Another reasonably sophisticated statistical method of forecasting is time-series analysis, the oldest, and in many cases still the most widely used, method of forecasting air transportation demand. In some situations, this method is referred to as trend extension. It differs from causal model forecasting in that less causation is embodied in the time series.

Time-series models show the dependent variable as a function of a single independent variable, time. This method is used quite frequently when both time and data are limited, such as in forecasting a single variable (for example, cargo tonnage) for which historical data are obtained. Like the causal models, time-series models are based on a statistical correlation that does not necessarily reflect a real cause-and-effect relationship between the dependent and the independent variable.

Aviation is certainly not static: new-aircraft sales, prices, revenue passenger miles, cargo tonnage, profits, flying hours, on-time performance, and number of departures all fluctuate over time. Time-series or trend analysis is simply a sequence of values expressed at regular recurring periods of time. It is possible from these time-series studies to detect regular

movements that are likely to recur and thus can be used as a means of predicting future events.

Forecasting by time-series or trend extension actually consists of interpreting the historical sequence and applying the interpretation to the immediate future. It assumes that the past rate of growth or change will continue. Historical data are plotted on a graph, and a trend line is established. Frequently, a straight line, following the trend line, is drawn for the future. However, if certain known factors indicate that the rate will increase in the future, the line may be curved upward. As a general rule, there may be several future projections, depending on the length of the historical period studied. Airlines keep numerous records of data of particular concern to them (departures, enplanements, flying hours, and so forth), and when a forecast is needed, a trend line is established and then projected out to some future time. The accuracy of forecasting by historical sequence in time-series or trend analysis depends on predictions of changing factors that may keep history from repeating itself.

The values for the forecasted (dependent) variable are determined by four time-related factors: (1) long-term trends, such as market growth caused by increases in population; (2) cyclical variations, such as those caused by the business cycle; (3) seasonal phenomena, such as weather or holidays; and (4) irregular or unique phenomena, such as strikes, wars, and natural disasters. These four factors induce the following types of behavior in the dependent variable: (1) trends, (2) cyclical variations, (3) seasonal changes, and (4) irregular fluctuations. These types of variations are found throughout the literature of market and economic forecasting. *Trends.*

A trend is a long-term tendency to change with time. A variable's trend is a reflection of its statistical relationship with time, exclusive of cyclical, seasonal, and irregular disturbances. Trend functions are described by growth curves, which express, both graphically and mathematically, the underlying pattern of time-related changes. This pattern is usually brought about by such factors as population, GNP, industrialization, changes in technology, and long-term shifts in tastes or preferences. A trend can be inherently positive, such as total air carrier passenger revenues. It can be negative, such as the phasing out of fuel inefficient aircraft from the airline fleet. Or it can be erratic, as in the case of airline pricing in recent years.

The time period specified for a particular trend varies considerably. Economists frequently define it as any period in excess of that required for a complete business cycle (approximately five years). Airline marketers tend to specify a trend period as equivalent to the approximate lifetime of the service. This can vary from a few months (in the case of some in-flight promotional services, such as two-for-one drinks or special meal service) to a couple of years (for such items as an advertising theme) to an indefinite period (for an essential, such as fuel).

Cyclical Variations. Cyclical variation is the variation of the forecast variable due to the business cycle. The business cycle is the wavelike fluctuation in the level of economic activity that has been associated with the economies of the developed nations since the early years of the Industrial Revolution. The business cycle has never been fully explained by economists, adequately controlled by governments, or satisfactorily predicted by businesses. However, the phenomenon is apparent if any of the common economic indicators (such as GNP, employment levels, stock prices, corporate profits, or capital investment) are plotted over time. The length of individual cycles varies, although they usually last well beyond a couple of years measured from peak to peak or valley to valley. In the United States, cycles range from 1 to 10 years, with 4 or 5 years the norm. The magnitude of the fluctuations, measured vertically from peak to valley (or vice-versa) varies tremendously and thus far has defied precise forecasting, to the chagrin of most aviation industry analysts.

The business cycle has a significant effect on all segments of the air transportation industry. The level of air travel for business or pleasure purposes is affected by upturns and downturns in the economy. Economists refer to the air transportation industry as being income elastic; that is, airplane sales, RPMs, and so forth are very responsive to changes in economic aggregates such as disposable income, personal income, and national income.

Seasonal Variations. Seasonal variation is the variation of the forecast variable associated with the time of year. It is appropriately named, for it is a function of both the weather and the social customs associated with the four seasons (for example, in Florida, the heavy tourist season from Thanksgiving through January 1 or college spring break from March through April). Seasonal fluctuations in the demand for such things as motel rooms, rental cars, and airline travel are quite pronounced.

Irregular Variations. Irregular variations are erratic, non-recurrent events such as strikes (for example, the air traffic controllers' strike in 1981), blizzards, riots, fires, wars or war scares, price wars, bankruptcies, and other real-world disturbances. Although the disturbance factor is easily identified and the magnitude of its effect can normally be estimated, it seldom can be forecast.

Accuracy of the Causal Models and Time-Series Forecasts

Short-term forecasts are generally more accurate than long-term forecasts because the underlying determinants and the relationships between variables tend to change less in the short run than in the long run. However, short-term forecasts are vulnerable to seasonal variations that, if unaccounted for, can make them unrealistic.

A long-term model is really a trend model, affected only by irregular variations.

Developing a trend model is generally the primary objective of the forecaster, because management is interested primarily in the growth or contraction of a particular service.

Forecasts for the economy as a whole usually are more accurate than those for a particular industry within the economy. Consequently, forecasted revenue for the airline industry typically is not as accurate as forecasted GNP. Likewise, an individual company's forecasted share of the industry total usually is less accurate than that of the industry as a whole. And, going one step farther, a general aviation aircraft manufacturer's forecast of revenue for a particular model of aircraft generally is less accurate than a forecast for a category of aircraft, such as turboprop aircraft. The reasons for this are basically twofold: (1) the numbers become smaller and less statistically reliable as the forecast becomes more finite, and (2) the number of variables increases as the forecast becomes more finite.

Judgmental Methods

Judgmental forecasts are educated guesses based on intuition and subjective evaluations. Although they are the least rigorous types of forecasts, they are frequently a powerful factor in decision making. Intuition often is the only tool the researcher has, and it can be very accurate. Judgmental methods can be used when either no information or very little historical data exist. They can also be used to adjust forecasts developed by causal models or through time-series analysis. For example, the preface to FAA Aviation Forecasts, 2001–2012, states that “FAA aviation forecasts employ projections of key economic variables. These projections are combined with projections of aviation variables and professional judgment.”

Acceptance or rejection of a judgmental forecast depends mostly on the reputation of the forecaster, because there are no statistical ways to evaluate it. Very often, a strong leader can push through recommendations based on such forecasts. For example, a vice-president at Cessna felt strongly that there was a significant unexploited demand for a twin-engine airplane with its engines mounted in tandem instead of laterally, as in conventional designs. (This would prevent asymmetric, or out-of-balance, thrust, thereby reducing the hazards of flying with one engine out.) Although his judgment conflicted with forecasts made by more rigorous methods, the company committed itself to the idea. When the product was introduced, sales fell far short of the level the vice-president projected. Instead of backing down, however, the executive insisted that his analysis of demand, and hence of potential sales, was correct and that the fault lay in the design of the aircraft. He won his point, and the model was not dropped. An alteration in the design (the incorporation of retractable landing gear) made the product acceptable to the market, and sales rose to the level he forecast. The model became, for a time, the most successful product in the firm's line.

As was the case with the Cessna example, judgmental forecasts usually require the backing of a leader because, in the absence of supporting data and objective analysis, they seldom can stand on their own. They are based on experience and partial (usually qualitative) knowledge;

their analytical tools are intuition and common sense. They are frequently poorly received, especially when they suggest a future that is substantially different from the present or involve a radically different product or promotional scheme. Aviation is filled with examples—Bill Lear when he first proposed a business jet, or whoever first suggested serving liquor aboard commercial airliners (the president of United Airlines at the time was quoted as saying something to the effect of, “No way, we’re not going to become flying taverns”).

Judgmental forecasts can be obtained from a number of sources, including expert opinion, sales force opinion, and polls.

Expert Opinion. Expert opinion can come from within or outside the company. Forecasts may be developed by simply drawing on managerial experience within the company. For example, a prediction of next year’s cargo tonnage may be obtained from the vice-president of cargo sales. Companies can also tap outside experts for assessments of future market conditions. Various public and private agencies issue or sell periodic forecasts of short- or long-term business conditions for different industries. Leading spokespersons, sometimes referred to as “visionaries,” from banking or investment houses report on the status of and outlook for the industry.

An interesting variant of the expert opinion method is used by Lockheed. As a manufacturer of airframes and missiles, the company deals with a relatively small number of customers, each of which accounts for a relatively large percentage of sales.

Therefore, Lockheed’s forecasting problem is to predict what each particular customer will order during the forecast period. The market research group works up a preliminary forecast on the basis of surveys and causal models. Independently, various Lockheed executives pose as major customers and, in a hardheaded way, evaluate Lockheed’s offering in relation to its competitors’ offerings. A decision on what and where to buy is made for each customer. The purchases from Lockheed are totaled and reconciled with the statistical forecast to form Lockheed’s sales forecast.

The use of expert opinion has several advantages and disadvantages. The primary advantages are that (1) the forecasts can be made relatively quickly and cheaply, (2) different points of view can be brought out and balanced in the process, and (3) there may be no alternative if historical data are sparse or unavailable, as in the case of new products or services. The primary disadvantages are that (1) opinions are generally less satisfactory than facts, (2) responsibility for the forecast is dispersed if various managers’ opinions are used and if good and bad estimates are given equal weight, and (3) the method is usually more reliable for aggregate forecasting than for breakdowns by region, customer groups, or service categories.

Sales Force Opinion. Sales force estimates have the advantage of coming from those individuals who are closest to the marketplace. Because they work in the field, salespeople generally have a fairly good idea of their company's image with travel agents in their territory and the expected business to be generated from these sources. They also have a good feel for the amount of cargo tonnage shipped by freight forwarders and businesses that have been using their services. They are in daily contact with the carrier's major customers and can offer valuable information to the home-office forecaster. Sales representatives are often the first to learn of a competitor's strategy at the local level and may have more knowledge of or better insight into developing trends than any other single group. This grass-roots approach to forecasting can be helpful in breaking down sales by territory, customer, and sales force.

However, forecasting by the sales force is not without its problems. A salesperson's forecast can be biased, and individual salespeople may be overly pessimistic or may go from one extreme to another because of recent revenue setbacks or successes. Also, a salesperson is often unaware of larger economic developments and of company marketing plans that will shape future sales. Consequently, few companies use the salesperson's estimates without some adjustments.

Poll Forecasts. Poll forecasts are based on the expressed intentions of members of the particular target market, who are polled using one of the conventional survey techniques—mail questionnaires or telephone or personal interviews. A poll is a collection of judgmental forecasts from the market sampled in the survey.

Poll forecasts are susceptible to a number of errors, including poor judgment, ignorance, and uncertainty among the respondents. The respondents' judgment, especially with respect to future events such as purchase behavior, can be quite suspect. Further, the respondents may not be the ultimate decision makers regarding the product in question, and plans may change because of company circumstances and general economic conditions.

In the case of polls or surveys of potential business aircraft purchasers, there may be a reluctance to disclose buying intentions. Such a request could be regarded as an invasion of company privacy. Nevertheless, polls are used quite extensively by all aviation firms as a means of developing data for designing new products and services, as well as for forecasting purposes. Polls, if properly designed and used, provide useful estimates about the target market.

Usefulness of Judgmental Methods

The usefulness of expert opinion, sales force opinion, or polls depends on the cost, availability, and reliability of these types of data. For cases in which buyers do not plan their purchases carefully or are very erratic in carrying out their intentions, or in which experts or

the sales force are not particularly good guessers, a poll or survey of buyers' intentions is preferable. A poll or survey also is generally more desirable in forecasting the market for a new product or for an established product or service in a new territory. When a short-term forecast of likely buyer response is desired, an expert opinion may be called for.

2.1.2. DEREGULATION OF THE AIRLINE INDUSTRY

The deregulated airline industry abounds with paradoxes. The number of airlines has shrunk by more than half. But the degree of competition among carriers has, if anything increased.

There are significant fare benefits to consumers. Yet, consumers find the complexity of fare structures a nuisance. People talk as if they want more frills (less crowding, better meals, larger seats), yet when given those choices, they have picked the lower-priced services with the fewer frills. Indeed, if service is measured in flight frequency, consumers have gained even more in the service dimension than in the price dimension since deregulation.

Carriers have profoundly changed their core capabilities in operations, in information systems, in marketing, and in pricing. Yet, to the traveller, a trip often seems pretty much the same today as it was fifteen years ago. Most paradoxical of all is that while U.S. consumers seem discontent, people in the rest of the world view our air system with envy. Its strength has provided great benefits at home and is forcing major market adjustments among international carriers everywhere.

The New Core Capabilities

Hub-and-Spoke Route Systems: Deregulation freed up firms to focus on their own markets and operations. That focus produced new core operating capabilities. The old regulatory route regime was designed along railroad tracks, with initial route awards granted on linear east-west or north-south corridors. The route regime that has emerged under deregulation also has logic to it, but it is a logic derived from optimal flows in networks rather than from governmentally imposed linear systems. Operations research analysis showed that, if unconstrained by regulation, a hub-and-spoke delivery system was superior to a linear system. Consumers would be better off in terms of travel convenience and frequency of flights. Firms would be more efficient and would enjoy reduced delivery costs. The hub-and-spoke delivery system has become the new standardized operating system for air-lines. It has three central features. First, there are cost savings to airlines from better capacity utilization. Load factors are now in the low to mid-sixties, up from a level in the low to mid-fifties before deregulation. Second, there is greater concentration at the hub airport; one carrier tends to dominate operations by controlling 70 percent or more of incoming and departing flights. Hub concentration is believed to confer a degree of local market power on the serving carrier. A third feature is that more destinations are served nonstop from each hub. Several

waves of incoming and departing flights occur each day. That greatly increases the number of sources and destinations between which passengers can flow with at most one intermediate stop.

Computer Reservations and Yield Management Systems: Advances in computer technology, particularly with respect to the reservations systems, have expanded the industry's core capabilities. The computer reservations technology can be traced back to 1967, when American conducted an experiment in retail distribution by placing terminals in a small number of high-volume travel agencies. As late as 1976, American had installed its SABRE system in less than 150 travel agency offices. The systems were primitive compared with today's; they provided flight information and made reservations only for participating airlines. Today's systems quote fares, allow seat selection, and issue boarding passes and also provide car rental information and enable travelers to make hotel reservations. As system owners made greater investments in those systems and as computerized capabilities grew at an astounding rate, the systems revolutionized the face of air travel in the United States.

Only a few airlines provide these systems. The two largest systems, SABRE and APOLLO have a combined market share of 65 percent. SABRE has more than a 40 percent share of U.S. travel agents; APOLLO (United, now with significant foreign participation, as well as USAir) has nearly a 25 percent share. WORLDSPAN (Delta, Northwest, and TWA) and SYSTEM 1 (Continental) are the only other players, and their share is dropping. These systems provide economic rents to their carrier owners, but they also greatly improve service convenience for passengers. One such convenience, not included in most performance measures, is that passengers no longer have to wait in line for a half hour or more to get boarding passes at airports.

80,000 airline fare changes each day: The deregulated marketplace also enabled the industry to develop creative marketing schemes. After deregulation, a riot of new ideas flowered, most of which have been aimed at inducing brand loyalty. American introduced the frequent-flier program in 1981; within five years all airlines had adopted such programs. The program gives the traveler a free ticket after he has accumulated a certain number of miles on a particular airline (often 20,000 miles). Thus, the consumer, in making today's travel choice, will pick the airline that is his most likely choice for future travel. That airline is often the one with strong control at the originating hub airport in the consumer's neighborhood.

Airlines that own computer reservations systems enjoy other strategic advantages. For example, they can offer override commissions to travel agents who steer a sufficient volume of traffic toward them. Override commission programs involve a contract between the airline and a travel agent in which the airline agrees to increase the agent's commission rate if the agent reaches specified sales goals. Just as consumers have incentives to concentrate travel on one particular airline because of the frequent-flier programs, so travel agents have

incentives to concentrate bookings on particular airlines because of the override commissions they are offered.

Industry Structure and Corporate Control

Bankruptcy and Exit: The market for corporate control of the airlines has been active since deregulation. The past fifteen years produced waves of bankruptcies, exits, mergers, and restructurings. And the market for corporate control has not yet equilibrated. Three of the remaining nine major players are in bankruptcy. And most of the U.S. airlines are now engaged in a fierce battle for control that transcends national boundaries. The international marketplace is now facing the realities of the new operating environment.

Consider the factors leading to the three most dramatic exits those of Pan Am, Braniff, and Eastern. Pan Am was the pioneer of international aviation. In the regulatory era it had been awarded worldwide routes, but no domestic routes. Shortly after deregulation, it proceeded to rectify the situation by purchasing National Airlines. National seemed a good fit with its Miami location and offered a route network that naturally drew planes into the Pan Am hub at Kennedy Airport.

Pan Am failed at that merger, not because it lacked foresight or resources but because it poorly executed the merger. Pan Am's expertise was in delivering international operations where customers readily tolerated delays of an hour or more. It was unable to deliver a competitive degree of on-time performance when compared with domestic services of other U.S. carriers. It was unable to integrate its systems and its work forces effectively or to reequip and modernize its fleet. In the last decade of its operations, Pan Am lost more than \$2 billion. It survived by selling off assets-the

Pan Am Building in New York, the Intercontinental Hotel chain, land in Tokyo, and its routes to Japan and London. Once those were gone, the airline itself disappeared.

Growth and Merger: Contrast those failures in performance with some of the success stories. American provides a particularly apt example. In the years immediately following deregulation, American too found itself with a fleet of older aircraft, and it too had a profitability problem. In 1980 American took a number of steps to prepare itself for the new, more competitive environment. It retired its 707s and began a phase-out of its 727-100s so that it reduced its capacity. In addition, management cut overhead costs by reducing the number of employees from 41,000 to 36,000. American also restructured its route system to build its hub-and-spoke connecting complexes and directed 79 percent of all traffic to Dallas/Ft.

Worth, where it relocated its headquarters: Connecting flights to sunbelt growth areas replaced linear routes assigned under regulation. American also instituted new marketing and

pricing strategies, including the frequent-flier program a new concept involving wider spreads for discount (Supersaver) fares and increased investment in its SABRE computer reservations system. American's new president, Robert Crandall, understood the implications of deregulation. He altered his methods of management down to detailed functional levels in his firm to prepare it for competitive success in the years ahead. Between 1976 and 1983, his firm trebled in market value to shareholders, and its market share and value have continued to grow.

Consumers prefer to deal with a single carrier rather than to switch carriers. They believe that with a single carrier they face fewer hassles lost baggage, missed connections, and poorly timed connections associated with transferring from one carrier to another.

Globalization. More and more, consumers want the same single-carrier service they use domestically to take them to foreign cities. The consolidation movement evident on the U.S. scene in the 1980s is replaying itself on the international scene in the 1990s. The robust expansion of the deregulated airline industry in the United States has repercussions for foreign competition. Larger foreign carriers are buying into smaller carriers, for example, Air France into Sabena and SAS into

Swissair and Austrian Airlines. Foreign-carrier groups increasingly coordinate flights into each others' hubs and purchase each others' equity. At the same time the privatization of foreign carriers (such as British Air and Japan Airlines) enables them to compete more efficiently. The fascinating tale of the replacement of TWA and Pan Am by United and American at London's Heathrow Airport highlights the increasing strength of U.S. carriers abroad. The British, particularly British Airways, fiercely resisted replacing the U.S. carriers at that airport, precisely because they recognized the greater competitive strength of American and United vis-à-vis Pan Am and TWA. International air service is not an area in which the United States is losing to Europe or Japan. By 1990 American and United had exceeded British Airways, the Air France Group, Lufthansa, and Japan Airlines in terms of rank by revenues. The United States has begun to put its best management forward. That is forcing major efficiency improvements around the world. It is also putting downward pressure on world price levels. A comparison of yield the average dollars charged per revenue passenger mile achieved domestically versus internationally shows that for every length of haul U.S. prices are lower. The longer the length of haul, the more U.S. prices are below world levels.

Conclusion

The new core capabilities airlines have adopted since deregulation have proved to be powerful tools for efficiency as well as for industry concentration. Benefits are so interlinked with technology that new rules to address the structural imperfections associated with hub-

and-spoke route systems as well as price management and computer reservations systems would necessarily increase costs.

For consumers the perception persists that deregulation has been less successful than, in fact, it has been. There is a way for every real positive development to be cast so that it appears to be negative. It is natural for the media to portray the movement as being off-course. It is natural for consumers to remember their worst nightmare in terms of air travel price or service. It is unnatural and difficult to truly sort out the excellent overall performance from specific negative experiences.

2.1.3. AIRLINE PRODUCT DISTRIBUTION

In all areas of marketing, links must be made between the customer and the product. These links are known as Distribution Channels. Airlines use a variety of these channels. All of them are giving rise to particularly intense debate at the present time, because the different channels result in different costs, and because they vary in the extent to which they allow airlines to exercise proper and necessary control of the market. It is also an area where radical and controversial change is occurring, as carriers become increasingly adept at exploiting the potential open to them from on-line distribution,

Distribution Channel Strategies

Types of Distribution Channel

In any industry, firms can choose from different types of distribution channel. Some may opt for the direct route. This is where the producer makes direct contact with the final customers for its product, without any intermediaries being involved at all. This channel philosophy is normal in the industrial marketing of big-ticket capital goods. It certainly has been usual in the field of aircraft manufacturing, though the rise of the specialist operating lease companies has now in many cases provided an intermediary between the aerospace firms and their final customers, the airlines. In marketing activities involving less costly items a direct approach can still be adopted. For example, some firms choose to deal direct by selling their goods through mail order, backed by extensive advertising aimed at final customers, or increasingly, over the Internet.

One final point needs to be made in this introductory section about distribution channel management. In almost all sectors of the economy there are very substantial differences in the capital invested by producers and by intermediaries. This is certainly the case in the field of travel. Airlines have to invest truly vast amounts in aircraft in order to grow and develop their businesses. For example, today the purchase of just one wide-bodied aircraft, may involve an outlay of perhaps \$180 - \$200 million. A fleet of these planes will require a risky investment of billions of dollars. In contrast, investments made by tour operators and travel

agents will be tiny by comparison. This is becoming even more the case as the travel agency business becomes an increasingly on-line one without the need to invest in costly high street shops. It is absolutely essential that airlines should be in control of their distribution channels so that they can earn the “Super-Profits” which will give their shareholders a fair return on their money. As we shall see, there are now worrying signs that the rise of search engines such as Google provides an even more potent threat to this control than has existed in the past.

The Travel Agency Distribution System

Advantages and Disadvantages

Having established the general principles, it is now necessary for us to look in more detail at the particular issues raised by the past general reliance on the travel agency distribution channel in the airline industry.

In this context, it cannot be emphasized too strongly that this reliance always brought airlines very important benefits. Exactly as one would expect with an agency relationship, one of these was geographical coverage. An airline would have found it prohibitively expensive to have its own sales shops in every high street and shopping mall around the world. Yet some passengers liked a personalized source of tickets, and someone they could turn to for advice and help. A travel agent provided such a presence by selling tickets on behalf of all airlines and tour operators, and by also offering services such as hotel, car rental and theatre bookings. Agents could – and still can – identify and explore specialist niche markets such as those dealing with hobbies like golf and winter sports, and those focusing on particular ethnic groups.

A second advantage of agency relationships was that they were not a heavy overhead burden on the airlines. It is true that all airlines had to incur the costs of agency support in the form of such things as training for agency staff and special telephone lines to deal with agents’ enquiries. The principle though of the agency relationship was that the airline only had to reward the agent when the agent concluded a piece of business on its behalf. This was in contrast, say, to an airline-owned-and-operated sales shop in a city centre, which was an overhead cost burden on the carrier at all times, whether or not any business was actually being transacted.

A final point about the traditional airline/agency relationship was that agents undoubtedly relieved airlines of a great deal of the costly administrative work associated with air travel. For example an agent would issue tickets, assist with visa applications and deal with passengers’ queries about airport check-in times, baggage rules etc. If they had not done so, carriers would have had to employ extra staff and resources. Generally, too, airlines paid their staff higher salaries than the poor levels of pay which were generally prevalent in the

travel agency sector. Travel agents could therefore probably carry out this work at lower costs than would have prevailed if airlines had done it themselves.

Despite this possible adverse consequence, changing the basis for the rewarding of travel agents has been a necessary and long overdue reform.

The Future of Distribution

Despite the changes of recent years, the question of distribution channels for airlines is one which is still in a state of flux. Can we yet forecast what the mature situation will be?

It is already clear that the future is going to see a greater proportion of airline seats sold using direct distribution channels. Airline call centres, sales offices and airport ticket desks will continue, but the growth in direct sales will not be explained by them. Clearly, most of this growth will come from the increased use of airline websites. Internet access is spreading rapidly around the world, and use of the Internet is now a regular part of daily life for hundreds of millions of people. These people are, of course, drawn disproportionately from groups who are likely to be regular air travellers. Also, airlines are increasingly adopting the simpler reservations and ticketing procedures, which are necessary to make internet booking commonplace. The newer Cost Leader airlines have always done this, and the “Legacy” airlines that they are threatening are increasingly responding.

Having said this, it is not the case that the future will see an end for the travel agents’ role in airline distribution. Many better-managed agents will be able to defend their position by adopting policies which their clients will perceive as adding value. We have already looked at the business travel agents who are repositioning themselves as travel consultants rather than airline sales agents. On the leisure side, the better agents may be able to find niche positions by specialising in particular activities such as winter sports, golf, trekking etc. Clients may then continue to support them because they value their expertise.

The best opportunities for the travel agency industry in the future will stem from the one advantage that they will continue to hold over airline websites. When a passenger consults an airline site, they will only usually be told about travel options and fares on that airline (and, perhaps, on its codeshare partners). In order to find out the best option out of the many that are available, they may have to spend a considerable amount of time looking at the websites of all the competitor airlines in the market. If, however, they consult a good travel agent, the travel agent will be able to display all the flight and fares options that are available and make a “best-buy” recommendation. This is a service which a traditional off-line travel agency can offer in some form, but it becomes an even more powerful one when it is made available over the Internet. Recent years have seen the rapid growth of a number of very large and well capitalized on-line travel agencies such as Travelocity (begun by American Airlines, but subsequently sold) and the Expedia service pioneered by Microsoft. This has in turn raised

disturbing possibilities for airlines. Their websites have allowed them to loosen the formerly very tight hold that large travel agency chains held over them, but the rise of firms such as Expedia and Travelocity has raised the spectre of a new domination, this time by on-line rather than off-line agencies. Such a threat induced airlines to respond. In both the USA and Europe, consortia of airlines set up what amounted to their own on-line travel agencies, branded Orbitz in the US and Opodo in Europe, though again in both cases, these firms have now been sold by the consortia that owned them, presumably as a way of raising cash. In a wider number of cases, airlines have taken the apparently bizarre course of displaying not only their own flights on their websites, but also those of their competitors. They have done so as a way of providing their customers with a comprehensive booking tool, and as a way of countering the claims of on-line travel agents that only they can do so.

Overall, it is possible to reach a more optimistic conclusion about airline distribution (at least on the passenger side of the industry) than would have been possible only a few years ago. The use of the internet and the reform of the reward systems for travel agents have both made useful contributions to the correcting of what was formerly a totally unsatisfactory situation.

Global Distribution Systems (GDSs)

History and Background

For nearly twenty years, the subject of so-called Global Distribution Systems has been a controversial one in the airline industry, and it remains so today. The purpose of this section is to examine the reasons for this debate and to look at the future of GDSs.

Until the early 1970s, contact between airlines and their distribution outlets was mainly by telephone. This was both time consuming and costly, and became unsustainable as the industry grew. As the 1970s proceeded, the first, pioneering, carriers set out to automate airline/travel agency contact. In order to do so, direct links were provided from each agency location into the airline's reservations computer. Instead of phoning, agents could use the keyboard of a Visual Display Unit to make bookings direct with the airline concerned. Besides saving a great deal of time, this also gave the agent visual confirmation that the required reservation had been made.

In the USA, the leading airlines behind this move were United Airlines with its Apollo system, and American with SABRE. By the end of the 1970's these airlines had been joined in Europe by carriers such as Lufthansa (with START) and British Airways (with BABS).

The selling off of airline stakes GDS's has given the industry a degree of unity of purpose about them. Before, those airlines which had an equity stake in a GDS (and which were therefore benefiting from the substantial dividend income they were then receiving) took a different attitude to the question of booking fees than those who did not. Today, almost all

airlines have a common interest in lowering booking fees to achieve more cost-effective distribution. Recently, too, in America at least, the GDS industry has been deregulated, with in particular an ending of the requirement that GDS owners must treat all airlines equally. This, together with a reduced regulation of displays, has allowed negotiations to begin around questions of trading display standards and content against booking fees.

Current Issues

Though the subject of bias in Global Distribution Systems is now somewhat less controversial than it was, there are still some substantial debates in progress. Amongst the most contentious of these is the question of funding of the GDSs. Airlines now argues that they pay, through their booking fees, a disproportionately high level of total costs, whilst the travel agency industry pays far too little.

In principle, both airlines and travel agents benefit from the availability of a GDS. Airlines certainly gain from the wide distribution of their product, but agents also find that their costs are significantly reduced because of the much greater staff productivity they can achieve. The original suggestion was that GDS costs should be met to an equal degree by airlines and agents, reflecting these mutual benefits. This has not turned out to be the case. With the economics of a GDS so dependent on the volume of throughput, the GDS firms have had every incentive to try to steal market share from their rivals. In order to do so, it became a common tactic to allow travel agents the use of a system for a very low rental or, in many cases, if throughput in terms of the number of bookings made is sufficient, for the GDS companies to actually pay them for using their system. The result was, in many countries, an intense market share battle, with agents being offered bigger and bigger incentives to switch from one firm's system to another. In turn, a larger and larger share of GDS costs have in practice been paid by airlines through booking fees – current estimates are that more than 90% of GDS income is being derived in this way.

The dominance of airline funding of Global Distribution Systems has in turn led to two further controversies. The travel agent will often have a deal which ensures that the GDS will be made available free-of-charge, or for a nominal rent providing a sufficient number of bookings are made. Then, the agent with a sense of humor will have a clear incentive to make false and fictitious bookings if the number of true bookings they have is insufficient to reach the relevant break-point. Not surprisingly, such practices have provoked outrage on the part of those airlines that have been the victims of them, for the booking fees levied by the GDS companies have been based on the sectors booked, not on the number of passengers carried. Because of the controversy, the GDS firms have had to divert significant resources to policing false and passive bookings and, because they have done so, the problem now seems to be more under control.

The same certainty cannot be said for the second major problem associated with GDS funding. We have already seen how the travel agency system dominated airline distribution channels, and that until recently the system was costing airlines more and more. Because of this, it became a clear policy objective for many carriers to reduce their sales through travel agents. The use of the Internet, and the development of electronic ticketing are the technical developments which have made this possible. As we have seen, in responding to this challenge to their dominance, better-managed travel agency firms are making what is, for them, an entirely logical move. They are repositioning themselves as travel management firms, able to assist corporate customers not only in the making of bookings, but in the negotiation of deals with airlines and other principles, and in the subsequent policing of expenditure to make sure that those who travel using the firm's money abide by its corporate travel policies.

Such a repositioning requires the travel agent to have a number of tools available in the form of computer systems to aid effective travel management. The GDS firms have been only too willing to develop these tools, hoping that by doing so they will be able to cement their relationship with their existing travel agency customers and also hopefully attract some new ones from rival GDSs. By a supreme irony, though, these system developments have largely been funded by airline booking fees, with the actions of the GDS firms helping travel agents to retain at least a proportion of their hold on airline distribution channels at exactly the time airlines have been seeking to reduce it.

A final issue for the GDS firms reflects the emergence of the so-called "Cost Leader" airlines. Airlines such as Southwest in the USA and Ryanair and Easyjet in Europe have grown significantly in recent years. Their strategy had been based on a low cost/low fares proposition. In order to lower their costs to the level which will make their low fares profitable, they have tried to simplify the product they have offered. In particular, they have generally use simple fares and reservations procedures, and have not offered interline or transfer services to their passengers, working purely on a point-to-point basis.

There is one final development now taking place in airline distribution policy which has the potential to put all previous arguments about GDS pricing, bitter though they have often been, into the shade – the rise of search engines, especially Google. There seems little doubt that the firms that run these engines are already in a position of considerable power, and that this power is going to steadily increase. When someone begins a search by entering such things as 'Cheapest fare to.....', or 'Best airline to.....', what the search reveals will be highly significant in the booking that they finally make. It seems inevitably that airlines will have to pay large sums to the search engine owners to ensure that references and links to their sites are properly displayed.

Distribution Channels in the Air Freight Market

The question of product distribution is no less controversial on the freight side of airlines' activities – indeed it could be argued that airlines are further away from finding a solution for their freight distribution problems than they are for those on the passenger side. We have seen that the equivalent to the travel agent in air freight is the air freight forwarder. Forwarders provide the same sales agency function as the travel agent does. They also have an important role to play in the handling and consolidation of freight.

Forwarders have only a small role in the so-called “Express” market of small urgent packages. The Integrated Carriers that dominate Express have built powerful retail brands and have invested large amounts in ground handling systems, which largely negate the role of the forwarder. In the remaining markets of so-called “Heavy Freight”, though, the domination of the forwarding industry is almost total. The proportion of heavy freight in the hands of forwarders is well over 90%. Such a reliance on a single channel of distribution would be unhealthy in itself, but the structure of the forwarding industry makes it worse still. Forwarding appears to be an industry where there are substantial Economies of Scale, and where important advantages accrue to the largest firms. Fewer than 15 global forwarders now dominate the market, with this number tending to reduce steadily through time as a result of what appears to be almost continuous merger and takeover activity amongst the leading players. The degree of consolidation is now increasing still further as the Integrators and the largest forwarders begin to link together.

The result of airline reliance on one channel of distribution is entirely as one would expect. Profits in the airline sector of the air freight industry have been under great pressure in recent years. A serious market downturn in 2000 and 2001 was followed by overcapacity and falling yields on many routes with only a modest improvement coming about in 2004 and 2005. In the strongest possible contrast, reported profits of publicly-quoted air freight forwarders during this time had never been better. Overcapacity amongst the airlines benefited them as they were able to play one carrier off against another, lowering the rates that they paid and in turn increasing the profits they made on their consolidations.

Rather than getting less, forwarders' ability to play one airline off against another may be increasing. A number of airlines are now forming consortia, the aim of which is to streamline the process of booking in the air freight industry by the use of the Internet. At the moment, booking is mostly an archaic process using the telephone and appears ripe for reform. Internet platforms such as that provided by the GFX Company are revolutionary. They are certainly achieving a streamlining of the process, though the charges rendered by GFX promise a controversy comparable to that generated by Global Distribution Systems on the passenger side of the industry. The charges made by the GFX organisation on the airlines that use it have been high enough to discourage many carriers from joining, whilst the question of

the display which each carrier's flights are given in the system is likely to be controversial. Most seriously of all, GFX may complete the commoditization of the air freight product, with forwarders able to make an immediate comparison between the rates on offer from the different competitors in a market. Great power will then accrue to the lowest-pricing airline, giving an endemic tendency towards rate cutting, especially in an over-supplied market.

It is easy to conclude that the present situation with regard to distribution channels for air freight is unsatisfactory. Airlines have too little market power despite making the bulk of the capital investment in the industry. They have also failed to make the progress seen on the passenger side in recent years, where the situation today is a good deal better than it was in the late 1990s. Unfortunately, arriving at solutions to the problem will not be easy.

It is essential that airlines should control their distribution channels as it is largely their money that is at risk through these channels. The problem is that safeguarding long-term channel control may conflict with short-term objectives to maximize revenues, especially given the powerful positions that the industry's wholesalers and retailers have been able to build

2.1.3(a) Case Study Introduction to Revenue Management in Airline Sector

The Jet Airways Story

Abstract :

The case gives an overview of Jet Airways' success in the domestic airlines industry. The case talks about the performance of Jet Airways since its formation in 1992. Over the years, Jet Airways improved its market share significantly from 6.6% in 1993-94 to 42% in 2000-01. Right from the start, Jet Airways focused more on customer service than anything else. It was because of its superior customer service that Jet Airways had become the most popular airlines in India. The case makes a point about the strategy adopted by Jet Airways. Jet Airways started its operations in India with leased aircrafts because buying an aircraft would have cost Jet Airways around \$ 40-\$ 50 whereas a monthly lease was as low as \$ 0.4 million. Jet Airways also started its operations with the new Boeing 737-300s and not the older Boeing 737-200s.

This was because the new aircrafts were fuel-efficient and cheaper to maintain. Jet Airways also had only one type of aircraft' the 737--in its fleet. This ensured that maintenance and flight crew training was simpler. Because of the above factors, Jet Airways' aircraft utilisation and number of flights per day was more than that of Indian Airlines. Another reason for the success of Jet Airways was its lean structure. Compared to Indian Airlines' 397 employees per aircraft, Jet Airways had only 163 employees per aircraft. The case also highlights the fact that Jet Airways was virtually the only private player in the aviation

industry. It did not face any competition from the other private player-Sahara Airlines. With more private players planning to enter the Indian sky, Jet Airways has to gear up for competition ahead. The company was also embroiled in a controversy regarding its ownership, with Naresh Goyal, chairman of Jet Airways claiming that he owns Jet Airways.

Issues

How Jet Airways has emerged as the most popular airline in India

Flying high in the Indian Sky

By 2001, with revenues of \$542.18 million, (Refer Exhibit I), Jet Airways (JA) had emerged as the most popular domestic airlines in India.

JA started its operations in 1993; the number of its passengers increased from 0.663 million in 1993 to 5.9 million in 2000-01.

By 2001, when other private airlines such as Modiluft, East West, NEPC and Damania had stopped their operations, JA not only continued to survive, but had become a formidable competitor to India's national domestic airlines—Indian Airlines (IA). JA seemed to be the lone challenger to IA with Sahara Airlines in the third position.

JA's market share increased to 42% in 2001 from 6.6% in early 1990s

In 2001, JA ran 215 flights per day compared to IA's 208. Unlike the loss making IA, JA is making profits. At the end of the first year, JA achieved average seat factor close to break-even level of 71%.

Thereafter it broke even and has been making profits ever since. In 2001, JA recorded profits of Rs 125 million compared to IA which recorded a loss of Rs 1.77 billion¹ (Refer Exhibit III). JA became a favorite with travelers because of its friendlier approach and new generation cleaner planes more importantly, seasoned air travelers were confident that if they have crucial appointments to keep in other cities, JA was reliable than IA. JA's on-time performance and schedules attracted business travelers who accounted for 80% of its customers. JA had a fleet of 33 planes in 2001, (Refer Table II), as against IA that had a 57 planes. But JA's fleet was much younger and the average daily flying time of JA was greater than IA. Greater utilization meant higher revenues and a more efficient utilization of capital assets.

Domestic Airline industry

In 2000-01, Indian Airlines, Jet Airways and Sahara Airlines were the major players in the Indian domestic market. Till the early 1990s, IA had a monopoly in the sector.

However in 1993 the Government of India (GoI) under its open skies policy allowed private participation and 8 new airlines were allowed to commence operations. Of these, only two survived - Jet Airways and Sahara Airlines (Refer Table III for market share of IA vis-à-vis private players in 2000-01). IA's network covered Kuwait in the west to Singapore in the east and included 75 destinations - 59 within India and 16 abroad. IA's international network covered Kuwait, Oman, UAE, Qatar and Bahrain in West Asia, Thailand, Singapore, Yangon (Rangoon) and Malaysia in South East Asia and Pakistan, Nepal, Bangladesh, Myanmar, Sri Lanka and Maldives in the South Asian subcontinent.

In 2001, IA had a fleet strength of 57 aircrafts, JA had 33 and Sahara 9.

In 2000, GoI announced that private sector participation would be a major thrust area in the airlines industry.

Private participation was expected to increase investment, improve quality and efficiency, and increase competition. A competitive regulatory framework with minimal controls was to be created to encourage entry and operation of private airlines.

The GoI would gradually reduce its equity in Indian Airlines.

The take off :

Naresh Goyal (Goyal), chairman of JA was the one-man show behind JA's birth. Goyal started his career as a marketing executive at the general sales agent (GSA) with Lebanese International Airlines in Delhi.

He then worked with Iraqi Airways for a couple of years, before joining Royal Jordanian Airlines as regional manager. Goyal's diligence and incredible ability to memorize flight schedules caught the attention of Ali Ghandour, who was then chairman and president of Royal Jordanian Airlines. Ghandour introduced Goyal to the wider world of aviation outside India. In 1974, Goyal decided to get into the GSA business himself and established Jetair Transportation representing Kuwait Airways and Air France. Simultaneously Goyal was appointed regional manager of Philippine Airlines. Over the next few years, Goyal expanded his network picking up agencies for some more airlines. He was a regular member at the annual general meetings of International Air Transport Association (IATA), the global aviation body...

The success formula

JA started its operations with leased aircrafts. The idea was to expand faster by using funds to lease more aircrafts than buying one or two. A Boeing 737 could cost anywhere between \$40 and \$50 million, whereas a monthly lease could be as low as \$.4 million.

The most crucial decision was the choice of aircraft. While Damania, East West and ModiLuft who also started their operations at the same time opted for the older Boeing 737-200s, JA chose newer 737-300s, whose lease costs were at least 40% higher. Four planes (about three years old) were leased from Ansett Airlines. Although the 737-300s were more expensive to lease they were more fuel efficient (consumed 8% less fuel) and were cheaper to maintain. Goyal felt that the young fleet would help attract customers. Analysts felt that by having one type of aircraft-the 737-in its fleet, JA made the maintenance and flight crew training far simpler. Spares were common and inventories were lower as well. For engineers, dealing with one type of aircraft...

Rough weather ahead

The purchase of 10 Boeing 737s would help JA to operate flights to neighboring countries. It had already applied for permission to fly countries such as Malaysia, Singapore and UAE.

However, analysts felt that JA would face a new kind of competition in the international arena. Apart from Air India and IA, which deployed 22% of their capacity on international routes to get 30% of the revenue, JA would face competition from international players such as United Airlines, Singapore Airlines, Lufthansa, British Airways and Cathay Pacific. Also, JA's overwhelming dependence on passenger business could prove fatal. JA's immediate goal was to consolidate its market share by improving its service levels further and adding more routes to its network. By early 2002, JA planned to include three more Boeing 737 in its fleet. Steve Forte, CEO, Jet Airways said, "We feel that a satisfied customer is the best defence against the threat of new entrants..."

2.2. PRICING AND SEAT INVENTORY MANAGEMENT

2.2.1. AIRLINE ECONOMICS AND PRICING PRACTICES

Determining the price a potential passenger would pay to fly between two cities used to be a relatively simple exercise. The biggest choice facing the passenger was generally between the first class and regular economy or coach fares, which were identical on all carriers and were derived on the basis of mileage-based fare structures imposed by the Civil Aeronautics Board, or IATA for international services. In certain markets, price discounts might have been available to those meeting certain age requirements (children, senior citizens), traveling as a family or group, belonging to specific organizations (military, travel industry), or flying on selected "night coach" flights. Apart from "night coach" fares, these special fares represented true discounts in price for a standard service. Potential passengers had only to choose between the two or three carriers serving the city-pair market desired on the basis of reputation, service and schedule convenience.

Needless to say, the airline pricing situation has changed dramatically. The practice of discounting prices on standard service options has given way to the creation of differentiated service options offered at prices lower than the standard coach fare.

Empty Practices and Capacity-Controlled Fares

The introduction of advance purchase excursion (APEX) fares in international markets enabled any passenger, regardless of age or group affiliation, to purchase air travel at a reduced price. These fares required advance purchase of a round-trip ticket and a minimum length of stay at the destination point. The reduced price was therefore available only for a service option that was different in its conditions of use from the standard coach fare, even though the flights, seats, and on-board service amenities were generally identical. This type of fare spread to U.S. domestic markets in 1975 when American Airlines introduced its first "super-saver" fares.

Restrictions on the use of these lower fares were imposed by the airlines to limit their use to leisure or vacation travellers. The original objective of these fares was to stimulate new demand in the discretionary travel market segment, which would in turn fill otherwise empty seats and generate additional revenues for the airline. By applying advance purchase, length of stay and round-trip itinerary requirements, airlines hoped to keep full-fare business travellers from making use of these lower fares, and thereby introduced a new type of air travel service option to the market.

Research done by the Boeing Aircraft Company into the nature of empty seats on the larger wide-body aircraft that entered service in the 1970's encouraged airlines to apply such restrictions to reduced fares to prevent the diversion of existing demand from higher fare levels. Boeing argued that, due to an inherent variability in demand for air travel and an inability on the part of the airline to provide exactly the number of seats required satisfying all full-fare demand, empty seats are inevitable. The inevitability of having unsold seats and the potential for recovering additional revenues from them led to Boeing's development of an approach for "surplus seat management", which involved forecasting the number of seats that would otherwise remain empty.

While inevitable, the existence of empty seats in an airline's operation is not entirely undesirable. Given the flight-to-flight variation in full-fare demand, some empty seats are necessary to provide a "buffer" for accommodating unexpectedly high demand and to maintain a high quality of service in terms of seat "availability" for full-fare passengers. This buffer ensures a reasonable probability of the airline being able to accommodate last-minute passengers with changes to their travel plans. Beyond the number of seats required to maintain a reasonable "availability" buffer, additional empty seats may also contribute to a feeling of spaciousness for those on board. On the other hand, too many empty seats (overcapacity) contribute nothing in revenue and represent a sunk cost to the airline.

Under ideal conditions, airlines can increase their revenues by filling up some or all of these vacant seats with incremental demand without a corresponding increase in operating costs. Because of the large proportion of airline operating costs that can be considered fixed in the very short-run (given a commitment to operate a flight schedule over a month or longer), the marginal cost of carrying an additional passenger in an otherwise empty seat is very low. The incremental costs involved in reservations, ticketing, baggage handling and meal service for an additional passenger typically amount to much less than \$25. As a result, prices much lower than full-fare can be charged to attract incremental demand. As long as the incremental revenue per passenger exceeds the marginal cost of carrying each one, a contribution will be made to the fixed costs of the flight. It can thus be entirely rational, in the short run, for an airline to offer seats that are sure to remain unsold at prices as low as, say \$29, for a scheduled transcontinental flight.

In the case of air transportation, determining the relevant marginal cost for pricing purposes is difficult. The marginal unit of production for an airline in the short-run is a flight departure with a fixed seating capacity, whereas the marginal unit sold to the consumer is a single seat on that flight. For a scheduled future flight departure, fixed aircraft operating costs per passenger decrease as the number of passengers actually carried increases, up to aircraft capacity. Assuming a single class of service, variable costs per passenger are constant, independent of the number carried on a particular flight. Total costs per passenger are thus minimized when the fixed costs of operating the flight are spread over a full planeload of passengers.

Given these conditions, a single price charged for all seats based strictly on marginal variable costs might not cover the total operating costs of the flight. For that matter, depending on the cost structure of the airline and the level of demand, there might not be any one price that will cover total operating costs of the flight.

It might be possible, however, for firms in an oligopolistic industry to segregate the purchases of individual consumers and charge each consumer as much as he/she is willing to pay. In theory, each incremental purchaser would be charged less and less as more output is sold, up to the point at which price equals marginal cost. In practice, a firm might be able to identify distinct groups of consumers and charge each group a different price for a homogeneous product. For an isolated flight scheduled to operate with a given aircraft and fixed number of identical seats, the marginal variable costs are constant per passenger carried. The fixed aircraft operating costs per passenger decrease with the number of seats filled, meaning total costs per passenger also decrease, as shown.

Under this strategy, total revenues exceed total operating costs of the flight as long as the striped area is greater than the shaded area.

Pricing in airline markets, which are oligopolistic in most cases, is well-suited to this concept of differential pricing. Such a pricing strategy is economically desirable if:

1. the relevant costs of taking on incremental passengers are less than the average total costs of the flight;
2. lower prices are required to stimulate incremental demand;
3. the incremental demand is sufficiently elastic that reduced fares increase total revenues by more than the increase in total costs.

Differential pricing of identical seats on a flight departure can enable the airline to generate the additional revenue required to cover the total costs of the flight from those passengers using the reduced fare options. Airline efficiency can be enhanced, as better use of existing equipment with its sunk costs can be realized by filling otherwise empty seats. It is also possible for the airline to reduce cyclical variations in demand over time through selective time-dependent price reductions and effective seat inventory control, as will be discussed. From the consumer's perspective, the practice of differential pricing by airlines can in theory benefit all passengers, resulting in a pareto optimal market situation. As long as the full-fare passengers do not pay more than they would have in the to keep full fares lower than they otherwise would be. And, as long as seat inventory control is practiced effectively, full-fare passengers need not be denied seats due to high demand for low fares. In the longer run, full-fare passengers stand to gain from the potential increase in flight frequencies required to accommodate increased total market demand. Low-fare passengers benefit from the availability of lower-priced air travel options, either by saving money on a planned trip or by being able to take a trip that would not otherwise have been taken. The only theoretical problem associated with the practice of differential pricing occurs when the lowest fares become too low. If the low-fare option, which was offered only to fill "surplus" seats, is priced below its marginal variable costs, a situation of cross-subsidization between passenger groups exists, compromising both economic efficiency and consumer satisfaction. It can be argued, however, that in the theoretically ideal situation in which the seats made available at lower fares are identifiable as surplus and full-fare passengers are not able to take advantage of the low-fare options, it would take an almost ridiculously low discount fare to raise valid concerns about cross-subsidization.

For the purposes of demand segmentation, airlines have recognized that differentiated fare products can in fact be offered at different price levels because of the price and service elasticities of air travel demand. Travelers very sensitive to price will base air travel decisions almost exclusively on a lowest fare criterion and will be willing to contend with the restrictions, reduced service amenities, and perhaps less convenient flight times or routings associated with the lowest-priced fare products.

Conversely, passengers with time constraints and service-sensitive travelers will value level of service factors such as schedule convenience, travel flexibility and inflight amenities, to the point that price might not be a decision factor in selecting air travel. Of course, there exists a continuum between these two extremes, along which the majority of air travelers are likely to fall. Given this continuum between extreme price sensitivity and extreme service level sensitivity, it can be difficult to divide the total demand in an airline market into well-defined segments. Most airlines have in the past attempted to use various socioeconomic and travel characteristics of air travelers to identify distinct travel groups. A distinction was made between the business and leisure segments of total market demand, under the assumption that persons traveling on business are far more likely to be sensitive to time or level of service factors and relatively price-insensitive. At the same time, leisure travelers have been assumed to be more concerned about price, and perhaps less sensitive to certain service-related characteristics.

Airlines attempted to ensure that only the leisure travel segment purchases low priced fare products through the imposition of ticketing and travel restrictions designed to "fence out" the full-fare business segment. The most commonly imposed fences were conditions requiring advance ticket purchase and round-trip travel with minimum length of stay at the destination, defined so as to preclude those on business trips from making use of the discounted fares. The use of "super-saver" -type fare products spread industry-wide in the United States in the mid-1970's, and airlines found that properly fenced low fares could in fact generate incremental leisure traffic. The problem that airlines faced, however, was that the seats being sold to leisure passengers at lower fares were not necessarily those that would have gone empty. Low-fare passengers wanted to choose the same peak period flights that were already popular with business travelers. Even worse, because advance purchase conditions required reduced fare passengers to book earlier than most full-fare passengers, passengers paying lower fares in fact displaced full-fare passengers from the most desirable flights. Airlines experienced flight loads that were not significantly higher, total revenues that were actually lower on peak period flights, and a loss of goodwill by business travelers frustrated by their inability to obtain seats on desired flights.

This experience led to the introduction of capacity-controlled reduced fares. Airlines recognized the need to limit the number of seats made available to their low priced fare products and, furthermore, to distinguish between low-fare seat availability on peak and off-peak flights. More sophisticated statistical analysis was required to predict the number of full-fare passengers that could be expected for each flight departure, to establish an adequate availability buffer of empty seats above this expected full-fare demand and, then, to allocate any remaining seats to lower-priced fare products. The number of low-fare seats could thus vary by day of week and time of day for flights in a given market.

A methodology for managing capacity controlled fare products was presented by Boeing in a package it called the "Surplus Seat System" . Boeing's approach used historical full-fare demand data by flight, day of week and season of the year to derive an estimate of expected full fare demand, also by flight. A growth factor was applied, and an optimal buffer determined to reduce full-fare reservations denials to a targeted level. Remaining seats were deemed to be "surplus" and made available to low-fare passengers.

Changes to Surplus Seat Concept

The basic principles of surplus seat management and capacity-controlled fares remain valid and continue to be used by airlines today. There have been changes, however, to the simple two-class demand segmentation and differential pricing model proposed originally by Boeing. Passenger behavior and demand characteristics have evolved, making the identification of distinct demand segments more difficult. Furthermore, the competitive environment of the airline industry has changed dramatically. With flexible pricing and competition from low-cost new entrants, it has become more difficult for any airline to use differential pricing to its fullest potential. And, given that less than 10 percent of airline passengers traveled at the full coach fare in 1986, the notion that reduced fares represent a "surplus seat" product for airlines is no longer valid. Each of these changes is discussed briefly below.

First, market demand segments have become more difficult for airlines to identify. The business versus leisure classification of passengers adopted initially by airlines offering differentiated fare products overlooked all other types of non-business travel. Leisure (vacation) travel is but one component of the non-business or personal travel segment, which includes travel to visit friends or relatives ("VFR"), and personal emergency travel. Increases in the proportion of personal relative to business air travel have made the identification of price- versus service-sensitive demand segments more complicated. A survey of passengers conducted by the Canadian Transport Commission (CTC) in 1979 found that up to 45 percent of business and mixed business-pleasure trips in domestic markets could be considered price sensitive, while 39 percent of non-business trips were in fact non-discretionary and thus service-sensitive.

The concept of a price-service trade-off continuum, as described by the CTC studies, allows demand segments to be defined independently of trip purpose. Its disadvantage is that the continuum is one-dimensional - the consumer is assumed to be either price-sensitive or service-sensitive, but not both. Furthermore, the term "service-sensitive" is ambiguous, in that it refers to both the need for on-demand travel flexibility and a preference for other service amenities. A consumer's need to have travel flexibility reflects a sensitivity to the time elements of air travel (i.e., departure time, enroute time, and return time), which could well be independent of the many other "service" dimensions of a fare product. Schweiterman

presented another approach to air travel demand segmentation, identifying three segments on the basis of a somewhat arbitrary breakdown of both the time- and price-sensitivity continua, as follows:

1. Highly discretionary consumers, traveling for personal reasons, willing to alter their travel plans over a large time "window" to obtain the lowest fares, and able to meet advance purchase and length of stay restrictions;
2. Moderately discretionary consumers, who will travel only with a discount from the full coach fare and are able to meet less stringent advance purchase requirements (up to 7 days in advance), but are unable to meet minimum stay requirements of a week or more, and are not willing to accept significant deviations from their desired flight times;
3. Non-discretionary consumers, such as employees traveling for business purposes, not willing to compromise schedule convenience, and unable to meet any advance purchase or minimum stay conditions.

Schweiteman's three-segment model makes reference to trip purpose, but in fact relies implicitly on the notion of trip "value" to consumers in order to distinguish between discretionary and non-discretionary trips. The "value" of a trip to the consumer in Schweiteman's model is determined by the presence or absence of time constraints on being at a location at a desired time. The value of a trip may decrease, to zero in some cases, if these time constraints cannot be met.

As such, no single definition of the typical consumer in each segment will apply to all consumers in that group. Nevertheless, the characteristics of most of the travelers falling into each segment can be described as follows:

1. Type 1: Time-sensitive and insensitive to price. These consumers prefer to travel on flights that meet their schedule requirements, and are willing to purchase the highest-priced fare products to do so. They might even be willing to pay a premium price for the extra amenities of a business or first class service. Travel flexibility and last-minute seat availability are extremely important to this group.
2. Type 2: Time-sensitive but price-sensitive. A large proportion of air travelers likely belong to this demand segment. These consumers must make a trip but are willing to be somewhat flexible in order to secure a reduced fare. They cannot book far enough in advance to obtain the lowest fares, although they might be willing to re-arrange a trip to meet less stringent requirements if the savings are great enough. This group is willing to make stops or connections en route, and will accept less convenient flight times.

3. Type 3: Price-sensitive and insensitive to time constraints. These consumers are willing to change their time and day of travel, and even destination airports, to find a seat at the lowest possible fare. Some will be induced to travel by the availability of an extremely low fare. This group is willing to stop or make connections and can meet virtually any travel or ticketing conditions associated with a low fare.

4. Type 4: Insensitive to both price and time constraints. This group includes the relatively few consumers that have little or no time constraints for travel, yet are willing to pay for high levels of service, including the flexibility of flying with little advance notice on preferred flights.

Current Airline Fare Structures

A description of the fare products being offered in a particular market at any point in time could well be obsolete within 24 hours. In addition to the complexity of price levels, service amenities and restrictions, airline fare product offerings are characterized by the speed with which they can change. Given complete pricing freedom in domestic markets, U.S. airlines are able to make changes to their fare structures by origin-destination market instantaneously within their own computer reservations systems, and overnight through the Air Tariff Publishing Company (ATPCO). ATPCO routinely handles thousands of individual market changes to fare levels and/or rules in its electronic database each day. It is therefore impossible to present a comprehensive description of current airline fare products that would apply to all markets and carriers, or which would remain valid for any length of time. It is possible, however, to describe the general structure of price levels, service amenities, and purchase/travel conditions that characterize the fare products offered by most major carriers in most U.S. domestic markets. Apart from markets in which price competition is unusually intense due to the presence of a low-cost competitor, and apart from fluctuations in price levels during seasonal system-wide "fare wars", the range of fare products available in most markets remains relatively stable. The discussion that follows focuses on the stable components of current fare structures, and explores them in the context of the differential pricing and market demand segmentation practices described earlier.

Airlines wishing to segment the total market demand for air travel to their revenue-maximizing advantage must design a range of fare "products" that will appeal to, and be used exclusively by, each of the demand segments. An ideal fare structure will minimize any "seepage" between segments, particularly the diversion of those willing to pay higher fares to the lower-priced fare products. Airlines use restrictions on reduced fares as disincentives to prevent downward diversion of higher fare passengers, and increased service amenities as an incentive for consumers to purchase higher-priced fare products. In fact, the absence of purchase or travel restrictions has come to be regarded as a service amenity of full fare products.

Advance purchase requirements, minimum stay conditions, and round-trip travel requirements have been applied to the lowest fares almost universally since the introduction of super-saver fares in the mid-1970's. While the nature of these restrictions has not changed, the levels of each restriction imposed on particular fare types change often, both with the level of price reduction involved and the degree to which airlines feel they must match competitors in both price levels and fare rules. Airlines have also constrained the use of certain reduced fares with routing and/or flight limitations, day-of-week/time-of-day restrictions and, more recently, cancellation/change penalties.

These restrictions on the purchase and use of low-priced fare products are often accompanied by capacity controls or limits on the number of seats available to particular fares or types of fares. The specific limits on low-fare seat availability are not known to consumers, and as such are not explicit attributes of different low-priced fare products as perceived a priori by the consumer. Rather, it is the set of conditions and service amenities associated with a fare product that determines the market demand segment to which it will appeal.

Advance purchase and minimum stay requirements are designed to keep Type 1 and 2 consumers from making use of the lowest fares. Since the first super-savers were introduced with a 7-day advance purchase requirement, advance purchase periods have been lengthened gradually, culminating with the introduction by American Airlines in 1985 of the "Ultimate Super-Saver", which requires a 30-day advance purchase. Over the same period, the minimum stay conditions have been reduced to the point that most excursion-type fares now require only a Saturday night away from the originating point before return travel may commence. This requirement replaced previous 7-day minimum stay conditions because airlines found that the reduction led to little or no increase in diversion of high-fare travelers. At the same time, it increased accessibility of the low-fare product to price-sensitive (Type 3) consumers able to stay away over a weekend but not for a full week.

Any fare requiring a minimum stay by definition requires a round-trip ticket purchase. Some moderately reduced fare products currently have only a round-trip purchase requirement, perhaps in conjunction with an advance purchase condition.

The three traditional fences - advance purchase, round-trip travel and minimum stay - are effective against diversion only if they are enforced by the airline. While it might be possible for consumers to side-step an advance purchase requirement by dealing with a travel agent who is willing to backdate ticket issuance transactions, the minimum stay rule is also susceptible to abuse by travellers. Many airlines allow a passenger to stand by for the return portion of a round-trip reduced fare, and some passengers will routinely stand by for the inevitable empty seat on return flights, never having had the intention of meeting the fare's original minimum stay conditions. Although it is up to the airline ticket and gate agents to prevent such abuse, few agents will deny a passenger with a ticket as long as empty seats

remain on a departing flight, especially if the passenger was ticketed originally for a competing carrier's flight.

The abuse of both the minimum stay and advance purchase requirements, primarily by Type 1 and 2 consumers, prompted airlines to introduce monetary penalties for changing or cancelling flight bookings for the lowest fares. The objective of these penalties is to prevent those passengers who are unable to commit to exact departure and return flights far in advance from purchasing several advance purchase low-fare tickets, using the one that proves to be most convenient, and then obtaining a full refund for the unused tickets. The imposition of a monetary penalty also makes it more difficult for passengers to confirm reservations for an alternate return flight without being asked for an additional fare payment by the airline, although it is still possible to stand by without penalty in many cases. The non-refund ability of tickets for the lowest-priced fare products was implemented industry-wide in early 1987 with the introduction of "MaxSaver" fare products by the Texas Air Corporation. The introduction of total non-refund ability represented both an additional restriction designed to prevent diversion of passengers from higher-priced fare products and an opportunity for airlines to reduce the revenue impact of passenger no-shows and cancellations. With a 100 percent cancellation penalty imposed on their lowest fares, most major carriers extended cancellation penalties of 50, 25, and 10 percent to their less restricted and higher-priced fare products.

Advance purchase, minimum stay and cancellation/change penalties enable airlines to prevent the diversion of Type 1 and 2 consumers to the lowest fares. Several other types of fare product restrictions have also been used by airlines to target individual market segments more precisely, particularly in distinguishing Type 1 from Type 2 consumers. Non-stop/connecting flight, day-of-week and time-of-day limitations on certain reduced fare products can be found in most domestic markets.

A price-sensitive consumer planning a trip with little time sensitivity will likely accept all three of these constraints on his/her travel itinerary in order to obtain the lowest possible fare. The degree to which a time-sensitive and price-sensitive (Type 2) consumer is able to conform will depend on how price-sensitive he/she is, and the degree to which the restrictions impinge on the desired travel times. Survey findings indicate that, apart from advance purchase conditions, restrictions limiting the availability of low-fare products to particular travel days and/or times are the most effective market demand segmentation technique [20]. In addition to performing a demand segmentation function, time of travel restrictions also help the airline to fulfill another goal of the original differential pricing strategy - spreading peak period demand to fill otherwise empty seats on less popular flights. The availability of the lowest 30-day advance purchase fares for travel on Tuesdays and Wednesdays, for example, helped to reduce day-of-week variation in total demand tremendously.

The limitation of certain reduced fares to one-stop or connecting service only is an example of how airlines practice value-based pricing and product differentiation. Booking, handling and carrying a passenger on more than one flight leg or over a circuitous routing will cost the airline more in variable costs than putting the same passenger on a non-stop flight. As long as seats are available for both itineraries, there is little cost-based rationale for charging \$520 for an unrestricted non-stop fare from Boston to Los Angeles and \$250 for an unrestricted (but capacity controlled) one-way fare that is available only on one-stop or connecting flights in the same market. These two fare products are targeted at Type 1 and 2 consumers, respectively. The latter is more likely to accept a longer travel time to save over 50 percent of the full coach fare, and to change flight times and/or carriers if the capacity-controlled low-fare seats are sold out on the first flight(s) requested. The fare conditions described above are all "fences" designed to differentiate fare products and prevent diversion of passengers whose service sensitivity causes them to view fare products with such fences negatively. Airlines have also used positive forms of product differentiation to segment market demand. First class and business class services priced at a premium above the full coach fare are targeted at consumers with little or no price sensitivity. While first class service has existed for decades, the concept of an intermediate class between first and coach in terms of in-flight service amenities has emerged since deregulation and is yet another attempt by airlines to segment total market demand more precisely.

Business class options are offered in almost all international markets by most airlines, where long-haul flights make more legroom and a higher level of inflight service very attractive to those already paying a full coach fare. Trans World Airlines offers its Ambassador Class product domestically as well, on its wide-bodied aircraft. Air Canada has recently introduced a similar Executive Class on long-haul domestic and Canada-U.S. routes. Both carriers price their business class products just slightly above the full coach fare, such that the premium is generally less than 10 percent. In many respects, these business class products have replaced the standard full-fare coach products designed originally for business travelers. Several carriers have also experimented with providing full-fare coach passengers with added service amenities, ranging from separate check-in counters and VIP lounge privileges at airports to complimentary ground transportation services.

United Airlines at one point guaranteed that a full fare passenger would not be denied boarding due to overbooking and, more recently, stopped giving advance seat assignments to passengers with the lowest discount fares. While U.S. carriers have met with resistance from passengers and travel agents in their attempts to enhance the full coach fare product, Canadian carriers have been doing just that for years. The use of an increasing variety of low-fare restrictions and the inclusion of service amenities with full fare tickets represent attempts by the airlines to differentiate the range of fare products they offer, particularly those that will share seating in the coach compartment of the aircraft. Significant product

differentiation is a major determinant of effective demand segmentation, which in turn allows the airline to practice differential pricing to maximize revenue.

First class, business class and full coach fare products are targeted at the Type 1 consumer, and are differentiated only by their service amenities and relative price levels. The most important attribute of all three of these fare products is their lack of restrictions. A passenger may purchase a ticket at any time prior to departure and make virtually unlimited changes to both the outbound and return flight itineraries, all without paying a penalty. At any time, unsold seats will always be available to passengers purchasing these unrestricted products.

Super coach fares and excursion fares are moderately priced products targeted at the Type 2 consumer. Super coach fares appear primarily in markets where a low fare competitor offers unrestricted fares below the established coach fare. Depending on the extent to which a carrier wants to respond to the low-fare competitor, it might attach a minimal (3-day) advance purchase requirement or a one-stop/connecting flight limitation to its super coach fares to prevent Type 1 consumers from diverting to this lower fare. Most of the established carriers place capacity controls on their super coach fares to keep some seats available for full coach fare passengers right up to departure time. Fare bases are grouped by the airline into fare classes for the purpose of Accepting and controlling bookings in its reservations system. Ideally, the reservations system fare classes would correspond exactly to the fare product categories described above, such that distinct seat inventories could be made available for each category. Most airline reservations systems, however, are limited to five primary fare classes for any one flight. The implications of this limitation for seat inventory control are discussed in Chapter Three. At this point, it suffices to note that airlines offering more fare product categories than they have reservations system fare classes must combine more than one product category into one fare class.

All the fare basis codes that comprise a particular fare class begin with the same letter, by convention. As a historical rule, separate physical compartments on an aircraft have been assigned their own fare class. Thus, a carrier offering first and business classes in addition to coach uses up three of five fare classes on Type 1 fare products. The letter codes used for each fare class can differ by carrier, although "F" for first, "C" for business and "Y" for full coach fare are industry standards. The lowest-priced fare products are commonly in Q-class, while all intermediately priced fare products might be listed as M, B, K, V, S, L, or H-class fares. Because not all fare products and fare classes are associated with distinct physical compartments on board the aircraft, passengers booked in two or more fare classes can in fact receive the same class of service in flight. On most carriers, all passengers paying full coach fare and less travel in the coach cabin of the aircraft and receive identical on-board service.

Note that each airline has flexibility with respect to which fare basis codes it groups into one fare class. Seat inventory control is necessarily related directly to the reservations system fare

classes, as defined by each airline, since only the seats made available to a fare class "inventory" can be controlled. The airline must decide how many of the total coach compartment seats on a future flight it should make available to each of the fare classes sharing that compartment.

For the consumer wishing to make a reservation for a future flight, the availability of a specific fare product on the preferred flight departure depends on the availability of a seat in the associated reservations fare class inventory. If the fare class has been closed down to further reservations, the consumer is then faced with the option of accepting a different fare product in another fare class on the same flight or making inquiries into the availability of the same or similar fare product on other flights and/or carriers.

2.2.2. CONSUMER DECISIONS AND AIRLINE TRAVEL DEMANDS

The availability of differentiated fare products, each associated with specific amenities, travel conditions and price levels, has changed the way in which consumers make air travel choices. Because many fare products are associated with restrictions that relate directly to the timing and nature of the trip being considered, consumer decisions with respect to air travel have become more closely tied to the total cost to be incurred on a trip. The consumer no longer buys a ticket for air transportation between A and B independent of other trip-related decisions.

Selecting a particular fare product over another can have a significant impact on the total cost and timing of the trip. This chapter explores the consumer decision process that has evolved with the institution of multiple-tier pricing strategies by airlines. With reference to classical micro-economic utility theory, it presents a conceptual model of how individuals choose from among the available fare products, alternative flights and competing carriers in an air transportation market. This choice process for individual consumers is then used to develop a description of the aggregate demand for a fare product on a particular flight, as viewed by the airline through its reservations system. The patterns of reservations demand described by the aggregate model are those that will influence the airline's ability to forecast demand and allocate seats to different fare products in a revenue-maximizing manner.

Individual Consumer Choice

A plausible model of individual choice for air travel decisions is one that is based on a valid theory of consumer decision-making and one which can be adapted to the context of transportation decisions in general and air travel options in particular.

This section begins with a brief overview of the decision theories that seem to be best suited to the air travel choice problem, and then extends these theories into a qualitative choice model that deals explicitly with the selection of fare products and flights.

Classical micro-economic consumer theory makes use of the notion of individual utilities to explain the choice behavior of consumers faced with a range of goods and a limited budget to spend on these goods. Consumer choice models based on the criterion of utility maximization assume that each individual, when confronted with a choice between "bundles" of goods, is able to compare alternatives and rank them in terms of his or her personal preferences. By using this "ordinal utility function", a rational consumer will then choose the bundle with the maximum perceived utility. An important component of classical consumer theory is the assumption that each individual undergoes a rational decision process in making each and every choice of goods before making a purchase. This rational process requires the consumer to formulate explicitly his/her preferences for all possible combinations of goods that can be purchased, to identify all the alternatives that are available, to characterize each alternative in terms of its attributes and the weights assigned to each attribute, and to select the alternative yielding the greatest utility. The rigid definitions of this rational decision process were relaxed by Simon, who introduced the notion of bounded rationality, recognizing the constraints on rational decision-making imposed by limitations on both information availability and human capabilities to process large amounts of information. A further relaxation of the underlying behavior in individual choice involved the concept of random utility, which takes into account the observation that individuals tend to choose the alternative that appears to maximize utility at the time the decision is made.

The air travel choice process for an individual is triggered by a perceived benefit of being at a particular destination to participate in activities there. The individual evaluates the travel options available for a given trip, and the costs or disutilities of each. If the benefits of being at the destination exceed the disutility of one or more travel alternatives, the alternative that minimizes disutility will be chosen. If the travel disutility of all alternatives exceeds the perceived benefits at the destination, the individual will choose not to make the trip.

We begin the development of a choice framework by assuming that the consumer wishes to select one of three fare products, F_1 , F_2 , F_3 , offered on a single flight which happens to be the consumer's preferred flight. That is, we assume that the expected benefits of making the trip have been determined, the desired departure time and airline have been established, and the consumer must only choose among three fare products, all of which are available. With reference to the above discussion, we can postulate that the consumer will choose the fare product that minimizes his or her disutility of traveling to the destination.

Each fare product is defined by its attributes, which contribute to the total disutility of that fare product. Negative attributes create added inconvenience for the traveler, resulting in real or perceived costs that are higher than the dollar price paid for the fare product. The relevant attributes of each fare product may be grouped as follows:

1. Price, (P), the dollar price charged for fare product F ;

2. Service Amenities, (S_i), the positive attributes related to the quality of service received in conjunction with the purchase of F_i. On-board service amenities such as meal quality, complimentary cocktails and headsets, and preferred seat assignments can differ among fare products, as can airport amenities like separate check-in facilities and VIP lounge privileges. Currently, the fare products offered by many domestic U.S. airlines in a shared economy cabin involve few distinctions in service amenities.

3. Restrictions, (X_i), the conditions associated with F_i, including required advance booking and ticket purchase, cancellation and refund ability limitations, effective and discontinued dates, minimum and maximum stay requirements, and applicability to particular times, days of the week and/or flight itineraries.

Fare products priced lower than the standard full fare generally have one or more of these restrictions, the severity of which increases as the price decreases. The total disutility of each fare product under consideration can be represented by the notion of its "generalized cost", denoted Z(F) for fare product F_i. The generalized cost of each fare product to the consumer will be a function of its attributes, for example:

$$Z(F_i) = Z(P_i, S_i, X_i) \quad (2.1)$$

Each passenger will place different values or utilities on the relative importance of each of these attributes in deriving the generalized cost of each fare product option, depending on his or her set of values, as determined by both the price-sensitivity of the individual and the time-sensitivity of the trip being considered. The relative values of Z(F₁), Z(F₂), and Z(F_s) may be different, requiring each individual to evaluate and rank the alternatives with respect to generalized cost, in order to identify the fare product that minimizes perceived disutility.

The consumer begins the process of obtaining information (from a travel agent or from the airlines directly) about the actual alternatives that might be available for a particular trip. The specific way in which this choice set is developed will depend on the consumer's approach to selecting particular flights. For example, an infrequent air traveler might contact a travel agent to determine which flights and fare products are available. A more experienced air traveler might establish a choice set of preferred flight alternatives from published airline schedules before determining the availability of fare products on each.

Depending on the amount of information the consumer is willing to gather, this choice set might include as few as one or as many as tens of alternatives. If the first alternative determined to be available comes close enough to the "ideal" departure times for the individual and a fare product at an acceptable price level is available, other alternatives might not even be considered. If, on the other hand, the consumer is willing to gather additional information in an effort to find alternatives with a lower generalized cost, the choice set can

keep growing in size. Presumably, the consumer is ranking the alternatives as they enter the choice set, or at least keeping track of the alternative with the lowest disutility.

Given that particular fare product/flight combinations might be "sold out" or simply infeasible, the disutility associated with an alternative must include the costs related to the entire "travel alternative". Each alternative, T , represents a set of trip components, including an outbound flight itinerary, D , a return flight itinerary, R , and a fare product, F , the attributes of which were defined earlier. The D and R components of a travel alternative represent the attributes of a particular flight itinerary for outbound and return travel, respectively. These attributes include the actual flight departure time, td , relative to the "ideal" departure time, t , as determined by the consumer, and the enroute time of a particular flight itinerary, ti , which is a function of the number of stops and connections, and the routing taken. The generalized cost of a particular outbound flight itinerary, D , can therefore be defined as:

$$Z(D) = Z(Itd - tdIter) \quad (2.2)$$

The expression for $Z(R)$ will be identical. Each travel alternative consists of three components, $T = \{F, D, R\}$, each of which contribute to the generalized cost of the alternative. Each travel alternative must consist of a feasible combination of fare product, outbound and return flight itineraries. The restrictions associated with a particular fare product, X , might constrain the combinations of D and R that may be included in the choice set. For example, an outbound flight next week cannot be combined with a fare product that requires a 30-day advance purchase into a feasible air travel alternative. The restrictions on a fare product could also exclude specific D or R components, for example, by requiring the fare product to be used only on connecting itineraries.

Given a range of outbound and return flight itineraries offered by competing airlines in a market, there is a large number of air travel alternatives, $T = \{F, D, R\}$, that can be constructed from the components F , D , and R . In terms of individual choice, however, all but a relatively small subset of these combinations will be eliminated by the timing constraints established by the consumer for a particular trip.

These constraints are determined by the "time window" established for activities at the destination, over which the traveler will be able to realize a benefit, as well as by any time constraints on being away from the origin. For each individual, then, the generalized cost of each travel alternative is a function not only of $Z(F)$, but of the disutility of the D and R components of the alternative:

$$Z(T) = Z\{F, D, R\} \quad (2.3)$$

The generalized cost of the F component includes the dollar price, P_i , of the fare product, and the disutility of meeting all of the restrictions, X_i , of that fare product, perhaps adjusted by the utility of any differences in service amenities, S_i , associated with the fare product. The generalized costs associated with both the D and R components include the dollar costs and disutilities of displacement from the "ideal" flight departure times, $t_{id} - t_d$, and of enroute time, t_r . These costs can include monetary expenditures in addition to the value of travel time, for example, increased hotel or meal expenditures.

The critical assumption of the choice model developed here is that individual passengers implicitly (or perhaps explicitly) rank the set of feasible air travel packages in their choice set with respect to the relative disutility of each. As mentioned earlier, an individual might not consider a full range of alternatives and is likely to seriously consider only the current option with the lowest disutility. The choice process can therefore be iterative, in that the consumer can be induced to expand his/her choice set as information about the (un)availability of preferred travel alternatives is gathered. The availability of a particular D or R component depends on the airline having seats to sell over the flight itinerary in question, in the fare class inventory from which fare product F must be sold. The ultimate choice is made by the consumer so as to minimize the total disutility of the travel required for a particular trip, subject to the availability of each successively less attractive travel alternative.

As an example, consider the hypothetical choice set $\{T_1, T_2, \dots, T_n\}$ as a list of feasible travel alternatives formulated by an individual, ranked in increasing order of disutility. Similarly, $D_1, \dots, D_n$ and $R_1, \dots, R_n$, are the ranked outbound and return flight itineraries, while P and F2 are the relevant fare products offered on these flights. If the consumer prefers F1 to F2, then the rule of dominance dictates that the first choice of options for this consumer would be $T_i = \{F_1, D_i, R_1\}$. The first six travel alternatives in this hypothetical consumer's ordered choice set might look like this:

$$T_1 = \{F_1, D_1, R_1\} \quad (2.4)$$

$$T_2 = \{F_1, D_1, R_2\}$$

$$T_3 = \{F_1, D_2, R_1\}$$

$$T_4 = \{F_1, D_2, R_2\}$$

$$T_5 = \{F_2, D_1, R_1\}$$

$$T_6 = \{F_2, D_1, R_2\}$$

We can infer from this ordered choice set that, for this hypothetical passenger, the marginal disutility of accepting the second and third-ranked return flight itineraries is smaller than the marginal disutility of accepting the second choice of outbound flight itineraries. Only after determining that D2 is not available at F1 will this consumer accept what is most likely a higher-priced F2, but only on the first choice outbound and return flight itineraries. T6 illustrates how a shift in the fare product component of the air travel alternative might rule out one or more flight itineraries (in this case R2). The restrictions associated with F2 might eliminate R2 as a component of a feasible travel alternative. Note that the relative disutility's

of F, D, and R are determined in combination by the individual, meaning there need not be a systematic ranking of the separate trip components. The individual chooses the highest-ranked travel alternative that he is aware of at the time of booking or ticket purchase, subject to the feasibility and availability of the various combinations. Given that one or more alternatives might not be available because all F seats have been sold on the D or R components of the trip alternatives in question, the choice process is simply one of systematically checking each ranked travel alternative in ascending order of disutility until a feasible and available combination is found.

The extent to which an individual is willing to accept a lower-ranked travel alternative will be a function of the generalized cost of that alternative relative to the perceived benefits of being at the destination point. If we define the total of these perceived benefits to be W , then the individual will make the trip as long as the generalized cost of the highest-ranked feasible and available travel alternative, T^* , is less than W . That is, the trip will be made only if: $Z(T^*) < W$ (2.5) If more than one feasible and available travel alternative has a generalized cost less than W , then the individual will choose T^* so as to maximize $W - Z(T^*)$. The value of W for a particular trip thus establishes a "cut-off point" in the set of ranked alternatives, below which an alternative will not be accepted by the consumer even if it is available. At this point the disutility of the travel alternative, due to displacement from preferred flight times and/or much higher monetary costs, is so great that the trip itself becomes of no value to the individual. The location of this cut-off point on the ranked list of alternatives will be determined by the characteristics of the trip and of the consumer, as defined by the market demand segmentation criteria described in Chapter One. That is, each $Z(T^*)$ is a function of the time-sensitivity of the trip in question and of the price-sensitivity of the individual with respect to that trip.

The criteria that define the market demand segments also affect the willingness of the individual to accept lower-ranked trip alternatives and the disutilities of shifts in the F relative to the D and R components. For example, a consumer wishing to take a trip for business purposes to attend a meeting at a specified time and who cannot depart before a certain time nor return after a certain time will place a greater disutility on accepting lower-ranked flight itineraries than lower-ranked fare products. In the demand segmentation model, this trip would be classed as time-sensitive, and the consumer would be relatively insensitive to price.

Although we assumed initially that the consumer is indifferent between competing airlines, different flight itinerary components could in fact represent travel on different carriers. If the relative utilities of different flight itineraries are judged to be different by the consumer on the basis of attributes other than those associated with D or R, as defined above, the consumer exhibits a preference for one carrier over another. Such a preference can be incorporated into the fare product (F) component of the trip package, and will be reflected in

its generalized cost through the level of service attributes (S_i) associated with a fare product offered by a particular carrier.

To distinguish fare products offered by different carriers, we can define F_i to be fare product i offered by carrier k . The generalized cost of F_i is then given by: $Z(F_{ik}) = Z(P_a, X_i, S_i)$ (2.6)

This formulation allows for the possibility that similar fare products offered by competing carriers in the same market will have different price levels and/or different restrictions, in addition to any perceived differences in service amenities. A preference for a particular carrier on the basis of "brand loyalty" or frequent flyer program considerations can also be reflected in different utilities assigned to S_{ik} for the same fare product offered by different carriers.

If the values of $Z(F_{ik})$ are determined to be different for the same fare product offered by different carriers, the consumer would then select the fare product/carrier combination that minimizes $Z(F_k)$, with all else being equal. It is more likely that distinguishing between identical fare products offered by competing carriers will involve different D and R components in the travel alternatives being considered.

The consumer must then take into account the relative disutilities of the different flight itineraries on different airlines. It is possible that increased disutility of the D and R components involving the preferred airline will be outweighed by the lower value of $Z(F_{ik})$ relative to that of other airlines. That is, the utility of traveling on the preferred carrier can exceed the disutility of less convenient flight itineraries.

The individual choice process for air travel described in this section relies heavily on the notions of relative utilities and rational consumer behavior. It is important to emphasize, however, that very few potential air travelers will undergo an exhaustive enumeration and evaluation of alternatives before making a completely informed utility-maximizing choice. As mentioned, the number of alternatives considered and the way in which information is gathered can lead to the consumer making a less than optimal choice. Nonetheless, the choice process described remains valid insofar as the consumer will select the trip package alternative providing the lowest perceived disutility from among those considered, given feasibility and availability of that alternative.

It should also be emphasized that the framework presented here is a qualitative description of individual consumer choice in the context of current airline marketing and pricing practices. Development of quantitative models of individual choice for air travel would require empirical research that is well beyond the scope of this dissertation.

This qualitative choice model is important, however, to an understanding of the reservations process as viewed from the airline's perspective. To understand aggregate reservations patterns, we must understand the individual choice process that generates these patterns.

Airline Reservations Framework

In accepting a passenger's reservation, the airline decrements the inventory of seats available in one of the fare classes established in its reservations system. Seat inventory control techniques are used to place limits on the maximum number of bookings that may be accepted in each reservations fare class. The aggregate outcomes of the choice process of individual consumers are thus viewed by airlines in terms of reservations totals and booking patterns by future flight leg and fare class.

The objective of this section is to extend the model of individual choice, given a reservations system that presents available fare product and flight itinerary alternatives to the consumer. If all fare products were always available, aggregate demand for each fare class on each future flight leg to be operated by an airline would be the sum of all requests from potential passengers for whom the relevant travel alternative {F, D, R} ranks first in perceived utility. In reality, there is a limited number of seats available for each alternative in the choice set. Requests for different alternatives arrive over time before flight departure. If either the D or R components of an individual's preferred travel alternative are unavailable in conjunction with the desired F at the time the request is made, the potential passenger will be forced to consider and perhaps accept successively less desirable alternatives from his/her ordered choice set. For the airline, each shift by a potential passenger from one travel alternative to the next has important implications with respect to total bookings and expected revenues for future flights.

The airline receives a request from a potential passenger for a particular outbound flight (D), return flight (R), and fare product (F). If the passenger's preferred travel alternative is not available in its entirety, the passenger consider the next-best alternative. This next-best choice will include one or more components different from those in the initial alternative requested. Depending on which of these components change in the shift to a less desirable alternative, the impacts for the airline will differ.

If the next-best choice includes a different P component but identical D and R components, the potential passenger is willing to accept a fare product, with its price, restrictions, and service amenities, that has a higher generalized cost in favor of keeping the outbound and return flights of the initially requested alternative.

For most passengers, a shift to the next-best alternative will mean a shift to a higher-priced fare product, given no change in the flights involved. Extremely price-sensitive passengers would of course be more willing to shift flights than accept a higher fare.

For the airline's purposes of seat inventory control, it is the upward shift in the fare product component associated with the next-best alternative in the consumer's choice set that is of most interest. Given the objective of maximizing total flight revenues, the airline must consider the possibility that a passenger denied a reservation in a low fare class will be willing to step up to the next highest available class for the same D and R flight itineraries. Stepping up to the next highest fare class represents what we shall call a vertical shift or "upgrade" in the reservations request, from the airline's perspective. Such a shift is desirable for the airline, since no potential traffic is lost and total revenues actually increase.

Unfortunately, not all potential passengers will be willing to make this vertical shift when denied a reservations request, depending on the composition of the next-best travel alternative in their ordered choice sets. Those not willing to accept a vertical shift might be willing to accept different departure and/or return flight components in their trip packages but with the same fare product component as the one requested initially. This will be the case for extremely price-sensitive passengers (Type 3) in particular. For the airline denying a reservations request, then, the probability that the denied passenger will make a vertical shift in his/her choice process is directly affected by the passenger's price-sensitivity and changes in the utility of the fare product components between the first-ranked and next-best alternatives.

If a passenger's request for a particular travel alternative is denied, the next best choice might involve the same fare product component, but a different departure and/or return flight itinerary. Acceptance of the next-best alternative in such a case can involve a shift of flights and/or carriers. If the passenger selects the same fare product for another flight on the same airline, the airline retains this passenger's business and revenue. Furthermore, the airline may sell seats that would otherwise have gone unsold on lower demand flights. This type of movement in the passenger's choice process can be termed a horizontal shift in preference, or "displacement" of the passenger from the originally requested flights.

The passenger denied a request and unwilling to accept a higher-priced fare product might instead select a departing and/or return flight involving a competing airline in the same market as his/her next-best option. This shift results in a loss of business and revenue to the denying airline, meaning it represents a booking loss, or "defection" to another carrier. A booking loss would also result in cases where the denied passenger has reached the cutoff point of disutility in his ordered choice set and decides not to make the trip. In either case, the denying airline loses a customer.

A passenger denied a request for a preferred travel alternative, regardless of how far down the ordered choice set it may be, will therefore always take one of three actions, resulting in three distinct impacts on the airline reservations process. A denied request will lead to one of the following consumer reactions:

- a vertical shift, v , ("upgrade") from one fare class to another, on the same outbound and return flights as those requested initially;
- a horizontal shift, h , ("displacement") to different outbound and/or return flights, but on the same airline and in the same fare class as requested initially;
- a booking loss, 1 , either to another competing airline ("defection") or to a decision not to travel.

Of these reservations "responses" by consumers, vertical and horizontal shifts are clearly desirable from the perspective of the airline denying the original reservations request. A vertical shift will result in increased revenues, while a horizontal shift enables the airline to retain the potential passenger's revenue without accepting another reservation on a heavily-booked or high-demand future flight in the requested low-fare class. The combination of vertical and horizontal shifts by denied passengers has been termed "recapture" by American Airlines [30]. The probability that a denied passenger will shift either vertically or horizontally on the same airline is thus the "recapture rate".

For the airline deciding whether to accept or deny a particular request for a fare class and flight, the magnitudes of these probabilities are extremely important, especially $P(1)$. Recapture eliminates the losses associated with refused requests. American Airlines has developed a model of reservations recapture and has made attempts to measure it. Their theoretical model assumed that "recapture can be estimated by redistributing demand from a closed or cancelled flight based on passenger preference models."

Validation of such a recapture model requires observation of actual recapture rates, and American has found it difficult to measure recapture behavior accurately. A preliminary survey involving intervention in actual telephone reservations transactions was undertaken, but only 30 sample points were gathered. The results of this limited survey showed that:

1. passengers were "extremely flexible" in terms of flight times;
2. fares were more important in determining recapture than schedules;
3. very few passengers were aware of or asked for specific flights. American's preliminary estimate of overall recapture rate was about 30 percent of denied requests.

The problem with these observations concerning recapture rate, apart from the small sample size and the drawbacks associated with inferring passenger behaviour from a telephone transaction, is they do not recognize that recapture rates will differ depending on the market demand segment characteristics of the passenger involved. The willingness of a potential passenger to shift vertically or horizontally from the travel alternative requested initially will depend on the passenger's price sensitivity, the time sensitivity associated with the benefits of the trip, and on the specific point in the passenger's ordered choice set at which the reservations request is denied.

We can extend the individual choice model presented to incorporate the choice shifts that occur when a preferred travel alternative is not available. The objective is to "explain" the relative probabilities of each type of choice shift described earlier, with reference to the travel dis-utilities of the attributes of different travel alternatives, as evaluated by the consumer. The choice shift that an individual makes will be determined by the specific alternative(s) being considered in place of the unavailable alternative and the disutility associated with the change in one or more components of the travel alternative. The expected choice shift is therefore a function of the time constraints on the trip involved and of the price-sensitivity of the consumer for this trip, which in turn define the demand segment to which the consumer belongs over the course of the choice process for the trip at hand.

For any one denied reservations request, the choice shift that will be made by the consumer depends on the composition of the "next-best" travel alternative. This next-best alternative may be the one that offers the smallest increase in travel disutility over the unavailable alternative, as derived from a ranked set of alternatives by a completely informed consumer. In practical terms, the "next-best" alternative is often an alternative selected by either the airline reservations agent or a travel agent as being potentially acceptable to the consumer. In many cases, the consumer's ordered choice set will consist of as few as one alternative presented to him/her as being the "next best" option. If the consumer believes an alternative with a lower disutility than that of the alternative being presented might be available, the suggested "next best" option will be refused. The consumer will then call another airline, or deal with another travel agency.

The airline that is unable to accommodate a passenger with his/her preferred or requested travel alternative can offer the passenger a higher-priced fare product for the same flight itineraries, D and R, as those requested, or different flight itineraries for the same fare product, F, requested. The probability that the consumer will accept either of these two next-best options is the recapture rate, RR. The recapture rate reflects the expected choice shift behavior of similar passengers in similar situations. The choice shift behavior of each individual is determined by that individual's evaluation of the relative dis-utilities of the next-best alternatives presented to him/her.

We examine first the simple case in which the consumer deals directly with only one airline, and assume that no competing airlines are involved in the choice process. When this consumer is denied a reservations request for a preferred travel alternative, the airline will offer one or more "next-best" alternatives, different from the preferred alternative in the fare product component and/or one or both flight itinerary components. Given a next-best travel alternative which differs from the initially requested alternative only in terms of the fare product component, the consumer will accept this alternative only if the disutility of the change in fare product components is less than the increased disutility associated with all other known next-best alternatives. If no other alternatives are being considered by the

consumer, or if no other alternatives are available, the next-best alternative will be accepted as long as the increased disutility of the new fare product component does not increase the total disutility of travel to the point that it exceeds the perceived benefits of the trip.

With reference to the notation introduced previously, a shift in the fare product component of a travel alternative from F1 to F2 on the same airline for identical flight itineraries will involve an increase in travel disutility for the consumer equal to:

$$Z(F_2) - Z(F_1) \quad (2.9)$$

This increase in disutility will be a function of the price difference between the two fare products, any changes in the restrictions involved, as well as any perceived or actual changes in service amenities:

$$Z(F_2) - Z(F_1) = Z(P_2, X_2, S_2) - Z(P_1, X_1, S_1) \quad (2.10)$$

Given only the option of accepting the less desirable fare product component or not making the trip, the consumer will make a vertical choice shift ("upgrade") if:

$$Z(F_2) - Z(F_1) < W - Z(T_1) \quad (2.11)$$

where T_1 is the initially requested (first choice) travel alternative and W represents the total perceived benefits of making the trip.

We now consider the case in which a consumer is presented one "next-best" alternative with different D and R components but an identical F component as that in the unavailable alternative. The increased disutility of the change in flight itineraries will be a function of the increased displacement from the consumer's "ideal" flight departure times and any changes in en route times, including perhaps the added inconvenience of making a connection. For a horizontal shift from D_1 to D_2 and from R_1 to R_2 , the increased disutility of the next-best travel alternative is given by:

$$Z(D_2, R_2) - Z(D_1, R_1) \quad (2.12)$$

where the disutilities of each of the four travel components in the above expression are a function of $t_d - t_i$ and t_r ,..

As was the case with an isolated vertical shift, the consumer presented with only the option of making the specified horizontal shift or not traveling will accept the changes in the D and R components of the travel alternatives as long as:

$$Z(D_2, R_2) - Z(D_1, R_1) < W - Z(T_1) \quad (2.13)$$

Note that a horizontal shift can involve a change in either D or R, or both. Even if the same R component is included in both alternatives, for example, the disutility of the R component can change when it is paired with a different D component.

The disutility of a travel itinerary is thus expressed as a non-separable function of both flight itinerary components.

Even when a consumer calls an airline directly, the "next-best" alternatives presented to him/her are unlikely to be this limited. The airline is more likely to present two or more options from which the consumer may select one. The set of options presented will generally include a vertical shift for the same flight itineraries as those requested, along with one or more horizontal shift options to other flight itineraries offered by the same airline, for which the preferred fare product is in fact available. Presented the option of making a vertical choice shift or a horizontal choice shift on the same airline, the consumer will select the alternative that provides the smallest increase in travel disutility, subject to an upper limit on this increase,

Passengers belonging to the Type 2 demand segment are assumed to be relatively price sensitive although the trips they are planning are associated with time constraints. Given this sensitivity to both price and time displacement, it is difficult even to speculate about the relative levels of $P_2(v)$ and $P_2(h)$. And, given that the Type 2 demand segment definition can apply to a variety of consumers and trips, any estimates of these probabilities will be subject to substantial uncertainty.

The market demand segmentation criteria of price and time sensitivity can also be used to postulate relationships between the probabilities of vertical and horizontal choice shifts when consumers belonging to different segments are presented with the same "next-best" travel alternatives.

These relationships should hold when considered separately, with other factors held constant. That is, when presented with the same set of "next-best" alternatives to one that is not available, a typical Type 1 passenger will be more likely to make a vertical choice shift than a Type 2 and, in turn, a Type 3 consumer. Similarly, Type 3 consumers will be most likely to make horizontal choice shifts, followed by Type 2 and Type 1 consumers, respectively.

Although horizontal and vertical shifts enable the airline to retain, or even increase, the revenue it receives from a denied passenger, airlines in competitive markets must be more concerned with $P(l)$, the probability that a denied request will cause the consumer to take a seat on a competing carrier, or not travel at all. The complexity of the choice shift process increases dramatically as we introduce the possibility of booking loss, which includes "defections" to competing carriers.

First, we must distinguish between consumers who choose to determine the availability of their initial or preferred alternative by dealing directly with an airline and those who deal with a travel agency. When dealing with a travel agency, the consumer still evaluates the next-best alternatives offered on the basis of minimizing increases in travel disutility, as described earlier. In this case, however, the next-best alternatives presented to the consumer are more likely to involve different airlines or even combinations of airlines. Furthermore, these next-best alternatives will generally involve lesser increases in disutility, both in terms of the fare product and flight itinerary components, than those presented by a single airline.

A next-best alternative can simply be a similar or identical fare product offered by a competing carrier on a very similar flight itinerary. The differences in travel disutility between alternatives can thus be very small, given a much larger set of alternatives from which the "next-best" one is selected. The greater number of next-best alternatives and the relatively small differences in travel disutility among them make any generalizations about $P(v)$ and $P(h)$ far more difficult to make in the travel agency situation.

The same conditions lead to the conclusion that $P(Q)$ is very difficult to measure. The probability of booking loss is affected by whether the request is being denied by the airline or by a travel agent. All else being equal, there must be some reduction in $P(l)$ in the former case, since the airline reservations agent can encourage the consumer to accept a vertical or horizontal shift. This is one reason for the preference of most airlines that passengers book directly with them (the savings in travel agent commissions being another).

Like the probabilities of horizontal and vertical choice shifts, the probability of booking loss is determined by the specific attributes of the changed components of each pair of travel alternatives being considered. The travel alternatives involved are in turn affected by the source of information on availability (airline or travel agent), as described above. The probability of booking loss will also be a function of how many of the consumer's successive requests have been denied already, particularly when dealing directly with the carrier. Generally, each less desirable travel alternative offered by the same airline will represent a greater increase in travel disutility than would be the case when alternatives involving several carriers are involved. All else being equal, the consumer denied several requests by the same airline is likely to try another airline.

The mathematical formulations of the utilities relevant to consumer choice when a preferred travel alternative is unavailable can be extended and generalized to account for most, if not all, possible "next-best" alternative scenarios. The utility valuations and decision rules will be similar to those presented earlier for the simplified one-airline case, since the consumer will be making the same decisions, but with more information about travel options.

The market demand segment to which a consumer belongs for a particular trip can therefore be related to the consumer's expected choice shift behavior in the case of unavailability of

one or more requested alternatives. Market segment criteria alone, however, may not be sufficient in predicting choice shift behavior, because the "choice set" with which the consumer is presented or of which he/she is aware will differ from one case to the next and have an impact on the ultimate choice shift made.

Passenger choice shift behavior can differ not only from one individual to another, but for the same individual planning different trips, and even for the same individual and trip at different points in the process of determining the availability of various travel alternatives. The probabilities of recapture and booking loss represent an average rate or expectation that must be estimated from an analysis of actual choice shifts. The difficulty lies not only in the survey methods required to sample intended behavior, but also in the need to identify similar consumers who are planning similar trips. Further theoretical consideration of the consumer choice process is required, along with much more extensive empirical studies of choice shifts.

The choice shift process described here can be summarized in a reservations decision tree framework. A request for a particular travel alternative can either be accepted or refused by the airline, based on the availability of the requested fare product class and flight itinerary. If accepted, a booking is confirmed for the consumer. If denied, there is a probability that the consumer will be recaptured by accepting either a vertical or horizontal shift in travel alternatives. There is also a probability that the denied passenger will represent a booking loss to the airline.

To this point, our airline reservations framework has focused on denied requests stemming from unavailable travel alternatives. The assumption made implicitly is that each accepted request, or booking, will result in a ticket sale and, ultimately, a revenue passenger carried on a future flight. In reality, an accepted reservations request does represent a booking that decreases the seat inventory allocated to fare class and flight. Each booking, however, will translate into a filled seat that generates revenue for the airline only if the passenger actually purchases a ticket and shows up for the booked flight.

Our model of the airline reservations process should therefore incorporate the probabilities associated with each booking becoming a revenue passenger on a future flight. The probabilities of relevance are:

1. the probability that a booking will be cancelled prior to flight departure;
2. the probability that a booked passenger will fail to appear for a scheduled flight departure (i.e., be a "no-show").

Both of these probabilities will be affected by whether the passenger has purchased a ticket subsequent to having a booking confirmed for a future flight. A passenger that accepts a

"next-best" alternative suggested by one airline may still call another airline to make another booking, and ultimately buy a ticket and travel on the competing carrier. As was the case with choice shift probabilities, these probabilities can also be affected by the demand segment of the passengers and the restrictions associated with the fare products booked.

The probabilities of cancellation prior to flight departure and of passengers not showing up at departure time are in essence both "cancellation" probabilities. Airlines distinguish the two rates because a cancelled booking prior to departure frees up a reservations "space" in the seat inventory that has the potential of being resold to another passenger. It is only possible to sell a seat suddenly left empty by a no show at departure time to "stand-by" passengers, if they are present.

The pre-departure cancellation rate has been treated in past research as having the Markovian property. That is, the probability of cancellation for any reservation on a particular day prior to departure is assumed to be independent of when that reservation was made initially. This assumption of "memoryless" cancellation rates was validated by Rothstein in 1968 [34], but fare product attributes and, in turn, reservations behavior have changed considerably since that time.

There exists a probability that a booking will be cancelled on any particular day prior to departure, and the "memoryless" assumption seems reasonable for this cancellation rate. That is, on day 17 prior to departure, there is no reason to expect that a particular booking made 35 days out is more likely to be cancelled than one made 25 days out. There also exists a cumulative cancellation probability for any one booking that, under this assumption, increases with the number of days before departure that the booking was made. Thus, a booking made on day 35 before departure has a higher overall probability of being cancelled than one made on day 20, all else being equal.

The length of time before departure that a booking is made, however, is no longer the only determinant of that booking's cumulative cancellation probability. The imposition of advance purchase requirements and cancellation penalties after ticket purchase on certain low-priced fare products has introduced additional elements that can affect cancellation probabilities. Furthermore, many airlines now stipulate time limits before which either tickets must be purchased or the booking must be reconfirmed, even for "unrestricted" fare products. If the ticketing time limit, be it arbitrary or part of the fare product's restrictions, is not met, the airline's reservations computer will cancel the booking automatically.

In either case, ticket purchase leads to the same set of subsequent branches in the decision tree, and the same set of probabilities. A failure to purchase a ticket for the booking, however, leads to distinct results in the two cases. Given a ticketing time limit, the consumer who does not purchase a ticket will have the booking cancelled, whereas the consumer who fails to purchase a ticket in the absence of any time limit will ultimately be counted as a "no-

show" should he/she decide not to make use of the reserved space. It is difficult even to speculate about the relative cumulative cancellation probabilities of bookings with and without ticketing time limits imposed, without additional information about the fare products being booked. As discussed earlier, the choice shift process and the consumer's knowledge of other travel alternatives can result in a booking that will not lead to a ticket purchase. Airlines seem to have recognized this, as they now impose ticketing time limits with greater regularity.

Automatic cancellation of bookings that were never intended to be used also enables the airline to derive better estimates of "true" no-shows.

Without a ticket having been purchased, no additional information is available to refute the assumption that cumulative cancellation probabilities are simply a function of length of time before departure that the booking is made. When a ticket is purchased, however, we can illustrate how cancellation probabilities can differ depending on the attributes of the fare product purchased. On one hand, the length of time in advance of flight departure that a ticket is purchased should still have a positive relationship with the cumulative cancellation probability, because travel plans made far in advance are more likely to change. On the other hand, the imposition of restrictions on the fare product of partial or total non-refundability should reduce the cancellation probability once the ticket has been purchased. It would seem reasonable, then, to expect that a booking for a fare product with a cancellation penalty is less likely to be cancelled than one for a fully refundable fare product. This is especially true for the price-sensitive passengers most likely to purchase heavily restricted fare products.

The inclusion of cancellation penalties and, more recently, non-refundability rules in the restrictions on low-priced fare products suggests that different cumulative cancellation probabilities could well be exhibited by bookings for different fare products. The degree to which these probabilities will in fact differ depends on the advance purchase and cancellation restrictions imposed on different fare products. It will also depend on the consumer and trip characteristics of those making use of each type of fare product. With the recent introduction of non-refundable low priced fare products, the potential for observing significantly different cancellation probabilities across fare products has increased further.

The same reasoning applies to no-show rates across fare classes at departure time. No-show probabilities are bound to be higher for reservations made for fare products for which tickets are less likely to have been purchased and those with no cancellation penalties. A reservation for a very low-priced fare product, on the other hand, is more likely to have been made and tickets purchased well in advance. The price-sensitivity of the "typical" low-fare passenger, combined with a cancellation penalty on the low fare, should result in a lower no-show rate for the more restricted fare products.

These arguments suggest that, in seat inventory control, the probabilities of reservations cancellation and passenger no-show should be distinguished on the basis of the fare product booked, for total expected flight revenues to be maximized. The airline's ability to make such a distinction will depend on its success in differentiating fare products by imposing advance purchase requirements and cancellation restrictions, as well as on its success in separating pre-departure cancellations from "true" no-shows.

The airline reservations framework described in this section is based on the assumption that passengers requesting and booking seats for different fare products will behave differently both with respect to their responses to a denied request, and in terms of their cancellation and no-show actions. The relationships between market demand segments, fare products, and the reservations process itself should thus be considered in the development of a comprehensive approach to seat inventory control. The framework developed in this chapter describes passenger choice behavior in the context of current U.S. domestic air travel markets and its impact on the airline reservations process. The probabilistic components of this reservations process highlight the uncertainty faced by airlines in accepting or denying reservations requests.

2.2.3. SEAT INVENTORY MANAGEMENT

An airline's inventory contains all flights with their available seats. The inventory of an airline is generally divided into service classes (e.g. first, business or economy class) and up to 26 booking classes, for which different prices and booking conditions apply. Inventory data is imported and maintained through a schedule distribution system over standardized interfaces. One of the core functions of the inventory management is the inventory control. Inventory control steers how many seats are available in the different booking classes, by opening and closing individual booking classes for sale. In combination with the fares and booking conditions stored in the Fare Quote System the price for each sold seat is determined. In most cases inventory control has a real time interface to an airline's Yield management system to support a permanent optimization of the offered booking classes in response to changes in demand or pricing strategies of a competitor.

Availability Display and Reservation (PNR)

Users access an airline's inventory through an availability display. It contains all offered flights for a particular city-pair with their available seats in the different booking classes. This display contains flights which are operated by the airline itself as well as code share flights which are operated in co-operation with another airline. If the city pair is not one on which the airline offers service it may display a connection using its own flights or display the flights of other airlines. The availability of seats of other airlines is updated through standard industry interfaces. Depending on the type of co-operation it supports access to the last seat (last seat availability) in real-time. reservations for individual passengers or groups

are stored in a so-called passenger name record(PNR). Among other data, the PNR contains personal information such as name, contact information or special services requests (SSRs) e.g. for a vegetarian meal, as well as the flights (segments) and issued tickets. Some reservation systems also allow to store customer data in profiles to avoid data re-entry each time a new reservation is made for a known passenger. In addition most systems have interfaces to CRM systems or customer loyalty applications (aka frequent traveler systems). Before a flight departs the so-called passenger name list (PNL) is handed over to the departure control system that is used to check-in passengers and baggage. Reservation data such as the number of booked passengers and special service requests is also transferred to flight operations systems, crew management and catering systems. Once a flight has departed the reservation system is updated with a list of the checked-in passengers (e.g. passengers who had a reservation but did not check in (no shows) and passengers who checked in, but didn't have a reservation (go shows)). Finally data needed for revenue accounting and reporting is handed over to administrative systems.

Fare Quote and Ticketing

The Fares data store contains fare tariffs, rule sets, routing maps, class of service tables, and some tax information that construct the price – "the fare". Rules like booking conditions (e.g. minimum stay, advance purchase, etc.) are tailored differently between different city pairs or zones, and assigned a class of service corresponding to its appropriate inventory bucket. Inventory control can also be manipulated manually through the availability feeds, dynamically controlling how many seats are offered for a particular price by opening and closing particular classes.

The compiled set of fare conditions is called a fare basis code. There are two systems set up for the interchange of fares data – ATPCO and SITA, plus some system to system direct connects. This system distributes the fare tariffs and rule sets to all GDSs and other subscribers. Every airline employs staff who code air fare rules in accordance with yield management intent. There are also revenue managers who watch fares as they are filed into the public tariffs and make competitive recommendations. Inventory control is typically manipulated from here, using availability feeds to open and close classes of service.

The role of the ticketing complex is to issue and store electronic ticket records and the very small number of paper tickets that are still issued. Miscellaneous charges order (MCO) is still a paper document; IATA has working groups defining the replacement document the electronic multipurpose document (EMD) as at 2010. The electronic ticket information is stored in a database containing the data that historically was printed on a paper ticket including items such as the ticket number, the fare and tax components of the ticket price or exchange rate information. In the past airlines issued paper tickets; since 2008 IATA has been supporting a resolution to move to 100% electronic ticketing. So far, the industry has not been able to comply due to various technological and international limitations. The

industry is at 98% electronic ticket issuance today although electronic processing for MCOs was not available in time for the IATA mandate.

Fare Basis Code

A **fare basis code** (often just referred to as a **fare basis**) is an alpha or alpha-numeric code used by airlines to identify a fare type and allow airline staff and travel agents to find the rules applicable to that fare. Fare codes start with a single letter, called a booking code or class, which matches the letter code that the reservation is booked in.^[1] Other letters or numbers may follow. Typically a fare basis will be 3 to 7 characters long

Airline Specific Codes

There is an endless list of other codes on modern fares. These are not standardized in any way, and may often be for short-term use. Examples are...

- Codes that indicate an airline's common name for a fare. As a hypothetical example, an airline selling what they refer to as their "Super-Saver" fare may use SPRSVR in the fare basis, or may use it as the entire code.
- Codes that limit a fare to a particular company. An airline may negotiate a fare with the XYZ company and include these letters in their fare basis. Negotiated fares are normally only visible to agents that have a contract to sell them, and are not publicly listed.

Multi-fare Business

It is common for an air ticket to have more than one fare basis, particularly if it is for carriage on more than one airline. The issuing airline may often have an interline agreement to allow other airlines on the ticket. One disadvantage of this system is that if any change is made, the most restrictive fare rule may apply to the entire ticket, not just the portion being changed.

Global Distribution System

In a GDS, the fare basis will typically display as part of a fare display, and will not normally be shown in an availability display. Some modern booking systems allow availability searches using parameters such as time of day and lowest fare, and may negate the need for an agent to firstly study the fare basis rules.

Tickets

The fare basis is normally shown on the air ticket. On older paper tickets, it was highlighted on the relevant coupon for that flight. On modern e-tickets, it is often printed under the flight details.

GDS Booking Policy

In an effort to reduce distribution costs Jet Airways (9W) would like to lay down guidelines and set clear expectations for reserving, booking and ticketing itineraries through the use of a Global Distribution System (GDS) or Central Reservations System (CRS). This policy is in line with industry partners and is intended to defer increasing distribution costs caused by improper CRS/GDS booking practices. This will also result in last seat availability on GDS and ultimately allow the GDS subscribers to offer greater numbers of seats for firm passengers.

a. Definition

Booking and ticketing practices that result in unnecessary distribution costs and inventory spoilage are termed as GDS mis-use or violations.

These processes result in excess GDS fees and account for a significant percentage of an airline's overall distribution costs.

b. Purpose

This policy aims to reduce the costs associated with inactive segments and other booking related practices which cause negative inventory consequences. It is important that all subscribers using a GDS adhere to these policies to prevent revenue leakages to the airline inventory and avoid violations of reservations, fare and ticketing guidelines. Enforcing these policies would also assure last seat availability on GDS and ultimately allow the GDS subscribers to offer greater numbers of seats for firm passengers.

c. Implementation

Jet Airways implement this policy with immediate effect.

d. Application

This policy applies to all travel service providers including travel agents, online travel agents and any person or entity accessing 9W inventory via internet or any other electronic means. The travel agent must ensure that all its employees in all of its locations are made aware of this policy and of its future amendments. The terms and conditions of this policy and its associated practices and procedures are subject to change upon notice by 9W.

e. Auditing of Bookings

Jet Airways reserve the right to audit all booking transactions to identify non-compliant booking practices.

Duplicate Bookings

- Travel service provider must not create duplicate bookings in the same passenger name record (PNR) or across PNRs for the same passenger
- Duplicates include booking the same passenger confirmed/re confirmed on same or different flight, class, date or route where it is not possible for the passenger to travel simultaneously

- Travel service provider must not create impossible traveling itineraries by holding concurrent flights on the same time period where it is not possible for the passenger to travel simultaneously

Fictitious Booking

Travel Service providers must not create any fictitious bookings, testing or training bookings that block the airline's inventory in the live GDS environment. Training environment is provided by all GDS and agents must use this mode for testing situations or training personnel. Creating PNRs for training purposes using active environment is prohibited. Fictitious names include bookings with spurious or fake names, names of famous personalities with no intent to travel, bookings made for testing purposes, bookings made with intention of blocking inventory

Inactive Segments

Travel service provider must take timely follow-up action on reservations that have been cancelled by the airline by releasing inactive segments from the bookings

Travels service providers must ensure that all inactive segments such as "HX", "NO", "UC", "UN" etc are removed from the active PNR to its history at least 24 hours prior to departure and within the same calendar month that the segment has been cancelled by 9W

Churning Of Bookings

- Travel service providers must avoid repeated cancelling and re-booking of the same or different flight, class, date or route (known as churning) to circumvent ticketing time limits or for any other reason whatsoever; as this leads to unreasonably high booking / cancelling volumes resulting in higher GDS fees for the airline
- Churning also includes repeated re-booking of segments cancelled by 9W, repeated booking and cancelling segments within the same PNR or across PNRs and within the same GDS or across GDS

Waitlist

- Travel service providers must not repeatedly create waitlisted bookings, since these do not increase chances of confirming and result only in higher booking volumes and increased GDS fees for airline
- Travels service providers must ensure all Waitlisted bookings are removed from the active PNR at least 24 hours prior to departure

Passives

- Passive bookings must be created for ticketing purposes only and must match with booking existing on the 9W reservation system

- Passives are permitted for ticketing against bookings held on the airline system only
- Passives are not permitted against live booking on the same GDS system
- Passive are not permitted against live bookings across different GDS by same travel service providers
- Passive segments must not be used for reasons, such as satisfying GDS productivity requirements or to circumvent fare rules

Invalid Ticketing

- Travel service providers must not retain bookings with invalid ticket numbers
- Invalid ticket numbers include restricted, used, refunded voided or non-existent ticket numbers
- Travel service providers must not issue confirmed tickets against bookings that are on request or non-confirmed status in 9W internal reservation system
- Travel service provider must ensure that the class code used for issuing ticket is identical to the code that exists on the PNR
- For interline itineraries, travel service provider must validate 9W bookings with ticket numbers of only those airlines that have a ticketing and baggage agreement with 9W

g. Best Booking Practices

- Travel service providers must never create any active or passive booking or transaction for achieving productivity or incentive targets set by GDS
- Travel service providers must take appropriate and timely follow-up action for any un-ticketed booking to ensure that there is no spoilage of airline inventory
- Travel service providers that use more than one GDS must book and ticket a specific passenger itinerary within the same GDS
- Travel service providers must not create PNRs to hold or block reservations due to expected demand, customer indecision, or to circumvent any of 9W fare rules or policies
- Travel service providers must not change name once PNR is created
- Travel service providers must not create bookings that violate minimum connecting time requirements of individual airlines
- Travel service provider must provide customer's first and last names which are identical to the customer's passport
- Travel service provider must comply with applicable government regulations and provide customer security information on PNR as required
- Travel service provider must provide passenger's mobile contact number on the correct GDS phone field or through OSI element to the airline to facilitate flight disruption handling of customer due to delays, re-schedules etc
- In case of changes to itineraries in a passenger name record (PNR), it is necessary to re-request any special service requests from the original booking

- This includes unaccompanied minors and special meal requests. When an SSR message is needed for only part of the itinerary, the special service request must be flight specific and not requested for all flights
- Travel service providers must action queues promptly and ensure that the passenger is notified of any changes to his or her booking as soon as possible

h. Ticketing Policy

- Travel service provider must always use latest and updated fares rather than pre-stored fares to issue tickets
- Travel service provider must adhere to ticketing time limit and ensure that booking is either ticketed or cancelled before expiry of ticketing time limit
- Travel service provider must report genuine ticket numbers that is valid for travel on associated PNRs
- Travel service provider must collect and report accurately all taxes, fees and surcharges imposed by local and foreign government. Travel service provider must ensure collection of penalties for no show, cancellation, re-issue etc as applicable

2.2.4. SEAT INVENTORY CONTROL PROBLEMS: INTERNATIONAL BEST PRACTICES

As discussed in the preceding two chapters, differentiated fare products are targeted at distinct market segments of the total demand for air travel. Individuals in each of these segments will emerge from the air travel choice process with preferences for different types of fare products. To make the most effective use of the differential pricing strategies that they have adopted, most airlines practice seat inventory control to limit the number of seats that may be sold as each of the fare products offered. In airline reservations systems, limits are placed on the number of seats available in each fare class or booking class, which can contain several fare products. Controlling the mix of fare products to be sold for a particular flight has come to be regarded by some airline managers as by far the most important aspect of marketing, more important than the actual prices charged for each fare product. This chapter provides an overview of the seat inventory control problem from the airline's perspective. The problem is described in the context of current airline operations, given existing route systems, fare structures and reservations systems.

The types of data available to most airlines for dealing with this problem are outlined and alternative approaches to limiting the seats available to various fare classes are discussed. The second section of this chapter then summarizes the state of current practice in seat inventory control in the airline industry, and identifies the constraints and limitations that airlines are working to overcome.

Scope and Extent of the Problem

The differential pricing strategies adopted by airlines in recent years in an attempt to increase total revenues also represent a response by major carriers to intensified price competition from low-cost new entrants or older airlines revived by pricing aggressiveness. By offering a limited number of seats at the lowest fares advertised by price leaders, established airlines can at least appear to be competitive in price and might even be able to fill otherwise empty seats with stimulated demand.

The availability of different fare products generating different revenue levels has led many airlines to become interested in "yield management". Yield management, taken literally, involves the application of strategies that affect the airline's overall yield, usually with the objective of increasing it.

The process employed by an airline to manage its seat inventories will be affected by the range of tools and resources that it has available for this purpose, which will in turn be determined by the importance that corporate decision-makers attribute to improving revenue management. From the outset, the seat inventory control system employed will also depend on the characteristics of the airline's network and on its fare structure. An airline offering a single fare level for all seats on flights serving point-to-point markets on a non-stop basis clearly need not be concerned about sophisticated seat inventory control techniques. At the other extreme, a carrier with multiple fare classes on flights into and out of large connecting hub complexes can benefit immensely from improved seat inventory control.

Most established (i.e., pre-deregulation) airlines are closer to the latter extreme, and as such are extremely interested in revenue management. Among such airlines, there is a range of effort devoted to, and a range of sophistication in, seat inventory control. As described in the following section, current practice in this area is evolving quickly, yet a strong emphasis on human expertise in making seat inventory control decisions remains.

Seat Inventory Control Practices

Organization Issues

Seat inventory control and revenue management are closely related to a range of other functions found in current airline corporate structures, such as pricing, marketing, reservations, overbooking and payload control. None of the airlines surveyed have been able to combine all the functions critical to revenue management into a single unit, although several major carriers have moved in this direction. Pricing and overbooking control were the most frequently named functions to have been incorporated into the revenue management unit, which in turn was most commonly found in the airline's marketing or market planning

department. Coordination with the remaining related functions that for various reasons could not be included in the same department, poses a problem for most of the airlines surveyed.

There seems to be a consensus among those involved in the process that the preferred place for a seat inventory/revenue management group is in the airline's marketing department. The close relationship of seat inventory control to the reservations, pricing and fare product development functions make the marketing department a logical place for the revenue management function. At many of the airlines surveyed, however, those responsible for setting and monitoring flight overbooking levels remain in separate departments responsible for reservations and sales in some cases and payload control/operations in others. There can thus be substantial resistance and turf-based conflicts with respect to the transfer of the overbooking function to an ever-expanding marketing department.

The personnel responsible for monitoring and adjusting booking limits throughout the reservations process - seat control analysts - make up the largest group in most revenue management units. There were substantial differences among the carriers surveyed in the use of seat control analysts, both with respect to the number of analysts employed and the degree to which the analysts are responsible for specific markets.

Although the number of analysts employed does not necessarily reflect the sophistication of an airline's seat inventory control process, it does reflect the resources devoted to the problem. The number of agents "required" to manage a carrier's seat inventory would seem to be related to the number of flight legs operated each day and to the proportion of a carrier's flight legs that operate in highly competitive markets or during peak periods of demand.

For those carriers with relatively few analysts working on seat inventory control, booking limit monitoring and adjustment is almost entirely an ad-hoc process, perhaps targeted at selected markets and flight legs. The carriers with proportionately more analysts generally have a more systematic process in which teams of analysts are responsible for groups of markets and/or flight legs. The carrier with the highest number of analysts relative to its daily departures has taken the notion of specialization to the extreme, making each seat control analyst responsible for all flight legs that serve a particular market or set of routes. Each agent must consider historical data, competitors' actions and current trends to both set initial fare class booking limits and make adjustments as reservations are accepted. These agents are then held accountable for the traffic mixes and revenue levels achieved on their own routes.

Overall, the airlines surveyed face very similar problems in organizing their revenue management groups. While some carriers have progressed more rapidly than others in unifying seat inventory control and related activities, coordination of functions, resistance to organizational change and even intra-departmental organization are still issues that all face as their revenue management functions evolve.

Reservation and Decision Support Systems The effectiveness of an airline's seat inventory control process depends on the capabilities of its reservations system and on its ability to extract useful historical reservations and traffic data to assist in making booking limit decisions. As was the case with organizational structures, many carriers are currently taking steps to make their reservations systems more responsive to seat inventory control needs and to develop more sophisticated data retrieval and analysis methods.

Existing reservations systems do not permit the airline to differentiate between passengers requesting similar fare products for very different itineraries on the same flight leg, as these passengers are booked in the same fare class. The development of such origin-destination based reservations systems is a top priority in the area of revenue management for several of the airlines surveyed.

Setting and Monitoring Booking Limits

The organizational structure of an airline's revenue management unit, together with the information tools available to it, provide a foundation for the tasks offsetting, monitoring and adjusting fare class booking limits so as to maximize flight revenues. It is in this component of the seat inventory control process that differences among airlines in terms of sophistication are most apparent. These differences stem in part from the organizational and information issues discussed above, but also reflect varying amounts of emphasis placed by each airline on setting initial fare class limits, monitoring actual reservations relative to these limits, and then making necessary adjustments.

At the simplest level, setting the initial booking limits for reduced fare classes can be done on an "across-the-board" or default value basis. The use of default values for all flights operated in certain types of markets or with particular aircraft types requires little in the way of resources, but does not take into account important differences in passenger mixes and booking patterns between markets or even between flights in the same market. Greater precision can be achieved by setting lower fare class limits by market, day-of-week, even time-of-day of future flight departures, but this requires substantial analytical effort. If the airline's seat inventory control process consists solely of setting fare class limits at the start of the booking process, then a more detailed approach is certainly preferable. All the carriers surveyed have progressed beyond this simplest level of seat inventory control, although several have done so only in the recent past. Most airlines have recognized that greater benefits from their seat inventory control efforts can be realized by developing a reservations monitoring and booking limit adjustment process than by intensifying their efforts to improve the accuracy of the initial limits.

That is not to say that the initial limits placed on different fare classes are not important. Any differentiation among markets or flights can help to reduce the amount of intervention required later in the process and is better than no differentiation at all. One of the larger

carriers surveyed uses some default values for groups of flights and then identifies specific markets, flights, and/or periods of operation that might require more careful attention. Another carrier that assigns responsibility for different routes to individual agents leaves the setting of initial limits to them. The default limits automatically entered into the reservations system for this same carrier are the actual passengers boarded by fare class for the same flight, one year earlier. Most of the remaining carriers use aggregate approaches in which limits are initially set according to aircraft type and/or broad market groupings. A relatively simple approach to setting initial booking limits can be counterbalanced by a more sophisticated system of monitoring cumulative bookings by fare class, relative to these limits. The monitoring function can easily be automated through the airline's reservations system. Even the simplest of systems can be programmed to generate reports listing the future flights for which the number of accepted reservations approaches the fare class booking limits. All of the carriers surveyed have routines in place that can perform this function, although not all of them have a seat inventory control process in place that makes full use of the monitoring reports.

2.2.4 (a) Case study on Pricing and Seat Inventory Management Air Deccan: The First Low Cost Airline in India

Abstract

The case describes the entry and expansion strategies of Air Deccan, the first low cost airlines in India. It discusses in detail the low cost business model of Air Deccan, its target market and the efforts made by the company to promote its services.

Finally, the case highlights the challenges facing Air Deccan and examines whether the company's business model would be successful in India or not.

The case includes a detailed note on the Indian civil aviation industry covering the profile of major players, India's civil aviation policy and the statutory requirements to be fulfilled by a company to enter and operate in the industry.

Issues :

1. Study and analyze the structure of the Indian civil aviation industry.
2. Develop an understanding on the operations of low cost carriers in India
3. Examine the viability of low cost business model in the Indian aviation industry
4. Understand the target market and the promotional strategy of a low cost airline in India and draw a comparison with that of full service airline.
5. Study the challenges that a low-cost airline company might face in the Indian context

Introduction

On September 24, 2003, Air Deccan, the first low cost airline (LCA)² in India, was ready to take off on its inaugural flight from Hyderabad to Vijayawada. The flight had 33 passengers, who included the Bharatiya Janata Party president, Venkaiah Naidu (Naidu), the then civil aviation minister Rajiv Pratap Rudy (Rudy) and some journalists. A few seconds before take-off one of the aircraft engines caught fire and panic gripped everyone.

The fire was extinguished and the passengers had a miraculous escape. The flight had to be aborted. Analysts felt that the accident would earn a bad name for Air Deccan, which had started business, just a month back. An analyst commented that the accident was "Enough to hurt consumer sentiment. Fragile consumer sentiment! Enough to cause a consumer to associate the otherwise USP of cost advantage (low fares) to low quality and therefore high risk to life.". Despite the initial setback, in December 2003, Air Deccan announced that it was expanding its fleet and introducing flights on several new routes. The airline, which had started operations mainly in South India, said it would foray into Western India before entering the Northern and Eastern routes.

The fares for Air Deccan flights were 40% to 50% less than that of other leading full service airlines (FSAs) in the country. Stressing the safety aspect, Gopinath said, "We assure that our low fares come with high standards of flight safety. We have very stringent safety regulations in place, approved by the regulatory authorities.

Soon, Air Deccan services attracted a positive response from customers. In July 2004, Air Deccan stunned FSAs and industry experts by announcing its 'Dynafares' wherein it introduced tickets for as low as Rs 700 for flights between major metropolitan cities in India. Economy class fares between these cities ranged between Rs 6,500 and Rs 10,000 on FSAs. Analysts and aviation industry experts began discussing the implications of such low fares and wondered whether other carriers would enter the LCAs market. One analyst described the impact of LCAs on the Indian civil aviation industry saying, "A full service airline will not be able to compete with no-frills carriers due to comparatively high operating cost. Hence, all existing full service airlines will have to respond to the new challenge.

The Indian Civil Aviation Industry

The history of Indian aviation industry dated back to the early 1930s, when one of the leading Indian business houses, the Tatas established Tata Airlines. There was limited activity in the sector over the next two decades despite of eight more private companies entering the airline industry.

In 1953, the Air Corporations Act came into force and all the assets of the then existing nine airline companies were transferred to two corporations - Indian Airlines Corporation (IA) and Air India International (Air India).

While Air India offered international air services, IA offered domestic services. The Air Corporations Act 1953 prohibited any person or company to operate any scheduled air transport services from, to or across India. Therefore, two corporations enjoyed a monopoly status in the scheduled air transport services market. In 1962, Air India International was renamed as Air India Limited. In 1986, the winds of change blew and private airlines were allowed to operate chartered and non-scheduled services under an 'Air Taxi' scheme

The scheme was introduced to boost tourism and augment domestic air services. The carriers were however, not allowed to publish time schedules or issue tickets to passengers. The government's aviation policy was progressively liberalized in the early 1990s.

In 1993, the Air Corporations Act 1953 was abolished, which put an end to the monopoly of IA and Air India in the scheduled air transport services market. After the abolition of the Act, there was a considerable change in the India government's aviation policy.

From March 1994, the market was opened to any company that fulfilled the statutory requirements of scheduled airline services (Refer Exhibit I statutory requirements). The government approved eight private carriers to start domestic operations. They were Jet Airways (JA), Air Sahara (Sahara), Indian International, Archana Airways, East West Airlines, NEPC Airlines, Modiluft and Damania Airways.

While Indian International was the first licensee after the open skies policy came into force, East West was the first scheduled airline to take off from the ground.

In 1995, the Airports Authority of India (AAI) was formed after the merger of the National Airports Authority (NAA) and the International Airport Authority of India (IAAI). The AAI offered infrastructure facilities to all airlines. There were five international airports – Delhi, Mumbai, Kolkata, Chennai and Thiruvananthapuram – for scheduled international operations by Indian and foreign carriers...

Entry and Expansion of Air Deccan

Gopinath was in the Indian army till 1980, when he left his job and started trying his hands at various things like multi-culture farming, sericulture and agri-consultancy. In the early 1990s, Gopinath was in Singapore, where he read about a helicopter company, founded by a girl in Vietnam.

The company was set up to carry tourists in the US to Vietnam after the war had destroyed infrastructure in the country.

The story reportedly inspired Gopinath to do something similar in India. In 1995, Gopinath started Deccan Aviation Private Limited (DAPL), a private helicopter charter company, providing helicopter services for company charters, tourism, medical evacuation, offshore logistics and a host of other services.

DAPL soon emerged as a pioneer in helicopter tourism in India. While serving tourists, the company encountered demands for flights to many smaller tourist places. Gopinath claimed that government representatives from the states of Andhra Pradesh and Karnataka met him and asked whether DAPL could provide air links to smaller cities in these states...

The low cost business model

Air Deccan's business model was inspired by the globally successful low cost model pioneered by the US-based Southwest Airlines in the 1970s. In the fiscal year 2003-04, the LCAs commanded a global market share of 25% and their revenues had grown by 40%.

LCAs were continuously offering lower flying rates by inventing innovative ways to cut operational costs. Analysts claimed that the overall costs for LCAs were 45% to 60% to that incurred by FSAs.

To keep overall costs of the company low, Air Deccan took the following measures:

Food :

Unlike FSAs, Air Deccan did not provide any food on board. However, it sold snacks and water bottles on its flights for a price. Serving and consumption of alcohol were not permitted. The company felt that for short distance domestic flights, most passengers did not want food...

The target market and positioning

Analysts felt that there was huge growth potential for LCAs in India due to the country's huge 200 mn middle income group population. Gopinath expected that at least one fourth of this population would use LCAs in the near term.

He pointed out that India had 15 mn rail travellers every day. Of these 1,70,000 travelled in the air conditioned class and were potential customers for Air Deccan owing to the comparable prices. Gopinath further said that the US had 40,000 commercial flights every day whereas India had only 400 flights a day. But India had four times more population than the US, so it could theoretically run 1,60,000 flights daily! Gopinath said, "Assuming that we had tapped 1 per cent of this potential, we still need 1,600 flights a day. Therefore, we need a quadruple jump in the number of commercial flights." Air Deccan defined its target segment

as upper middle class in the short term but planned to tap the lower middle class aggressively in a couple of years...

The challenges

Even before Air Deccan started operating on long haul routes, leading newspapers in India reported that all air tickets in the Rs 700 category were sold out for 2004. The response for the flights was reportedly such that Air Deccan's website was jammed and the call centre flooded with calls requesting booking.

Since the announcement of the Rs 700 category fares, the airline received 10,000 calls a day as against 5,000 a day earlier. In response to Air Deccan's plans to offer services on major trunk routes, the FSAs quickly announced a fare reduction on these routes (Refer Exhibit X for new flight services of Air Deccan between April and September 2004). Sahara announced its "Apex fare scheme" for metros and reduced its fares by 30% . JA followed by cutting prices on major metro routes by as much as 69%. IA also launched a super apex scheme and cut its prices to match that of JA. Air Deccan's success encouraged many other companies to establish LCAs.

2.3. AIRCRAFT FINANCING

2.3.1 ROLE OF CAPE TOWN CONVENTION & AIRCRAFT EQUIPMENT PROTOCOL: BACKGROUND

One of the critical concern of the airline operators have often been the right means to procure the finance for leasing/purchasing of aircraft (Mobile Equipment). After a great deal of persuasive effort, a Diplomatic Conference took place at Cape Town, South Africa, from 29 Oct to 16 Nov 2001, and on 16 November 2001, no fewer than 25 States, signed the 'Convention on international Interests in Mobile Equipment(the Convention) and the Protocol on Matters specific to Aircraft Equipment (the Aircraft Equipment Protocol). Initially, the proposal was to include the name of UNIDROIT in the title, as had been done with the 1988 Convention on International Factoring and International Financial Leasing. Secretary General of UNIDROIT, Prof. Herbert Kronke, who was present at the Conference, however, expressed the wish that in tribute to the Conference host, the Government of South Africa, the Convention should be known as 'Cape Town Convention', and it was deservingly accepted.

The Convention and Protocol is the product of close collaboration between the two sponsoring Organizations, the International Institute for the Unification of Private Law (UNIDROIT) which had initiated the project many years before, and the ICAO. Also, closely involved in the work were, for aircraft objects, the IATA and the Aviation Working Group (AWG); for railway rolling stock, the Intergovernmental organization for International

Carriage by Rail (OTIF) and the Rail Working Group; and for space assets, the UN Commission on the Peaceful Uses of Outer Space (UN/COPUOS) and the Space Working Group.

The Convention needed only eight ratifications to come into force. On 2 Nov 05, Malaysia became the eighth country (Ethiopia, Ireland, Nigeria, Oman, Pakistan, Panama and the USA were the earlier Countries) to ratify or accede to the Convention and the Protocol. This accession has great significance for the aviation community because it meant that the Protocol (which is the instrument that govern s the application of the Convention to aircraft objects) automatically **entered into force from 01 March 2006**. WEF this date, the Convention applies to the sale, financing, and leasing of airframes, aircraft engines and helicopters in accordance with the terms of the Protocol.

2.3.2. LEASING AND FINANCING OF AIRCRAFT: A CRITICAL ANALYSIS

Given the staggering costs of large commercial airplanes, even made more critical in the wake of the recent US subprime crisis, airlines around the world have adopted new methods of financing their acquisitions of aircraft. In recent years, leasing - a legal concept developed in the United States - has become more and more important in financing expensive capital goods globally. Although leasing does not yet play a vital role in most aircraft financing comparable to its importance in the United States, the general opinion and trend is that it is having increasing significance on the market. This is especially so with the latest trend of low-cost carriers taking the airline industry by storm. Aircraft are already considered as “classical leasing objects”.

It is in this light that this paper seeks to investigate the nature and role of different modern methods of aircraft financing. Particularly, this paper will focus on three forms of aircraft finance namely debt finance; cross border leasing and operating leasing. These have emerged on the face of redundancy of such traditional methods of aircraft finance such as secured lending and leasing with no cross border element. The value of these modern methods of aircraft finance as a financial tool will be explored with reference to their unique capabilities and pitfalls. The paper will describe the aforementioned methods of aircraft finance in a multi-jurisdictional perspective including their legal and tax aspects. The analysis will extend to international and regional conventions on aircraft finance. It will also include an examination of the future prospects, issues and impediments with respect to the use of these methods in the global arena as well as local markets.

Airlines wishing to expand their fleet may either go in for a lease or go in for an outright purchase of new aircraft if finance is available on attractive terms. A 'dry lease' includes only the aircraft whereas a 'wet lease' includes both aircraft and crew. The airlines are also charged for maintenance and insurance apart from the rentals. A lease is beneficial for an

airline as it can be treated as expenditure. On the other hand a plane is generally purchased on credit and therefore treated as debt. Thus a leased aircraft helps the airline raise debt for other expenditure. The popularity of lease over purchase has resulted in lease rentals jumping by over 20 per cent in the past one year.

Purchasing marks the progression from leasing to owning the aircraft. As most purchases are made on credit the airlines' ability to raise future capital is evaluated before closing the sale. For the airlines price is the most critical factor. Discounts are given based on order size, future prospects of the airline and the prospects for the aviation industry in the operating country. Next the airline needs to consider various options as far as raising of finance is concerned. Usually one per cent of the aircraft costs have to be paid upfront by the airline. Export credit agencies like EXIM Bank and European Credit Agencies (ECA) also provide credit guarantees for a maximum of 85 per cent of the purchase price. Commercial loans are also available but work out to be more expensive. The airline may also raise finance from Private Equity players to fund the purchase.

Two options are available to an airline wishing to purchase a plane. A 'hire-purchase' lease allows the aircraft to be owned through a special purpose vehicle. At the end of the term of the lease the airline owns the asset and the last payment is made in a lump sum. Another option for purchasing is a sale-and-lease-back. The airline sells the aircraft to a leasing company, who then makes all the remaining payments. The leasing company leases the aircraft back to the airline and eventually becomes the owner of the aircraft.

THE CAPE TOWN CONVENTION: A NEW ERA FOR AIRCRAFT FINANCING

On November 16, 2001, the Convention on International Interests in Mobile Equipment (Convention) and the Protocol thereto on Matters Specific to Aircraft Equipment (Protocol) were opened for signature following three weeks of intensive work at a diplomatic conference in Cape Town, South Africa. Twenty-two other countries signed the treaty and are in the ratification process. Much of the Cape Town Convention is still uncertain as to its application.

The Cape Town Convention was drafted under the auspices of the International Institute for the Unification of Private Law (UNIDROIT). It is primarily intended to extend the benefits of a consistent registration and lien recordation and enforcement system to jurisdictions other than the U.S. that have less clear legal systems for financing. It was strongly supported by the U.S. State Department and the Export-Import Bank which is giving favored rates for aircraft financings to jurisdictions that adopt the Cape Town Convention.

The purpose is to facilitate aircraft financings by bringing a consistent system of creditors' rights and remedies to ratifying nations that do not have legal systems as comprehensive as in the U.S. The Cape Town Convention itself deals only with financing terms, not purchase and

sale terms. The Protocol applies the Cape Town Convention to aircraft purchases and sales as a necessary part of the International Registry system.

The Convention contains the basic aspects of a legal regime for secured financing of equipment and the Protocol, then, contains the specialized provisions necessary to adapt the Convention to the financing of aircraft and aircraft engines. The Convention is not intended to operate on a stand-alone basis; it can be effective only in conjunction with a protocol covering a specific type of equipment.

The Convention and Protocol establish an international legal system for security interests in aircraft equipment (called “international interests” in the Convention). The goal is to facilitate efficient secured financing. During the next several years, manufacturers of commercial aircraft equipment hope to sell-and airlines worldwide hope to buy-trillions of dollars’ worth of products. Yet, the local legal regimes in many states are inadequate to support secured asset-based financing. In the absence of legal reform, fewer transactions will take place and those that are completed will feature higher costs of financing and in some cases will require the sovereign credit of states in which airlines are based. The researchers in this paper would like to highlight the issues pertaining various matters pertaining to the financing of an aircraft under the Convention and Protocol and provide the necessary reforms.

Meaning of Aircraft Leasing: Aircraft leasing is a contract whereby the owner (lessor) of an asset agrees to another party (lessee) the exclusive rights to the use of asset (aircraft) for an agreed period of time, in return for of rent or premium which is to be paid periodically. In Indian context the word ‘lease’ is defined under section 107 of Transfer of Property Act, 1882 which deals with only immovable property only. Aircraft being the movable property so the appropriate word to be used is ‘Bailment’ of an Aircraft which is defined under section 148 of Indian Contract Act, 1872. In foreign context the word ‘lease’ could be used as the ICAO document (Manual of procedures for operations inspection, certificate and continued surveillance) and Regulation (EC) No. 1008/2008 (common Rule for the operation of Air service in community defines following:

Lease: a “...contractual agreement whereby a properly licensed air operator gains commercial control of an entire aircraft without transfer of ownership”

Lessor: “...the party from which aircraft is leased”

Lessee: “...the party to which aircraft is leased”

Concepts of Aircraft Leasing: The nature of leasing is a contract between the less or and lessee where lessor provides the right to use asset to lessee. The contract has its own specified time, referred to as the lease term for which the lessee is obliged to pay the

installment as agreed between the lessor and lessee. Generally, a lease contract may not be cancelled by either party unless certain terms and conditions specified in the contract switch to its termination. A lease automatically terminated on the completion of the lease term unless renewed. At the expiry of the lease term, the lessee is usually required to return the asset (aircraft) to the lessor, unless the lessor provides an option to the lessee to purchase of the asset (aircraft). No separate act exist to do aircraft leasing. Neither the aircraft Act nor the Aircraft Rules contain any specific provision in this regard. As with leases in general, therefore, the provisions of the contract act will apply. In order for there to be a valid lease there must be an offer and acceptance together with consideration. The parties must be competent to contract. Most airlines increasingly rely on aircraft leasing to large up front capital requirements and efficient way to purchase the aircraft. According to report, major airlines across the world had accumulated approximately 13,458 aircraft. The international Lease Finance Corporation (ILFC), estimates that one out of every three commercial aircraft is leased one. Thus the leasing is becoming more prevalent in the airline sector.

Types Of Aircraft Leasing

Basically there are two types of Aircraft Leasing: Dry lease and Wet lease.

Dry Lease: A dry lease agreement is "... an agreement between undertakings pursuant to which the aircraft is operated under AOC of the lessee..." In Dry lease, an aircraft is leased without insurance, crew, ground staff, supporting equipment's, maintenance etc. Airlines enter into dry lease agreement which has its own flight and maintenance department and need aircraft only and no other services. Dry lease is used by the leasing companies and banks, requiring the lessee to put the aircraft on its own AOC and provide aircraft registration i.e. Aviation Regulation becomes the responsibility of the lessee. The tenure of the aircraft lease is more than two years and consist certain conditions regarding depreciation, maintenance, and insurance etc. and also depending upon the geographical and political circumstances etc.

Requirements of Dry lease in India

Registration of aircraft: - Operation of foreign aircrafts on dry lease requires registration of aircraft in India. The leased aircraft ought to have a valid Certificate of Registration ("CoR") and must be entered in the operating permit of the operator. According to Civil Aviation Requirement ("CAR") regulations, registration of aircrafts can be done either in Category A or B. For leased aircrafts, the registration falls under Category A. the registration of the aircraft is valid as long as the lease is in force and the aircraft is maintained in accordance with (i) the DGCA Regulations; (ii) the terms and conditions specified in the operator's permit; and (iii) the operator's maintenance control and operations manuals. The operator can apply to DGCA for extension of validity of the CoR. Airworthiness of the aircraft- once the aircraft is registered, the owner or his authorized representative has to apply

to DGCA in a prescribed form together with the requisite fees prescribed in rule 62 of Aircraft Rules 1937 for obtaining CoA. An application for issue of Aircraft Noise Certificate is also to be made along with the CoA application. CoA is valid for a period of Twelve months. In case of imported aircraft, the validity begins from the date of issue of Export Certificate of Airworthiness and is restricted to the validity specified in the standard certificate of Airworthiness issued by the country of export.

Two types of Dry lease: There are two types of dry lease:

(a) An Operating lease; and (b) A finance lease.

An Operating lease: In case of an operating lease, the aircraft is leased for short period of time as compared to its total economic life. An operating lease is commonly used to acquire aircraft for a term of 2-8 Years. For instance, if the total economic life of aircraft is 20 years then under operating lease it may be leased upto 8 years, upon the end of the lease period, the lessee returns the leased aircraft to the lessor and there is no option of purchasing the aircraft. The lessee does not show aircraft into his balance sheet under operating lease.

Finance lease: The finance lease is also known as Capital Lease. Finance lease is long term lease and the lessee has the option to purchase the leased aircraft upon the expiration of leasing date and also includes:

Ø Lease payment more than 90% of the market value of the aircraft.

Ø The term of the lease is over 75% of the aircraft's usage life.

Wet lease: "... an agreement between air carriers pursuant to which the aircraft is operated under the AOC of the lessor...". A Wet lease provides the aircrew, maintenance, aircraft logs and other support function with the leased aircraft to lessee. A wet lease is beneficial to a company that wants an aircraft at its disposal but does not want the burden of hiring a flight department to fly and maintain aircraft. Over the years the aircraft leasing terminology has gone through many changes which may not reflect the service provided; for instance, in U.K wet lease used to mean, quite logically, 'including fuel'.

2.3.3. ADVANTAGES AND STRUCTURE OF AIRCRAFT LEASING

The advantages of aircraft leasing is as follows:

1. Full financing at fixed rates: The lessee is entitled to use an asset (aircraft) Without paying full cost-up-front which helps to conserve cash.

2. Protection against Obsolescence: Leasing an asset reduces risk of obsolescence, and in many cases passes the risk in residual value to the lessor. If the asset value changes in a short period of time, lease is effective way to avoid such risk from lessee's end.

3. Less costly financing: Tax benefits that accrue to the leasing company or financial institution may sometimes be transferred to the lessee in lower rent payment form.

4. Flexibility: The agreement of lease may less restrictive provision as compared to other debt agreements. For e.g., a lease payment schedule can be structured to meet financial condition of the lessee. If you own the aircraft, you may have virtually complete control over its use. Depending upon the resale market for the aircraft and how long you are willing to hold it, you may be building equity. However, there is less flexibility with ownership. The aircraft you purchase may become obsolete or the company's aircraft needs may change over time. A substantial down payment may be required to purchase an aircraft, depleting the company's working capital and adversely affecting your debt-equity ratio. In addition, payments towards purchase may be higher than available lease arrangements. Some companies may be subject to requirements prohibiting aircraft ownership due to shareholder or insurance liability concerns.

A lease arrangement may be more flexible than purchase of an aircraft. A lease can enable a company to get in and out of aircraft use more easily through shorter-term commitments and without the prepayment penalties that might be triggered upon sale of a leased aircraft and the risks and responsibilities of aircraft ownership.

5. Attractive minimum tax problems: As the ownership of equipment results in an increase in tax liability under alternative minimum tax rules, companies can avoid the onerous alternative tax provisions by way of leasing equipment.

6. Off Balance Sheet Financing: depending on the type of leases, the lessee can treat lease transactions as off-balance sheet. This is critical to those companies wishing to increase borrowing capacity. Companies can avoid increasing balance sheet liability by leasing equipment instead of purchasing. One reason to choose a lease over purchase is that it can minimize the cash flow required to provide what is, in effect, a service (transportation), rather than an asset, necessary to company operations. In most cases, the company has no inherent interest in owning aircraft, only in using aircraft. Even companies in business directly involving aircraft, such as the airline industry, often lease. Currently, about half of the commercial aircraft operating worldwide are leased.

7. Tax-Advantage: Ownership of an aircraft will generally give you the right to depreciate it for tax purposes. However, only interest, not principal, will be deductible. For some companies facing potential Alternative Minimum Tax issues, a lease with fully-deductible payments could present advantages. Or, if the company has insufficient tax liabilities to take

advantage of depreciation deductions, leasing might provide a cheaper method of acquiring use of an aircraft. Also, a company with international operations may have options, in terms of structuring the acquisition of aircraft that make the option of leasing more desirable than purchase.

8. Since lessors assume a residual value to the aircraft being leased, they can typically offer a lower rental payment. However, to optimize the cash flow benefit, leases usually must be for a longer term. In addition to freeing up cash, leasing also may help keep your lines of credit open.

9. Leasing also can remove long-term debt from the balance sheet. Under many lease agreements, lease rental payments will qualify as an expense, not debt, under applicable accounting rules. Companies looking to clean-up their balance sheets may prefer leasing to purchase of aircraft. You may, however, have to reflect your lease obligations in the footnotes to your financial statements.

2.3.3(a) Case Study : Grupo Taca: Aircraft Financing

Founded in 1931 by a New Zealand pilot of the Royal Canadian Air Force named Lowell Yerex, "Transportes Aéreos Centroamericanos" (TACA) started operations in Tegucigalpa, Honduras with one airplane and a contract from the Honduran government to transport goods. Thirty years later a well known Salvadoran businessman invested in TACA, becoming the majority shareholder and making TACA a multi-national carrier with a base in San Salvador, El Salvador. Between 1989 and 1992, Taca also acquired shares in AVIATECA (Guatemala), LACSA (Costa Rica) , and NICA (Nicaragua), linking these carriers in a strong multi-national alliance, that would later include TACA PERU. GRUPO TACA provides services under one operational brand with a fleet of five Airbus A319s and 23 A320s.

Cargo expansion

In February 2000, Grupo Taca decided to expand its Central American cargo business. This was the the culmination of years of carrying cargo on passenger aircraft and leased cargo planes. Taca had carried 193 million lbs tons of cargo between the United States and Central America in 1999 and was expected to carry 252m lbs in 2000. Most of the growth in 1999 was driven by an explosion in garment and electronics exports, particularly in Honduras.

"The Honduran government gave tax incentives to the maquilas in order to create jobs, and that's enabled them to export much more than before," said a Taca spokesperson, adding that in 1999, Taca had a 47 percent share of the air-cargo market in and out of Central America. Taca's major rival was Challenge-UPS, with a 45 percent share, followed by Fine Air, Antillas and smaller carriers, with the remaining 8 percent. Southbound, Taca's most

important market was Costa Rica (\$38 million in cargo revenues in 1999), followed by Guatemala (\$18 million), El Salvador (\$12 million), Nicaragua (\$8 million), and Honduras (\$3 million). Taca's main cargoes northbound were garments, cut flowers and specialty fruits, while southbound, the most important shipments were consumer goods, small appliances and electronics.

To meet cargo traffic demand, the company had decided to acquire 5 Airbus A300s, as long as the financing could be obtained. The five Airbus Industrie jets - once used by Alitalia to ferry passengers to and from Italy - would be based at Miami International Airport, following their conversion by British Aerospace PLC in Bristol, England. Taca chose the Airbus A300 because the aircraft could be unloaded in 30 minutes and loaded in 60 minutes, requiring a total of one and a half hours - a factor that would help keep operating costs down. The estimated cost amounted to \$100 million. The question was how to finance this amount.

Financing alternatives

Unlike many other airlines, Taca was financially sound and expected cash flows would be sufficient to pay the debt service on a conventional bank loan. "Our freight rates are higher, but we try to give the best service in the industry. People prefer to fly with Taca, even though it costs 2 cents per pound more," said Julio Flores, Grupo Taca's cargo manager. 1999 revenues of the privately company reached a reported \$600 million, up approximately 10 percent from 1998. With this strength in mind, a friend of the CEO, Federico Bloch, suggested he approach Bank of America's asset financing group for a loan, secured by the equipment. Bloch argued for a fixed long-term rate, so that the airline would not have to worry about refinancing for many years. A banker had told him that 15-year fixed-rate financing would add only 1/4% to 1/2% to the cost.

His CFO countered with the following reasoning: "We should go with a 15-year amortizing loan with a 7-year balloon for two reasons. First, long-term money costs more than short-term money. Secondly, the average aircraft buyer keeps an aircraft only 32 to 36 months. I don't think we are any different. We can keep the payments low with a long-term amortization of principal, and take advantage of a lower rate."

After initial discussions, Bank of America had indicated their willingness to provide a secured loan on the following terms: 90% financing at 11% fixed with a 15-year balloon, prepayable after 5 years. The 15 years was the expected useful life of the aircraft. The interest was payable monthly, and the aircraft would be used as security for the loan.

On the other hand, several aircraft executives had pointed out that leasing, not borrowing, was the normal way to finance aircraft. Lease payments can be tailored to suit the lessee's cash flows and provide up to 100% financing. A further advantage of leasing was that the lease payments were fully tax deductible, while on a loan only the interest, and not the

principal, was deductible. On the other hand, if Taca was not the owner of the planes, the company could not take advantage of depreciation (for this kind of equipment, depreciation over 10 years or more was normal). Hence it seemed that the technique worked best where the lessor could take greater advantage of accelerated depreciation than the user of the aircraft. One prominent provider of such lease finance was GE Capital Aviation Services, whose web page provided an overview of several different ways of leasing a fleet (Appendix 1).

After some negotiation, GECAS offered Taca a 10-year capital lease with 120 monthly payments of \$1.4 million. At the end of that period, Taca would have the option of purchasing the aircraft at the appraised market value. Based on past experience, Taca management estimated the residual value of the 5 planes at \$3.5 million each at the end of 10 years, and \$2 million each at the end of 15 years. The lease payments would be fully deductible for tax purposes. Taca's profits were taxed at a rate of approximately 25%. Another advantage of leasing was that the full amount would be financed; this was good because Taca's estimated cost of capital was about 15%.

Alternatively, Taca could use so-called wet leasing or dry leasing. Both involved leasing aircraft for a relatively short period, ranging from a few months to several years. This could allow the airline to test the demand without committing a huge amount of capital, and would protect against obsolescence.

Appendix : Realistic Air Leasing

Memo to: Grupo Taca

From: Realistic Air Leasing

Subject: Explanation of our leasing services

Wet Leasing (ACMI, Aircraft Crew Maintenance and Insurance)

Through our ACMI Leasing Services, Realistic Air Leasing will provide in essence a turn key aircraft ready to be used for our client's needs. We will be responsible for providing to our clients the Aircraft, Required Crew, and we will cover any related Maintenance costs required to maintain the aircraft in top condition in addition to paying for the Aircraft Insurance (Hull).

All other costs such as fuel, passenger and/or cargo loading and off loading costs, costs for over-flight permits, catering costs, airport permit costs, required accommodation costs for the crew...etc. will fall under the responsibility of our client, the Lessee.

Unlike other Lessors our ACMI services come with full operational support and assistance in order help create an efficient, cohesive and successful operation. Due to our asset based company position, our ACMI lease rates are the most competitive rates throughout the global market. We will work with our customers in order to competitively meet their financial needs thus insuring the success of both parties.

Dry Leasing

For those customers who do not require any support or crew services and are simply in need of an aircraft only for lease, Realistic Air offers Dry Lease Services. Our Dry Lease Terms usually range from 1-3 years minimum.

With our Dry Lease Services, our clients will bear responsibility for all costs other than costs related to any major checks and required servicing that the aircraft needs, such as an engine overhaul, a landing gear overhaul and/or a D-Check. All other costs such as routine maintenance that the aircraft requires (this maintenance includes all minor checks) and operating costs in addition to required personnel costs, insurance and any other measures to keep the aircraft in top condition will be the responsibility of our client.

All aircraft in our fleet are kept in excellent condition in order to provide our clients with the most reliable and well maintained aircraft available in the market.

If you choose to apply for a dry lease, RA will require the following information:

A formal Letter of Intent (LOI) describing your requirements

- Three years of audited financial statements
- Copies of the past three years tax records
- Current year profit/loss statement of a letter from a World 100 bank guaranteeing lease payments.

Questions

1. *Does it make sense for Taca to use a wet lease, an operating lease or a finance lease?*
2. *If Taca decides to acquire its own aircraft, should it lease or buy? Explain your answer with calculations.*
3. *What other financing alternatives could Taca explore?*

2.3.3(b) Case Study 2 : Aircraft leasing and lease management services

Industry :Aviation

Project Type : Development and Implementation

Company Profile :

- Client is a leading global aircraft lessor, providing aircraft leasing and lease management services to airlines and aircraft investors worldwide. The Client team is composed of highly experienced finance professionals with prolific industry track records.
- The team has an extensive network of senior industry relationships with airlines, manufacturers, investors and aviation banks worldwide.

Challenge :

- Client wanted to have a platform to communicate among various aviation leaders worldwide and also manage its customers more effectively.
- The platform needed very high confidentiality as well as user friendliness as crucial information was exchanged even in customers' communications.

Solution :

- Moldtek developed a custom platform in salesforce.com, which can be used to communicate among its users efficiently.
- We have provided Executive Communication Solution with features like User Management, Information Confidentiality, Social Media Integration, Customer Loyalty Management, and Timely targeted Information Exchange among groups.

Benefits :

- Intellectual platform design with extendable scope for any changes that might be needed in the future.
- After go-live, we provided support to client on various future changes and latest features in the platform as per requirements.
- Initial Project Scope was delivered within a month at a very good price and hence, customer made extensive changes to include all the upgrades as mentioned above.

MODULE III

AIRLINE TERMINAL AND SERVICE QUALITY MANAGEMENT

3.1 CUSTOMER RELATIONSHIP MANAGEMENT

3.1.1. MEANING AND CONCEPT OF CUSTOMER RELATIONSHIP MANAGEMENT

CRM (Customer Relationship Management), sometimes it is called customer management, customer value management, customer centricity, and customer-centric management. CRM has long been the buzzword for airlines aspiring to 'one-to-one' relationships with all customers, all of the time. Its underlying principles are well established too - those airlines that can effectively attract, serve and retain the best customers will see significant positive effects on their bottom line profitability. The deeper the relationship the airline holds with these customers, the more opportunities there will be for selling additional products and services. However, with the emergence of e-business and the 'new economy', the challenges of building strong customer relationships have become even greater. Within turbulent, highly competitive marketplace, airlines are finding it increasingly important to respond both quickly and effectively to changing patterns of customer demand. Who are airlines' customers and what are their needs and aspirations? If airlines don't know the profitability by customer, how can airlines be sure airlines are serving their best customers and applying their value to all business decision? If airlines had the means to do both, profits would soar. Not only would airlines become more efficient, the shareholders would see an investment in their only real source of revenue, the customer, and the meaningful profits that result. With so few new revenue opportunities, do airlines need more aircraft? Or instead should airlines consider a customer relationship management program that uncovers and maintains shareholder value. Airlines need to know and understand those customers who contribute the most to their bottom line.

Airlines in today's global market place are faced with increased competition and shrinking profit margins. The challenge is sustaining and creating profits in the face of heavier competition and product homogenization. The opportunities are in managing customer relationships, controlling costs and applying customer profitability to the entire business.

Imhoff defines customer as: "A party who is involved with the acquisition of the companies' goods and services and who is of interest to the organization." (Imhoff et al, 2001)

In this definition, customers can be either individuals or organizations. Customers can also be loose group of individuals joined together as a membership organization, such as the Civil Aviation Authority (CAA) in UK.

They also list some customer types according to their definition, such as Agent, Beneficiary, Bill payer, Customer Competitor, Employee, Guarantor, Household, Prospect, Referral source, Supplier Customer is defined airline passenger only.

Definition of CRM (Customer Relationship Management)

First of all, it must be understood that at its core, CRM is more than just a set of technologies: it is a process. This fact will be of significant importance to Information Technology (IT) professionals who will be asked to support CRM with information and applications. Furthermore, it is intended to be a repeatable process to ensure ongoing, continually improving, and consistent results. Simply stated, CRM comprises the acquisition and deployment of knowledge about customers to enable a airline to sell more of their product and service more efficiently.

Providing customers with a good experience however and whenever they choose to contact you is a key part of managing relationships with them. Ovum defines customer relationship management (or CRM) as: A management approach that enables organizations to identify, attract and increase retention of profitable customers, by managing relationships with them.

This definition deliberately makes no mention of any particular means of communication, or channels, whether 'traditional' (mail, telephone, in person) or new (email, Web, wireless devices, interactive television). It also makes no mention of process management technology; while implementing CRM is certain to involve the deployment of new technologies, it requires a re-examination of business processes, which should lead technology decisions, and not vice versa. The principles of CRM apply equally, regardless of the channel to the customer. However, the first wave of CRM, which came to prominence in 1998, centered on 'traditional' channels - supporting front-office personnel communicating mainly by telephone, but also by fax and mail, as well as field personnel. The following figure illustrates the key elements of the CRM architecture:

In the competitive travel industry, customer satisfaction no longer guarantees customer loyalty. Deregulation, increased parity of products, the availability of new and diverse direct distribution channels, industry alliances, and many other factors have combined to force operators in the Airline industry to focus on new differentiators in order to maintain current and develop greater market share.

In response to this new environment, travel providers are undertaking initiatives centered on identifying, developing and retaining high-value customers, under the overall banner of customer relationship management or CRM.

Customer Relationship Management (CRM) can thus be designated as a disciplined application of customer information to build customer relationships through:

- Continually refining insights into customer needs, habits, and economics
- Developing targeted and tailored value propositions based on those inputs

- Strategically focusing business resources on activities that build long-term customer and economic value.

CRM includes the methodologies, technology and capabilities that help an enterprise manage customer relationships. The general purpose of CRM is to enable organizations to better manage their customers through the introduction of reliable systems, processes and procedures. Customer Relationship Management is a corporate level strategy which focuses on creating and maintaining lasting relationships with its customers. Although there are several commercial CRM software packages on the market which support CRM strategy, it is not a technology itself.

Rather, a holistic change in an organizations philosophy which places emphasis on the customer.

A successful CRM strategy cannot be implemented by simply installing and integrating a software package and will not happen over night. Changes must occur at all levels including policies and processes, front of house customer service, employee training, marketing, systems and information management; all aspects of the business must be reshaped to be customer driven.

To be effective, the CRM process needs to be integrated end-to-end across marketing, sales, and customer service. A good CRM program needs to:

- Identify customer success factors
- Create a customer-based culture
- Adopt customer-based measures
- Develop an end-to-end process to serve customers
- Recommend what questions to ask to help a customer solve a problem
- Recommend what to tell a customer with a complaint about a purchase
- Track all aspects of selling to customers and prospects as well as customer support.

When setting up a CRM segment for a company it might first want to identify what profile aspects it feels are relevant to its business, such as what information it needs to serve its customers, the customer's past financial history, the effects of the CRM segment and what information is not useful. Being able to eliminate unwanted information can be a large aspect of implementing CRM systems. When designing a CRM's structure, a company may want to consider keeping more extensive information on their primary customers and keeping less extensive details on the low-margin clients.

What is e-CRM?

Today, more and more airlines are using the Internet to implement e-business applications and CRM strategy. These applications can be very resource intensive. e-CRM is interest

intensified in managing customer relationship through the Internet, and many airlines approached this as a separate project to their e-business strategy.

What differentiates airlines in today's hyper-competitive and demand-driven markets is their ability to address their customers' preferences and priorities. This means more than simply knowing and understanding their customers better than their competitors do. It means strategically implementing this customer knowledge in every area of the airline, from the highest management level to all the employees who come into direct contact with customers.

Establishing and strengthening long-term relationships with airline's customers is the key to success. It's the focus of a well-structured and coordinated process of customer relationship management.

e-CRM involves far more than automating processes in sales, marketing, and service and then increasing the efficiency of these processes. It involves conducting interactions with customers on a more informed basis and individually tailoring them to customers' needs.

Business Drivers--Why CRM?

There are three primary reasons why CRM has taken hold as rapidly as it has:

1. Competition is fierce;
2. The economics of customer retention are unequivocal;
3. Technology allows airlines to do this more effectively and profitably today.

The return on CRM methods

There are only three ways to increase the profitability of a customer base; acquire more customers, optimize the value of existing customers, or retain the right customers longer. All of these benefits must be achieved with lower costs.

As the economic climate continues to become more competitive, the fight over customers intensifies. Of the three choices above, acquiring new customers is the most expensive. Research shows that acquiring a new customer costs 5 to 10 times more than retaining an existing one. Studies also show that loyal customers will buy more over their lifetime and are willing to pay a premium for doing business with someone they like and trust. Therefore, while organisations will clearly continue looking for new customers, once acquired, they now know that it is worth a significant investment to keep them. CRM is a way to do that.

Airline CRM

We defined what we mean by CRM, now it's the time to more focus on Airline CRM. In this section we define a sample model of Airline electronic CRM and elaborate what we expect

from it. We all know that airline's success depends heavily on its ability to intelligently manage sales, marketing, and service processes and to draw mutual advantages from understanding of airline's customers. To help airline maximize the strategic value of customer centric initiatives, Airline e-CRM model provides a comprehensive analytical solution, it can contribute toward improving the way that measure and optimize airline's relationships with customers. Airline eCRMmodel can be conceptualized as a system that is made up of components, linkages amongst the components, and dynamics that takes advantage of the properties of the Internet and relationship to make money. It takes advantage of the properties of the Internet in the way it builds each of the components-value, scope, revenue sources, pricing, connected activities, implementation, capabilities, sustainability and crafts the linkages among these components. It is what, preferably, enables an airline to have a sustainable competitive advantage. It includes three components (subsystem): Web Base Airline-Passenger Interaction subsystem; Airline Data Warehouse subsystem; and Airline e-CRM operation subsystem. Airline e-CRM model is an asset-based solution that includes best-of-breed components to build an e-CRM infrastructure and enable any-channel, any-time communication with customers. At the heart of this offering is the CRM Foundation, which includes the CRM data model, starter set of CRM queries, reports and analysis, sample data, a demonstration prototype, data utilities and scripts, and comprehensive documentation that covers implementation guidelines, business perspective and analysis guidelines, system components, data model descriptions, and use and customization guidelines.

Since managing customer interactions is a vital piece of the e-CRM puzzle, planning and implementing a Multi-Channel Interaction Management solution with the other subsystems and enterprise solutions is crucial. Without Interaction Management, the puzzle remains incomplete. Interaction Management is the foundation for evolving customer service into customer satisfaction by tying together all customer data - no matter where it is located within the enterprise. Making this information easily and quickly accessible to the customer management process, and ensuring each customer is handled in the most efficient and effective way possible is the ultimate result of a well-defined and deployed strategy and solution.

Airline e-CRM model also:

- Provides an understanding of customer behavior and enables airlines to measure results of marketing and merchandising changes.
- Supports more effective promotions through integration of data between marketing and merchandising users.
- Provides a single view of customers across the enterprise and across contact points.
- Gives airlines the ability to respond more dynamically and quickly to market demands.

There are many benefits to be gained for airlines and airline passengers, firstly, passengers could book and check in through internet 24 hours, 7 days a week, at any time, any where. Secondly, airlines could reduce sales cost. American Southwest Airlines CEO, Gary Kelly said the Web site is playing a major role in mitigating the rise in unit costs affected by high fuel prices. It's 10 times cheaper to deliver to customers through the online service than through a travel agent, Kelly said, and costs 5 times less than using Southwest's own reservation staff. The booking cost per passenger online is "well under \$1," said Kelly, and is scaling down even further. He said Internet use by passengers was helping the carrier keep fares at low discount levels. (Aviation Week &Space Technology/March 6, 2000, p38).

Finally, CRM helps an airline to build loyalty. Because it is a marketing truism that it costs five times more to generate new customers than it does to retain existing ones, that is a compelling argument.

With e-CRM, airlines can increase sales and customer loyalty. This strategy can improve sales effectiveness, bring higher value to all of airline's key business relationships, help airline to understand what each client relationship is truly worth, develop and reinforce a consistent experience for customers, improve management effectiveness, improve tactical and strategic planning, respond faster to competitive challenges, use critical resources more efficiently, and reduce administrative burdens and overall cost.

3.1.1(a) Case Study on CRM : Emirates Airlines created a Windows 8 CRM application for the HP ElitePad 900 to improve customer relations(27th Nov,2012)

While still hypothetical at this point, this is the kind of story that Emirates Airlines hopes will stem from a new initiative designed to strengthen customer relations by improving in-flight communication and putting more information at employees' fingertips. The airline has created its own Windows 8-based CRM application and plans to deploy it on HP ElitePad 900 tablet computers. The company will begin rolling out the tablets on planes next year, but airline executives already can't keep their feet on the ground as they consider the tablet's potential.

For several years, the Dubai-based airline has run a CRM app it developed for laptops, but by making the program accessible on a tablet, flight crews will have an easier time concentrating on customer experience, according to Patrick Brannelly, an Emirates vice president of communications. Emirates created its own business application, Knowledge-driven Inflight Service (KIS), which allowed pursers to use laptops to take stock of what transpired on a flight and how to better serve passengers. KIS captures all sorts of information, anything from positive customer feedback to complaints about food to a report that a seat has a pen mark. Once the plane lands, emails go out to as many as 26 departments, that list the good and bad things that transpired during the flight.

Emirates has more than 2,500 flights per week to 126 cities. To maintain nonstop, overnight flights, the airline employs 16,000 crew members. With that many employees in the air, crew members often know little about one another. But under the new program, a purser will be able to establish a crew plan before a flight and figure out who's who.

The Windows 8 CRM application will provide an overview of the flight crew, with photos, information on experience and work strengths and tidbits such as languages spoken.

The app will also display information about passengers: the number of children, who eats vegetarian meals, who prefers a stiff drink and who needs help because of a health issue.

With tablet in hand, the purser will before takeoff update the crew on how to address passenger preferences, and, in a pinch, change people's seats.

As touchdown nears, the purser will enter any last bit of customer feedback and technical problems into the tablet, and the information routes to Emirates headquarters upon landing.

3.1.2. PASSENGER MANAGEMENT

Check-In Process

Checking in is a key process which is to be followed in airports. Currently there are numerous methods through which the passengers can check in for their flights apart from using the traditional desk check-in.

Alternate forms of check-in initially involved self-check in services at kiosks airports and then remote methods like mobile services and internet. With regards to the check-in kiosks these started approximately ten years ago at the airports. They were primarily installed by the airports for their own use i.e. the propriety kiosks. This was an inevitable development as the airline industry saw as to how the self-service technologies in other industries such as banking had lowered down the costs, increased productivity and reduced customer waiting time. At the same time better use of scarce space was made at the airports. This was followed by the development of the common use self check-in (CUSS) kiosks which allowed the airlines to share self-service resources. There had been a similar trend with traditional check-in desks where common use terminal equipment (CUTE) had been introduced in the early 1980s. the earliest CUSS kiosks were installed in Vancouver and Narita airports in 2002. In 2006 around 29% of all passengers used some type of self-check-in kiosks and this was expected to rise to 49% by the end of 2008. The usage of the system varied considerably with nearly 58% of Americans using this self-service method while its equivalent use in Africa and Middle East was merely 10 %.

Initially airlines developed dedicated desks to differentiate themselves from others and to give themselves that competitive advantage particularly to their frequent flyers. The kiosks

were branded with their name and identity. However there were no common standard for these dedicated kiosks and hence the investment and the maintenance costs also proved to be very high particularly when the airports being served was not a major base for the airlines.

Hence the CUSS kiosks were developed which allowed the costs to be shared between different airlines and less airport counter staff. However the airlines would lose the individual control over the check-in process and the cost which they incur and are no longer able to differentiate this aspect of their product.

Increasing usage of kiosks is one the major aims of IATA's 'Simplifying the Business' initiative which was launched in 2004 to use technology to streamline processes and reduce complexities and costs. In addition to CUSS kiosks the other five focus areas are electronic ticketing, bar coded boarding passes, radio frequency identification for baggage management and paper-less cargo movement. More recently two other initiatives related to reducing the number of mishandled baggage and to encourage fast travel have also been launched.

The most basic self-check-in kiosks would verify the passenger's identity and print the boarding pass. Some may allow for meal and seat choices to be made and some may also read travel documents such as passports and visas. But one of the key issues in this concept is to hold baggage check-in. Once the self-service check in is completed passengers have to queue up at the individual airline desks to check in their luggage. Many machines have tried to overcome this problem by being able to print baggage tags so that passenger themselves can tag their baggage and drop them off at a common baggage drop. But this is not allowed in all countries and in 2007 only 18% of the airports across the world had offered this facility.

In more recent years, mobile and web check-in has become a new trend. This is less costly for the airlines as they don't have to install kiosks or use CUSS and the passenger print their own boarding pass.

There is currently a very active debate on whether self-check-in kiosks were an interim solution to improve check-in process and they would ultimately need not be needed as check-in remotely using PCs or mobiles is cheaper for airlines and more convenient for passengers. However such remote technology is not always available to the passengers particularly is they are away from home. Moreover using such system are not always seamless or without the issues of security or gate staff.

Bio-Metric Identification and Registered Passenger Schemes

A Registered Passenger scheme is 'where interested passengers would apply to a national authority, be subjected to a risk assessment and, if that were successful, be registered as someone presenting a low risk to aviation security. When departing from an airport in the

European Community, RPs would be exempted from certain security checks after identification.’ In certain places, an alternative definition of an RP scheme is introduced in this report – one that does not exempt or minimize the security checks to which RPs would be subject. Instead, this approach offers RPs an improved passenger experience through privileges such as fast tracking through accelerated security checks coupled with better customer service. The report explicitly specifies when this definition is being used.

There are three key stages to an RP scheme that need to be considered when assessing the most promising approach to international recognition:

- Enrollment
- Risk Assessment and
- Identification at the airports

Identifying individuals upon check-in and before they board a plane is extremely important in ensuring safe air travel. Biometric travel document reconciliation systems achieve this specific function. The biometrics of an individual should be used to ensure that the passenger boarding an aircraft is the same person as the one who checked in; if necessary, an individual’s biometric data can also be matched against a “watch list” to prevent undesirable persons from boarding.

From check-in counters to boarding gates, biometric templates can either be written on the boarding pass (ATB magnetic stripe and/or 2D bar codes) or transmitted by the Departure Control System network, in which case a provisional database is needed. This procedure takes little time and can be completed during the normal check-in boarding process; therefore takes no extra strain is put on the congestion of the airport. The implementation of biometrics on a Common Use (or airline dedicated) Self Service kiosk can be a viable way to capture the passenger’s biometrics upon check-in.

Airport Security

The airport should provide the necessary know-how and flexibility to achieve the integration, automation and interoperability of security systems, based on biometric recognition technology. This technology should support smooth facilitation and passenger flow within the terminal. The goal of airport security systems should be to ensure unequivocal passenger identification and to monitor passenger movement from profiling / check-in, through to boarding at the corresponding gate. Passenger identity should be checked by the system against Interpol and national watch-lists of criminals and terrorists. This would provide a significant increase in security, relying on biometric identity confirmation of passengers at each control point, from check-in until they board the right aircraft, thus avoiding identity switches or the use of fraudulent documents.

The systems to be implemented should speed up the validation processes for individuals and their travel documents. In this way, without unnecessary intrusion into a passenger's privacy, the passenger should perceive both a higher level of security and easier passage. Airport management should allocate sufficient human and budget resources to the tasks of implementation, infrastructure adaptation, maintenance and upgrading.

Biometrics and Other Systems:

Biometrics can be used at airports to secure and facilitate a variety of other systems than border control, passenger facilitation and access control. For example biometrics can play a role in:

- Employee background checks: as with corporate security, background checks have become increasingly vital to ensuring airport security. Airport authorities should conduct criminal record verifications using fingerprint identification for employees who deal with sensitive information or work on the aprons close to the aircraft. Good management practices and regulations dictate that record checks should be completed prior to employment or assignment to confidential tasks. Fingerprint capture stations can enroll staff and match their fingerprint templates with large existing forensic data bases, making background checks easier, faster and more reliable.
- Logical access control: airports are increasingly dependent on computer systems and the Internet and are therefore exposed to network hacking. This can be a major risk for airport operations and constitute a serious threat to civil aviation. Biometric log-in on client/ server software can add the functions necessary to secure any network biometrically. Logical access control, log-in and password management (single sign-on), encryption, certificate activation and Incompatibility are some of the ways airport network and computer systems can be secured.

ICAO's Recommendation on Bio-Metric System:

ICAO has developed standards for biometrically-enabled MRTDs. These standards concern passports (sometimes known as "e-passports") and related documents such as visas and ID cards, for border control purposes, but may also be utilized by airports developing biometric systems for other purposes, be it for passenger facilitation or access control. Regarding the choice of biometric technology for border control, the direction given by ICAO is that face recognition is the primary biometric identifier, assuring global interoperability, and one or two additional, but optional, biometric identifiers - fingerprint and/or iris – as decided by each issuing State.

For purposes other than border control, it may not be necessary to use more than one biometric technology, as this will risk making the systems more complex, both for passengers and operators, and increasing the cost.

The use of a credential with an employee's biometric template for access control is extremely important since, unlike the passenger handling process, access control points for employees can be automated and therefore do not necessarily have to be manned by security staff, unless otherwise required by national law.

3.1.3. Passengers with Special Needs and Medical Conditions

IATA has formulated a comprehensive policy for the airlines mandating the establishment of an Airline Medical Department and provides for the role of the airline companies in respect to those passengers who require special medical assistance.

The airline medical department has wide ranging responsibilities that affect virtually every aspect of the airline operation and those using it. The areas of responsibility fall into two main categories:

- the health of the passenger;
- the health of the employee.

For the purposes of this chapter, we will concentrate on the role of airlines towards the health of the passengers and effectively managing the same in pursuance of the IATA guidelines.

The airline is responsible for carrying its passengers safely and efficiently to the destination. The airline has no real means of ensuring that all passengers are fit to begin their journey. The medical department is responsible for ensuring, as far as possible, that passenger health does not deteriorate during the journey, and that there are adequate measures in place to deal with any unforeseen in-flight medical emergency. Due to the marked increase of the number of airline passengers travelling abroad, the practice of Travel Medicine and proper medical advice to the passenger by the airline medical department has assumed great importance and is a major factor in successful airline operations.

Many passengers have real or perceived concerns about their flight and the medical department is available to answer those queries whether they come from passengers directly, or indirectly through travel agents or the airlines' sales agents. The use of pamphlets at points of sales, and in ticket wallets, airline internet sites and in-flight magazines are all useful vehicles to provide important health information and advice for passengers and their medical advisors.

Recently passengers and the media in general have become acutely aware of medical and quasi-medical issues that might be associated with flying. Much has been made of cramped seating, obsolete regulatory requirements, cabin environment, stress of travelling etc, but the fact remains that customers wish to travel quickly, cheaply and safely to their destination.

They have a responsibility to ensure that they are healthy enough to do so. The airline and its medical department have a responsibility to ensure that the flight does not have any adverse effects on those travelling. Medical Manual Airline medical departments have been catapulted into the forefront of public and media interest.

They need to provide a balanced scientifically based view, keeping abreast of medical research, using proven medical data which is made widely available to all. The carriage of incapacitated, handicapped or disabled passengers is an important aspect of air travel.

Acceptance of the incapacitated passenger for travel requires input from the airline medical department, coordinating, where appropriate, with the passenger's medical advisor and the airlines' reservations, ticketing and operational departments.

Role of Airline Management:

Medical Confidentiality

It is important that all who work in a medical department should understand the rules which govern medical ethics, particularly the commitment to medical confidentiality. Although management may request a medical assessment to ascertain a person's fitness for a particular job, the ethics of the medical profession must be maintained. In general, the health professional may provide management with reports on fitness for work, appropriate limitations and likely duration. Medical information has no place in such a report and must not be included without written consent from the individual concerned.

Advice to management on corporate health matters is not subject to the rules of confidentiality. It is the duty of the airline physician to be alert to all general matters of health and to communicate early trends to management. Only in this way can the health of Company personnel be properly safeguarded.

Insurance and Disability

Some airlines have comprehensive insurance schemes for their employees which provide cover for health, illness, accident, death, or loss of licence.

The airline medical department may be required to work in close conjunction with the insurers and insurance department of the airline, to provide accurate information and to ensure the claimant is both properly investigated and treated and also that the claim is justified. Informed consent to release of confidential medical information from the employee is essential.

Some airlines will —self-insure¹ for some of these contingencies and the onus then falls especially on the medical department to ensure that a fair and reasonable balance is struck

between employee claim and investigation and the corporate response. Claims should be properly investigated and reported on by the medical department in an impartial way to ensure that the employee is fairly treated. Occasionally, the employee or the employee's union will attempt to steer the investigation or management of such a claim by suggesting or demanding use of experts specifically designated by them. That is not in the airline's best interest, and the airline medical department should ensure that they seek, on behalf of the company the best, most independent and expert opinion available.

Medico-Legal

The airline medical department must be prepared to work closely with the legal department on claims of a medical nature against the company as well as any other legal matters requiring medical input. These claims may come from either passengers or employee, and the legal department will look to the medical department for expert medical advice and evidence.

Customer Relations

Customer enquiries and complaints may have a medical content or demand some medical explanation. This may range from complaints of —food poisoning on the flight to allegations of injuries or illnesses caused during the flight. The types of complaint are extensive and the medical department is frequently called upon by the airline Customer Relations department to provide explanation or advice.

3.1.3(a) Case Study on CRM : Business aviation's niches

Business aviation, widely recognised as an effective business tool for companies requiring fast and secure flight services, plays a less publicised but vital role in emergencies, humanitarian support and relief efforts around the world. Its flexibility allows it to mobilise on short notice, provide aircraft types suited for specific missions and operate into airports that are inaccessible to others. Other missions are uniquely tailored to business aviation's capabilities, such as the transport of persons with highly contagious diseases.

Phoenix Air Group, a US company, is the only business operator worldwide with the capability to transport patients with a highly infectious disease in an intensive care unit.

A cooperative effort between the US Centers for Disease Control, Department of Defense and Phoenix Air in 2007 led to the development of the Airborne Biological Containment System, a customised, negative-pressure isolation unit designed and certified to be used in the company's modified Gulfstream G-III aircraft. The unit isolates the contagious patient from the flight crew and medical professionals on board while allowing for the provision of intensive care.

In August 2014, at the height of the Ebola epidemic in western Africa, the US Department of State turned to Phoenix Air for assistance, as two American aid workers had contracted Ebola in Liberia and were near death. Phoenix Air deployed one of its specially equipped aircraft and flew them to a hospital in Atlanta, where both ultimately recovered. During the outbreak, Phoenix Air used its containment unit to transport 41 patients to hospitals in the US and Europe.

The success led to the development of a multi-patient transport unit, the Biological Containment System, which has the capacity to transport four highly contagious patients and six medical attendants inside a B747-400 cargo aircraft or military transport.

3.1.3(b) Case Study : Customer Relationship Management in IndiGo Airline

Following is a list of CRM practices taken up by Indigo airlines:

- A. 6C membership Scheme: This is a scheme for those customers of IndiGo airlines who are consistent flyers of IndiGo airlines. These customers are provided membership into 6C membership scheme, which help them avail 10% discount on base rate of their tickets.
- B. IndiGo Corporate plan: This plan is for those corporate travelers who prefer travelling with Indigo airlines for their corporate visits. In this plan a contract is entered into with the corporate and this is an annual contract which provides some concessional benefits to those corporate.
- C. Partial Payment Schemes: Those customers who have their account in Citibank and HDFC banks can make partial payment of tickets and pay the remaining amount later, or the remaining amount can be paid in EMIs. In this case banks become intermediaries and airlines develop good relations with both the customers and banks.
- D. FAM trips: Special trips to tourist destination in partnership with trip planning sites. These trips are different from the packages that are provided by the airlines. These are specially trips planned for those customers who hold account in indigo airlines. These trips can be availed by all kind of account holders.
- E. Value flier & bundled hotel offerings: Leisure travelers are provided with a ticket package called value flier & bundled hotel offerings. Those customers who are willing to pay some extra amount and get a package for their travel can avail this plan. Through this plan they can pay some more amounts and can get free food on board or the package can also provide hotel offerings.
- F. Separate accounts for member, agency and corporate: Indigo airlines provide different accounts for member, agency and corporate and they are provided schemes according to their needs and nature of account specifies different facilities that can be availed by virtue of holding that account.
- G. Call centers: 24/7 multilingual call centre: IndiGo provides services through their call centers as well, they provide multilingual call centers that can cater to different

- people from different parts of India. This service is provided to make the person more comfortable in talking to the agent in the language they are comfortable in and find out solutions for the queries and understand the CRM activities.
- H. IndiGo Plus: IndiGo offers a premium service called IndiGo Plus, where the passengers, at a higher fare, can avail additional benefits like a pre-assigned seat and a complimentary meal on board. This is available to those customers who book their tickets 2-3 months before the scheduled time through internet.
 - I. Citizen charter section: This is customer care center of Indigo airlines where customer's queries are answered. In this facility there is faster response from the center and the phone is directly picked by the associate and there is no need to wait while the machine answers.
 - 1. Well Trained Crew: Well trained and groomed in-flight crew assists the customer to feel more comfortable and take care of all their needs and most of the services are provided on-time performance.

3.2. HUMAN RESOURCE MANAGEMENT IN AIRLINE INDUSTRY

3.2.1. BUILDING AVIATION MANAGEMENT LEADERSHIP

Change of ownership including privatization may not be of particular concern to some planners, as they seem to feel that regardless of the ownership, airport/airline business imperatives and issues remain unchanged. While it may be so, the key issue is transformational management and aviation leaders have to successfully manage its resources before moving on to other priority areas.

When you say, customize your airline/airport the key component here is customers. Most of the internal customers on-site at airports/airlines are employed by airlines and other service providers and not by airport operators. While most airport based providers can focus their attention on one primary customer group, such as airlines and their passengers, airport leaders face a multitude of constituents, many of whom are in direct or indirect conflict over resources-passengers, airline tenants, special interest groups, even regulators and other airports. Airport/Airline Leaders who can simultaneously manage the demands of these diverse consistent groups will be highly valued. Airport/Airline Managers are rightly called as 'Aviation Leaders' – he should be a team leader, personal credibility to gain trust and respect with airport employees and stakeholders alike. An airport leader should be a good negotiator to convince new carriers to serve the airport or existing ones to add routes, to optimize the use of facilities, given the capacity and service constraints. He should be a community player – to create for the airport a positive image in the community, to foster community support for expansion plans and dealing with sensitive issues such as noise and incompatible land use and environmental issues. With the increased emphasis on non-

aeronautical revenue, it is only logical to see commercial development as a key area and the need for strong planners and strategists capable of accurately forecasting demand and putting in place a multi constituent planning processes. Team Leadership is therefore by far the single most skill, followed by commercial development and change management skills. This means Airport Leaders must, above all, be good leaders of people who are adept at charting and communicating a clear organizational direction. Ability to adapt to rapid changes and takes a flexible, dynamic approach to leadership in the evolving airport development and operating environment. Wedged between these leadership imperatives is commercial development making it clear that airport leaders must be commercially oriented towards identifying, pursuing and consummating attractive commercial development deals for their airport business. Pricing and negotiation of major concession agreements may also point to a need for strong financial expertise. Expertise in the ICT field will be an added advantage to keep up with other industries in their strategic use of technology. What then required for success are, the right mindset and the capacity and commitment to lead. A committed leader is one what the industry would need and he will be the one who can deliver the goods. Airports Leaders have to maintain the initiative, lead rather than follow, anticipate rather than react.

This means that executives who are capable of planning and over seeing large projects and who can envisage solutions to future issues or problems, successfully communicate these to a multitude of constituent groups, and then doggedly pursue their goals are best suited to airport environment.

Team Building

“The most valuable players are not necessarily the highest scorers, they are often players who help create a situation in which their team scores”

An effective teamwork gives you the benefits of increased productivity, better use of resources, cost reduction, innovation and creativity, improved quality, better customer service and higher quality decisions. A person who commands the group's respect stands the best chance of getting everyone to commit to the team process and of overcoming resistance. Managing and Leading are different, in that some feels that the Managers do things right, whereas, Leaders do the right things. What kind of training is needed to get the best out of airport leaders?

Civil Aviation Training

Civil Aviation needs the most dynamic self-starter managers and how do we get such managers? Training is the only answer. “Civil Aviation in the 21st century will be vastly more complex and demanding than in the second half of the 20th century” so said, Jonathan Howe, Former Director General, ACI. Training the men and women who work in civil

Aviation is key to meeting the unprecedented challenges. Focus of training is generally placed on the executives. While, it can continue, a lot more training will need to be given to the grass root level staff.

Airport/airline management would need to take the initiative to train and retrain all their staff and executives. Managers whether in airlines, airports, air navigation services, air traffic controllers or fire and rescue services or any other field of civil aviation will need to expand their knowledge level and expertise if they are to achieve a dynamic balance between profitability and safety goals.

A complex situation, perhaps somewhat unique is the safety standards in civil aviation which is one of the best in the world. At the same time, aviation executives have to produce necessary profit for the industry. Aviation business is unique and it will continue to enjoy the monopoly despite change of management structure. The aviation operators will continue to wear the double cap of a regulator and a service provider while retaining commercial principles.

Human Factors in Civil Aviation

With a growing social intolerance of accidents of all kinds, the millennium will see greater emphasis on understanding the role of human factors in the safe operation of aircraft, airport, focusing just not on flying and maintenance functions, but on all support roles. The reality is that human error is documented as the primary contributor to several accidents/incidents⁹. It means that human factors are taking a higher profile – it involves a deeper understanding of people's skills and a whole range of characteristics as applied to machines, specific job or whole systems, to ensure operations are safe and effective. This then get applied to everything from design and manufacture of equipment to the management of operations and development of policies, training and procedures. ICAO continuously emphasis on this aspect of 'human factor' and has updated a range of Annexes and procedural guidelines covering a range of areas with the creation of a package of Standards and Recommended Practices (SARPs) relating to the role of human factors in the operational environment.

The objective of aviation Human Factors is to address human error in operational environments. The Human Factors principles apply to aeronautical designs, certification, training, operations and maintenance and which seek safe interface between the human and other system components by proper consideration to human performance. The contribution of technology to aviation safety and efficiency is undeniable. However, despite its positive effects, both from a safety and economic point of view, incidents and accidents continue to show that new and sometimes surprising problems still exist. Two reasons explain these problems. Firstly, the absence of an approach to the implementation technology which includes Human factors considerations as an integral part. Technological and Human Factors solutions have frequently been implemented autonomously, with little dialogue between

system designers and Human Factors practitioners. Therefore, technology has not fully delivered its potential because of deficiencies in its interface with human operators. This technology centered automation is being gradually phased-out in favour of ICAO supported ‘human centered’ automation¹¹. In this, human capabilities and limitations are fully taken into account and integrated with technology during system and procedures design. Secondly, if Human Factors knowledge is not pro-actively integrated during system design, it will most likely be applied in a reactive mode, after investigations of accidents and incidents document flaws in human performance, which may be either due to inherent human limitations fostered by deficient human – technology interfaces, or more likely, by a combination of both. Reactive approaches tend to focus on immediate rather than on root causes of problems because of the emotional context within which they take place.

Performance + Productivity are the outcome and is the shortest access to Excellence. Excellence is related to pursuit of total quality backed by the employee’s capacity for innovation and delivery, and setting standards and reviewing them through control measures ensures success.

3.2.1(a) Case study : Human Error leading to Aviation accident- Case of ASIANA 214

On July 6, 2013, about 1128 Pacific daylight time, a Boeing 777-200ER, Korean registration HL7742, operating as Asiana Airlines flight 214, was on approach to runway 28L when it struck a seawall at San Francisco International Airport (SFO), San Francisco, California. Three of the 291 passengers were fatally injured; 40 passengers, 8 of the 12 flight attendants, and 1 of the 4 flight crewmembers received serious injuries. The other 248 passengers, 4 flight attendants, and 3 flight crewmembers received minor injuries or were not injured. The airplane was destroyed by impact forces and a postcrash fire. Flight 214 was a regularly scheduled international passenger flight from Incheon International Airport, Seoul, Korea. The accident highlights the risks associated with over reliance on automation and lack of flying currency.

The National Transportation Safety Board determines that the probable cause of this accident was the flight crew’s mismanagement of the airplane’s descent during the visual approach, the pilot flying’s unintended deactivation of automatic airspeed control, the flight crew’s inadequate monitoring of airspeed, and the flight crew’s delayed execution of a go-around after they became aware that the airplane was below acceptable glide path and airspeed tolerances. Contributing to the accident were; (1) the complexities of the auto throttle and autopilot flight director systems that were inadequately described in Boeing’s documentation and Asiana’s pilot training, which increased the likelihood of mode error; (2) the flight crew’s nonstandard communication and coordination regarding the use of the auto throttle and autopilot flight director systems; (3) the pilot flying’s inadequate training on the planning and executing of visual approaches; (4) the pilot monitoring/instructor pilot’s inadequate

supervision of the pilot flying; and (5) flight crew fatigue which likely degraded their performance.

3.2.2. GROUND HANDLING MANAGEMENT

Aircraft Ground Handling

In aviation, aircraft Ground Handling defines the servicing of an aircraft while it is on the ground and (usually) parked at a terminal gate of an airport.

Many airlines sub-contract ground handling to an airport or a handling agent, or even to another airline. Ground handling addresses the many service requirements of a passenger, freighter or Combi aircraft between the time it arrives at a terminal gate and the time it departs on its next flight. Speed, efficiency, and accuracy are important in ground handling services in order to minimize the turnaround time (the time during which the aircraft must remain parked at the gate). Airlines with less-frequent service or fewer resources at a particular location sometimes subcontract ground handling or on-call aircraft maintenance to another airline, as it is a short-term cheaper alternative to setting up its own ground handling or maintenance capabilities. The major categories of ground handling services are described below:

Passenger Services	Other Services	Management Duties
Arrival service	Cargo and mail services	Training
Check-in service	Central departure control	Ramp Services
Gate service	Consulting services	Baggage handling
Irregularity services	Crew services	Interior cleaning
Lost and found	Financial services	Cooling/heating
Lounge services	Flight Deck Operations	De-icing/anti-icing
Security and VIP service	Manual development	Load control and Loading/unloading

Transfer service	Medical services	Marshalling
	Ships library	Moving of aircraft
	Surface transportation	Parking
	Systems development	Pre-departure inspections
	Ticket sales	Ramp fueling/De-fueling operations
		Ramp to flight deck communications
		Safety measures
		Sealing of aircraft
		Starting up
		Transfer service
		Water & waste
		Purchasing services
		Station management
		Supervision and Station Inspection

3.2.3. MANAGEMENT OF AIRLINE CREW MEMBERS

Managing ever changing human behavior of customers is part and parcel of effective business management. Besides this, managing internal employee satisfaction and motivation is the key to employee retention, sector optimization and prompt service delivery. The ever growing air traffic volume and pursuit to ensure everlasting travel experience for customers has pushed airlines towards an effective utilization of resources. Crew has always been an important part of travel services as they are the face of the carrier towards making a good travel experience.

Effective crew utilization has always been a challenge for airlines whether it is equipment training, qualification, and experience versus the various round the clock flights planning exercises. Crew resource management or cockpit resource management (CRM) is a set of training procedures for use in environments where human error can have devastating effects. Used primarily for improving air safety, CRM focuses on interpersonal communication, leadership, and decision making in the cockpit.

The term "cockpit resource management" (later generalized to "crew resource management") was coined in 1979 by NASA psychologist John Lauber who had studied communication processes in cockpits for several years. While retaining a command hierarchy, the concept was intended to foster a less authoritarian cockpit culture, where co-pilots were encouraged to question captains if they observed them making mistakes.

CRM grew out of an analysis by the US National Transportation Safety Board (NTSB) of the 1978 United Airlines Flight 173 crash where the plane ran out of fuel while the flight crew were troubleshooting a landing gear problem. The NTSB issued its landmark recommendation to require CRM training for airline crews on June 7, 1979. A few weeks later, NASA held a workshop on the topic, endorsing this innovative training. United Airlines was the first airline to provide CRM training for its cockpit crews in 1981. By the 1990s, it had become a global standard.

United Airlines additionally trained their flight attendants to use CRM in conjunction with the pilots to provide another layer of enhanced communication and teamwork. Studies have shown that by both work groups using CRM together, communication barriers are reduced and problems can be solved more efficiently, leading to increased safety. CRM training concepts have been modified for application to a wide range of activities where people must make dangerous time-critical decisions. These arenas include air traffic control, ship handling, firefighting, and medical operating rooms.

CRM training encompasses a wide range of knowledge, skills, and attitudes including communications, situational awareness, problem solving, decision making, and teamwork; together with all the attendant sub-disciplines which each of these areas entails. CRM can be

defined as a management system which makes optimum use of all available resources—equipment, procedures and people—to promote safety and enhance the efficiency of operations.

CRM is concerned with the cognitive and interpersonal skills needed to manage resources within an organized system, not so much with the technical knowledge and skills required to operate equipment. In this context, cognitive skills are defined as the mental processes used for gaining and maintaining situational awareness, for solving problems and for making decisions. Interpersonal skills are regarded as communications and a range of behavioral activities associated with teamwork. In many operational systems as in other walks of life, skill areas often overlap with each other, and they also overlap with the required technical skills. Furthermore, they are not confined to multi-crew craft or equipment, but also relate to single operator equipment or craft as they invariably need to interface with other craft or equipment and various other support agencies in order to complete a mission successfully.

Communication

Cockpit voice recordings of various air disasters tragically reveal first officers and flight engineers attempting to bring critical information to the captain's attention in an indirect and ineffective way. By the time the captain understood what was being said, it was too late to avert the disaster. A CRM expert named Todd Bishop developed a five-step assertive statement process that encompasses inquiry and advocacy steps.^[13]

- **Opening or attention getter** - Address the individual. "Hey Chief," or "Captain Smith," or "Bob," or however the name or title that will get the person's attention.
- **State your concern** - Express your analysis of the situation in a direct manner while owning your emotions about it. "I'm concerned that we may not have enough fuel to fly around this storm system," or "I'm worried that the roof might collapse."
- **State the problem as you see it** - "We're showing only 40 minutes of fuel left," or "This building has a lightweight steel truss roof, and we may have fire extension into the roof structure."
- **State a solution** - "Let's divert to another airport and refuel," or "I think we should pull some tiles and take a look with the thermal imaging camera before we commit crews inside."
- **Obtain agreement (or buy-in)** - "Does that sound good to you, Captain?"

These are often difficult skills to master, as they may require significant changes in personal habits, interpersonal dynamics, and organizational culture.

3.2.4. FATIGUE RISK MANAGEMENT SYSTEMS

ICAO has defined FRMS as a “scientifically based, data driven, addition/alternative to prescriptive flight and duty time limitations which manages crew fatigue in a flexible manner appropriate to the level of risk exposure and the nature of the operation” (ICAO, 2008).

Essentially, through an integrated set of management policies, procedures and practices, it moves away from the traditional, scientifically doubtful, hours of work limits as a means of controlling fatigue in the work place and takes a much broader, holistic perspective of the causes of fatigue on duty with respect to organizational, environmental, physiological and other factors.

FRMS is a risk management function which is allied to and designed to be an integral part of an organization's SMS. Akin to SMS, FRMS requires the implementation of multiple defences against fatigue at various organizational levels according to James Reason's "Swiss cheese" model.

A major element of an FRMS is the identification of fatigue hazard, evaluation of its severity and likelihood of occurring, assessment of the risk that it poses and implementation of mitigating risk reduction measures.

An important concept of FRMS is shared ownership. Figure 8 represents how consultation and communication among all involved parties influences and shapes the principle functions of the system in a dynamic process of continual development.

Human Factors Perspective

Improved understanding of fatigue risk hazards has lead to the realization that all stakeholders (regulators, employers, employees) share responsibility for minimizing risk and increasing the safety of the operation. In the past human error, considered the primary cause of accidents and incidents, had been associated with operations personnel (pilots, engineers, dispatchers, controllers etc.). Analysis of recent major accidents in aviation and other industries has revealed that managerial decision making failures, primarily related to latent risk embedded in an organization's procedures or structure, have also been a contributory factor. Table 5 illustrates how this new thinking translates into the allocation of FRMS responsibilities.

The integrity of this system relies upon an open, honest and non-punitive reporting culture, appropriate regulatory oversight and confidence that an organization's management will not be tempted to abuse the FRMS process for commercial advantage and similarly that employees do not overstate fatigue issues for lighter work schedules. Ideally this moves the fatigue management process out of the labour/management negotiation regime into the domain of safety management where lifestyle issues are respected and where all operational, ancillary and directing staff have a stake and are able to contribute to the process.

System Description

The following presents components parts of an FRMS under 6 headings which are closely aligned with the ICAO draft proposals. These headings with their associated elements are as follows:

- Policies and Procedures
 - Outline the commitment of organizational management to manage fatigue-related risk
 - Detail the required procedures for managing fatigue at the operational level
- Responsibilities
 - List personnel responsible for FRMS design, implementation and maintenance
 - Document responsibilities of individual employees and work groups
- Risk Assessment/Management
 - Scheduled versus actual hours of work
 - Individual sleep patterns
 - Symptom checklists
 - Error/incident reporting
- Training
 - Promote knowledge in the workplace about risks, causes and consequences of fatigue
 - Ensure employees understand and can apply FMRS strategies
- Controls and Action Plans
 - Toolbox of methods used within FRMS, including error reduction techniques (“fatigue proofing” rather than “fatigue reduction”)
 - Clear decision trees for managers and employees to use when fatigue has been identified as a risk
- Audit and Review
 - Documentation and data collection at regular intervals monitoring how FRMS is working
 - Review of FRMS based on audit results

Overseeing and acting as a focal point for all the FRMS processes in an organisation is the Fatigue Management Steering Committee (FMSC). The FSF lists the functions of this body as follows:

- monitoring fatigue information sources;
- investigating fatigue-related issues;
- requesting internal audit of specific issues;
- proposing solutions to fatigue related issues;

- recommending priorities for targeting fatigue management resources;
- providing transparent and timely feedback to management and workforce;
- cooperating with internal and external audits; and,
- overseeing the quality assurance of FRMS training in whole organisation.

It goes on to recommend that this group is made up of representatives drawn from:

- pilots and cabin crew
- medical staff
- establishment planners/rostering staff
- commercial/marketing departments
- training establishment
- engineering
- safety services
- flight operations,
- achieving a balance of company and employee staff with access to scientific/specialist advice as required

Risk Assessment/Management

Fatigue risk is difficult to predict and quantify with any accuracy within a risk management system. Indeed the relationship of fatigue and risk is non linear and poorly understood. However the Functional Resonance Accident Model (FRAM) of risk suggests that increased fatigue does lead to increased risk and this is an assumption common to both FRMS and FTL schemes.

With FTL schemes the risk assessment and management has been a predominantly reactive process, adopting a compromise between best practice and commercial imperative. In a FRMS this process is a central function which binds the system together using reactive and proactive components. The reactive part comprises “risk radar” that senses fatigue hazard via 4 layers of reporting chains:

- Routine reports; i.e. Flight Data Monitoring (FDM), Flight Reports, Roster Stability Data, Sickness Rates, Aviation Medical Examiners’ Reports, etc.,
- Ad hoc reports; i.e. FRMS Audits, Crew Surveys, Safety Walks, Line Orientated Safety Audits (LOSA), Flight Operations Quality Assurance (FOQA), etc.,
- Incident (Accident)/Risk driven reports; i.e. Air Safety Reports (ASRs), CHIRP, Fatigue Incident Report Forms, Crew Welfare Report Forms, Fatigue Investigations, Discretion Reports, etc.,

- Long term fatigue studies; i.e. Human Factors Monitoring Programmes (HFMP), Human Interaction in the Lifecycle of Aviation Systems (HILAS) project, etc.

The complexity of modern day air transport operations and higher expectations of safety demands a system with a greater proactive emphasis. This can be provided by computer fatigue modelling programmes that can predict generic fatigue levels at any point of an FDP and can be instrumental in the assessment of the fatigue risk associated with new trip patterns. This, then, can influence the risk management process resulting in the deployment of proactive fatigue risk mitigating measures.

Physiological Monitoring and Alertness Testing

Fatigue studies have employed a range of methods to collect data about flight crew's quality of sleep, susceptibility for sleep (multiple sleep latency tests - MSLT) and state of alertness. In controlled scientific studies polysomnography monitoring, which uses electroencephalograms (EEG), electrooculograms (EOG) and electromyograms (EMG) to record brain activity, eye movement and chin muscles tension respectively, has been used to assess the structure of sleep following disturbed rest associated with shift work or time zone change. In other scientific tests measures have included; the readings of individual's body temperature (using Biorhythm watches) and salivary melatonin to establish phase of the internal body clock and rate of adaptation to new time zones, the wearing of Actilumes and Actiwatchs (watch like devices that detect light and movement respectively) to record when sleep was likely to have occurred, and Psychomotor Vigilance Task (PVT) and Palm Pilot computer alertness tests. To compliment these objective tests, subjective assessment has usually been conducted in tandem for comparison and validation purposes and these have taken the form of sleep diaries and alertness report forms.

FRMS in Operation: International Practices

The first application of an FRMS philosophy to an aviation environment was in 1995 when the CAA of New Zealand (CAANZ) introduced an "alternative compliance scheme" to their existing FTL scheme. Following on from this the Australian Civil Aviation Safety Authority (CASA) began trialling FRMS in 2001. Both of these initiatives were prompted by the geographical remoteness of these 2 countries and particular demands on their aviation industry leading to a realization by the NAAs that the conventional FTL schemes in place were not sufficiently broad enough in their scope to regulate all aviation activities.

With the arrival of the Airbus A340-500 extended range aircraft airlines were able to introduce scheduled ULR services of 16 hours and over. In 2004 Singapore Airlines (SIA) started services from Changi to Los Angeles and New York whilst Emirates began flying directly to Sydney and New York from Dubai. These operations could not be catered for within these organization's normal FTLs so special, dedicated ULR procedures were devised

for these flights based on FRMS principles which are now a universally accepted reference for long-haul FRMS operations.

Elsewhere, in the intensive, short haul environment of the low cost carrier, easyJet found that the roster routine allowed by their existing FTL scheme was contributing to undesirable levels of fatigue risk and incidences of flight deck errors. After conducting a trial of an FRMS designed roster, easyJet was able to present to the regulator, a safety case for alleviation from their FTLs by virtue of employing FRMS techniques which ensured an equivalent or better level of safety. This was accepted and easyJet rolled out their FRMS programme in April 2005. Also in Europe, to date, Jetairfly (TUI) and DHL Air have begun development of their own FRMS systems.

Introduction of FRMs into Long Haul Operations

Regulatory Background

The International Civil Aviation Organisation (ICAO) sets out in its Standards and Recommended Practices (SARP) document guidance for aviation authorities to follow in formulating regulations. In the draft Annex 6, Part I of the SARP proposed for issue in 2011, ICAO recommends that:

“Operators shall establish flight time and duty period limitations and a rest scheme..... to manage fatigue.” and that these *“Shall be based upon scientific principles and knowledge where available...”*.

(CAA, 2009c)

In response to this ICAO guidance EASA have signaled in a notice of proposed amendment to EU.OPS proposed to be mandated in April 2012 (postponed from October 2010), when EASA takes control of FTL regulation, that OR.OPS.025.FTL will state:

“An operator shall establish and maintain an FRMS as an integral part of its management system.” that *“shall correspond to the roster system or flight time specification scheme used by the operator...”* and that the *“Operator shall take mitigating safety measures when the FRMS process shows that the required safety performance is not maintained.”*

(EASA, 2009)

Safety Case

The purpose of the safety case exercise is to verify the need for FRMS incorporation, collect a baseline of fatigue risk data as a pre-FRMS implementation reference, establish and refine the process for risk assessment and management, trial “levers” for fatigue risk mitigation (to prove the system and effectiveness of “levers”) and gain regulator approval.

The 2 trip rotations indicated by the VAA pilot fatigue survey to be the most fatiguing should be the primary focus for an FRMS safety case i.e. for the Airbus fleet, the LHR-HKG-SYD pattern and for the Boeing fleet, the LHR-LGW-MCO pattern.

A comprehensive HFMP should be planned for at least 6 months to account for seasonal changes in length of daylight and effects of weather. A campaign of objective testing using Actiwatchs and carrying out PVT and Palm Pilot alertness tests together with subjective data achieved through sleep diaries and fatigue report forms, completed at specified points, should be conducted.

The performance outcome of these surveyed trips could be analysed through assessment of the various sources of data, listed in section 6.2.1, and already collated by the SMS, filtered for those reported outcomes, the occurrences of which, pilots had some influence over. By emulating easyJets methodology (Appendix E), it should be possible to establish a linkage between rostering practice and given working environment, measured flight crew alertness (and by inference, fatigue) and the performance/safety outcome.

SAFE, tuned to the particular operating characteristics of the airline, validated by the HFMP, areas of fatigue risk could be predicted and a proactive risk assessment/management function could be employed for these safety case trips and applied in future to all trips in the airline's route structure. FRMS strategies deployed by SIA for their ULR operations could be trialled to gauge their effectiveness and reinforce the case for regulator approval.

Organizational “levers” to mitigate fatigue risk could be manipulations of the schedule by changing departure times, or roster pattern by varying layover and recovery times, or crewing establishment by increasing crew compliments. Further measures might include studies into the best arrangement for crew in-flight rest and the effects of cumulative fatigue built up over a series of rotations.

FRMS Integration into Airline SMS

Organisational establishment changes to accommodate FRMS can be minimised as the FRMS Organisational Chart, depicted in Figure 10, can overlay the SMS structure. The “just culture”, holistic, shared ownership and safety performance driven features are closely mirrored in both the related systems which compliment each other's purpose. Table 9 demonstrates how the essential elements of FRMS are related to the 10 organizational functions of SMS identified by ICAO.

ICAO's 10 Steps to SMS

Essential FRMS
Elements

Planning

- Non-punitive Fatigue Risk
Management

Policy

- "Just Culture"

Senior Management

Commitment

Organisation

- Fatigue Management Steering Group

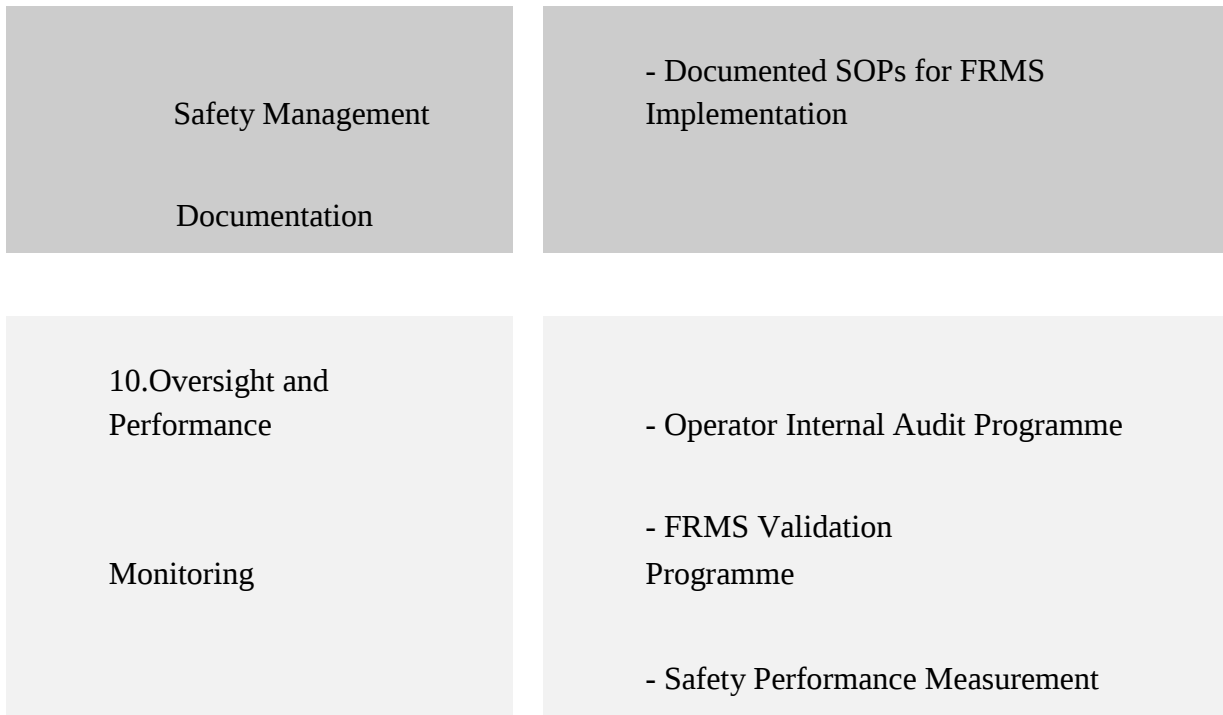
Hazard Identification

- Fatigue Risk Assessment Tools

- Crew Fatigue
Reporting

- Employee Communication Channels
for

	Feedback
Risk Management	- Strategic, Scientifically-Driven Crew Scheduling - Validated, Timely Fatigue Mitigation Strategies -Data driven processes for monitoring alertness
Investigation Capability	- Procedures to Investigate and Record Fatigue-Related Incidents
Safety Analysis Capability	- Data Collection & Assessment
Safety Promotion & Training	- Education and Awareness Training Programmes



After the FRMS education campaign has completed, then training of all staff associated with flight operations should begin based on the curricula that the FSF recommended for SIA ULR operations i.e.:

- Causes of fatigue in the airline environment
- Consequences of fatigue on aviation safety;
- Requirement for confidential feedback from incidents;
- Recognition of signs of fatigue and decreased alertness in self and others;
- Physiology of sleep and understanding of one's own sleep physiology and how it should influence preferential bidding;
- Circadian rhythms and homeostatic process;
- Sleep and alertness strategies including "sleep hygiene";
- Diet and hydration including effects of alcohol and caffeine;
- Prescription and non-prescription medication and rules;
- In-flight environment and its effects;
- Work scheduling and,
- Crew coordination to address sleep inertia after in-flight rest.

Risk Assessment/Management

The complexity of a long-haul operation with world wide destinations, round the clock activity, and a variety of trip and layover lengths requires a modified risk assessment/management process to that explained earlier.

By comparing the analyzed output of the “risk radar” element of the reactive component of the process with predicted fatigue levels from the SAFE programme, the proactive component, a relationship can be established between safety of the operation in terms of reported fatigue risk events and expected fatigue. This relationship, which may be unique to each rotation, can be used to aid trip planning with respect to schedule timings, number of pilots, length of layover etc.

The starting point for this process would be a defined level of safety stipulated by the regulator as an acceptable rate of fatigue risk event reporting which would correspond (via the relationship) to a limit on the decrement to SAFE predicted alertness. This limit would then inform the trip design process, using SAFE, and continue to be a dynamic, systematic fatigue risk governing function. True to FRMS principles, safety performance outcome would drive the process. The transparency of the process could be ensured by publishing the latest alertness level limits calculated for each trip. By making the SAFE programme available to pilots it could be verified that predicted alertness levels for a prospective trip rotation did not diminish below the limit promulgated. In setting the limit, factors could be introduced to allow for individual physiological differences in tolerances to fatigue and for variations in fatigue inducing aspects of the operation such as coping with weather and technical problems. Delays and diversions would necessitate a fresh SAFE evaluation with the facility to specify a cut off time for creeping delays. FRMS system ownership would be satisfied by pilots’ ability to directly monitor and influence, by tactical fatigue risk mitigating measures, the risk assessment/management process. The process’s working metrics would meet the data needs of the regulator/operator for auditing/oversight requirements.

3.2.4(a) Case Study on : HR Problems at Jet Airways: Coping with Turbulent Times in the Indian Aviation Industry

Abstract: The case is about the retrenchment drama that unfolded in one of India’s leading aviation companies, Jet Airways (India) Limited (Jet), in late 2008. After showing the door to more than 1000 employees in a bid to streamline its operations, Jet was faced with immense criticism and opposition by various organizations and political parties.

Jet’s chairman Naresh Goyal (Goyal) reinstated the employees a day later saying that he was not aware of these sackings. The Indian aviation industry was going through a tough phase and experts felt that it was in the interest of the company to retrench employees to remain competitive.

Experts largely felt that Goyal had capitulated under pressure from external parties while others felt that all may not be well with the organizational communication mechanisms at Jet.

We have created high morale for our people. Our employees believe in the company. They believe it's their company. There's a feeling among employees that if the company makes money, it's their money and if the company loses money, that's their loss."

Naresh Goyal, Chairman, Jet Airways (India) Limited, in July 2007.

"While the mishandling of the Jet Airways sacking and reinstatement of 1,900 employees was an HR and PR disaster, the larger implications of what happened are also worth considering. It is not just that the chairman of India's most successful airline became the butt of jokes, it is also a question of what he knew, when he knew it, and who did the bungling."

– Anjali Bargava, Columnist, Business Standard, October, 2008.

"The sackings were completely illegal. There was no notice nor was government's permission taken to sack 800 employees. Perhaps they realized their folly and decided to take these employees back. The matter would have landed in the court otherwise."

- Anand Pujari, Labour lawyer, SI Joshi & Co., in October 2008

ISSUES

- » Analyze the HR problems faced by Jet Airways in 2008.
- » Discuss various concepts related to hiring, firing, and compensation management. » Understand the rationale behind Jet's decision to lay-off employees and the reason's behind its later decision to take back the sacked employees.
- » Understand the importance of communication in an organization and analyze whether there were any loopholes in Jet's organizational communication network.
- » Understand the rationale behind the pay cuts initiated at the company.
- » Understand how environmental variables could affect a company's HR policies.

Introduction:

In October 2008, Jet Airways (India) Limited (Jet), one of India's leading domestic airlines, decided to lay off more than 1,000 employees to streamline its operations. The retrenchment was the second phase of its trimming operations.

The first phase, which took place a day earlier, saw the airline showing the door to 850 cabin crew members⁶. The second phase of retrenchment included employees from all operations -

cabin crew, pilots, ground staff, airport services staff, and employees from management departments.

The sudden decision not only took the employees by surprise but also caused alarm in the Indian aviation sector. Amidst great furor and opposition by various organizations and political parties, Naresh Goyal (Goyal), chairman of Jet, reinstated the employees a day later amidst great emotional drama. He was quoted as saying he had been appalled by the retrenchments of his employees, which he claimed, he had come to know only through media reports

He added that he would "not be able to live as long as he lives" with the tough decision his management had taken and clarified that he was taking back the employees as they were "family to him and as head of the family he would take care of them.

A month later - in November 2008, Jet announced that it would consider serious salary cuts for its staff to handle the aviation crisis.

While many industry analysts were surprised by the turn of events that had led to the reinstatement of the sacked employees, they opined that Jet had been forced to take drastic decisions such as laying off employees or initiating pay cuts because of the turbulent phase through which the aviation industry was passing.

In September 2008, the International Air Transport Association (IATA) had predicted that world over the aviation industry would lose about US\$5.2 billion based on an average jet fuel price of US\$140 . The rise in fuel prices had pushed the fuel bills of the aviation industry to US\$186 billion by the end of the year 2008.

Background Note:

Jet, with its headquarters in Mumbai, India, began as an air taxi operator in April 1992 and started its commercial operations a year later, in 1993. It operated with just 24 flights across 12 destinations initially, but showed exceptional growth with more than 357 daily flights to about 62 domestic and international destinations in 2008. It was first listed in the National Stock Exchange (NSE) in the year 2005. As of June 2008, it operated over 370 daily flights to about 68 destinations both in India and abroad including San Francisco, New York, Toronto, Singapore, Brussels, London (Heathrow), Hong Kong, Shanghai, Kuala Lumpur, Colombo, Bangkok, Kathmandu, Dhaka, Kuwait, Bahrain, Muscat, Abu Dhabi, Dubai, etc...

HR Issues, Management and Decision Making at Jet :

According to the company, Jet paid the utmost importance to the composition of its senior management and its human resources with emphasis on teamwork as a key success factor. Being in the service-based industry, Jet gave priority to high quality, professional service to its customers...

The Retrenchment Drama Unfolds

The retrenchment drama unfolded on October 16, 2008, when Jet announced that it would lay off nearly 1,100 of its staff a day after it had already laid off around 800 of its cabin crew members.

The second phase of 1,100 employees included those from departments like management, flight attendants, and the cockpit crew.

The company decided to lay off these employees with no prior notice but offered them a month's remuneration...

Reasons for Retrenchment

The growing challenges in the Indian aviation industry were the main reason for the lay offs at Jet, according to the company and other industry analysts.

Turbulent Times for the Indian Aviation Industry

The Indian aviation industry was one of the fastest growing aviation industries in the world. The Air Corporations (Transfer of Undertakings and Repeal) Act 1994 opened the Indian skies up to private operators. Apart from government-owned airlines, the aviation industry was flooded with private operators and low cost carriers...

The Debate Leading to the Reinstatement of Employees

Jet received criticism from several quarters for retrenching its employees. Many of its employees protested against the decision to oust them without prior notice. Most of them had paid substantial amounts to receive training at major Aviation Training institutes...

Massive Salary Cuts Follow

In the last week of November 2008, Jet decided on a 20% cut in the salaries of its pilots, engineers, and some other staff. The company planned a 5 percent to 10 percent cut in the salary of top officials who drew a salary above Rs. 75,000.

3.2.4(b) Case study : Indian Airlines – HR Problems

The case 'Indian Airlines' HR problems', examines the causes of the HR problems faced by Indian Airlines. The case reveals how poor management and stubborn work force can drive a monopoly into losses. The case also throws light on other lapses such as poor canteen management and payment of excessive allowances.

The case is so structured as to enable students to understand why and how Indian Airlines was constantly plagued by HR problems. The students should be able to see how the pilots and other workers used arm-twisting tactics to get IA to agree to all their demands. The case also provides insights into how IA's lackadaisical handling of its HR problems contributed to the overall mess that the airline found itself in.

Flying Low

Indian Airlines (IA) - the name of India's national carrier conjured up an image of a monopoly gone berserk with the absolute power it had over the market. Continual losses over the years, frequent human resource problems and gross mismanagement were just some of the few problems plagued the company. Widespread media coverage regarding the frequent strikes by IA pilots not only reflected the adamant attitude of the pilots, but also resulted in increased public resentment towards the airline.

IA's recurring human resource problems were attributed to its lack of proper manpower planning and under utilisation of existing manpower.

The recruitment and creation of posts in IA was done without proper scientific analysis of the manpower requirements of the organization. IA's employee unions were rather infamous for resorting to industrial action on the slightest pretext and their arm-twisting tactics to get their demands accepted by the management.

During the 1990s, the Government took various steps to turn around IA and initiated talks for its disinvestment. Amidst strong opposition by the employees, the disinvestment plans dragged on endlessly well into mid 2001. The IA story shows how poor management, especially in the human resources area, could spell doom even for a Rs 40 bn monopoly.

Background note

IA was formed in May 1953 with the nationalization of the airlines industry through the Air Corporations Act. Indian Airlines Corporation and Air India International were established and the assets of the then existing nine airline companies were transferred to these two entities. While Air India provided international air services, IA and its subsidiary, Alliance

Air, provided domestic air services. In 1990, Vayudoot, a low-capacity and short-haul domestic airline with huge long-term liabilities, was merged with IA...

Fighter Pilots

IA's eight unions were notorious for their defiant attitude and their use of unscrupulous methods to force the management to agree to all their demands. Strikes, go-slow agitations and wage negotiations were common. For each strike there was a different reason, but every strike it was about pressurizing IA for more money. From November 1989 to June 1992, there were 13 agitations by different unions. During December 1992-January 1993, there was a 46-day strike by the pilots and yet another one in November 1994.

The cavalier attitude of the IA pilots was particularly evident in the agitation in April 1995. The pilots began the agitation demanding higher allowances for flying in international sectors. This demand was turned down. They then refused to fly with people re-employed on a contract basis. Thereafter they went on a strike, saying that the cabin crew earned higher wages than them and that they would not fly until this issue was addressed. Due to adamant behaviour of pilots many of the cabin crew and the airhostesses had to be off-loaded at the last moment from aircrafts.

In 1996, there was another agitation, with many pilots reporting sick at the same time. Medical examiners, who were sent to check these pilots, found that most of these were false claims. Some of the pilots were completely fit; others somehow managed to produce medical certificates to corroborate their claims. In January 1997, there was another strike by the pilots, this time asking for increased foreign allowances, fixed flying hours, free meals and wage parity with Alliance Air. Though the strike was called off within a week, it again raised questions regarding IA's vulnerability. April 2000 saw another go-slow agitation by IA's aircraft engineers who were demanding pay revision and a change in the career progression pattern...

Troubled Skies

Frequent agitations was not the only problem that IA faced in the area of human resources. There were issues that had been either neglected or mismanaged. For instance, the rates of highly subsidized canteen items were not revised even once in three decades and there was no policy on fixing rates...

3.3. AIRLINE SCHEDULE PLANNING AND DEVELOPMENT

3.3.1. CONCEPT OF SCHEDULE PLANNING

Airlines have evolved over the past 70 years from simple contract mail carriers into sophisticated businesses. The current airline environment is very competitive and dynamic. Maintaining consistent profitability requires that appropriate tradeoffs be made between the often competing objectives within planning, marketing and operations. Airlines have led other industries in the application of operations research and information technology to deal with these issues. The real-time solution of large-scale optimization models has played a significant role in shaping today's airline industry. This role will increase as the industry becomes more competitive and flight characteristics change due to the implementation of new technologies. Airline planning and scheduling represents an excellent example of the application of operations research and mathematical modeling to solve complex and real industry problems.

Planning and Marketing define an airline's products and determine how they will be sold. This is a continuous process which begins 5 or more years before a flight's departure and operates until the last passenger is boarded and the aircraft door is closed. This process can be viewed as a series of overlapping sequential steps that include scheduling, marketing and distribution. This process requires an exchange of data and feedback between scheduling, pricing and revenue management and distribution. In addition, other considerations such as crew resources, maintenance and engineering and ground services help define the boundaries by which the airline schedule must operate and be managed. Scheduling determines where and when the airline will fly. Schedules are built to maximize long-term profitability. The revenue and cost associated with each schedule are based on very different views of the same information. Although the schedule is composed of individual flight legs between two cities, the airline's product and revenues are based on passenger origin and destination (O&D) markets.

An O&D market is defined by a passenger's point of entry and exit from the airline system. The schedule is built to maximize its attractiveness to customers in a wide variety of O&D markets. The development of hub and spoke networks was based on providing maximum O&D coverage with a limited number of flight legs.

The costs of operating the schedule depend on the flight legs, which drive the number and type of aircraft used. The schedule must consider the cost and availability of cabin and flight deck crews, as well as the requirement that aircraft cycle through maintenance bases at regular intervals. As a result, the schedule also determines the location and size of ground facilities, and the number and location of crew and maintenance bases. Efficient schedules which match supply and demand are key to airline profitability.

Profitable solutions require anticipation of general market conditions: the costs of capital, fuel and labor, as well as the level and nature of competition. Airlines address many scheduling issues (assigning aircraft and crews to flights, routing aircraft to maintenance bases) with large-scale combinatorial optimization techniques. The scale of today's airlines makes this increasingly difficult. For example, large U.S. domestic carriers operate more than 3,000 flights per day with 600 or more aircraft and can include more than 300 cities, serving over 10,000 unique O&D markets.

Marketing determines what specific products will be offered for sale and how many of each will be sold. The two primary components of airline marketing are pricing and yield management. Since deregulation of the U.S. domestic airline industry, both have evolved into very complex processes. Prior to deregulation, individual airlines served specific market segments. Scheduled carriers served the business traveler while charter carriers served the leisure market. Scheduled carriers flew with relatively low load factors but remained reasonably profitable due to the limited competition created by government regulation.

Distribution is the process of taking the airline products and putting them on the shelf for sale. The store front for the airline industry is primarily central reservation systems (CRS) and global distribution systems (GDS). A CRS allows an airline's reservation agents to book their own flights and fares. CRSs are relatively expensive to develop and maintain. Large airlines typically have their own CRS, while second and third tier carriers tend to rent space in another carrier's (often their competitor's) system. In the 1970s U.S. domestic carriers began to give travel agents access to their CRSs. This provided each airline with a method for selling products outside of the reservations office.

3.3.2. THE MISSION OF SCHEDULING

What is the mission of scheduling? It is as broad as the mission of the airline itself. An airline has the responsibility to provide adequate service to the cities it serves; an airline must also, of course, operate efficiently and economically. Therefore, in its scheduling practices, airline management must continually search for the balance between adequate service and economic strength for the company. Airline scheduling can be defined as the art of designing system wide flight patterns that provide optimum public service, in both quantity and quality, consistent with the financial health of the carrier.

The public service and economic aspects of scheduling must be balanced with other factors, including these:

1. Equipment maintenance. A separate maintenance-routing plan must be drawn up for each type of aircraft in the fleet. All routing plans must be coordinated to provide the best overall service. Maintenance of airplanes requires that certain stations be provided with facilities and personnel for periodic mechanical checks. Concentration of maintenance at

only a few stations is desirable, and it is likewise desirable to utilize fully the facilities provided by planning an even flow of maintenance work.

2. Crews. Assuming that all captains, first officers, flight engineers, and flight attendants have had adequate training on each type of airplane and over the routes to be flown, there are always considerations of utilization and working conditions. Certain crew routings must be followed to maintain efficient monthly utilization; crew routings that would require excessive flying without proper rest cannot be used.

3. Facilities. Gate space on airport ramps must be adequate. Terminal capacity, including ticket counters, baggage-handling areas, and waiting rooms, must be expanded to meet growing market requirements. Access roadways to and from airports must be adequate. Airport capacity, including runways, taxiways, and navigational aids, establishes an upper limit on operations.

4. Marketing factors. Marketing factors are numerous, including such characteristics as market size, trip length, time zones involved, and proximity of the airport to the market served.

5. Other factors. Seasonal variations in wind patterns require differences in summer and winter flying times on certain routes (usually east–west); however, some airlines use constant year-round flying times on routes where variations in wind components are negligible (usually north–south routes). In addition, on many segments, variable times are used to allow, to some extent, for anticipated delays during periods of heavy air traffic.

Scheduling is performed by top management collectively. There is a chief architect, to be sure—the scheduling department, headed by a vice-president or director, depending on the size or organizational makeup of the company. With the exception of some of the major carriers, which include scheduling as part of the corporate economic planning administration, most scheduling departments are under the marketing administration because of the overriding importance of service to the public. In developing a system flight pattern or schedule plot, as it is sometimes referred to, the scheduling department works closely with all other departments and with all field stations.

In addition to its own continuing review, the department continually receives suggestions and proposals from local-station personnel and the public. With knowledge of traffic volumes and patterns, numbers and types of aircraft on hand and to be delivered, maintenance requirements, operational factors, and scores of other considerations, the scheduling department, after weeks and often months of planning, develops a proposed system schedule. This is then submitted to all appropriate departments for study.

Many airlines use the committee system, in which officials from all operating departments meet to analyze the proposed schedule, make suggestions, and resolve conflicts between departments. Whether the committee system or some other method of interdepartmental coordination is employed, the result is the same: a schedule that meets the combined goals of public service, sales and competitive effectiveness, profitability, and operational dependability and efficiency.

3.3.3. EQUIPMENT MAINTENANCE

The primary purpose of the maintenance organization of an airline is, of course, to provide a safe, salable aircraft for every schedule. This would be simple if the carrier had an unlimited number of airplanes, unlimited facilities, and unlimited personnel—all located at every point on the system. But it does not, and so it must strive for a number of maintenance efficiency goals: (1) minimize aircraft out-of-service time, (2) use up time allowable on aircraft and parts between overhauls, (3) seek optimum utilization of personnel and even workload, and (4) maximize utilization of facilities. These goals do not affect safety, of course—safety can never be sacrificed to meet a schedule. You can see, however, the implications these goals have for the schedule planner. Let's examine them closely.

1. Out-of-service time. Because the profitability of an aircraft depends to a large extent on its daily utilization or availability, the carrier must do everything it can to design a maintenance system that provides a high standard of maintenance yet minimizes out-of-service time. If this can be done only at the expense of safety and dependability considerations, the airline must either reduce planned aircraft utilization to allow adequate maintenance or improve the product until it meets the goals.

2. Allowable time. The carrier should utilize the maximum time allowable in the various inspection and overhaul programs. This item represents a very large cost variable in an airline's operation. Again, however, this must be done with the first objective in mind—minimum out-of-service time.

3. Personnel and workload. In performing any inspection, repair, or overhaul, the carrier requires either FAA-licensed personnel or highly trained specialists—engineers, planners, inspectors, and a host of others. Because the overhaul base payroll for a major air carrier runs into millions of dollars each year, it is important to keep costs down if the carrier is to achieve maximum utilization of its people. An airline also must maintain an even work flow, because these specialists and technicians require a high degree of training and experience and are not readily available in the open labor market.

4. Use of facilities. The carrier must utilize facilities to the maximum extent possible, because of its substantial investment in buildings, tooling, and specialized equipment.

3.3.4. FLIGHT OPERATIONS AND CREW SCHEDULING

Because airline schedules, once published, must be flown by the company's flight crews, the flight-operations department must ensure that flights are scheduled in a fashion that will permit them to be safely and efficiently operated. The following operational factors are important in schedule planning:

- Airport runway lengths
- Aircraft fuel capacity
- Habitual adverse weather
- Air traffic control and routings
- Crew time limits
- Employee agreements

Obviously, airport runway lengths, aircraft fuel capacities, and so forth affect scheduling decisions. Other less obvious but equally important factors in drafting schedules include weather, aircraft routings, and flight crew scheduling.

In this sense, the term weather is used to describe the type of condition that occurs ordinarily at a specific locale during certain times of the day or seasons of the year. For example, in winter months, weather may make it inadvisable to overnight an aircraft in a particular northern city where hangar facilities are not available. Although overnighing might facilitate the operation of a desirable late-evening arrival and early-morning departure, the need to remove snow and ice from the aircraft after a storm might make such an operation impractical. Certain areas of the country, such as the Gulf Coast, do not lend themselves to dependable on-time or safe operations because of the likelihood of fog from shortly after midnight until sometime before noon. Often, flights scheduled during this period must be delayed or canceled or, if operated, restricted in load because of the excess fuel reserves required for safety.

A second operational factor concerns air traffic control (ATC). ATC routings often dictate longer flight times between two points than normal. In addition, certain flight segments are subjected to route closures and resultant time-consuming and costly diversion by military actions.

One of the most important and complex factors affecting flight operations is that of crew assignment to specific flights. The working limitations that govern flight crews are found in both the Federal Aviation Regulations (FAR) and employment agreements. The

FAR limits are as follows:

1. There is a daily limitation of 16 hours maximum flight duty time for pilots on a two-person crew, unless, prior to exceeding 16 hours, a rest period is provided of no less than 10

hours. Therefore, an increase of only a few minutes to a schedule, or the addition of one extra station, might force a crew break and layover not otherwise necessary. Duty time includes planned flight time, taxi time, known delays, and debrief time. After push back, the pilot must return to the gate if extended ground delays would cause duty to exceed 16 hours at the estimated release time.

2. Flight crew members must have had at least 8 hours of rest in any 24-hour period that includes a flight time.

3. Flight crews may not exceed a maximum of 40 flight hours during any seven consecutive days. Release from all duty for 24 hours must be granted to each flight crew member during any seven-consecutive-day period.

Employment contracts compound the difficulties. Most airline contracts provide that one hour of flight pay must be paid for every four hours a pilot spends away from the domicile. This time is frequently not flown; therefore, pilots are frequently paid for time not flown. These contracts also require that the airline bear the expense of training otherwise unneeded crews. And most airline agreements provide a maximum of 80 hours flight time during any month for their pilots.

An operations manager's dream is to be handed a schedule that permits all crews to operate flights on a direct turnaround basis with no layover problems or expense. This is manifestly not possible, but every attempt must be made in the interest of crew utilization and economy to minimize layovers. Average flight crew utilization for some of the major carriers with intricate route structures goes as low as 55 hours per crew member per month.

Seniority, labor's most valued asset, is management's biggest headache when it comes to training and assigning flight crews. The newer, faster planes generally are flown by the most senior crews, who earn the highest wages. Therefore, moving down through the ranks, the most junior captains and first and second officers fly the smaller, slower planes base crews at only 7 of the 40 cities serviced. Which flights are to be flown by crews from which bases are determined by the company, but many factors influence such decisions. The equipment qualifications of the crews already assigned to each base, the crew expenses incurred if the flight is flown from that base, the seniority of the crews compared with those at other bases on the flight route, the likelihood of crews requesting reassignment if trips are not to their liking—all of these factors enter into a decision. An airline has to take a good hard look before implementing a schedule that will require additional crews to be trained when sufficient numbers already exist to meet the maximum utilization of the available equipment.

3.3.5. GROUND OPERATIONS AND FACILITY LIMITATIONS

Ground service can be arranged in any conceivable schedule pattern, provided that there is no limitation on the gate positions, ground equipment, passenger service facilities, and personnel. But, of course, there are limitations. First, it is physically impossible to obtain adequate facilities in many instances within a reasonable period of time. For example, additional gate positions at Fort Lauderdale/Hollywood International Airport are virtually impossible to obtain. Second, there is the matter of cost. The schedule planner must do the utmost to avoid excessive flight congestion. The objective of ground service, then, becomes to accommodate as many flights as possible and as efficiently as possible, consistent with physical limitations and prudent utilization of personnel and equipment. The schedule planner must consider all of the following at every station for every proposed schedule:

1. Are there enough gate positions for the number of planes on the ground simultaneously, including a cushion for early arrivals or delayed departures?
2. Is there adequate ticket-counter space to handle the passengers expeditiously?
3. Is sufficient time provided for on-line or interline transfer of passengers, baggage, mail, and cargo?
4. Can the planned flights be handled efficiently by the present level of ticket-counter, ramp, and food service personnel? If not, will additional revenue from the new flights or the new connection be sufficient to more than offset the cost of additional personnel?
5. Will the proposed schedules introduce a second or a third personnel shift? Conversely, will a minor flight adjustment permit the reduction of one shift?
6. Is there ground equipment of the right type: aircraft starter units, baggage vehicles, cargo conveyors, forklifts, tow tractors? If not, is there sufficient lead time to purchase them, and can they be economically justified? Should the carrier contract these services from another carrier because of the small number of flights into a particular station?
7. Does the proposed schedule overtax food service facilities?

These and many other questions must be answered for every station on the system for every schedule change. Any corrective action—and there is always a need for flight adjustments to meet ground service requirements—must be rechecked to determine its effect on the delicate balance worked out to accommodate sales, maintenance, and operational needs and to make sure that corrective adjustments at one station are not creating complications at another.

3.3.6. SCHEDULE PLANNING AND COORDINATION

Thus far, we have discussed the particular problems faced by maintenance, flight operations, and ground operations. Each offers a multitude of requirements for the schedule planner to take into consideration. The responsibility for schedule development is the province of the

scheduling department, which is generally within the marketing administration and which oversees the entire system. This department must pull together all of the factors discussed so far, plus many more. Just how a carrier goes about this task is the focus of this section.

Nothing is more basic to an airline than the schedule pattern it operates. All productive resources—planes, trained personnel, and ground facilities—have the one essential function of operating the schedule safely and dependably. All selling resources—the

carrier's ticket offices, reservations offices, sales representatives, marketers—have the one essential function of getting passengers and shippers to use the schedule. Let's take a look at some of the problems and complexities of developing a sound overall schedule pattern in these hectic post deregulation times.

At the outset, let us recognize the sheer impossibility of developing a schedule pattern that will simultaneously satisfy all desirable objectives. Many of these objectives are inherently in conflict. For example, a carrier must provide enough time on the ground for maintenance and servicing operations while at the same time keeping aircraft in the air as much as possible for economical utilization. It must build up complexes of connecting flights at major gateways while at the same time avoiding excessive peaking of station activity. It must maintain schedule stability for the convenience of passengers and the optimal utilization of employees while at the same time displaying the flexibility needed to adjust rapidly to new competitive threats or other developments. It must recognize that public service obligations will sometimes work against strictly economic considerations while at the same time remembering that it could not provide any service without a sound financial position.

Probably the schedule planner's most important function is to evaluate all of these varied and partially conflicting objectives and come out with the optimal balance between these several goals. Some of the problems faced by a schedule planning department are comparable to those that many other industries face in their own respective product planning:

- Determining the size of a given market and projecting its future growth
- Estimating the effect of planned product changes on the size of the total market and on the carrier's own share of the market
- Attempting to forecast what the competition may do and developing a plan of action to meet such competitive thrusts
- Estimating the costs and revenues of the alternative plans of action to determine which will be profitable.

But the complexities of airline scheduling extend far beyond these problems. Many airline marketing problems are unique, stemming from the special nature of the business. Principal among these are (1) the problem of traffic flow, (2) the sensitivity of schedule salability to even minor differences in departure times or other factors, (3) the operational difficulty of

accomplishing schedule adjustments as desired, because of problems of time zones, station personnel, equipment turnaround, and the chain reaction effect, and (4) the financial leverage of load factors.

Traffic Flow

The concept of traffic flow—or the number of originating and connecting passengers on a particular route—is widely recognized; the degree of its importance is not sufficiently understood. Smooth traffic flow helps to explain schedules that seem quite excessive in relation to origin-destination traffic.

The schedule planner must take advantage of traffic flow opportunities but cannot wave a magic wand to create such opportunities. By its very nature, traffic flow varies from case to case, depending on geography, route structure, and alternative service available. Some cities, because of favorable geography, obtain maximum benefit from traffic flow; others do not. An airline cannot change this, and a carrier cannot generalize that City A can support a certain type of service simply because City B receives such service.

A few years ago, a route such as Chicago–Los Angeles received traffic flow support from the Los Angeles-bound passengers coming from major points in the northeast, including New York, Boston, Philadelphia, Cleveland, and Washington, D.C. Today, direct nonstop service from these other points to Los Angeles has drained away much of the traffic flow that formerly moved over the Chicago gateway. And this same development is taking place continuously throughout the air transport system.

This constitutes another reason for the impossibility of generalizing about traffic flow and about the type of service a community can economically support. Not only does traffic flow vary from city to city because of geography and route structure, but even for a single city the flow varies from year to year, depending on the type and volume of nonstop service that may be bypassing that city.

Schedule Salability

The second of the special complexities of airline scheduling is the fact that schedule salability is highly sensitive to even minor differences in departure time or other factors. Quite often, several key personnel will spend several days trying to work out a change of just 15 minutes or half an hour in the departure time of a transcontinental jet. This is not time misspent; experience has shown that even such minor adjustments can significantly affect the success of a flight.

The reason is that schedule convenience ranks high among the competitive elements affecting the traveler's choice of an airline. Loyalty to a particular airline will not normally

cause a passenger to sit around an airport an extra hour or to miss a business appointment or to wake up earlier than usual if a competitor offers a viable alternative. To make schedule planning even more complicated, schedule salability not only varies by time of day and by route but also has a different pattern of variation between the two directions on the same route.

Schedule Adjustments

An airline's total schedule pattern represents a tightly woven, highly interrelated structure. Many aspects are rigidly governed by specific regulatory or contractual requirements, such as those relating to maintenance of equipment, and working conditions of flight crews, as discussed earlier in the chapter. Moreover, almost every schedule is intertwined with other scheduled flights because of connections, equipment routing, or other factors.

Load-Factor Leverage

Now let's turn to the last of the special complexities of airline scheduling, the problem of load-factor leverage. One of the unfortunate facts of the airline business is that the carriers produce revenue passenger miles but sell available seat-miles—hence the importance of load factors. In other industries, a manufacturer can estimate the probable market for each individual product and then gear production accordingly. And, if overestimation has occurred, the manufacturer can add the surplus to inventory and dispose of it, perhaps at a reduced price.

An airline has no similar opportunity. It may be convinced that, say, a given nonstop jet to Los Angeles will average only 80 to 90 passengers per day. Nevertheless, if it operates the schedule, it must fly a seat-mile including 230 seats. And, of course, once it produces the empty seat-miles, they are irretrievably lost. Costs of operating a schedule vary only slightly as load factor changes, whereas revenue varies in direct proportion to changes in load factor. Thus, a shift in load factor of only a few percentage points can make all the difference between a money loser and a profitable trip.

3.3.7. EQUIPMENT ASSIGNMENT AND TYPES OF SCHEDULES

The scheduling department will generally refer to aircraft throughout the system as being operated in either in-service or out-of-service use. In-service use refers to those aircraft being flown (1) on scheduled service, (2) as an extra section, or (3) as a charter flight. An extra section is an additional aircraft assigned to handle a particular flight because of an unusually large number of passengers. Out-of-service use refers to those aircraft temporarily assigned for major overhaul, maintenance checks, flight training, special projects, such as installing different seats, or line reserves. Line reserves are extra airplanes stationed at major terminals to be called on in the event of a problem with a scheduled flight.

Airlines use four basic schedule types in assigning their equipment: (1) skip-stop, (2) local service, (3) cross-connections (hub and spoke), and (4) nonstop. Skip-stop scheduling refers to the practice of providing service to points A, B, C, D, E, F, G, and so forth by scheduling flights in the following manner: A–C–E–G or A–D–G, or similar combinations in which one or more of the intermediate stations are “skipped,” with service being provided by other flights. The principal advantage of skip stopping is to provide fast service to intermediate stations; the principal disadvantage is in not providing service between consecutive cities.

In local-service schedules, shorter-range aircraft make all stops on a segment and connect at larger intermediate stations with long-range aircraft. The principal advantage of local service is that it provides fast service between small intermediate stations and terminal points; the principal disadvantage is the change of planes involved. Cross-connections (hub and spoke) are frequently used in schedule planning by all airlines. An example of a route over which this can be accomplished is the United Airlines route serving the principal cities shown in Figure 12-14. When a Washington–Chicago–San

Francisco flight, a New York–Chicago–Seattle flight, and a Boston–Chicago–Los Angeles flight arrive at Chicago essentially at the same time, traffic can be transferred from one to another, thereby providing more daily service between points in the east and those in the west. This is the principal advantage, particularly if one of the flights is the only one to serve one or more of the stations; principal disadvantages are the change in planes and the congestion of traffic. (The next section discusses hub-and-spoke scheduling in more detail.)

Nonstop are being used more frequently than ever by the major and national carriers. The principal advantage is provision of fast service between terminal points; there is no real disadvantage, although, of course, no intermediate stations receive service on these flights.

Actually, all airlines have used and will continue to use all four major schedule types with variations to fit their individual needs. The types most adapted to a fleet of same-range airplanes are skip stopping and cross-connections; for a fleet of at least two general types of airplanes, all four schedule types can be used, with perhaps more emphasis on local service and nonstop.

3.3.8. HUB-AND-SPOKE SCHEDULING

Deregulation has led to significant changes in the routings and schedule patterns of the carriers. A catalyst for these changes has been the greatly increased emphasis on hub-and-spoke scheduling. Deregulation eliminated airlines’ incentive to dissipate their added revenues through wasteful expenditures on extra (and underutilized) flights along the route structure mandated by the CAB. In addition, deregulation allowed carriers to create new schedule patterns that lowered the costs of providing new flights.

In the past, there was constant pressure (from communities and from the CAB) for more and more direct point-to-point nonstop. If a carrier did not exercise its franchise of nonstop operations in a particular market, it risked having that community induce another airline to seek the unused authority from the CAB. This concept of nonstop obligation was carried right into the Airline Deregulation Act, which classified “dormant authority” as any route segment not then actually served nonstop and, as the first step toward liberalized route grants, provided for the transfer of dormant authority to other carriers.

Many city-pair markets, however, could not support nonstop service in terms of their own origin and destination traffic. Economic viability frequently depended on adding trafficflows from backup markets on either end of a nonstop route. In CAB route cases, cities often were added to a carrier’s route system specifically for the purpose of providing enough traffic to make nonstop service viable. Because of the protection afforded by a regulated route franchise system, the backup markets for some nonstop routes could be expected to remain relatively stable over long periods of time.

In this framework, the airline route structure evolved gradually into many “linear” patterns, in which one city would mainly serve as backup to some specific route segment, while other cities would back up other routes, and so forth. With deregulation, carriers could no longer regard their backup traffic markets as stable or secure. There were, of course, some hub-and-spoke connecting operations, but their scope was limited by the route franchises then in effect. In response to competitive pressures following deregulation, carriers rapidly replaced the old structure with a hub-and-spoke system. In hub-and-spoke systems, several points of departure are fed into a single airport (the “hub”), from which connecting flights transport passengers to their various destinations (along the “spokes”).

The main advantage of the highly developed airline hub-and-spoke operation is that it provides an enormous “multiplier” effect as to the number of city-pairs an airline can serve with a given amount of flight mileage.

Disadvantages of Hub-and-Spoke Systems

Although hubbing seems to benefit airlines and offers some advantages to travelers, the extent of excessive concentration at the hub can result in some negative economic impacts, namely, congestion delay. As aircraft volume approaches the capacity of the hub airport, congestion delay increases rapidly, which may outweigh some of hubbing’s benefits to both airlines and passengers. This additional delay increases passengers’ total travel time and adds to the airlines’ operating costs (for example, wages for the crew and fuel and maintenance expenses for the airplane). Congestion during peak periods also puts a tremendous strain on airport and airline personnel. It requires maximal staffing for each 45-minute peak-staffing at the gate, on the apron, at the ticket counter, and at curbside. Moreover, for each city feeding into the hub, a separate gate is required, and adding more cities requires more gates. On the

tarmac, the launching of 30 aircraft within a 5- to 10-minute period can cause excessive taxi waits, forcing schedulers to build additional minutes into block times.

During bad weather, delays at one hub airport create delays system wide. The requirement that aircraft arrive at the hub at the same time is costly. Airplanes serving the shorter spokes must sit on the ground at the out-stations, often for hours, to compensate for those airplanes on the longer segments. Also, because scheduling into the hub is based on the times of the connecting complexes, actual departure times at the out-stations may not be the most convenient for the communities. Some portion of the potential local O & D market is at risk of being left unsatisfied. To compensate for this, some carriers have increased the use of the regional jet (RJ) concept. Consumer demand in out-station markets continues to grow rapidly as more and more passengers are flown from secondary locations through hubs and on to secondary locations.

Still another problem is baggage. Most complexes provide between 30 and 45 minutes for passengers to make their connections. When flights are late, however, there is very little leeway for the baggage to make the same connection. Passengers simply walk from one gate to the other and board their new flight. Baggage, on the other hand, must be off-loaded, sorted, transferred, and loaded aboard the new aircraft. When off-schedule operations occur, the 30- to 45-minute connecting time guarantees a high mishandled-baggage expense. Congestion delay also creates additional work for air traffic controllers and increases their stress levels. It may require upgrading the ATC facilities and adding more personnel at the ATC centers and airport towers. Finally, excessive aircraft concentration at the hub can have adverse environmental impacts, such as noise and pollution. These negative economic effects of aircraft concentration must be taken into account when conducting cost-benefit analyses into building or expanding major hubs.

3.3.9. DATA LIMITATIONS IN AIRLINE SCHEDULING

Since the early 1980s, sophisticated computer programs, which use complex mathematical algorithms, have been developed to address the complete scheduling task. The most widely used are those programs that assist with the mechanical complexity of assembling up to 1,000 flights, efficiently routing aircraft across flight segments, and assisting the carrier in meeting constraints imposed by such factors as maintenance requirements, flight operations and crew scheduling, ground operations and facility limitations, and passenger service needs. However, airline scheduling remains a function that involves as much art as science.

Although detailed traffic data are available on-line, historically, airline scheduling has been performed with limited sources of traffic data. Station managers observe competitor enplanements, and many carriers participate in informal information exchanges with one another. The problem with this type of information is that its accuracy is questionable and it is only available on an aggregate basis. The DOT forms 41, T-100, and Ten Percent Surveys

of Domestic and International Traffic are basic schedule planning and route analysis tools, and although the information they provide is beneficial, there are problems concerning data accuracy and level of detail. For example, these sources provide limited information on flight numbers and passenger origins and destinations and are typically not available from the DOT until three to six months after the flight date.

The availability and presentation of these data by commercial information service organizations has improved significantly in recent years. The DOT data are available on easy-to-use CD-ROMs and can be abstracted readily for use by scheduling analysts. Current data regarding international carriers are more difficult to obtain. Organizations such as the IATA and ICAO collect highly aggregated information that is generally not available for years. Not only is the information dated, it is often incomplete because of the reluctance of many carriers to share data for competitive reasons. Advances in telecommunications and computer science are providing better information sources for the airlines. Along with better information, more sophisticated analytical tools are being developed using electronic data sources. However, even with new information resources and more sophisticated analytical tools, airline scheduling will continue to be a complex and challenging task.

3.3.9(a) Case Study on Airline Scheduling Planning and Development Managing Crew Schedules & Processes for US Airline

Crew mismanagement is a common reason for flight delays and revenue loss. IGT reduced the crew scheduling errors by 97% for a leading US airline by managing scheduling, payroll and HR for over 15000 flight attendants with over 89% CSAT.

Client

Our client is one of the top airline in the US and world's largest airline in terms of no. of destinations with around 90,000 employees. It has a strength of around 15,000 flight attendants who work in different geographies, time-zones, work schedules, and hours. The client needs to manage these flight attendants for its 3300 flights to 200 destinations on a daily basis. How a flight attendant may be scheduled and paid may depend not only on their flight assignment, but their seniority, aircraft holding times, delays reschedules, reimbursements, languages they service and many more factors

IGT Solution

IGT created a Center of Excellence (CoE) for managing flight attendant schedules and processes. Following services were provided through Flight Attendant CoE :

- End-to-end processing in the areas of crew scheduling, administration, payroll processing and helpdesk
- Created Centralized Flight Attendant Desk to provide direct support to crew queries
- Re-engineered the process leveraging Flight Attendant Center of Excellence
- Created proficient task force through specialized selection & training program

Success Enablers

IGT incorporated following methodology to provide the services to the client:

1. ***Re-engineered the process leveraging Flight Attendant Center of Excellence:*** IGT formed a core team of Flight Attendant Center of Excellence with hosted knowledge base of cabin crew industry, various flight attendant union contracts, technologies used and different regulations around flying in a central repository.
 - The CoE then evaluated the current workflow to identify loop-holes leading to failure points and reengineered the process and leveraged best practices on complex transaction processing, monitoring and reporting. Expert trainers, quality checkers and subject matter experts who had prior experience in flight attendant support processes were deputed to manage the process. Based on historic data a robust audit system to track and facilitate any changes in the schedule and pay slips was created.
2. ***Created proficient taskforce through specialized selection & training program:*** IGT developed a specialized training program to equip staff to deal with the flight attendant processes. Staff selected for the process was thoroughly tested through a stringent hiring process. Being a specialized process, the average experience of the team was 9 years in travel / crew related processes.
 - Customized 12-weeks training programs were conducted to equip the staff with regulatory environments, union agreements, system trainings, soft skills, communications, OJT etc. Mature coaching techniques and floor shadowing were incorporated to bring the staff seamlessly up the learning curve.
3. ***Business excellence through business process management:*** A holistic approach to transform the business was carried in process execution methodology and IT management. Customized work-flow management system was provided to manage delegation, processing, auditing, service level management as well as document storage and performance reporting. Staff scheduling was provisioned based on hourly transaction volume trends. The processing team was equipped with expert resources and a sophisticated knowledge management platform.

3.4. AIRLINE FLEET PLANNING AND MANAGEMENT

One of the most difficult decisions airline managements must make is whether to buy new or used aircraft and what type. Alternatively, they must consider whether it makes better financial sense to modernize older aircraft already in their fleet or to acquire aircraft from the outside. Many additional factors, including the costs associated with engineering and maintenance, must be weighed. The factors are constantly changing, and their relative importance at each airline depends on the carrier's individual situation.

3.4.1. FACTORS IN FLEET PLANNING

Purchasers of new aircraft can generally get by for 7 to 10 years without having to make any major structural repairs. Furthermore, maintenance costs as a percentage of total costs have been steadily decreasing since the 1960s. However, percentages do not necessarily present a true picture. If one set of costs, such as for maintenance, rises less steeply than others, its percentage of the total may drop although the cost in absolute dollars may be rising. In this context, a set of figures from American Airlines is worth noting. Over the 20-year life of a 707, American found that maintenance costs rose 10 percent but that improvements in reliability more than compensated for the rise. This was in terms of current dollars. When translated into constant dollars, which take inflation into account, the situation was even better: maintenance costs actually dropped.

It would be quite simple if maintenance were the only, or the most important, factor to consider in fleet decisions. But besides maintenance costs, many other factors must be balanced against one another: the price of fuel; the availability and price of used aircraft; resale value; the price of new aircraft; terms of purchase; cash flow; debt/equity ratio; the availability of money from lenders; the receptivity of Wall Street to the issuance of stocks, bonds, and debentures; interest rates; route structure; competitive situation; strategy; and labor costs. All are even more important than before in today's deregulated environment.

3.4.2. DESIGN AND DEVELOPMENT—THE MANUFACTURER'S VIEWPOINT

The Boeing Approach

The design and development stages for a new jetliner can take from five to six years. In the case of the Boeing 757 and 767 models, the concept of a more fuel-efficient aircraft was born in the mid-1970s with the skyrocketing price of fuel. When the 757 was being planned, engineers for Boeing, working with the airlines, were hoping for a 10 percent reduction in operating costs compared to the 727 jetliner that the new aircraft was designed to replace.

In fact, Boeing had very modest ambitions for the 757. The original plan was essentially to modify the 727 to operate with two highly efficient engines instead of the three less efficient engines used on the 727. But as the months passed, Boeing's engineers kept making changes, and they finally decided to build the airplane more along the lines of the 767. About 60 percent of the parts in the 757 are interchangeable with parts in the 767; only

Designing and developing an appropriate family of aircraft to meet a majority of the airlines' needs has become even more difficult since deregulation. With new competition from other established carriers and from the newcomers, most of the large carriers are still in the process of rationalizing their current and future route structures in an attempt to determine where they want to be in 5 or 10 years. The major carriers have been dropping low-density routes and

concentrating on their high-density, long-haul routes with more standardized fleets, the motivation being to improve efficiency (load factors and utilization). This specialization among the different levels of carriers presents a problem for the manufacturer that tries to develop an aircraft whose users' needs vary considerably. The custom of pre-deregulation days, when each carrier had various models of aircraft from different manufacturers, seems to be over.

Another important step in the process of designing and developing a new aircraft is taking an objective look at the company's product in comparison with its competition. It is important to select those characteristics for comparison that are of particular concern to the potential airline customer. Figure 13-1 shows a few of the characteristics of competing commercial aircraft of concern to a particular manufacturer. Here, we see comparative data on block speed, payload, unit operating cost, and return on investment. With comparative data such as these, the manufacturer can make judgments as to the relative importance in the eyes of the customer of, say, differences in speed and range and return on invested capital.

Challenges from Airbus

Before the Boeing and McDonnell-Douglas merger in 1997, Boeing's chief competitors for the 757 and 767 were McDonnell-Douglas's MD-80, MD-90, and MD-11, and Airbus Industries' A300, A320, A330, and A340. By 1996, the global market share for McDonnell-Douglas commercial airplanes fell to 4 percent of new sales. Boeing's proposal to acquire McDonnell-Douglas drew severe objections from the European aviation community and served to intensify the competition for new-generation aircraft. In 2001, Airbus surpassed Boeing in terms of market share to become the world's largest aircraft manufacturer. Although Airbus is delivering more planes than Boeing, and has won the order battle each year since 2001, many industry analysts believe Boeing ended 2005 in a much better position than its rival, owing in large measure to the sales success of its 787 Dreamliner and the 777, which is crushing the Airbus A340 in market share.

Airbus Industries is determined to correct what its officials see as the abnormal situation of U.S. manufacturers dominating sales to the Western world. The founding partners, France and Germany, each had a 37.9 percent interest in the Airbus Industries consortium. British Aerospace held 20 percent and Spain the remaining 4.2 percent. Today, Airbus Industries is co-owned by European Aeronautic Defense and Space (EADS), with 80 percent interest, and BAE Systems PLC, with 20 percent interest.

Other changes include the use of new aluminum alloys developed for the Boeing 757 and 767; a change to carbon brakes, saving 1,800 pounds in weight; and a completely redesigned interior, providing greater seating flexibility, larger overhead storage bins, and a wireless cabin entertainment system, in which radio and visual signals are picked up from floor-mounted transmitters, greatly simplifying rearrangement of the interior.

Other Factors in Design and Development

Another important factor in the design and development stage is the ability of individual carriers to finance the proposed new aircraft. There is a direct relationship between aircraft orders and airline profitability. Although airline profitability is a key element in the design and development of any new aircraft, forecasting earnings and orders for some future period is a difficult task. Furthermore, forecasting the breakdown of orders by manufacturer and by type of aircraft for each manufacturer becomes an even more difficult task. Yet this important step must be taken before plans can be made to invest millions of dollars in the design and development of a new aircraft.

Finally, manufacturers must be concerned with the proliferation of government regulations regarding the design and development of a new aircraft through the certification stage. These regulations cover everything from safety to noise and emission standards. Consequently, manufacturers work closely with government regulatory agencies, including the FAA, throughout all of the production stages.

3.4.3. THE FLEET-PLANNING PROCESS

From an individual airline's standpoint, the aircraft selection process is an ongoing function coordinated by a generalist group, such as corporate planning, with major help from technical, or specialist, administrations such as finance and property, marketing, line maintenance, engineering and maintenance, and flight operations. The existing fleet of an operator also is a significant factor in an operator's fleet-planning decisions. Substantial savings in terms of training, spares inventories, and operations can be achieved by operating a common fleet of aircraft.

Information Needed

Basically, corporate planning is interested in information on four different areas in the fleet-planning process: the carrier's current resources, corporate objectives, projected industry environments, and marketing strategy.

Current Resources

The carrier's current resources include its present fleet inventory by type of aircraft, use, and month (see Table 13-2). Also included are financial and technical data on aircraft on order. Financial data include acquisition costs (purchase or lease), start-up costs (primarily maintenance and flight training), and unit operating costs. Technical data on aircraft currently on order include payload-range figures, cruise performance information, runway requirements, noise levels, parts and service availability, and flight characteristics. Labor resources are also included under current resources. Maintenance capability in terms of type

and availability of personnel to be trained on the new equipment must be considered, and lead times must be established. Similarly, flight crews must be prepared in advance of delivery dates of aircraft currently on order. In short, the corporate planning unit must completely analyze the carrier's current resources—what it has now, what it has on order—as a starting point in the aircraft selection process.

Corporate Objectives. Top management's objectives for the company, or corporate objectives, include forecasted profitability (operating revenues and expenses, operating income, net earnings, earnings per common share, and return on investment), systemwide load factors, acceptable levels of cash on hand, market share on prime routes, debt/equity ratio, and general guidelines regarding new-aircraft acquisition. Other objectives include labor productivity improvement targets and cost-saving goals. Corporate objectives are broad and emphasize what is to be achieved, but not necessarily how it is to be done.

Projected Industry Environments. Projected industry environments include the outlook for the national economy, the outlook for the industry, and the carrier's performance within the industry. First and foremost, corporate planning is concerned with the national economic outlook: the gross national product, national income, personal income, disposable income, and level of consumer income in the next 1-year, 5-year, and 10-year periods. Next to be considered is the air transport industry forecast within the overall economy, including such items as revenue passengers and cargo tonnage, RPMs, ASMs, cargo ton-miles, revenue block hours, and so forth. This is followed by a forecast of the carrier's traffic statistics within the industry. In addition, the carrier makes certain assumptions regarding passenger traffic mix (business versus pleasure), cargo directionality, and price elasticity of demand in selected long- and short-haul markets.

Marketing Strategy. This is a key piece of information, requiring considerable interplay among corporate planning and other administrations, primarily marketing. Given the company's current resources and corporate objectives and the projected industry environments, how is the carrier to implement its plan, or marketing strategy? Significant items to be considered include how much service to provide between key city-pairs, how much emphasis to place on long-haul or short-haul markets or both, which weak markets to penetrate now or later or to eliminate, and in which markets to trade off profit for market share or vice versa. A critical area of consideration is fare and rate structure levels in various markets for both passenger and cargo service.

The Fleet-Planning Model

Computer models have been developed to translate this information into a fleet-planning model that is used in determining future aircraft acquisition requirements, aircraft assignment requirements, financial requirements, and operating conditions over various planning periods (2 and 3 years ahead for order versus option decisions, 4 and 5 years ahead to ensure that the

purchases made in years 2 and 3 were consistent with long-term developments, and possibly 7 to 10 years ahead to ensure consistency and to gain insight into financial and facility needs in the long term). This fleet-planning model is commonly referred to as the unconstrained operating plan, because it ignores system constraints in order to ensure a full range of opportunities to be considered.

Computer-generated fleet-planning models provide corporate planning with the basic output—the number and type of aircraft to be acquired, the times of acquisition, and the timing of trade-in or phase-out of existing fleet. But they also allow management to assess the impact of altering the information fed in, primarily corporate objectives, industry environment, and marketing strategy.

System Constraints

The next step in the fleet-planning process is the application of system constraints to the model output that has been derived. Generally, system constraints become more amenable to relief as lead time increases. In other words, over a 10-year period, the normal period for a fleet-planning model, the original constraints might be eliminated. Some constraints are external to the airline, such as facility requirements at airports into which the airline flies, including runway capacity, gate capacity, terminal capacity (parking, ground access, passenger processing), and community noise. Government regulatory bodies may impose constraints on the airline's operating strategies, with consequences for the aircraft designed to implement that strategy. For example, the State Department might decide after negotiations with another country that there is enough service between selected cities in that country, despite the fact that a carrier wants to expand its service. Airplane availability can also impose an external constraint, as can environmental considerations.

There are a number of internal constraints, including such economic realities as the airline's profitability or lack thereof. Suppose the model called for the acquisition of seven wide-body jets. If the funds cannot be raised to make the purchase, the company might want to consider leasing. Other internal constraints include maintenance facility requirements, crew-training facilities, and capability of existing personnel to implement the fleets-planning model.

After the system constraints have been applied to the fleet-planning model, corporate planning is left with a constrained operating plan, or optimization model. Basically, the airline has now broken down aircraft types needed to implement its plan according to characteristics such as range (long, medium, short), passenger or cargo capacity, and direct operating costs.

Aircraft Evaluation

The aircraft evaluation process can be broken down into five areas: consideration of design characteristics, physical performance, maintenance needs, acquisition costs, and operating economics.

Design Characteristics: Design characteristics include such factors as the aircraft's dimensions, weight profile (including maximum zero-fuel weight and operator's empty weight), fuel capacity, type of power plants, systems (electrical, hydraulic, and environmental), seating configuration, containers and pallets, bulk volume, and total volume. It is difficult to compare these various characteristics for competing aircraft, and the problem is compounded by the many options available on each aircraft. For example, Boeing's high-cruise-speed 747-300 with the upper-deck extension has many seating arrangements. In the upper deck, on the economy side, with seats at 34-inch pitch, 69 passengers can be carried. At the same pitch, so can 81, 85, or 91. At 32-inch pitch, the maximum number of economy passengers is 96. 42, 52, or 63 business-class passengers can be carried at 36-inch pitch. On the first-class side, 38 passengers at 40- or 42-inch pitch or 26 first-class sleepers at 62-inch pitch can be carried. Varied lower-deck-forward arrangements include 18 first-class sleepers at 62-inch pitch plus 63 business passengers, or 41 first-class sleepers at 57-inch pitch. There also are arrangements for 40 first-class sleepers at 60-inch pitch or 36 first-class sleepers at the same pitch.

A high-density all-passenger-configuration 747-300 could carry as many as 624 people. By comparison, the 747-300 combi (combination passengers and freight) can carry 278 passengers and 12 pallets or 360 passengers and 6 pallets. A choice of engines from Pratt & Whitney, General Electric, or Rolls-Royce is available.

Physical Performance. The technical parameters normally considered under this area are referred to as the physical performance factors. These include such items as payload-range diagrams, takeoff and landing data, cruise and approach speeds, runway requirements, and noise performance. Payload-range diagrams demonstrate the relationship between payload (passengers and cargo) and the distance an aircraft can fly. For each aircraft under evaluation, there is a maximum payload that can be carried over a particular range. Beyond that point, payload must be reduced to accommodate more fuel. Also, for routes over mountains, there must be consideration given to the maximum altitude that the aircraft can fly. Runway requirements are another important physical performance factor in the selection of an aircraft for those airlines operating out of airports situated well above sea level or in extremely hot climates. Finally, aircraft noise requirements continue to change airline priorities with respect to equipment decisions.

Maintenance Needs. Maintenance needs include such considerations as spare parts availability, aircraft compatibility with the rest of the fleet, product support, technical record

keeping, and training support in terms of visual and audio aids. Maintenance cost comparisons over the expected service life of the equipment must be studied. These expenses are influenced by a number of factors, including stage lengths flown and amounts paid for outside services.

The corporate planning department works closely with the engineering and maintenance and flight-operations administrations in evaluating the technical factors (design characteristics, physical performance, and maintenance considerations). Contacts are also made with other airlines that have ordered or are considering similar equipment. And the airline's technical personnel make extensive on-site inspections. Having narrowed the choice of aircraft on the basis of these technical factors, the airline must consider the final two, the acquisition costs, including payment terms and financing, and the operating economics of the aircraft.

Acquisition Costs. Acquisition costs include the cost of the aircraft itself plus spare parts, ground equipment needed, maintenance and flight training required, and the cost of the money itself if the aircraft is to be financed through debt financing (borrowing from various financial intermediaries, such as insurance companies or commercial banks) or equity financing (sale of bonds or stocks). The manufacturer's warranties and prepayment schedule must be closely examined. Although the actual price of one aircraft may be less than that of another, the total cost, taking these other factors into account, may be more. For example, one manufacturer may require more money in the form of progress payments—payments the airline makes to the manufacturer while the aircraft is under production.

Another manufacturer's total costs may involve higher start-up costs. Consequently, it is important for the corporate planning department, working with finance and property people, to examine the cumulative capital investment requirements thoroughly.

The availability of new aircraft is another important consideration. The manufacturers, not wanting to experience the same tremendous layoffs that occurred back in the early 1970s when they were geared up to turn out a considerable number of the early wide-bodies, have chosen to spread out their production and add names to a waiting list that might extend to three years for some aircraft.

Airlines must also consider the possibility of trade-ins and compare the potential advantage of leasing versus purchase. The option of purchasing used aircraft cannot be overlooked. Finally, consideration must be given to any tax benefits if the decision is between a new and a used aircraft.

Operating Economics. Operating economics is perhaps the most difficult area to evaluate. It includes the potential aircraft's contribution to the company's profitability. Revenue potential and direct operating costs in terms of airplane miles and seat-miles must be examined. However, these items depend on and are related to a number of other factors,

including the carrier's route structure, traffic flow and composition, existing traffic volumes, potential future growth, seating density, load factors, and utilization. Caution must be exercised, because there is really no one direct operating cost per seat-mile. For a particular aircraft, operating costs will vary with range. Furthermore, although the airplane under consideration might have a low direct operating cost per seat-mile, the seats must be filled with paying passengers for the airline to experience the low cost per mile. Consequently, the wide-bodies, with their higher seating capacities, are normally scheduled on high-density routes.

Flight crew expenses and fuel costs represent a significant portion of direct operating expenses, and the new-generation aircraft (Boeing 757 and 767, A-300, A-310, A-320, and MD-80) were built with this in mind. The 757, with its 2-plus-2 concept (two pilots and two power plants), represents a 22 percent improvement in direct operating cost over the 727, which utilizes a crew of three and three engines. A fully loaded 757 is 42 percent more fuel-efficient than a fully loaded 727.

Tentative Fleet Planning and Financial Evaluation

After the aircraft evaluation, corporate planning prepares a projected earnings statement and cash flow for the expanded fleet. Then it makes recommendations for specific aircraft additions to and retirements from the fleet over a given time period, generally up to 10 years. Included with the recommendations is an order-option-plan mix. Orders include proposed firm orders; options (to purchase) permit the acquisition of relatively favorable delivery positions but provide flexibility to meet changing circumstances. Options enable the carrier to change its plans without as severe a financial penalty as might otherwise be the case in the event that the option is cancelled. Plan aircraft are long-range future aircraft acquisitions that permit activation of long-lead-time items, such as facility renovations, while permitting further study of shorter-lead-time elements. Also included with the recommendations are a forecast of new funds to support the fleet purchase and a preliminary appraisal of the alternative methods of financing (equity, debt, lease, mix).

Presentation and Management Approval

Progress reviews are done periodically during the fleet-planning process, which not only ensures the full input of management's views but also minimizes the amount of new material to be covered during the final presentation. Major capital commitments normally must be cleared by the board of directors. Upon approval of the plan (in adjusted form if necessary), negotiations with the manufacturers and finance community move into their final phases. The fleet plan also becomes a key source of other planning data, including personnel and facilities.

3.4.4. THE DECISION TO UPGRADE OR REPLACE

In late 1995, a major U.S. carrier faced the problem of how to replace its fleet of older, late-1960s and 1970s vintage twin jets with newer, more efficient, and more noise compliant 110-seat jets. A number of factors unique to that airline were influencing its fleet decision making. The aircraft in question, a fleet of DC-9-30s, were operating largely on short segments, averaging 500 miles. The nature of these routes was twofold. First, the point-to-point service portion of the route was highly competitive, even hypercompetitive.

Fares were determined by intense competitive pressure, and therefore, setting fares was largely outside the control of the airline. Second, a portion of the traffic represented highly valuable feed between the origination point and major hubs, where it would interconnect with longer-haul, less competitive, and higher-profit service provided by the airline beyond the hub. Although the connecting, or feeder, traffic was viewed as having strategic importance to the airline, overall, profit margins on the routes were very thin.

3.4.4(a) Case study : Airline Fleet Planning and Management: Aviation is a catalyst for Rwanda's development

Rwanda has recognised air transport as the key enabler of its development and a vehicle to position itself to become a regional service, tourism and conference hub.

To achieve economic and social development as part of its Vision 2020, the landlocked country has invested heavily in its national carrier, airport infrastructure and capacity building to connect the country to markets overseas, ensure access for business professionals and investors, and create employment.

A vibrant aviation sector also facilitates tourism in the country, which is its first foreign exchange earner. Rwanda received over 1.3 million tourists in 2015, earning \$318 million.

Rwanda's airports have over the years had a consistent annual passenger traffic growth rate of 13%, indicating the need to consider the expansion of airport facilities. The Strategic Transport Master Plan includes investments into the construction of a new international airport and the expansion and rehabilitation of Kigali International Airport and two regional airports. The overall investment in aviation infrastructure is estimated at \$789 million for 2019-2030.

In recent years, the national carrier, RwandAir, has become one of Africa's fastest-growing airlines. With the steady growth of its fleet and expansion of its route network, including to the Middle East, India and Europe, it is being positioned as a strategic national asset with which to serve and open Rwanda to business, tourism and conferences.

To meet the growing demand for a skilled workforce, Akagera Air School, a helicopter flying school based in Kigali, will expand to fixed wing pilot training in 2018 with the hope of increasing the number of locally born pilots from around 20% of the country's flight crew today. Akagera Air School also plans to later open aircraft mechanical and service crew departments.

No opportunity is missed to promote the local economy through aviation. RwandAir advances the Made in Rwanda initiative by offering local beverages and snacks on its flights. It has partnered with local roastery Question Coffee to serve Rwandan specialty coffee, a partnership which supports smallholder women farmers in Rwanda and promotes the product beyond the country's borders.

3.4.4(b) Case Study: SpiceJet plans to operate wide-body planes next year: Latest news regarding upgradation of fleet:

The move comes amidst SpiceJet's plan of expanding its operations with a final decision on wide-body aircraft yet to be taken (The Hindustan Times Oct 20, 2019)

SpiceJet plans to induct wide-body planes early next year and is looking at various options as the budget airline steers ahead with its ambitious expansion plans, according to a senior official. The low-cost carrier is looking at options from Boeing and Airbus. An industry source said that SpiceJet might bid for Air India's wide-body operations in case the government puts up domestic and international operations for sale separately. Currently, SpiceJet operates only Boeing and Bombardier planes. The airline official said that a final decision on wide-body aircraft is yet to be taken and various options are being considered. The idea is to operate long haul non-stop flights next year, the official added. "We continue to assess business opportunities and such discussions are an ongoing process," a SpiceJet spokesperson said. He was responding to a query on whether the airline is planning to have wide-body aircraft for long haul flights by early next year and whether it was keenly looking at A330 planes. The spokesperson was also asked whether the airline is in discussions with Airbus and Boeing for wide-body planes.

"SpiceJet is looking at bidding for Air India wide-body operations to fulfil its ambitious plan of flying long haul international," said the source. Such an acquisition would give the airline a ready-market with both wide-body fleet as well as destinations, the source added. "SpiceJet, as a matter of policy, does not comment on market speculation," the spokesperson said in response to queries about its interest in Air India's wide-body fleet. Twice in the past, SpiceJet applied for slots at London's Heathrow airport to operate flights from India, but the plan could not materialise due to scarcity of slots. The airline, which operates 550 flights on an average every day, has a fleet of 77 Boeing 737s, 32 Bombardier Q-400s and three Boeing 737 freighters, as per a release issued on September 26. In recent times, SpiceJet has been rapidly expanding its operations and has also taken planes of the now defunct Jet Airways.

During the winter schedule, starting from October 27, SpiceJet would operate 4,316 flights every week, an increase of 46 per cent compared to the year-ago period. SpiceJet has grounded 13 Boeing 737 MAX planes. These aircraft have been grounded worldwide since March this year following regulatory directives in the wake of two crashes involving the aircraft. In 2016-17, the airline placed an order for up to 205 MAX aircraft, including firm order for 155 such planes.

MODULE IV

GLOBAL TRENDS IN AIRLINE MANAGEMENT

4.1. REGULATORY BODIES FOR AIRLINE MANAGEMENT

4.1.1. INTERNATIONAL AIR TRANSPORT ASSOCIATION

The **International Air Transport Association (IATA)** is the trade association for the world's airlines. It represents some 240 airlines or more than 80% of total air traffic. IATA supports airline activity and helps formulate industry policy and standards. It is headquartered in Montreal, Canada with Executive Offices in Geneva, Switzerland.

History

IATA was formed in April 1945 in Havana, Cuba. It is the successor to the International Air Traffic Association, which was formed in 1919 at The Hague, Netherlands. At its founding, IATA consisted of 57 airlines from 31 countries. Much of IATA's early work was technical and it provided input to the newly-created International Civil Aviation Organization (ICAO), which was reflected in the annexes of the Chicago Convention, the international treaty that still governs the conduct of international air transport today.

The Chicago Convention couldn't resolve the issue of who flies where, however, and this has resulted in the thousands of bilaterals in existence today. The benchmark standard for the early bilaterals was the 1946 United States-United Kingdom Bermuda Agreement.

IATA was also charged by the governments with setting a coherent fare structure that avoided cut-throat competition but also looked after the interests of the consumer. The first Traffic Conference was held in 1947 in Rio de Janeiro and reached unanimous agreement on some 400 resolutions.

Aviation grew rapidly over the following decades and IATA's work duly expanded. It transformed its trade association activities to take account of the new dynamics in aviation, which was seeing increasing demand from the leisure sector. Price flexibility became increasingly important and the United States led the way into deregulation in 1978. IATA has cemented its position as the voice of the aviation industry in recent years, launching a number of important programs and lobbying governments in the wake of successive crises.

Priorities

Safety

Safety is the number one priority for IATA. The main instrument for safety is the IATA Operational Safety Audit (IOSA) and its successor, Enhanced IOSA. IOSA has also been mandated at the state level by several countries. In 2012, aviation posted its safest year ever. The global Western-built jet accident rate (measured in hull losses per million flights of Western-built jets) was 0.20, the equivalent of one accident every 5 million flights. Future improvements will be founded on data sharing with a database fed by a multitude of sources and housed by the Global Safety Information Center.

Security

Security has become increasingly important following the tragedy of 9/11. Following a series of uncoordinated rules by different countries, the industry has developed a Checkpoint of the Future, which is based on risk assessment and passenger differentiation.

Simplifying the Business

‘Simplifying the Business’ was launched in 2004. This initiative has introduced a number of crucial concepts to passenger travel, including the electronic ticket and the bar coded boarding pass. Many other innovations are being established as part of the Fast Travel initiative, including a range of self-service baggage options.

A new program that has drawn plenty of interest is New Distribution Capability. This will replace the old EDIFACT messaging standard that is still the basis of the global distribution system /travel agent channel and replace it with an XML standard. This will enable the same choices to be offered to high street travel shoppers as are offered to those who book directly through airline websites. A filing with the US Department of Transportation brought over 400 comments.

Environment

IATA members and all industry stakeholders have agreed to three sequential environmental goals:

1. An average improvement in fuel efficiency of 1.5% per annum from 2009 through 2020
2. A cap on net carbon emissions from aviation from 2020 (carbon-neutral growth)
3. A 50% reduction in net aviation carbon emissions by 2050 relative to 2005 levels.

At the 69th IATA AGM in Cape Town, South Africa, members overwhelmingly endorsed a resolution on “Implementation of the Aviation Carbon-Neutral Growth (CNG2020) Strategy.”

The resolution provides governments with a set of principles on how governments could:

- Establish procedures for a single market-based measure (MBM)
- Integrate a single MBM as part of an overall package of measures to achieve CNG2020

IATA member airlines agreed that a single mandatory carbon offsetting scheme would be the simplest and most effective option for an MBM.

Services

IATA provides consulting and training services in many areas crucial to aviation.

Travel Agent accreditation is available for travel professionals. Full accreditation allows agents to sell tickets on behalf of all IATA member airlines. Cargo Agent accreditation is a similar program. IATA also runs the Billing and Settlement Plan, which is a \$300 billion-plus financial system that looks after airline money.

And it provides a number of business intelligence publications and services. Training covers all aspects of aviation and ranges from beginner courses through to senior management courses.

Role of IATA

The key role played by IATA is the promotion of a safe, regular and economic air transport mechanism that suites the needs of the entire global customer pool. Currently, IATA represents about 230 airlines which contribute to about 93% of the global scheduled flights. IATA is an acronym for International Air Transport Association.

4.1.2. INTERNATIONAL CIVIL AVIATION ORGANIZATION (ICAO)

The International Civil Aviation Organization (ICAO), is a specialized agency of the United Nations. It codifies the principles and techniques of international air navigation and fosters the planning and development of international air transport to ensure safe and orderly growth. The ICAO Council adopts standards and recommended practices concerning air navigation, its infrastructure, flight inspection, prevention of unlawful interference, and facilitation of border-crossing procedures for international civil aviation. ICAO defines the protocols for air accident investigation followed by transport safety authorities in countries signatory to the Convention on International Civil Aviation(*Chicago Convention*).

The Air Navigation Commission (ANC) is the technical body within ICAO. The Commission is composed of 19 Commissioners, nominated by the ICAO's contracting states, and appointed by the ICAO Council. Commissioners serve as independent experts, who although nominated by their states, do not serve as state or political representatives. The development of Aviation Standards and Recommended Practices is done under the direction of the ANC through the formal process of ICAO Panels. Once approved by the Commission, standards are sent to the Council, the political body of ICAO, for consultation and coordination with the Member States before final adoption.

ICAO should not be confused with the International Air Transport Association (IATA), a trade organization for airlines, also headquartered in Montreal, or with the Civil Air Navigation Services Organisation (CANSO), an organization for Air Navigation Service Providers (ANSPs) with its headquarters at Amsterdam Airport Schiphol in the Netherlands. These are trade associations representing specific aviation interests, whereas ICAO is a body of the United Nations.

The forerunner to ICAO was the **International Commission for Air Navigation (ICAN)**. It held its first convention in 1903 in Berlin, Germany but no agreements were reached among the eight countries that attended. At the second convention in 1906, also held in Berlin, 27 countries attended. The third convention, held in London in 1912 allocated the first radio callsigns for use by aircraft. ICAN continued to operate until 1945. Fifty-two countries signed the Convention on International Civil Aviation, also known as the Chicago Convention, in Chicago, Illinois, on 7 December 1944. Under its terms, a **Provisional International Civil Aviation Organization (PICAO)** was to be established, to be replaced in turn by a

permanent organization when 26 countries ratified the convention. Accordingly, PICAO began operating on 6 June 1945, replacing ICAN. The 26th country ratified the Convention on 5 March 1947 and, consequently PICAO was disestablished on 4 April 1947 and replaced by ICAO, which began operations the same day. In October 1947, ICAO became an agency of the United Nations linked to the United Nations Economic and Social Council (ECOSOC).

4.1.3. ICAO'S ACTIVITIES ACROSS THE SUSTAINABLE DEVELOPMENT AGENDA

Sustainable development seeks to secure the well-being of present and future generations by striving for a balance among social, economic and environmental objectives. The three pillars of sustainable development are especially relevant to the international aviation sector that, by offering a safe and efficient means of mass transportation, is universally recognized as an essential component of the global economy and universal social progress.

Social & Economic Pillars

Air transport is committed to meeting its for sustainable development, maximising its support for economic development, reducing its impact on the environment and consolidating its social benefits.

Through the increased use of low-carbon technology, environmentally friendly materials, new aircraft systems and sustainable energy sources, the air transport sector is making significant advances across a range of sustainability issues. It does so by making sure that its actions around the world are based on the economic, environmental and social pillars of sustainable development.

This can be illustrated by the complex and growing network of around 1,000 airlines offering scheduled services connecting 3,850 commercial airports worldwide. They link major and minor city pairs, facilitating the movement of people, goods and services.

From fresh fish to diamonds, aviation underpins nearly every aspect of modern life, carrying 35% of goods by value and supporting 3.5% of global GDP. Other, less evident benefits of aviation include: 1) critical transportation and logistical links to hinterlands, islands and remote communities; 2) essential services, such as healthcare, mail, education; 3) emergency aid and humanitarian assistance and; 4) data collection for scientific research and meteorology.

Environment Pillar

As early as the 1970s, ICAO emphasized the value of a globally harmonized approach to addressing the impact of air transport operations on noise and local air quality around airports, then focusing its attention on the much broader challenge of climate change. It addressed those challenges through a series of activities described below.

Technology & Operations

ICAO global standards were adopted in the past for noise and local air quality (CO / NO_x / HC) and a new standard for CO₂ emissions is expected in 2013.

Aircraft today are 70% more fuel-efficient and 75% quieter than they were four decades ago. New double-decker and composite aircraft that have recently entered into service have raised the bar even higher in terms of design and performance. Operational measures have also resulted in significant enroute savings in fuel consumption, through new procedures and technology adopted by air navigation service providers. ICAO's Committee on Aviation Environmental Protection (CAEP) continues to develop guidance and tools to assess the environmental benefits of operational measures across the air transport system. ICAO's Fuel Savings Estimation Tool (IFSET), approved by CAEP, is intended to assist States in estimating fuel savings from operational improvements.

Coordinating International Policy

The global agreement on aviation and climate change reached at ICAO's 37th Assembly in 2010 was an important step towards a sustainable air transport future and makes international aviation the first sector to agree on a 2% annual fuel efficiency improvement, while stabilizing its global CO₂ emissions at 2020 levels – with carbon neutral growth from 2020. It provides a concrete framework for ICAO and its member States, in collaboration with the air transport industry, to continue to identify and pursue global solutions to address GHG emissions from international aviation. With this objective in mind, in addition to its technical and operational work, ICAO is focusing on four key areas:

- State action plans.
- Sustainable alternative fuels for aviation.
- Market-based Measures (MBMs).
- Global aspirational goals.

State Action Plans

Member States have agreed to develop national Action Plans to reduce emissions from international aviation and submit them to ICAO by June 2012. The action plans allow States to identify a basket of measures tailored to their circumstances and assistance needs.

They also enable ICAO to assess progress in achieving the global aspirational goals adopted by the Assembly and to identify and address the specific assistance needs of States. Comprehensive guidance material and a web-based interface have been developed and six hands-on training workshops were held in 2011 to assist focal points nominated by States in the preparation and submission of their Plans. To date, ICAO has trained more than 200 representatives from 81 States representing 92.4% of global revenue tonne-kilometres.

International Air Transport and Its Regulations

The Basic Features of International Air Transportation

Historical perspective: Air transport has always been seen to have an inherently strategic role. It has obvious direct military applications, but it is also highly visible and, for a period, and in some countries still, was seen as Historical “flag carrier”, a symbol of international commercial presence. From its earliest days, airlines were seen as having potential for providing high-speed mail services, and subsequently medium and long-term passenger transport. Technology now allows the carriage of much larger cargo pay-loads in a more reliable way. These strategic functions were used to pursue internal national policies of social, political, and economic integration within large countries such as Canada, the US, and Australia, but also took on international significance from the 1930s within the Imperial geopolitical systems centered mainly on the UK, France, Germany, and other European countries when technology allowed for intercontinental services to be developed. 8. Air transport was highly regulated and protected in this environment with the intention of it being used as a lever for larger political and economic objectives. But even in these roles, its importance, largely because of the technology until after World War II, was small. British Imperial Airways, for example, only carried about 50,000 passengers to the colonies in the 1930s; a figure hidden in the public media coverage given to the importance of colonial air networks. Technology shifts as an offshoot of military developments in World War II changed this with the introduction of planes with far longer ranges, faster speeds, enhanced lift, and the increasingly ability to cope with adverse weather conditions. Air traffic control, navigation, communications, and airport facilities have also improved considerably, and more recently the underlying management structure of the supplying industries has enhanced efficiency. 9. The Chicago Convention of 1944 confronted the new international potentials of civil aviation and initiated an institutional structure that laid common ground rules for bilateral air service agreements (ASAs) between nationals. The result, however, while providing a formal basis for negotiation, was essentially one of protectionism with pairs of countries agreeing on which airlines could offer services between them, the fares to be changed and, often, how the revenues could be shared. Added to this, with the major exception of the US, most international airlines were state owned flag-carriers that operated to fulfill, often vague, national objectives of prestige, as well as linking colonies. Internal markets within countries were regulated in similar fashions, and it was not uncommon for wealthier countries to have an airline to provide primarily domestic and short haul services, and one for long-haul, international markets. 10. The breakdown of the domestic regulatory structure within the US from the late 1970s (Morrison, and Winston, 1995) provided both a demonstration for other countries to follow in deregulating their own domestic regimes, but also the US’s, initially unsuccessful, initiatives from 1979 to liberalize international services on a bilateral basis based on a common “Open Skies” recipe began to bring about pressures to wider reforms. This was coupled with more generic moves towards a withdrawal of government in market-oriented countries such as New Zealand and the UK that saw airports

and air traffic control being privatized, or at least operated on a more commercial footing. The move to a Single European Market within the EU from 1992 represented a broader trend, both in terms of the sectors and the geography involved, towards market liberalization of air transport infrastructure, as did the collapse of the Soviet economic system. Not all countries moved completely in this direction, the US for example, rather perversely, continued with its traditional, strongly socialist policy of air traffic control being a state owned, tax financed monopoly and airports, with few exceptions, being owned by local governments.

The modern industry

The modern air transport industry is thus one that increasingly operates within a liberal market context. While government controls over fares, market entry, and capacity continue in many smaller countries, they are gradually and almost universally being removed or relaxed. International controls under the bilateral ASA structure are increasingly moving towards broad Open Skies formulations, allowing free provision of services between the countries involved, although progress on open market, whereby nationality of ownership of airlines is unrestricted, is coming more slowly. The EU area³ has effectively been the largest international free market in air transport services in the world since 1997, and this has grown as the Union has expanded geographically. The supply and operation of air transport infrastructure is also becoming more market driven with on-going privatizations of airports and air traffic control systems, or the use of franchising mechanisms to involve private capital and expertise (Button, 2008). It is also becoming more coordinated.

The air transport industry is now large – it accounts for about 1% of the GDP of both the EU and the US – and is vital in many industries such as tourism, exotics, and hi-technology⁵. It is an important transporter of high-value, low-bulk cargoes. International aviation moves about 40% of world trade by value, although far less in physical terms. The market is served by a diversity of carriers, some specializing in long-haul international routes and others in short-haul markets⁶. Table 1 offers some indication of the scale of larger airlines involved. To handle the interface between land and air transport the world's major airports have grown to handle millions of international passengers (Table 2) and tonnes of cargo⁷ each year, and many have been significant catalyst facilitating, in particular, the growth of modern hi-technology industries and tourism about them. In 2008, passenger air services globally link around 15,500 airports; with the fastest growth in air services over the past two decades being in the Europe-Asian Pacific markets.

ICAO and the Convention on International Civil Aviation

The Convention on International Civil Aviation (the "Chicago Convention") established certain principles and arrangements relating to civil aviation, in order that "international civil aviation may be developed in a safe and orderly manner and that international air transport

services may be established on the basis of equality of opportunity and operated soundly and economically"

Originally signed on 7 December 1944 and ratified on 5 March 1947, the Chicago Convention is now in its ninth edition and currently has 190 signatories (known as "Contracting States"). The Chicago Convention established the International Civil Aviation Organisation ("ICAO") as a means of securing international co-operation and uniformity in respect of civil aviation matters. ICAO is composed of the 'Assembly' (the sovereign body made up of a representative from each contracting State), the 'Council' (the governing body made up of 36 contracting States elected by the Assembly), and the 'Secretariat' (which is divided into various administrative divisions).

Status of ICAO

The Chicago Convention provides for ICAO to have such legal capacity as may be necessary for the performance of its functions in the territory of each global Contracting State. Full juridical personality is granted to ICAO in each Contracting State, and as a specialised UN agency, in the territories of state parties to the UN Convention on Privileges and Immunities of the Specialised Agencies. As such, the body enjoys various diplomatic immunities and may bring international claims and incur responsibility. Although ICAO does not have law making powers, the ICAO Council is vested with extensive powers and duties, including international administrative and juridical functions (including in relation to dispute settlement and implementing sanctions for default), legislative functions (including adopting and amending the "Annexes" to the Chicago Convention), and research and investigation functions (including in respect of the USAP audit programme detailed below).

SARPs

The Annexes to the Chicago Convention contain international standards and recommended practices ("SARPs"), which have a different status to the provisions of the Chicago Convention itself. A "Standard" means any specification for physical characteristics, configuration, material, performance, personnel or procedure, the uniform application of which is recognized as necessary for the safety or regularity of international air navigation and to which contracting States will conform in accordance with the Chicago Convention, and "Recommended Practices" are identically categorized, but deemed to be desirable, rather than necessary.

Annex 17 of the Chicago Convention is concerned with administrative and co-ordination aspects of, as well as with technical measures for, the protection of the security of international air transport, including by requiring each contracting State to establish its own civil aviation security programme that applies the listed SARPs. Compliance with Annex 17 is assessed through obligations to notify and periodic audits, described below.

Notification Obligations

Article 38 of the Chicago Convention states that "any State which finds it impracticable to comply in all material respects with any such international standard or procedure, or to bring its own regulations or practices into full accord with any international standard or procedure after amendment of the latter... shall give immediate notification to the International Civil Aviation Organisation of the differences between its own practice and that established by the International Standard." Once ICAO has been notified, it "shall make immediate notification to all other states of the difference which exists between one or more features of an international standard and the corresponding national practice of that State".

Annex 17 states that "Contracting States are invited to keep the Organization currently informed of any differences which may subsequently occur," (emphasis added) and "a specific request for notification of differences will be sent to Contracting States immediately after the adoption of each amendment to this Annex."

The legal obligation to notify ICAO of differences contained in Article 38 appears to refer to the differences which arise either on adoption or amendment of SARPS. The Chicago Convention does not make reference to differences arising on an ongoing basis. This is dealt with by Annex 17, which provides that contracting States are merely "invited" to inform ICAO of the differences arising on an ongoing basis.

Enforcement

Enforcement of the Chicago Convention can be initiated only by a Contracting State, and is governed by Articles 84 to 88, under which disputes relating to the "interpretation or application" of the Chicago Convention can be escalated to the ICAO Council to be decided by way of a vote (in which disputing parties may not participate). Decisions of the ICAO Council can thereafter be appealed to the International Court of Justice in the Hague or to an agreed arbitral tribunal. Decisions of both are final and binding on the parties. If the decision of the ICAO Council is not followed by a relevant air carrier, all contracting States undertake not to allow that air carrier to fly through their airspace, and if a Contracting State does not follow a decision of the ICAO Council, its right to vote in the Assembly becomes suspended.

In practice, however, Contracting States generally shy away from invoking the dispute resolution. Often this is because of political and diplomatic considerations and/or because of the risk of retaliatory action by the other Contracting State. Indeed, it appears that ICAO has been asked to exercise its quasi-judicial dispute resolution functions on only a few occasions:

- *India v. Pakistan* (1952) - involving Pakistan's refusal to allow Indian commercial aircraft to fly over Pakistan;
- *United Kingdom v. Spain* (1969) - involving Spain's restriction of air space at Gibraltar;
- *Pakistan v. India* (1971) - involving India's refusal to allow Pakistan's commercial aircraft to fly over India;

- *Cuba v. United States* (1998) - involving the US refusal to allow Cuba's commercial aircraft to fly over the United States; and
- *United States v. Fifteen European States* (2003) - involving EU noise emission regulations.

A Contracting State may also be able to enforce its rights under the Chicago Convention through application of the international law of state responsibility.

International Cooperation and Information Sharing

Contracting States are obliged to ensure that "requests from other Contracting States for additional security measures in respect of specific flight(s) by operators of such other States are met, as far as practicable. In addition Contracting States are obliged to cooperate with each other in "the development and exchange of information concerning national civil aviation security programmes, training programmes and quality control programmes and to "establish and implement procedures to share with other Contracting States threat information that applies to the aviation security interests of those states, to the extent practicable

Annex 17 also contains several Recommended Practices concerning the sharing of information. In particular, each Contracting State should, when so requested, "share, as appropriate and consistent with its sovereignty, the results of the audit carried out by ICAO and the corrective actions taken by the audited State"(emphasis added). Also, each Contracting State should "include in each of its bilateral agreements on air transport a clause related to aviation security, taking into account the model clause developed by ICAO", and each State should, on request, make available appropriate parts of its national aviation security programme.

The Universal Security Audit Programme

The Universal Security Audit Programme ("USAP") was launched by ICAO in June 2002 to ascertain the level of implementation of Annex 17 standards in all Contracting States by conducting regular, mandatory, systematic and harmonized audits. The first cycle of audits, in which 182 audits were conducted, was completed in December 2007, and the second cycle of expanded audits, which commenced in 2008, is expected to complete in 2013.

Each ICAO audit is conducted in a transparent manner with the cooperation of the audited State. Indeed, the State will usually have four to six months notice of the audit, and will enter into a customized memorandum of understanding with ICAO that sets out the audit's scope and implications. Typically, a team of three or four ICAO auditors will conduct the audit over a period of about one week in accordance with ICAO's standard auditing procedures and protocols before providing the State concerned with a confidential audit report. Following receipt of the audit report, the State typically has 60 days to submit a "corrective action plan" detailing how it intends to rectify any deficiencies identified by the audit. The

implementation of the corrective action plan is then monitored by ICAO. In 2005 a series of "follow-up visits" (172 in total) were initiated to verify compliance with corrective action plans and provide further assistance in respect of outstanding deficiencies, and according to ICAO such visits "confirmed that, overall, states made progress in the implementation of their corrective action plans". In respect of audits starting in 2011 (and some to be undertaken in 2010), ICAO will notify the State of any 'significant security concerns' ("SSeCs") within 15 days, after which the State is required to implement immediate corrective action. Failure to do so within 15 days.

4.1.3(a) Case Study :Global Implications of the Airline Industry Example- Aviation trends to look in 2019

The year 2018 was a mixed year for aviation industry in India with many highs and some lows. The year 2019 promises to be an exciting, yet uncertain year for the sector that has emerged as one of the fastest growing industries in the country during the last three years. Driving the change are the revised regulatory framework combined with cutting-edge tech initiatives such as biometric self-boarding, in-flight connectivity, introduction of Artificial Intelligence, Machine Learning, Data Analytics and Robotics. However, the volatility in the airline market, driven by a range of factors, including aviation fuel pricing and yield economics could prove to be detrimental, if not addressed in timely fashion through policy changes.

Here we list out eight X factors that could prove key for the growth of aviation sector in India.

Regulatory changes:

Recent changes in aviation regulation will continue to aid the growth of Indian airport infrastructure development, especially in Tier-II and Tier-III cities. The proposed model of development for the six regional airports along with investment in the

Jewar Airport and the broader roll-out of the RCS/ UDAN scheme will allow more people to fly than ever before in 2019. What we need is the greater integration of these schemes with urban transportation corridors to allow for public transport access to these points

Emergence of Biometrics: Travellers can expect to see greater use of biometrics, such as facial recognition to enter airports, at processing points (check-in, bag-drop, security, and immigration) in 2019 and from an Indian context this is going to be the single biggest game changer with Digi Yatra Roll out

Increased customisation: Travellers will have more options than ever before both at the airport and on-board airlines to customise their flight experience in 2019 and obviously, premium customers will see the better side of customised travel.

Greater passenger visibility of checked-baggage: Newer baggage protocols will continue to increase passengers' visibility and control over checked luggage in 2019. Building on last year's efforts, legislation requiring airlines to track bags at four key points (passenger handover to airline, at aircraft loading, delivery to transfer area, and upon return to passenger), airports will increasingly move towards RFID or other NFTs, rather than paper tags, to track luggage. Over time, this should mean less queuing and stress for passengers, who will increasingly track their bags via an app on their smart phone.

Commercial usage of drones: There will be tighter regulation on the commercial use of drones especially from a safety and noise perspective, but 2019 will see greater use of drones for commercial purposes including for cargo delivery and limited passenger service to links

Evolution of digital transformation: Digital transformation will continue to drive change across the travel and transportation industry with the increasing business use of technology such as artificial intelligence (AI), machine learning (ML), data analytics and robotics. We are moving towards a world of predictive behaviour and these digital trends coupled with advances in facial recognition, biometrics and the spread of WiFi and NFTs across India will drive customisation even faster.

Inflight connectivity: The Telecom Commission has approved the proposal by the Department of Telecommunications to allow calls and internet services on aircraft above Indian airspace. This will allow passengers to make phone calls and browse the internet above cruising altitudes. While this is a welcome move from a data perspective, the idea of being inside a closed tube with various people making phone calls, is less appealing. How to strike a balance?

Volatility of fuel, yield economics: The volatility of fuel costs is going to impact both the profitability of airlines as well as customer costs. As airlines in recent years benefited from low fuel prices, which bottomed out in early 2016, they were able to price tickets more competitively.

However, crude oil prices fluctuated widely this year and are impacted by major duties in India – so expect to see more uncertainty, given some of the global political challenges.

In India, this will have a major effect on domestic carriers and profitability, so don't rule out some consolidation in the airline industry (as we're seeing in the case of Jet Airways).

4.2. LOW COST CARRIERS

Overview

The low cost carriers in Europe almost captured a 25% share as of now. While the first time air travellers continue to contribute to the growth of LCC, the full services conventional carriers (legacy) do not suffer any appreciable market share.

In general, what we observe in the air travel market today is a fare war ignited by low cost carriers. There is an impression fast gaining momentum that low cost carrier (LCC) means, substandard services, low in performance, low in serviceability and low even in safety standards, and the tickets are sold for a very low price or even 'zero' as the hidden surcharges and taxes are unknown to the traveling public, particularly the 'first time travelers' who in any case are the target population. It is time that the LCC re-looked at their advertising campaigns to correct the wrong impressions. First time travellers must know the clear difference between a 'full service' conventional airline like Emirates Airline and the LCC like Air Arabia. Travelers should be aware that low cost carrier means it will not have certain facilities or full services on board like Emirates and that is why they are low in prices, and not low in service quality. Once this clear message is communicated, then the traveling public should be able to choose the right airline. It is important to create the right impression from the very beginning, otherwise it will create a wrong impression in the mind of a first time traveler and that will spread by word of mouth. It is critical to inculcate the right perspective, as the LCC is growing fast and have a good potential to grow fast in India too.

What is a Low-Cost Carrier (LCC)

In airline business, we have a traditional model referred to as 'Legacy Carrier/Conventional' and the Low-Cost Carrier. It is essentially a 'business module' also known as 'no frills' or discount carrier, is an airline that offers low fares but eliminates most traditional services. Legacy carriers operate with multi-class (First, Business and Economy) configuration with 'complimentary in-flight services.

'No-frills' is the term used to describe any service or product for which the non-essential features(or frills) have been removed. Common products and services for which no-frills brands exist include airlines, supermarkets, holidays, automobiles etc. They operate on the principle that if you take away the frills, you get lower prices/fares. No-frills supermarkets are recognizable by their store design and business model. They work on the principle that in most supermarkets, 20% of products on sale account for 80% of what people buy and therefore, they stock the most commonly sold product, and they often do not serve branded items.

A typical Low-Cost Carrier business model practices include:

- a single type of aircraft (say, Airbus320 or 'Boeing 737)
- a single passenger class
- a simple fare scheme(typically fare increases as the aircraft fills up, which rewards early reservations-Yield Management)
- unreserved seating (encouraging passengers to board early and quickly)
- short flights and fast turnaround times (allowing maximum utilization of aircraft)
- flying to cheaper/less congested airports
- simplified routes, mostly point-to-point
- emphasis on direct sales of tickets(on line)
- employees working in multiple roles and simple dress code
- 'Free' inflight catering and other 'complimentary' services are eliminated, and replaced by optional paid-for in-flight food and drink

LCC- New Thrust Areas

Low-cost carriers pose a threat to traditional 'full service' airlines, since the high-cost structure of full-service carriers prevents them from competing effectively on price. Notwithstanding, LCC are to focus on new thrust areas to stay ahead.

There is a need to find a path that the low cost carriers can follow as it seeks out new markets, ways and means to attract and maintain its customers and how to compete with the market rivals. Sustained excellent performance records of LCC like South West and JetBlue in US and Ryanair and EasyJet in the UK are good case studies that will help our existing LCC and the potential low cost carriers to carry out a transformational intervention. Some of the key issues that merit attention are:

Differential Strategy- Uniqueness, Features, Appearance and Perceived Customer Value are some of the factors that help to provide distinguishable marks for which the customer is willing to pay a premium. You have to be something different from your competitors. To gain such a differential strategy, you need to know the market you want to serve, the market segments, customer type, nature of customers, customer needs and their choice and the geographical area and the product niche. You have to constantly work through the customers by way of customer surveys, close scrutiny of customer preferences, their behaviour patterns and the regional characteristics including the cultural bias. Capture these very features and introduce something new and something very different. Though it can be copied by your competitor, but you have the advantage of introducing it for the first time and thereby making it easy for you to market it, and also to bring about quick changes at frequent intervals. Pleasing, unique interiors and appearance, seating configuration, leather upholstery, soft skills of cabin crew and above all, on time performance are some of the features that can differentiate you from your competitors. You may not need to add any tangible value to the

product as long as the customer perceives that the product is superior. It is the perception that matters. Perception value is more important than actual value.

Competitive Strategy- It means that a low cost model is doing something different, deliberately choosing a different set of activities than its competitors. Full service carriers serve a large number of destinations on a hub-and-spoke method, clustering around peak hours at hub airports which require coordination of schedules, interlining, extensive screening of baggage etc. Whereas, low cost operators should stay away from large, congested airports and offer only short point-to-point services between mid size cities and only to secondary airports in large cities, strategy being- keep fares low and frequency high- so that you are able to attract people who might otherwise travel by car or train.

While introducing hopping flights to attract rail/road users, it should be ensured that they do not waste their time in procedural aspects, instead, it should be straight in and they should gain an impression that air travel really saves time, it is comfortable and convenient, and at an affordable cost. Popularize the secondary airport/low cost airports concept. They are to be different to achieve the quick turnaround time with simplified security/check in procedures; one can even scrutinize the credentials of frequent fliers and high value travelers, and issue them with laminated boarding pass/e-gate facility to reduce the dwell time.

Airport operators and aviation security bureau should be able to come forward with less stringent and quicker ways to screen and even provide an exclusive area for low cost operators. Passengers can be indoctrinated to carry less baggage or just hand baggage only so as to reduce the turnaround time. Passengers with only hand baggage can even be encouraged with some incentives so that the practice gets developed. Focus on high frequency and least dwelling time.

Selection of aircraft is crucial. The tendency to go in for the easily available old aircraft or cheaper lease terms should be avoided as it can be costly in due course as they would be less fuel efficient and costly on maintenance, training of air and ground crew. Use of standard aircraft, say a fleet of Air Bus 320 or B737-800 contribute to lowering the operating costs and therefore selection of aircraft is key to the whole issue. In 2006, the cost per available seat mile for full services carrier US Airways was 12.5 cents and 9.6 cents for Continental, whereas, it was 7.0 cents for South West and 6.2 cents for Jet Blue, the low cost operators.

Operational Effectiveness- It means performing better than your competitors by keeping the operating cost lower than your competitors by performing the same activities in different ways. A strategic management approach of establishing a corporate Vision, Mission, Objectives, strategic alternatives, implementation of the set out strategies and periodical evaluation, and corrective action wherever necessary will be an effective tool to achieve the operational effectiveness. Vision or Mission says it all. Virgin Atlantic's Mission, "to grow a

profitable airline, that people love to fly and where people love to work” has indeed helped the airline to market it very well.

Awareness Build Up- Most of the traveling public, particularly the first time fliers, at least 10 to 20% at any given time are ignorant of the difference between conventional full services airlines except that they are induced by the fare driving advertisements. Best fare does not always explain consumer choice in air transportation. There is a segmentation here one segment is leisure passengers and the other business passengers. While price may rank high in the case of leisure passengers where elasticity of demand is high, when it comes to business travel, demand level is inelastic and depends mostly on convenient schedule than fare. Another factor is passengers may end up paying a higher fare than they would probably because they use a medium to make their reservation that does not have an account to the lowest possible fare. Use of inter net and on-line booking makes it cheaper than booking through a travel agent or direct booking over a telephone. One may choose an airline due to pre-conceived perception of preferred ground services, or safety record or on time performance, or cultural preferences, and therefore, understanding the consumer behaviour is extremely important in establishing a competitive position.

Low Cost Leadership- A low cost leader has two options one, to provide a service at lower fare than its competitors and thereby gaining a large share of market place. In this, the low cost leader is undercutting the competition. If the buyer is cost sensitive, then the buyer will choose the low cost leader. The second option for the low cost leader is to offer the same fares as that of the competitors. In this case, the leader reaps the benefit of a greater profit margin. The leader by virtue of being the leader has been able to keep the cost lower than rivals, and as the costs are lower, the profit is better than rival. However, to be a leader, you should be able to provide customers with a workable schedule as well. In a price sensitive environment, the customers should also know who offers the lowest fare and convenient schedules and then choice will be the leader.

When buyers are price sensitive, low cost leadership position will have a very strong competitive position in the market. The aim is to contain the cost to the lowest, relative to industry rivals and in course to create a sustainable cost advantage over the competitor. Remember, cost is not equal to price. So, one has to gain cost advantage in a manner that is very difficult for the rival carriers to copy. Cost advantage is based totally on the relative ease or difficulty it takes to imitate the product and this is the key to sustainability of competitive edge.

Core Competence – What is your core competence, how to identify them and how to develop them are some of the questions that you need to answer. May be it is better for you to try and identify a competency or set of competencies that helped you to do well in your business, and then it would be easy to exploit them.. We need to recognise that the

competitive advantage and core competencies come from within the airline itself. It must also be borne in mind that it is not easy to identify or figure out what exactly is your core competence. It may be skills, process, and corporate identity, combination of skills and knowledge that is embedded in the organisation; because it exists you are able to reach new heights. This helps to initiate value creating activities that can make unique value added contributions to the business. The aim is that your airline should be better at the competencies than all others or at least the vast majority of your competitors. Rareness of the competency makes it difficult for your competitors to imitate you. Competency to meet your customer needs is the key. Being better than your competitor is not enough to have a sustainable competitive advantage, but the reality is to fit and focus is necessary. What make an airline in one market, may not work in another market. Your success in one market segment does not guarantee success in another market segment. It is important for you to focus on your core activities in which you want to excel. This is the reason why the introduction of 'airline within an airline' tried by some of the major traditional airlines did not succeed. Continental tried to copy South West unsuccessfully, similarly, many others. So copying is not easy.

When the activities are incompatible, it can become confusing to customer if another type of service or value is offered, when the brand is known for one type of service or value. The new image can undermine the reputation of the parent airline (Air India Vs Air India Express). A new activity requires different skills, different equipment, management systems/style and employee attitudes. Use of same travel agents, lack of training on the part of employees while switching from legacy carrier to low cost or even after training, inertia or mind set can affect the brand image. Lack of internal coordination and control can also result out of change of roles.

- Continuous innovation in areas where Sustainability Strategy
- Optimize operating efficiency of facilities
- Pursue cost cutting measures through procedural control
- Avoid or minimize marginal cost activities
- Maintain a close watch on the cost drivers
 - cost cutting can be achieved. Even the crew uniforms can be made simpler and cheaper. Introduce something to go by the regional accent and smart casuals are optional choices.
- Adaptability to market condition, where inventory can be adjusted rapidly, keeping demand and supply equation
- Quick and efficient on time performance- flexibility to respond quickly and pro-actively to changing needs of the customers
- Outsource as much as possible in areas such as finance& accounting, back office functions, reservation process, baggage screening, and resort to e-marketing, snap express reporting and build committed employees.

- Seating and all other services based on what the customers can afford to pay, what ever strategy that can boost the first time travelers' choice and cut down the costs to ensure no seat goes unoccupied and that no space that goes vacant, it should be filled with additional seats.
- Improved revenue management system- some of the airlines have a complex fare structure. Make it user friendly and more manageable, and keep the unfamiliar first time travellers in mind.
- Function exactly as air taxi operations with e-commerce strategy.

Follow what Mr. Roller King, the founder of South West Airline, the most successful low cost carrier said “if you get your passenger to their destination when they want to get there, on time, at the lowest possible fares, and make damn sure that they have a good time doing it, people will fly your airline”

CONSOLIDATION

Airline consolidation or just plain working together on a greater scale - because on your own you struggle and possibly drown - is not new, but certainly is considered more during economic downturn. During these periods of downturn airlines tend to focus on operations and cost, during positive periods airlines focus on service and revenue.

The current economic downturn has made the aviation industry search for options for survival, one option is consolidation. More and more we see forced consolidation due to financial difficulties, wherein mergers and acquisitions are used as a last resort to survive, instead of an opportunity when all is well.

So what consolidation can we distinguish, there are operational partnerships for instance on maintenance or ground handling services, there are the commercial alliances where code sharing and common branding is applied and the financial consolidation with mergers and acquisition of the other airline. The last one is the most difficult as this involves regulation from different countries, politics, and cultural differences and more challenges facing this type of consolidation.

The most common reasons for airlines to consolidate are to improve the cost base through the achievement of scale and scope related advantages, think of network expansion. Also reduce excess capacity on unsustainable competitive markets and code share on certain routes, in addition the need to increase presence in key markets and enter emerging ones.

The advantages created can be on cost reduction through economies of scale and scope, handling services, joint purchasing and shared facilities. Also the ability to grow the network is the size or the market share in an already present region - in addition the regulatory approvals for entering foreign markets could be less difficult. Next to cost and growth also

the customer benefits can improve through joint check-ins, greater choice in destinations and maybe the sharing of loyalty programs.

The disadvantages of consolidation some time out way the benefits in this the aviation industry doesn't differ from other industries. Cost reduction is one of the first aspects that are covered during consolidation, the easiest cost reduction is of course the reduction of staffing, but performing this badly can harm the company more than is intended. The combination of two parties working together can bring the needed synergy but also can cause conflicts and tension between the two workforces, example is Air France KLM. Taking it a step further to a full merger or acquisition, the question remains who is determining the strategy for both companies? And who takes the responsibility when things go sideways?

This can result in long consolidation processes that are expensive and won't bring the needed synergy in the short run. It's important to have the same goals but even better to streamline the core processes where, but isn't the only bottleneck, cross-border mergers come with their own cultural differences, without tackling these issues you are in for the long run or very short. Further issues can be on strategy, different union involvements, branding, licences/IPR, bilateral agreements, IT and service standards.

If that isn't enough there are obstructions to consider, like regional responsibility and EC regulations about pricing and "unfair" competition. Currently the consolidation is directing towards alliances, wherein large carriers like Air France-KLM, Lufthansa, British Airways, Singapore airlines and more of these large flag carriers are consolidating services and dividing capacity via code sharing.

But these alliances will go further; the current alliances are Sky Team , One World and Star Alliance. Sky Team also has a Sky Team cargo that joins the cargo operations. These alliances can be successful because, they search for the best network match and cost structure, catch growth opportunities to consolidate presence on key neighbouring markets, consolidate the global network and divide capacity and fleet mix accordingly.

For an alliance to remain successful they need to:

- Focus on core business activities; passengers/cargo operations
- Improve pricing structure; ticket selling procedure
- Adapt to the current and future market; without the flexibility this will form a threat to future success
- Maximize synergy in aligning ways of work, processes and procedures; together the total must be more than the sum of the parts
- Even when all is well, focus on operations and cost

The alliances will only grow and aircraft probably will fly with alliance colours instead of the original colors of the carrier, this also would increase the opportunity for predatory

pricing among the alliance members and thus making it very difficult for new entries or not alliance members to come to the market. The movement of large scale partnerships within the alliances, is already happening, wherein joined purchasing, management, crew planning, crew training, maintenance and so on is true for certain alliances partners. As long as the legacy carriers stick to their hub operations there is still room for LCCs, charters or hybrid airline business models. In conclusion the alliances as a whole are hybrid airline business model, similar like a large company with different departments operating in different ways, with different systems and different cultures. To survive they have to simplify, streamline, couple, control cost and increase efficiency over the whole range of different airlines, just plain work together.

4.3. BILATERAL AIR TRANSPORT AGREEMENTS: AN OVERVIEW

Introduction

A bilateral regulation is a regulation undertaken jointly by two parties or, most typically by two states in international civil aviation. The main objective of bilateral agreement is the conclusion, implementation or continuance of some kind of intergovernmental agreement or understanding concerning air services between the territories of the two parties. A significant amount of intergovernmental bilateral regulatory activity involves formal consultations undertaken to conclude, interpret, expand or amend, or resolve a dispute under an intergovernmental agreement, arrangement or understanding concerning international air services. Unlike national and multilateral regulation, the bilateral regulation of international air transport has no organizational structure. However, it does have an extensive legal regulatory structure composed of several thousand bilateral agreements and understandings.

4.3.1. Evolution of the Bilateral Regulations

Although international air transport services were first developed in the early 1920s, few bilateral intergovernmental agreements were concluded in those early decades due to the small volume of international air transport activities and then to the virtual cessations of many commercial flights during the 1939-1945 (World War I) period. Bilateral agreements now in force, largely date from after the 1944 Chicago Convention.

Why Bilateral Agreements?

- a) Article 1 of the Chicago Convention which states that states have complete and exclusive sovereignty over above their territory.
- b) Agreement on the requirement for special permission or other authorization to operate schedule international air services over or into the territory of a contracting state.
- c) Lack of success of efforts to establish a multilateral regulatory regime for the commercial aspects of international air transport.

The Bermuda I Agreement of 1946 between UK & USA

This agreement was the result of a compromise between the two broad approaches to the regulation of international air services that had emerged at the Chicago Conference and been let unresolved.

- i) At one extreme it was held that there should be no regulation of capacity or tariffs nor narrow definitions of routes.
- ii) The opposite view was that capacity should be pre-determined, tariffs regulated by an international agency and routes specified.
- iii) Under the compromise agreement, tariffs were to be established by the Airlines through IATA, subject to the approval of both parties. Capacity was to be determined by the Airlines and routes were specified.

4.3.2. RELEVANT PROVISIONS OF BILATERAL AIR TRANSPORT (SERVICES) AGREEMENTS

1. The **Preamble**, which is the initial part of the agreement, identifies the **contracting parties** or simply **parties** (the two involved governments), presents their reasons for entering into the agreement, and declares that they have agreed to what will follow in subsequent parts of the agreement.
2. A **definitions article**, often the first article of the agreement, assigns meanings for the purposes of that agreement to terms used in the text, typically those used more than once.
3. A **grant of rights article** expresses the main purpose of the agreement, that of the grant by each contracting party to the other contracting party of rights specified in that article or elsewhere, such as in the Route Schedule(s), to operate the agreed air services.
4. A **fair and equal opportunity article** (or some variant thereof such as “fair and equitable” or “fair”) sets forth a general principle which each party to an agreement may rely upon to ensure against discrimination or unfair competitive practices affecting its designated carrier(s). Alternatively, the principle may be stated in a clause in the capacity article or elsewhere in the agreement. The article is sometimes expanded to specifically require consideration of the interests of the other party and its air carrier(s). The opportunity provided is for the designated carrier(s) of each party and may be stated as “to compete” or “to operate.”
5. A **designation and authorization article** grants the right to name an air carrier, or more than one air carrier, to operate the agreed services and establishes the limited conditions under which the other party may deny an operating authorization to such carrier(s). The conditions for denying (including withholding) of an operating authorization are typically those of substantial ownership and effective control not being vested in the designating party or in its

nationals, and/or an insufficient disposition to conform to the laws and regulations of the receiving party and/or an inability to meet airworthiness standards.

6. A **revocation or suspension of operating authorization article** grants each party a right to revoke or suspend the operating authorization already granted to an air carrier of the other party if the carrier no longer meets a specified condition, usually one of the same conditions established for the grant of such authorization.
7. A **capacity article** lays down the agreed principles or method for regulation of the amount(s) of services offered or to be offered under the agreement. Detailed models of a pre-determination type capacity article, a Bermuda I type capacity article, and a free-determination type article were developed by ICAO to provide guidance on three alternative regulatory approaches to capacity clauses and may be found in ICAO Doc 9587.
8. A **tariff article** establishes procedures for the establishment and regulations of prices on the agreed air services. Detailed models of a double approval clause, a country of origin clause and a dual disapproval clause were developed by ICAO to provide guidance on three alternative regulatory approaches to tariff clauses or articles and may be found in ICAO Doc 9587, along with discussion of further alternative approaches to tariff regulation, such as “tariff zone” and “country of designation.”
9. A **statistics article** typically provides for exchange of airline traffic data related to the agreed services, either periodically or as needed for the regulation of capacity, for route evaluations, or for other purposes.
10. A **Commercial operations article** or **commercial opportunities article** (or articles) specifies the rights granted to each party’s designated air carrier(s) to carry out commercial activities in the territory of the other party. These rights are sometimes referred to as “**doing business rights**” or “**soft rights**” and are likely to include the establishment and extent of foreign staffing of airline offices, sales in local or convertible currency, ground handling options, currency conversion and remittance of funds by airlines, and in some cases, access to landing and take-off slots at airports and/or use of computer reservation systems (CRS). An **airport slots article** and/or a **computer reservation systems article** are sometimes used to cover the latter two “soft rights” separately.

“**Hard rights**” has come into some use as a collective term of contrast to include route,

traffic, operational and capacity rights which are considered more valuable and enduring, hence “hard”. Pricing rights are sometimes in the other. In some agreements, one or more of the “doing business rights” listed above are given their own distinct articles.

11. An **airworthiness article** typically provides for the mutual recognition by the parties of each other's certificates of airworthiness, certificates of competency and licences.
12. An **aviation security article**, an addition in recent years to many bilateral air transport agreements, sets forth procedures for co-operation between the parties to avoid or deal with situations involving acts or threats of unlawful interference with the security of civil aviation. In 1996 the Council of ICAO adopted a model bilateral aviation security clause for the use of Contracting States (see Appendix I to the manual).
13. A **customs duties and taxes article** requires each party to exempt from duties, taxes and charges, the aircraft fuel, spare parts and supplies used by the other party's air carrier(s) (see also ICAO's Policies on Taxation in the Field of International Air Transport, Doc 8632).
14. A **taxation article** (in the absence of a separate tax agreement) exempts from taxation the corporate earnings of the air carriers(s) of the other party and may, in some cases, extend to cover the earned incomes of air carrier employees (see also ICAO Doc 8632).
15. A **user charges article** sets forth agreed principles regarding charges for the use of airports and route air navigation facilities by the designated air carrier(s) of the other party (see Statements by the Council to Contracting States on Charges for Airports and Air Navigation Services, ICAO Doc 9082).
16. An **application of laws article** establishes that the national laws of one party related to the operation, navigation, and admission and departure of aircraft apply to the air carriers(s) of the other party.
17. A **consultation article** sets forth the agreed procedures for consultation between the parties or their aeronautical authorities (often with a time requirement for the consultation to take place) and may include an **amendment clause** (sometimes a separate **amendment article**) which establishes procedures for amending or modifying the agreement.
18. A **settlement of disputes article** sets forth agreed measures for resolving disputes between the parties. Such measures routinely include consultation and sometimes arbitration.
19. A **termination article or denunciation article** specifies how a party may end its commitments under the agreement, typically one year after receipt by the other party of a formal notice to that effect. Some agreements provide for a shorter notice period, such as six months, or in exceptional cases, allow for denunciation or termination of only parts of the agreement.
20. A **multilateral agreement article** provides that if a multilateral agreement accepted by both parties, concerning any matter covered by the agreement, enters

into force, the agreement shall be amended so as to conform with the provisions of the multilateral agreement.

21. A **registration article** reiterates the obligations of the contracting parties (when both are Contracting States of ICAO) to register the agreement with ICAO, as required under Articles 81 and 83 of the Chicago Convention.
22. An **entry into force article** establishes how and when the agreement will take effect, typically upon the conclusion of an exchange of diplomatic notes. It may specify provisional effectiveness and may or may not anticipate a process of ratification by either or both parties.
23. The **signature provisions** at the end of the agreement indicate the date and place of signature and specify the language versions. Although most agreements having more than one language version provide that each version is equally authentic, agreements can provide that in the event of conflict between the language versions, the text of one specified language will prevail.

4.3.3. EMERGING TRENDS IN CIVIL AVIATION- ISSUES RELATED TO BILATERAL AND OPEN SKIES TRAFFIC RIGHT

Bilateral agreements and open skies have a direct relationship with air traffic rights. In the context of civil aviation, traffic right means the right granted to an airline operator to land its aircraft at an airport. It is a market access right granted by a government or regulatory authority established by the government for use by a designated carrier over an authorized route. It is the right to transport passengers, cargo, and mail, separately or in any combination. Traffic right encompasses revenue traffic and certain non-revenue traffic, such as the carrier's cargo or mail. Traffic rights can also be for non-traffic purposes or technical reasons, such as fuelling, change of crew, lifting of food or even some repair work. The traffic right of an airline operator could be for international operations or domestic operations or both.

The need for grant of traffic rights in international air transport has arisen due to inherent sovereign rights of the States over the air space above their respective territories and as such the imperative requirement for an agreement between two or more States for grant of traffic right for any international flight. The Convention on International Civil Aviation (commonly called the Chicago Convention) in Article 1 recognizes this sovereign right. At the time of Chicago Convention in 1944, an attempt was made to globalize the traffic rights through a multilateral agreement but this effort failed. The primary reason for this failure was the fear of a large number of States, especially developing ones, that their air carriers, mostly owned by the governments, will not be able to stand the competitive powers of the mega carriers of the developed world, mainly because of economies of scale. Subsequently, in various international forums the difference in the approaches of developed and developing world in

this regard has been clearly observed. The traffic right is often considered to be of commercial value and an intangible asset which should not be passed on easily without obtaining reciprocal benefits. Sometimes, the grant of traffic right becomes a part of country's foreign policy.

The issues connected with grant of traffic rights for international operations are complex because two or more operators from different countries are involved and governments or regulatory authorities from these countries have to come to an agreement regarding the extent of grant of traffic rights, which has to be mainly on reciprocal basis. In international operations, traffic rights can take several forms depending upon the type of operation. On the other hand, the issues connected with traffic rights for domestic operations are relatively simple as there are only two involved parties, airline operator and the regulatory authority, which is the government or an entity established by the government. Traffic rights for domestic operations are not given to foreign carriers either under the bilateral agreement or open skies.

Globally, the most basic way the international traffic rights are expressed is one of the freedoms of air. While International Civil Aviation Organization (ICAO) has formally recognized only five freedoms of air, in actual practice other freedoms of air have gradually evolved. According to the ICAO Manual on the Regulation of International Air Transport, there are presently nine freedoms of air denoting different types of traffic rights, which are detailed in the Appendix. These freedoms are not automatic but have to be exchanged after detailed negotiations between the concerned States except for the rights relating to first and second freedoms, which are covered by a separate multilateral agreement discussed in the following section. Moreover, the freedoms of air could be subject to other restrictions such as number and capacity of aircraft to be operated, choice of routes and airports, time slots for landing, charges for landing, etc.

International Practices and Recent Developments

Globally, civil aviation is undergoing technological advances in several areas which have direct and indirect impact on bilateral agreements. These include: increase in the size of aircraft, higher speed, greater safety, more comfort and convenience and all these at reduced fares in real terms because of increased productivity and competition. The recent emergence of no-frill airlines is making a dent in the traffic handled by rail and road and providing effective competition to them. Present day airports provide much improved facilities to the users than in the past. Apart from a significant surge in air traffic and technological advances, the last one and half decades have seen manifold changes in the management, operation and regulation of the aviation industry in most parts of the world. A major supporting development for the aviation industry has been the globalization and liberalization of economies and an increasingly active role for the private sector in the economic development

of the countries. These economic changes have brought about structural changes in civil aviation throughout the world and also in the approach towards bilateral agreements and open skies.

In 1944, the international aviation community and representatives of the States organized a major international conference in Chicago to consider regulation of international air transport with a view to developing and ensuring safe, secure, efficient and economical international air transport services and to avoid arbitrary action of the States which could hinder such development and also to establish standards to maintain safety and security of international operations. This conference culminated in signing of three major agreements.

The first agreement was the Convention on International Civil Aviation (the Chicago Convention) to which presently 190 States, including India, are signatories. This Convention established the International Civil Aviation Organization and the primary basis for the regulation and development of international air transport. The provisions of the Convention are binding on all the Contracting States. The ICAO has a General Assembly which meets at least every three years. It has also a permanent governing Council with 36 members of which India is a member.

The second agreement was International Air Services Transit Agreement which provided for the multilateral exchange of first two rights of freedom, namely (a) over-flight (the privilege to fly across the territory of other contracting States without landing) and (b) non-traffic stop for scheduled air services among its contracting States (the privilege to land for non-traffic purposes). As many as 122 States, including India, have ratified this agreement. This agreement applies to only those States which have ratified it.

The third agreement was International Air Transport Agreement for grant of the right to first five freedoms of air. This agreement was to have far reaching consequences in liberalizing international air transport operation and grant of traffic rights. However, only 19 States (out of which eight States, including the United States which later withdrew) could ratify this agreement. Thus, this agreement is of no practical value for international air transport. India is not a signatory to this agreement. Had this agreement been ratified by the States, the shape of international air transport would have been different from that it is today. There would have been almost no place for bilateral or regional agreements.

Birth of Bilateral Air Services Agreements

The lack of success in 1944 of the efforts by the international aviation community to establish a multilateral regulatory regime for the commercial aspects of international air transport led the States to control and regulate international air transport within their territories. This resulted in the global development of bilateral air services agreements to regulate international air transport between any two States. Today, such agreements

constitute the largest volume of international air transport regulatory documents. Presently, bilateral air services agreement is the primary basis for most of international air transport operations.

Each bilateral air services agreement is unique in nature. The key element of the agreement is determining the basis for sharing of perceived future traffic between the two countries and sometimes beyond. Sharing of traffic is essentially based upon the policy of equal opportunity for both the States in grant of traffic rights. Sometimes, political considerations do play a part in deciding the allocation of landing rights but such cases are exceptional. The bilateral agreements have several other provisions most of which, while not identical, have a similar thrust. Such commonly found substantive provisions include: recognition of sovereignty, airline ownership, designation of air carrier and authorization, fixation of tariffs, exchange of traffic statistics, right to carry on commercial activities in the territory of the other party, mutual recognition by the parties of each other's certificate of airworthiness, competency and licences, procedure for cooperation regarding safety and security, use of computer reservation system, provisions regarding exemption from payment of customs duty and taxation of earnings of the air carriers, user charges, and application of national laws, etc. ICAO provides guidelines on most of these issues and in many cases on the wordings of the Articles of the agreements, but these is advisory only.

During the last decade considerable progress has been made throughout the world in liberalizing the provisions of bilateral agreements with respect to traffic rights. Such changes are still continuing. According to ICAO, between January 1995 and December 2001, over 600 bilateral agreements were reported to have been concluded or amended. About 70 percent of these agreements and amendments contained some form of liberalized arrangements, such as unrestricted traffic rights, covering Third, Fourth and in some cases Fifth Freedom rights, multiple designation with or without route limitations, free determination of capacity, etc.

4.3.4. MULTILATERAL AGREEMENTS

As an enlargement of the concept of bilateral agreements, some agreements negotiated in recent years have sought to liberalize air services on a regional or sub-regional basis or among a group of like minded States. These regional and/or plurilateral liberalization arrangements have the basic objective of providing greater market access and improving services among the member States concerned. Small groups of States of comparable size and development would find it easier to agree on market access than larger diverse groups of States. The smaller groups would also provide a more manageable environment to test the liberalized air transport policies. Before 1994 there were just two regional arrangements but today there are eight regional arrangements.

4.3.5. OPEN SKIES

Open skies strictly means right to land at any airport in a country without the need for any prior agreement and without any restrictions. Presently, no country in the world has declared unconditional complete open skies policy. Wherever open skies policy has been accepted, either it is reciprocal, regional, periodic, or for any specific purpose. Prior permission may be required and conditions may also apply. For example, USA has entered into open skies agreement with several countries including India but almost all of them are bilateral. India is following open skies policy regarding international cargo, international tourist charters and scheduled services during peak periods without insisting on reciprocity. However, for additional scheduled flights commercial agreement with Air India is necessary. Globally, since 1992, all over the world over 90 open skies bilateral agreements were concluded, involving approximately 75 States with the United States being partners in 61 cases. These agreements permit unlimited access by airlines of the participating States to a number of airports. It may be pointed out that open skies agreements do not permit carriage of domestic passengers in the other country. Generally, open skies agreements have positive impact on air traffic.

4.3.6. ICAO'S APPROACH TO LIBERALIZATION

ICAO supports liberalization of air services agreements. It organized a major worldwide air transport conference in March 2003 in Montreal, Canada which was attended by 145 contracting States of ICAO including India and 26 international agencies. This was the fifth conference in the series held almost once in every decade to discuss global air transport economic issues. The basic theme of March 2003 Conference was "Challenges and Opportunities of Liberalization". The main focus of the Conference on "how to" rather than "whether to" liberalize international air transport. On the subject of liberalization of market access the following major conclusions emerged.

"Since the Worldwide Air Transport Conference in 1994, considerable progress has been made in the liberalization of market access, particularly at the bilateral, sub-regional and regional levels. More importantly, States have generally become more open and receptive towards liberalization, with many adjusting their policies and practices to meet the challenges of liberalization. "While multilateralism in commercial rights to the greatest extent possible continues to be an objective of ICAO, conditions are not ripe at this stage for a global multinational agreement for exchange of traffic rights. States should continue to pursue liberalization in this regard at their own choice and own pace, using bilateral, regional, and/or multilateral avenues as appropriate."

Although the Conference received a big support for liberalization in grant of traffic rights, it conceded freedom to the States to liberalize grant of traffic rights at the pace and timing of their own choice. The primary reason for this outcome was that globally there is a substantial

difference in the size of airlines, their financial position and their competitive strength. Accordingly, one common formula for all the States can not be the appropriate solution.

4.3.7. AIR SERVICES AGREEMENTS AND GENERAL AGREEMENT ON TRADE IN SERVICES (GATS)

The General Agreement on Trade in Services (GATS) provides a multilateral regulatory framework for the liberalization and expansion of trade in all service sectors under such trade principles as most-favoured nation and transparency. Currently, the GATS has an Annex on Air Transport which covers three so-called soft rights, namely aircraft repair and maintenance, selling and marketing of air transport, and computer reservation system services. In 2000, the WTO-OMC took up its mandated review of the Air Transport Annex with a view to expanding its scope of coverage. Although the review was completed in October 2003, no consensus on expansion of the Annex could be reached with the result that the present Annex remains effective. The next review is scheduled towards the end of 2005. ICAO's approach, which has an important role in liberalizing international air transport regulatory system, is that future regulatory arrangements should be based on the general goal of gradual, progressive, orderly and safeguarded change towards market access.

Bilateral Agreements and Slot Allocation

The problem arising from capacity constraints at the airports and allocation of slots for landing rights is becoming serious at airports in some developed countries and even at some airports in developing countries. The shortage of slots is coming in the way of countries including India getting entitled additional slots from airports, such as at London-Heathrow airport, although landing rights have been obtained under the bilateral agreements. Globally, there are no set internationally accepted rules for allocation of slots at congested airports. The practices in this regard vary from grandfather rights to the sale and purchase of slots.

The International Conference on Air Transport in March 2003 discussed this issue and recommended that "in liberalizing market access, due consideration should be given to airport capacity constraints and long-run infrastructure needs. Problems involving air carriers which are unable to exercise their entitled traffic rights at a capacity constrained airport may, if necessary, be addressed in the context of discussions on the relevant air services agreements. In this regard, sympathetic consideration should be given to the request for preferential treatment from those States whose airports are not slot-constrained but whose air carriers are unsuccessful in obtaining slots at slot-constrained airports, consistent with relevant national legislation and international obligations". The Conference further observed that "any slot allocation system should be fair, non-discriminatory and transparent, and should take into account the interests of all stakeholders. It should also be globally compatible, aimed at maximizing effective use of airport capacity, simple, practicable and economically sustainable". It appears that the recommendations of the Conference are ambiguous and can be interpreted and twisted in many ways and do not provide any definite

solution to the problem. However, fiscal measures have not been included in the recommendations.

4.3.7(a) CASE STUDY: AIR SERVICE DEVELOPMENT BETWEEN WESTERN CANADA AND MEXICO

Barriers: Little non-stop air service, meaning that western Canadian visitors to Mexico had to connect via the United States, requiring two immigration/customs/security procedures in each direction during travel: once in the U.S. and once in the arrival country

Incentives: More liberal bilateral agreement between Mexico and Canada, discounted/free landing and aircraft parking fees, airport security, and check-in counters. Rebate to the operating airline of the passenger user fee, publicity money from the local tourism authority and other parties.

1. In recent years Canada has experienced a buoyant economy, particularly in the west where the energy sector is booming .
2. The province of Alberta is the centre of the oil and gas extraction activity.
3. Concurrently the development of a significant low-cost airline was occurring in Canada: WestJet
4. WestJet's low fares stimulated demand for travel within Canada as the airline grew
5. WestJet's first forays outside of Canada were to the United States and traditional vacation markets in the Caribbean
6. As more people began to populate western Canada, due to the booming economy and, as disposable incomes rose, there was a rise in demand for winter vacation options from this cold part of the world
7. WestJet, as the hometown airline in Alberta began to look for options
8. At the same time, the private Mexican airport operator, Grupo Aeroportuario del Pacifico (GAP) was interested in growing air service to the beach resorts in its portfolio of 12 airports
9. The major beach resorts include Los Cabos, Puerto Vallarta, Manzanillo and La Paz, all on the western coast of Mexico – a direct flight south from western Canada.
10. These Mexican resorts, and others, were affected by the economic downturn in its core market of the United States and new sources of traffic were needed
11. The GAP airports, working with an air service development consultant, analysed the growing demand for travel in western Canada and the lack of warm weather destinations
12. As part of creating a proposal or business case for WestJet, GAP and the consultant reviewed market sizes and analysed the market stimulation that could be expected from new nonstop service

13. Once convinced of the viability of new markets, proposals were created including the most adequate aircraft type (for size and range), the exact schedule timings and days of the week, and the connecting market opportunities
14. The airport group offered WestJet attractive discounts to launch the service and provided access to route committees in the communities.

A common easing of regulation involves visa procedures. Ways that countries can relax visa requirements are:

- 1) Allowing visa applications to be submitted online
- 2) Streamlining the documentation and forms required
- 3) Granting tourist visas at the airport upon arrival
- 4) Implementing transit without visa (TWOV) schemes, which allow passengers to pass through an airport without obtaining an entry visa
- 5) Implementing a visa waiver program for a list of specific countries
- 6) Guaranteeing a short (one day) visa approval
- 7) Making the cost of the visas competitive and affordable

A place of origin where the focus destination would be marketed has to be selected based on an assessment of different alternatives

The assessment should try to answer questions similar to the following:

- 1) Reason to travel to the destination from the selected place of origin
- 2) Other destinations that the focus destination is competing with at the given place of origin
- 3) The advantage / disadvantage of the different destinations vs. the focus destination
- 4) The characteristics of the focus destination that the marketing effort should emphasize.
- 5) Size of the potential market for tourists from the target place of origin to the focus destination
- 6) Size of the necessary marketing effort to achieve target levels of tourists

Any potential stakeholders that would cooperate with the marketing effort at the place of origin (e.g., the origin airport)

MODULE V

AIRLINE MANAGEMENT IN INDIA

5.1 AIRCRAFT FINANCING AND LEASING IN INDIA

Introduction: The increasing popularity and possibility of leasing is dictated by the rapid growth of technical developments and the need for bigger and faster aircrafts. The airline companies had to face steeply rising costs and often could not afford to buy new aircrafts. At the same time these larger aircrafts contributed to temporary overcapacity, thereby reducing the profit of the airline companies. Thus one can say that privatization of aircrafts has led to the development of aircraft leasing and financing. An aircraft is an expensive commodity and aviation is a sector with great prospects so many private entities have started running airlines by acquiring aircrafts either through leasing or by getting it financed. As the aviation industry is growing by introduction of more and more airlines so is the business of leasing and financing of aircrafts. Therefore there arose an urgent need to regulate the aircraft leasing and financing industry. The article also briefly discusses the Cape Town convention and the Protocol which can be called the mother convention of aircraft leasing and financing.

5.1.1. AIRCRAFT LEASING IN INDIA

DGCA Provisions: By looking at the DGCA provisions relating to aircraft leasing a general idea can be obtained as to how aircrafts are leased in India.

Approval from the DGCA: This is a mandatory requirement to be fulfilled before leasing an aircraft in India . The lessor can be an Indian or a foreign operator. Where the Indian operator intends to take a foreign registered aircraft on lease, charter or any similar arrangement from a person holding Air Operator Certificate (“AOC”) issued by another state, the following information has to be provided by the Indian operator to the DGCA at least forty-five (45) days prior to the proposed date of operation with the leased aircraft:-

- a. name and address of the India operator and the lessor
- b. aircraft details
- c. AOC details along with operations specifications, if any, of the lessor
- d. name and contact information of the State of Registry
- e. a copy of the letter of intent
- f. planned arrangements for operation and maintenance of aircraft during the lease period
- g. proposed date of import into India.

In the event an Indian operator intends to borrow an aircraft on lease from an Indian operator (for domestic or international operations), the following information has to be provided to the DGCA at least forty-five (45) days prior to the proposed date of operation with the leased aircraft:-

- a. Name and address of the operator from whom the aircraft is intended to be leased
- b. AOC details along with operations specifications of the lessee and the lessor
- c. Aircraft type, registration number and its main base
- d. Maintenance agency with scope of approval
- e. A copy of the draft lease agreement and maintenance agreement
- f. Any amendment proposed to be made in the Operations Manual or other relevant documents
- g. a document giving details of the respective responsibilities of compliance with regulatory requirements such as FDTL, arrangements for Flight Operations Quality Assurance, flight dispatch and responsibilities of the lessor and the lessee with regard to operation, maintenance and quality system of the aircraft.

Upon receipt of the above information, the DGCI finalizes the modalities for operation of the leased aircraft at a meeting with the Indian operator. Where the aircraft is taken on lease from a foreign operator, the representatives of the foreign operator and the regulatory authority are also allowed to participate in the meeting. The DGCA can conclude an agreement under Article 83bis with the State Registry and the State Operator for transfer of certain regulatory functions. It also has the discretion to impose conditions while granting permission to the Indian operator for operations with the leased aircraft.

Stamp Duty and the Lease Agreement: Pursuant to the DGCA permission, the Indian operator can conclude a formal lease agreement with the lessor. The agreement should include the conditions decided by the State of Registry and the State of Operator and the ones imposed by the DGCA. A copy of the lease agreement has to be, thereafter, filed with the DGCA at New Delhi (the DGCA usually asks for a notarized copy from the airlines). The copy of the lease agreement does not attract stamp duty in the State of Delhi but it is necessary to stamp the lease agreement in the relevant state, (the state in which the airline is incorporated or has its operational base), prior to filing with the DGCA. Stamping is necessary to ensure that the lease agreement is enforceable in a court of law. In India, the stamp duty rates vary from state to state.

5.1.2. TYPES OF LEASE AGREEMENT

Dry Lease: As far as Dry Leases are concerned following conditions have to be fulfilled: Registration of the Aircraft: Operation of foreign aircrafts on dry lease requires registration of aircraft in India. The leased aircraft ought to have a valid Certificate of Registration (“CoR”) and Certificate of Airworthiness (“CoA”) and must be entered in the operating permit of the operator. According to Civil Aviation Requirements (“CAR”) regulations , registration of aircrafts can be done either in Category A or B. For leased aircrafts, the

registration falls under Category A. The registration of the aircraft is valid as long as the lease is in force and the aircraft is maintained and operated in accordance with

- a. the DGCA regulations
- b. the terms and conditions specified in the operator's permit and
- c. the operator's maintenance control and operations manuals.

The operator can apply to DGCA for extension of validity of the CoR.

Airworthiness of the aircraft: Once the aircraft is registered, the owner or his authorized representative has to apply to DGCA in a prescribed form together with the requisite fees prescribed in rule 62 of Aircraft Rules 1937 for obtaining CoA. An application for issue of Aircraft Noise Certificate is also to be made along with the CoA application. CoA is valid for a period of twelve (12) months. In case of imported aircraft, the validity begins from the date of issue of Export Certificate of Airworthiness and is restricted to the validity specified in the Standard Certificate of Airworthiness issued by the country of export.

Some other conditions to be satisfied for dry lease of an aircraft are as follows:

The Indian aircraft operator:

- is responsible for airworthiness and control of the aircraft;
- has to provide complete aircraft maintenance program to the Regional Airworthiness office for approval including the issue of flight release, maintenance policy, storage lives of components;
- has to train its engineers and flight crew to the satisfaction of DGCA and obtain necessary approvals before maintenance or operation of the aircraft commences;
- should establish his own ancillary shops for investigation of failed components, repair and overhaul of the retables installed on the aircraft or collaborate with other operators;
- should have an operations manual for the type of leased aircraft, which should be updated regularly. All the flight crew should be made thoroughly familiar with the contents of the manual before they start flying the aircraft type;
- should comply with all the safety regulations and fit the requisite instruments and equipment's in the leased aircraft in accordance with the DGCA regulations;
- importing aircraft on lease has to ensure that all the Airworthiness Directives, modifications and inspections declared mandatory by DGCA are complied with even if their compliance is not mandatory in the country from where the aircraft is imported.

Wet Lease: Pre-conditions for a Wet lease are as follows:

Operation of foreign aircraft leased by Indian operators is normally permitted on dry lease basis. Import of aircraft for domestic air transport operations on wet lease basis is not permitted except in emergency situations and in the following circumstances such as

- the existing aircraft of an operator is grounded for maintenance/inspection checks or due to any other unforeseen reasons. (In such cases, wet leasing is permitted only for the duration of grounding of aircraft); OR
- the existing aircraft is involved in some accident/incident or due to expiry of existing lease and delay in finalization of new lease agreement, there is a reduction in capacity of the operator; OR for revival of sick operators who should have an agreement with the lessor initially for wet lease for a period not exceeding six (6) months and, thereafter, automatic conversion to dry lease for the remaining period of lease; OR
- short term induction of capacity required to meet emergency situation such as natural calamity, industrial unrest or any other similar situation.

Other important provisions pertaining to operation of aircrafts on wet lease are:-

The State of Registry has to confirm that their legislation enables them to divest themselves of the functions and duties which are the object of the transfer agreement, agree for surveillance of aircraft operations and maintenance by DGCA, and furnish a letter from the concerned regulatory authority to this effect

There should be a well defined agreement between the lessee and lessor stipulating that the Indian operator and DGCA will have the authority to exercise airworthiness and operational control on the wet lease aircraft operations

- a) the lessee and the lessor must hold a valid and current operating permit or AOC for the type of operations
- b) the aircraft should not be older than fifteen (15) years since manufacture
- c) the aircraft should be free from any accident; in case of one, details thereof should be furnished to the DGCA
- d) the flight crew and the maintenance personnel have to comply with the Indian
- e) operator's and the DGCA's instructions and maintain the aircraft in accordance with the latter's regulations
- f) the foreign crew and maintenance engineers can be deployed only after they are cleared by the security agencies and on issue of validation/approval by DGCA
- g) the aircraft has to be endorsed on the permit and Operations Specifications of the operator.

Mandatory Provisions for Both wet and Dry Lease:

For leased aircraft operations in India, the aircraft should have been type-certificated by Federal Aviation Administration of USA or Joint Airworthiness Authority of Europe or Civil Aviation Authority of UK or any other authority acceptable to DGCA. It is the operator's responsibility to confirm that the lease agreement does not contain any provision which will be binding the DGCA. The lessor, on his part, has to give an undertaking in the lease agreement that he will comply with all the applicable CAR rules. The DGCA can withdraw permission for operation of a particular aircraft in India under lease agreement if during service it is found that safety of the aircraft operations is in doubt or CAR requirements or any other safety rules have not being complied with.

Issues and concerns relating to aircraft leasing in India: Despite the rapid growth of the Indian aviation market in recent years, the Indian legal, tax and regulatory environment continues to represent a challenge for lessors and financiers of aircraft – both at state and national level. A variety of issues will present themselves to any non-Indian lessor or financier of an aircraft to an Indian operator. These issues will arise in the context of:

- the leasing of the aircraft
- the making of lease and guarantee payments
- the security package and are often magnified by the lack of clear authority and precedent in India. A “typical” range of considerations for any inward lessor or financier is likely to include:
- the fact that a withholding tax exemption must be obtained from the Indian Ministry of Finance in relation to lease rental payments
- the fact that exchange control approval from the Reserve Bank of India will be required in relation to certain lease / lease-related and guarantee payments
- the fact that Indian statutory law does not make provision for mortgages over aircraft
- the fact that traditionally written assignments of insurances are likely to attract significant stamp duty costs
- the likelihood that Indian stamp duty will apply in relation to a variety of the transaction documents. The amount of stamp duty will vary from state to state and can be charged on copy documents that are brought into certain states

Conclusion: There is a dire in need for India to develop its aircraft leasing and financing industry as by 2020 it is estimated that India's aviation sector could absorb up to \$120 billion of investment. India has become the ninth largest aviation market in the world within few years time. Analysts also predicted that domestic traffic could reach 160-180 million and international traffic in excess of 50 million. This means that more and more aircrafts would be required by airline operators which can be afforded only through leasing and financing. For this the process of leasing should be made less complicated. Implementing the Cape

Town Convention and the Aircraft Protocol ratified by India can ensure security to both the lessor and lessee through its provisions as well as the Registry set up under the Convention. Also the laws and policies which govern the aircraft leasing that are applicable in India should be made less complicated so as to ensure that the foreign investors are not prevented from leasing aircrafts to Indian operators and visa versa. The implementation of the Cape Town Convention ensures that the international as well as domestic interest of the parties is protected by means of the International Registration System. The system protects the interest by applying the basic priority rule through which right of the first or prior lessor or lessee is protected. However the Convention to some extent has left certain matters to the Contracting Parties such as the Courts that would decide matters in case any default is committed by either party. So India has to ensure that all the issues that have been addressed in this paper are taken care of or resolved as India being an upcoming economy it would be needing more and more leasing and financing companies to enter the aviation sector which can cater to the needs of our aviation sector.

5.1.2(a) Case Study : A Aircraft leasing

Background : You are the CEO of a large bank leasing company contemplating a strategic move in the product offerings of your aircraft finance leasing group. This group has enjoyed years of success with its main product, full payout finance leasing, but margins have declined from competitive pressures, and the group is pressing to be allowed to move into the related market of aircraft operating leasing, where margins are better. Operating leasing involves much shorter lease terms. It is a certainty that your company will need to reposition each aircraft from its original user to another at least once during your period of ownership. Operating leasing represents a dramatic shift in your expertise needs from a focus on finance and credit analysis to a focus on the equipment itself.

As you sort through the various considerations, you retain the Chesterfield Group to assist in the structure and situational analysis. Their process includes the following.

Strengths

Your experience in finance leasing has built good relationships with the target customer base of airlines. You have a competitive cost of funding. You have the green light from your parent company to examine and pursue growth opportunities. You have much of the needed infrastructure and back office to operate this new business, although not all of it.

Constraints

You lack the expertise relating to the equipment. You need this to decide what types of aircraft will be good ones to buy at various times in the market cycles and what to assume for their residual values at various points in time in order to price your deals. You will also need

to physically reposition and/or sell aircraft. Finally, you should know enough about aircraft value trends to enable you to play in the secondary market, buying and selling aircraft subject to leases, in order to manage your exposure to equipment value cycles.

Analysis

You have a number of paths that you can follow, if you want to move forward with this expansion.

- You can just let your aircraft group go ahead and start investing in operating leases with their existing skill set. Amazingly, many companies have done just that over the years with, as you might imagine, uniformly poor results. Apparently, these companies represent a classic case of "not knowing what they didn't know."
- You can hire additional staff with the needed expertise.
- You can buy an existing company with the needed expertise.
- You can outsource, effectively "renting" the required expertise from an existing company with that expertise.

Each of these approaches has advantages and disadvantages.

- Going ahead without the asset expertise involves little incremental short term cost, in money or time, but those are its only advantages. After a few years, other costs of this approach are almost certain to make this one a poor choice.
- Hiring your own expertise will likely be the favored approach, provided that you are committed to grow rapidly to sufficient fleet size to justify this significant addition of staff. For smaller fleets, you will have to make a difficult decision either try to "get by" with some needs covered but not others, or hire a complete staff to cover all the bases but live with a very expensive infrastructure during the ramp up phase. An example of this quandary would be the addition of a professional to estimate residual values. This function exists from the purchase of your very first aircraft, but you would probably still only need the one person with a fleet of 100 aircraft. Amortizing that expert's cost over one aircraft or 100 aircraft illustrates the large economies of scale available in this business. Hiring a few "key" people to get going with the intention of adding other functions as the fleet grows is ill advised because leaving a function out puts the entire enterprise in great danger of making mistakes and, in this business, mistakes tend to be big ones.
- Buying an existing company solves these problems, in that you can bring in a full complement of expertise, together with the fleet needed to cover that overhead. This can be an excellent approach, subject to two caveats. First, an aircraft operating lease company only becomes available for sale very occasionally, so the timing your own expansion will be hostage to the timing of such sale opportunities. Unfortunately,

when they do become available, it is often for the wrong reasons, and you will probably be wise to stay away anyway. Secondly, evaluating the prospective acquisition target involves expertise that you don't have in fact, it is the very expertise that you are trying to acquire. You will be at a huge disadvantage in trying to negotiate the price.

- If you can find an existing operating leasing company with a full complement of staff who is looking to leverage up on that expertise beyond the constraints of their own balance sheet to acquire their own additional aircraft, you have the starting place for a Collaborative Business Structure, such as a partnership where both parties invest or a management / outsourcing agreement where you acquire expertise for a fee. Such companies do exist, and the challenge is to structure the arrangement to optimally align goals and avoid conflicts of interest. The Chesterfield Group has many years experience doing just that.

Interestingly, the collaborative alternative just mentioned can also be used in conjunction with the other alternative approaches mentioned above. If you want to build your own staff, you will go through a ramp up phase when the fleet is small, during which time you either have to absorb extra costs from underutilized staff or take risks arising from not filling all the expertise needs from day one. Outsourcing the missing needs to another company can fill that gap, in effect converting the fixed costs of your own staff with a variable cost from "renting" expertise. Using such a collaborative arrangement can also be used to allow you to enter the business and operate profitably, all the while keeping alert for the opportunity to buy an existing company.

5.1. LIBERALIZATION IN INDIA

5.2.1. Concept of landing rights

Landing right in the context of air transport services means right of an airline to land its aircraft at an airport. The subject of landing right is quite complex and involves several issues, such as, who grants the right, right for what purposes, choice of airports and slots, rights for domestic operations and international operations, sale of such rights, conditions for the use of rights, including payment of landing charges, etc.

5.2.2. Landing rights for domestic operations

Grant of landing rights for domestic operations is relatively simple. Once an airline is registered it should normally be able to operate on any route and land at any airport within the country. However, the licensing authority can impose certain conditions on the operators. For example, in India, under the Flight Dispersal Plan, certain obligations have been placed on airlines operating routes connecting metropolitan cities. For this purpose the routes have been divided into three categories. Category –1 includes routes connecting (1) Mumbai with

Delhi, Kolkata, Chennai, Bangalore, Hyderabad and Trivandrum, (2) Delhi with Kolkata, Chennai, Bangalore and Hyderabad and (c) Kolkata with Bangalore and Chennai. Category II includes routes connecting stations in North-Eastern region, Jammu & Kashmir, Andaman & Nicobar and Lakshadweep. Category III includes all other routes.

Under the Flight Dispersal Plan any one who operates scheduled air transport services on one or more of the routes in Category I shall be required to provide at least 10% of the capacity he deploys on routes in Category I for routes in Category II. Furthermore of the capacity thus required to be deployed on routes in Category II, at least 10% would be deployed on services or segments thereof operated exclusively within the North-Eastern region, Jammu & Kashmir, Andaman & Nicobar and Lakshadweep. Moreover, the operator will deploy on routes in Category-III, at least 50 percent of the capacity he deploys in Category-I routes. The definitions and the details of the Flight Dispersal Plan are provided in Annexure 1.

Restrictions on landing rights can also be imposed by the authority managing the airport after taking into account the capacity at an airport and also facilities and services available. In India, Mumbai and Delhi airports have capacity problems in early morning hours and also in the evening as most of the airlines wish to leave for destinations early in the morning or in the evening. Presently, such capacity problems are sorted out by a scheduling committee set by the government by dispersing the flights after discussion with airlines. Further, depending upon the length, width and strength of runway maximum load restrictions can be placed on certain types of aircraft. Restrictions can also be placed on night landings at airports with no lighting facilities.

5.2.3. Landing rights for international operations - ICAO's role

Landing rights for international airlines pose additional problems, which are rather complex. Such problems emanate from the basic nature of every international flight, which involves an agreement between at least two sovereign States. ICAO's has been playing a very important role in developing international air traffic and grant of landing rights for international air transport. It is to be noted that the Chicago Convention is the most important international convention on civil aviation to which presently 188 States, including India, are signatories. The provisions of the Convention are binding on all the Contracting States and no State can exempt itself from any of the provisions.

Article 1 of the Chicago Convention recognizes exclusive sovereignty of the State above its territory. This provision thus debars an airline belonging to one State from landing in the territory of another State without specific agreement of the latter. This has given rise to regulation of landing rights through a number of bilateral and few multilateral agreements. Nevertheless, the Convention provides safeguards against possible arbitrary action by States, which may not be in the best interest of international civil aviation. For example, Article 15

of the Convention regulates the use of the facilities and services at an international airport open to public use. This article sets out three basic economic principles relating to the use of airports and air navigation facilities and services at international airports and the charges for their use. These principles are: (a) application of uniform conditions for all the airline operators in the usage of facilities and services; (b) non-discrimination in charging aircraft operators for the facilities and services at airports and for air navigation services; and (c) no charges to be levied solely for the right of aircraft transit over, entry into or exit from the territory of a Contracting State. These principles reflect the concern of the Contracting States to avoid the possible abuse of monopoly power by the providers of airports and air navigation services.

The Convention includes several other articles having a bearing on regulation of air transport. These are: Article 5 on non-scheduled flights; Article 6 on scheduled services; Article 7 on cabotage (the privilege of a State to operate domestic air services in another State); Articles 17 to 21 on nationality of aircraft; Article 22 on facilitation; Articles 23 and 24 on customs and immigration; and Articles 37 and 38 covering standards and recommended practices regarding facilitation, etc.

The second major international agreement of considerable importance after the Chicago Convention affecting international air transport is the International Air Services Transit Agreement signed at the time of the adoption of the Chicago Convention. This Agreement provided for the multilateral exchange of rights of overflight (the privilege to fly across the territory of other contracting states without landing, generally known as the “first freedom of air”) and non-traffic stop for scheduled air services among its Contracting States (the privilege to land for non-traffic purposes, is generally known as the “second freedom of the air”). (The various internationally known “freedoms of the air” are described in Appendix 4.) As many as 115 States, including India, have ratified this agreement. The worldwide Air Transport Conference organised by ICAO in 1993 recommended that States pursue and ICAO promote, universal adherence to and implementation of the International Air Services Transit Agreement.

The third major agreement was International Air Transport Agreement which was of far reaching consequence in liberalising international air transport operation and granting Contracting States the right to “five freedoms of the air”, namely, (1) the privilege to fly across its territory without landing; (2) the privilege to land for non-traffic purposes; (3) the privilege to put down traffic coming from home State of the carrier in to the territory of other Contracting State; (4) the privilege to take on traffic destined for the territory of the State of the carrier; and (5) the privilege to take on passengers, mail and cargo destined for the territory of any other Contracting State and the privilege to put down passengers, mail and cargo coming from any such territory. However, only 19 States out of which eight States, including the United States, later withdrew could ratify this agreement. Thus, this agreement

is of limited international value. India is not a signatory to this agreement. If this agreement had been ratified by all the States, the shape of international air transport would have been completely different from that it is today and there would have been no place for bilateral or regional agreements.

5.2.4. Landing rights for international operations-bilateral agreements

The lack of success of efforts by the international aviation community to establish a multilateral regulatory regime for the commercial aspects of international air transport led to the community falling back on bilateral air services agreements. Bilateral agreements are undertaken jointly by two parties, most typically by two States, although one or both parties might also be a group of States, a supra State (i.e. a community or other union of States acting as a single body under authority granted to it by its member States), a regional government body or even two airlines. The goal of bilateral regulation in the international air transport field is typically the conclusion, implementation or continuance of some kind of inter-governmental agreement or understanding concerning air services between the territories of the two parties.

The bilateral regulation of international air services has evolved over a period of many decades. Such agreements constitute the largest volume of international air transport regulatory documents, which date from the Chicago Convention signed in 1944. The extensive use of bilateral agreements to regulate international air transport is a consequence of the provision in the Chicago Convention regarding the principle of national sovereignty over territorial airspace.

Although each bilateral air services agreement is unique in nature; these agreements typically have in common numerous essential provisions most of which, while not identical, have a similar thrust. Such commonly found substantive provisions include: grant of traffic rights, a fair and equal opportunity, airline ownership, designation of air carrier and authorization, principles for regulation of capacity, fixation of tariffs, exchange of traffic statistics, right to carry out commercial activities in the territory of the other party, mutual recognition by the parties of each other's certificate of airworthiness, competency and licences, procedure for cooperation regarding security, use of computer reservation system, provisions regarding exemption from payment of customs duty and taxation of earnings of the air carrier, user charges, and application of national laws, etc.

We are seeing governments progressively liberalise bilateral agreements. Over the last year, we have seen significant increases in capacity granted by China to Australia, Singapore and Malaysia. Hong Kong is expected to be added to the list. It would appear for all intents and purposes that Hong Kong has abandoned its 'one route one airline policy'. As well, the Australian and Singapore Governments have signaled their intent to sign an open-air-skies agreement. At present, the US remains a serious stumbling block to industry deregulation. Realistically, we cannot expect to see much quick progress – certainly not until all their carriers have checked out of bankruptcy and recovered their financial health. Other important

markets, like Japan, remain heavily restricted, although we would expect them to adopt deregulation when the US does.

China is also liberalizing grant of landing rights to foreign airlines. It has long maintained restrictive air services policies to protect its state-owned airlines, but that is changing. CAAC, which negotiates bilateral air services agreements for the government, has been giving foreign carriers progressively more rights to operate to the country's gateway airports at Beijing, Guangzhou and Shanghai. Additionally, China has been signalling its willingness to open up further and allow more competition between foreign airlines and the country's major carriers. Earlier this year, Singapore Airlines became the first carrier to win rights to operate services beyond China to a third country.

India has not remained insulated from the global trends. The liberalization process in domestic air services commenced in the year 1986 but in international scheduled services it commenced only recently. The liberalization process can be considered evolutionary rather than well thought out and planned. The government has been periodically reacting to the field situation in the country, international developments and pressures from the aviation industry, especially the private operators. Nevertheless, several far-reaching changes have been brought about in the structure of the aviation industry in the past few years. The most important development has been unshackling of the airline industry from the monopoly of the State. State-managed airlines have been thrown open to competitive impulses of the private airlines. Within the ambit of bilateral agreements, India is liberalizing grant of traffic rights to foreign airlines, including fifth freedom rights. Also, Air India permits foreign carriers to use its right to operate certain services subject to commercial arrangement. Moreover, additional frequencies are permitted to the foreign airlines during peak season. In this process Air India collects commercial rents or fees from those airlines using its traffic rights or operating extra flights. Capacity limitations on international routes have been considerably relaxed. Domestic private carriers are operating on some international routes. Control on fares and freight rates have been abolished.

International scheduled passenger services from and to India are essentially governed by the provisions of bilateral agreements between India and the concerned foreign countries. From the operational angle, these bilateral agreements can be placed in four categories, namely, (i) agreements where Indian and foreign operators are fully utilizing their traffic rights, (ii) agreements where Indian operators are utilizing only a part of their traffic rights, (iii) agreements where Indian operators are not at all utilizing their traffic rights and (iv) agreements where none of the parties are presently operating any services. It has to be noted that bilateral agreements contain enabling provisions and are not mandatory in the sense that agreed services must be operated. Actual operation of services by any airline having traffic rights depends upon a number of factors, including commercial viability of the service, availability of capacity and availability of suitable aircraft with the airline, availability of suitable slots, etc. Thus, it is not necessary that each and every traffic right must be utilized. In an ideal situation, airlines of every country can expect to share 50 percent of the total

traffic between two countries. If it is achieved in actual practice, it can be generally concluded that the country is almost fully utilizing its traffic rights. Presently, Indian carriers' overall share in international passenger traffic is about 30 percent.

5.2.5. Major challenges faced by civil aviation in India

Despite significant positive developments, presently civil aviation in India is facing a number of challenges. In the case of airlines, the major challenge is utilization of international traffic rights under the bilateral agreements with a view to fully meeting the demand for air travel. Other challenges in the case of airlines include enhancing the capacity of Air India and Indian Airlines to meet the demands placed on them and developing a level playing field for them vis-à-vis private domestic airlines thereby enabling them to offer effective competition. Privatization of Air India and Indian Airlines, higher fuel prices and taxes, operation on uneconomic routes, making air transport affordable by common man, etc. are other challenges.

The airports in the country are not suitably developed and the standard of service provided by them is generally poor. Presently, there are 12 designated international airports in the country including Srinagar airport which was declared as international airport recently but all of them lack world class facilities. The two major airports at Delhi and Mumbai are in urgent need for expansion of capacity, apart from major improvements for providing quality services. There is growing concerns regarding safety and security. Increasing noise levels and other environmental impacts and their associated costs are other areas of concern. Mumbai and Delhi airports are still to be developed as major hubs. A new international airport at Mumbai under consideration for over 30 years is still not in sight. Cargo facilities are inadequate. Privatization of airports at Mumbai and Delhi is still in the pipeline and posing several issues. Other airports also need expansion and considerable improvement. On the other hand, several airports have unutilized capacities and if managed properly can relieve congestion at some other airports. Presently, only ten out of 125 airports are financially viable and others are cross-subsidized by these airports. The challenge before the Government and the Airports Authority is how to minimize the losses incurred by 92 percent of the existing airports.

In the case of air navigation services, the challenge is how to increase capacity and enhance safety on routes by installing modern equipment, finding solution to the problem created by the reservation of a large segment of air space for Defence and challenges from some neighbouring countries in developing alternate air routes bypassing India. As regards regulation, there is no independent regulatory authority for civil aviation, especially for economic issues. Moreover, there is no well defined civil aviation policy which should preferably be a part of integrated transport policy.

5.2.6. Liberalization in Bilateral Agreements

The current spate of liberalization permitting foreign airlines serving Indian airports to provide additional capacity to meet the demands during peak winter months has worked well. Moreover, this arrangement has provided considerable respite to the tourists and other travellers to and from India. As a short-term policy, this approach can be considered satisfactory. But from a long-term point of view such a policy may not be considered appropriate as it adversely affects the role of Indian carriers.

It is to be noted that while the Government has been becoming liberal in permitting foreign airlines to operate additional services subject to commercial agreement with Air India, for a long time no such permission had been given to private Indian operators to provide services on international routes. In the past Government policies have been obsessed with protecting the interest of Air India and Indian Airlines. While domestic operations were thrown open to private sector in 1986, the international operations remained entirely in the domain of Air India and Indian Airlines with some relaxation only last year when Jet Airways and Air Sahara were allowed to operate regular air services to and from India to countries other than Gulf countries.

Recently, Government has entered into an open skies agreement with USA. Under this agreement both countries will be free to select routes and destinations based on consumer demand without any restrictions on capacity, frequencies and designations of airlines and pricing. Other bilateral agreements are being revised to increase capacity on a number of routes. It may also be noted that the Government has been liberalizing international air transport services in bits and pieces. Time has come when the Government has to formulate a clear long term policy for civil aviation. In fact, it will be more appropriate to formulate a long term integrated transport policy covering all modes of transport, including civil aviation.

5.2.7. Open skies

As a part of the ongoing move towards liberalization of air transport services, the Government has adopted open skies policy in regard to tourist charters and cargo traffic. The liberalization relating to international tourist charters is unilateral and not part of any bilateral or multilateral agreement. The liberalization is primarily to encourage tourism. It covers both inbound and outbound traffic. Inbound charters are permitted to all airports in India. Customs and immigration facilities with short notice are to be provided at airports. A tourist charter flight can transport the tourists on domestic sectors also within India. There are no restrictions with respect to size of aircraft, frequency, and total number of charters, tariffs and marketing. Indian passport holders are allowed to travel on such charters. Carriage of cargo is permitted on charter flights. The operators can operate charter flights on a regular basis like scheduled flights. An operator organizing outbound charters needs to organize inbound charters, maintaining a ratio of 1:2 in the number of inbound and outbound charters. The obligation of 1:2 is not required in case of outbound charters with aircraft size of nine or less passengers and also in case of religious pilgrimage like Haj.

The policy of the Government in regard to international tourist charters is quite liberal except perhaps in the matter of maintaining the ratio between outbound and inbound charters. The present liberal policy is yielding results and is helping in the promotion of international tourism to India. This policy is particularly important because of the general shortage of capacity with the international airlines operating from and to India during peak seasons. The present policy needs to be continued.

As regards cargo, during the 1980's, India faced a chronic shortage of capacity for the carriage of international cargo meant for exports. This was essentially due to serious imbalance between the demands for capacity for exports and imports by air and inadequate supply of capacity with the national carriers. The volume of exports had been almost double of imports. The airlines were reluctant to do empty haulage with controls on freight rates. As the export industry demanded on-time delivery of raw material and manufactured goods, and as the time sensitive materials were to be delivered more frequently by air, capacity constraint was regarded as the key obstacle that hindered the industries from enhancing exports and earning foreign exchange.

In this environment, in 1990, the Government adopted a bold policy of "open skies" for international air cargo. As per this policy any airline, both Indian and foreign, which meets specified operational and safety requirements, is allowed to freely operate scheduled and non-scheduled cargo services to/from any airport in India where custom/immigration facilities are available. Regulatory control over cargo rates is abolished and thus the carriers are free to set their own rates. The "open skies" policy for international cargo services is unilateral without comparable rights for Indian carriers from bilateral partners in return. Initially, the policy was for a period of three years but now it is without any time limit. The "open skies" policy for cargo led to an immediate strong growth in international cargo traffic and removed the shortage of capacity for exports. The imbalance in the volume of exports and imports still continues to remain in the ratio of about 2:1 as in the past. The present policy needs to be continued.

Further Liberalization: From the detailed expose in the preceding sections, certain conclusions are obvious. Globally, the civil aviation industry is being progressively liberalized in all respects including bilateral agreements and open skies. Such liberalization is taking place in all parts of the world but the extent and timing of liberalization are different. Whether and when it will lead to complete open skies policies and a multilateral agreement among almost all nations of the world is difficult to predict. This can be considered as a possibility in distant future. ICAO and GATS are already working in this direction.

Along with the rest of the world India has moved forward in liberalizing its civil aviation sector but only gradually in an evolutionary manner. Keeping in view the global speed of liberalization, India has moved more than halfway and is much ahead of many countries in the world in many respects. Further liberalization efforts are in the pipeline. Certainly more needs to be done as capacity constraints are hindering the growth of air traffic and tourism and also India's share in international passenger transport from and to the country is only 30

percent as against the ideal norm of 50 percent. There is an urgent need for a clear enunciation of a long term civil aviation policy, preferably as a part of integrated transport policy including all modes of transport. This is essential as with the emergence of no frill low fare airlines, the competition between upper class rail travel and air transport may increase significantly in future.

Impact of Liberalization: Liberalization in civil aviation has largely benefited all the stockholders. The tourist traffic is the main beneficiary of liberalization in grant of traffic rights as it is leading to increased frequency of airline operations, multiple options and improved service at a cheaper price. Introduction of no-frill low fare airlines will give further boost to tourist traffic. The tourist traffic accordingly can be expected to grow faster in future. Other users of air transport, both passengers and shippers should be more than happy with liberalization as services improve; options increase and fares and freight rates decrease in real terms. These will result in increase in demand for air services. The concessionaires at the airport will also benefit from higher sales and increased business income.

With rapid growth in air traffic including tourist traffic the foreign exchange earnings from tourism will grow faster and also the employment. The increase in business traffic will help in the growth of foreign trade, especially exports with consequent benefits to the economy. An important impact of liberalization will be significant growth in traffic at the airports. So far as an airport has additional capacity any increase in traffic will lead to better utilization of facilities resulting into higher revenues and improved financial viability. However, major international airports in India have no spare capacity, especially during peak periods and hence they will become more congested and the quality of service may deteriorate in the short-term. In the long-term the capacity and quality of services can be expected to improve.

Conclusion: Liberalization in civil aviation is an ongoing process. Future will witness greater liberalization in bilateral agreements and larger number of open skies agreements. There may be increase in regional agreements. The ultimate end of liberalization is multilateral air agreements and abolition of bilateral agreements.

5.2.7(a) Case Study of the Indian Aviation Sector: Soaring High or Turbulence Ahead

Takeoff from Modest Beginnings: The Evolution of the Indian Aviation Sector

The Indian Aviation sector is poised to take off and soar high in an unprecedented manner. Indeed, the Aviation sector in India has come a long way from the humble beginnings in the pre-independence era where the legendary JRD Tata, pioneered the industry and introduced a small turboprop plane as the first connection to the outside world by air.

Now, the Aviation sector is a stage where it boasts of world-class airports, best in the breed airlines, and an enviable safety record, though minor skirmishes are reported often. From

being a preserve of the rich to the present where the Aam Admi is the focus of the airline industry, the aviation sector mirrors the development and evolution of the Indian Economy over the decades.

Added to this is the fact that successive Indian Governments since the 1990s when the Indian Economy was liberalized have actively encouraged the development of the sector by providing subsidies and establishing world-class airports, though at a tardy pace given the inherent complexities of the Indian political and socioeconomic landscape.

Thus, it can be said that the Indian Aviation sector is both poised to take off as far as the future is concerned and is soaring high as far as the present is concerned.

Factors Dragging the Sector Down

Having said that, there are a few bottlenecks or chokepoints that have stymied the development and the growth of the Indian Aviation Sector. Prominent among these is the capacity addition in the airports across India where the present infrastructure is unable to support the ambitious expansion plans of the various airlines.

Indeed, even after building gleaming and glittering airports in all the Metros under the PPP or the Public Private Partnership model, airlines are routinely denied landing rights and parking bays for want of capacity.

Further, the fact that the blistering pace of growth in the sector means that despite adding capacity in a quick manner, airports are unable to handle the ever-increasing load of footfalls in terms of arrivals and departures.

Though the Indian Government has put in place policies such as the UDAAN Scheme, the Regional Connectivity Scheme, and various others aimed at persuading and incentivizing airlines to connect to remote locations, the pathetic state of the infrastructure in such areas means that such schemes would take time to fructify.

Of course, the massive push to develop Tier 2 and Tier 3 airports is clearly a right step in the direction of broadening the base of the infrastructure pyramid so that flyers from rural areas can benefit as well.

However, this push is succeeding in states where the state governments are actively encouraging such developments whereas in other regions, the initiative is lagging the former.

How the Indian Aviation Sector Became World Class

Having said that, it is also the case that the crowning glory of the Indian Aviation sector lies in the dirt cheap prices that are offered to the passengers and which are among the lowest in the world as far as LCC or Low Cost Carriers are concerned.

Talking about LCCs, the Indian Aviation sector was among the first in the developing world to take the LCC route with Capt Gopinath launching Deccan Aviation or Air Deccan which had the logo of the famous cartoonist, RK Lakshman's common man flying.

Though it is another matter that Air Deccan was acquired by the now defunct Kingfisher airlines, whose high flying promoter, Vijay Mallya, went bankrupt a few years ago, the fact remains that the LCC concept caught on among other airlines as well.

Talking about the personalities and the airlines that have dominated the Indian Aviation sector, it is the case that most of the Airlines which took advantage of the liberalized Indian Economy in the 1990s were essentially one person shows meaning that the promoters or the CEOs often had a larger than life presence.

Indeed, people such as Mallya, Naresh Goyal of Jet Airways, the promoters of Spicejet, and others straddled the scene. However, many Industry experts have pointed out that the Indian Aviation sector can be more professionally managed as far as both airport and airline management is concerned.

Already, **a start has been made here with the construction of the modern airports in Bengaluru, Mumbai, Delhi, and Hyderabad** by a consortium of Indian and Foreign players. Also, airlines such as Indigo are professionally managed without personality cults or run by the whims and fancies of a single individual.

Moreover, with the reentry of the venerable TATA group through tie-ups and partnerships, the Indian Aviation sector looks to be on its way to First World status.

Cautious Optimism Instead of Hyped Hope

As the title of this case study indicates, what the future holds for the Indian Aviation Sector can be characterized as cautious optimism instead of unrealized hopes. For instance, the growth in the passenger traffic has been dizzying over the last few years.

Further, the increase in the number of airlines and the concomitant capacity addition in terms of infrastructure and airports built has also been high. Thus, there is scope for ambition, though it has to be tempered with realism.

This is mainly on account of the various problems besetting the Indian Aviation Sector such as overcrowding both in terms of handling arrivals and departures in the airports as well as the very real problem of flights having to wait inordinately for landings and takeoffs. Indeed, despite the capacity addition, except for New Delhi and Mumbai International Airports, no other airport in India has two runways.

Even in these airports, sometimes the number of arrivals and departures are so high that despite the two runways, aircraft have to wait to take off and land. This compares poorly with the major airports in the world where it is routine for air traffic controllers or ATCs to handle

hundreds of aircraft movements each hour. Indeed, if India aspires to join the ranks of developed countries, there can be no better way to do so than by showcasing its Aviation Sector.

From Ambani to Aam Admi: How the Indian Aviation Sector became Egalitarian

Talking about the last point, the Indian Aviation Sector has long been a study in contrast where the predominantly poor India meets the glitzy and emerging as well as arriving (literally and metaphorically) India. This has led to frequent criticism by those who point to the anomaly and contradiction of a poor country investing in its airports when the money can instead be used to better the lives of the poor.

Indeed, this was the reason why the Indian Aviation Sector did not takeoff during the 1970s and the 1980s when the dominant ideology was socialism.

As with many things that happened after the liberalization of the Indian Economy in the 1990s, the Aviation Sector too took wings and began to soar high. However, even in the 1990s and the early 2000s, there were many rules and regulations that stymied the growth of the sector as well as stunted the development of the same.

Indeed, it was not until a few years ago that the Indian Government permitted international tie-ups and it was only recently that the permission for domestic airlines to fly to international destinations was accorded. Thus, it can be said that it is only now that the Indian Aviation Sector can dream of soaring high.

Turbulence Ahead

Having said that, it is also the case that safety standards seem to be lax these days as evidenced by the number of aircrafts reporting defects and botched takeoffs and landings. While it is true that the Indian Aviation Sector does not have any major accidents as a blot on its operations, it is always better to be safe than sorry and hence, it is time for the regulators and other stakeholders to take passenger safety seriously.

What is also worrying is the casual attitude towards passengers especially when they are boarding or deplaning. Indeed, while the Indian Media does tend to sensationalize the incidents, the repeated instances of airline crew and staff being rude to the passengers and worse, becoming violent with them does not do any good to the Image of the Indian Aviation Sector.

Moreover, the way in which the long queues at the booking counters and the security checkpoints tend to become irritating and indeed, painful for the passengers does not bode well for the future of the Indian Aviation Sector. It is for these reasons that we believe that there can be turbulence ahead for the sector.

Premier to Poor: The Air India Saga

No case study on the Indian Aviation Sector is complete without a discussion on the national carrier, Air India, the merged entity representing the erstwhile Air India and Indian Airlines, the domestic carrier.

While it is now routine for commentators to lampoon Air India, it needs to be remembered that it was the premier Indian carrier in the post Independence era until the liberalization of the Indian Economy.

Having said that, the wheel has come full circle and hence, its present status as a loss-making entity that is depending on governmental bailouts to stay afloat means that perhaps it is time to privatize it.

Indeed, its portfolio of landing rights and code share agreements as well as its fleet, though ageing, makes it attractive to foreign and domestic players alike who can convert these advantages into their own and at the same time, restructure it in such a manner that it becomes possible for it to become profitable again.

Thus, it needs to be watched as to what decision the political masters take in this regard. It can be said that politics plays a major role in determining the fate of Air India since there is the aspect of emotional and sentimental reasons as well.

Impact of Politics on the Indian Aviation Sector

Talking about politics and the future of the Indian Aviation Sector, it needs to be mentioned that the sector has grown with and without political interference. In other words, **while in some cases, the political decisions helped the sector, in other cases, it grew despite the politicians meddling with it.**

Indeed, in all cases, the sector has grown to live with both the adverse and the beneficial political decisions. For instance, a long pending demand of the sector has been to lower the high prices for Aviation and Turbine fuel.

In times when oil prices are at record lows, it makes sense for the government to cut the prices of ATF or Aviation Turbine Fuel. However, this has not happened and hence, airlines continue to grumble and at the same time, carry on with their operations.

Also, capacity addition and more landing rights are to be dealt with as well. On a more controversial note, the bilateral agreements between the Indian and the Foreign Governments about seat allocations or the number of passengers flying to and fro between Indian and Foreign Destinations seems to be taken with a view to favor some airlines over others.

Conclusion

It goes without saying that there are some measures that would minimize the path ahead for the sector. To start with, the present agreement on not having two airports within 150 Kilometers of each other can be reviewed especially where Bangalore and Hyderabad are concerned.

In both these cities, the airports in operation earlier have been mothballed despite massive investments in them mainly because the new airports and their owners specified the agreement on distance.

By reopening the old airports, significant capacity can be added thereby both lessening the load on the new airports as well as furthering the growth. To conclude, it can be said that it is a mixed bag as far as the Indian Aviation Sector is concerned wherein it is soaring high but also faces turbulence ahead.

5.2. AIRLINE MERGERS AND ACQUISITIONS IN INDIA

In the present era of liberalization and globalization, questions relating to the impact of mergers and takeovers on the economy of a country, warrant our immediate attention. During the past few years, India has followed the worldwide trends in consolidation amongst companies through mergers and acquisitions. Mergers and industrial restructuring have raised important issues both for business decisions and for public policy information. The daily newspapers are filled with case studies of mergers and acquisitions, tender offers (both friendly and hostile), spin-offs and corporate restructuring, changes in ownership structures, units being hived off and struggles for corporate control.

Mergers are like a marriage in the romantic jargon. Usually there is a period of courtship leading to the joining of two or more separate entities into one, after which the parties hope to live happily ever after, i.e., to say a Merger is said to occur when two or more companies combine to form a new company. Mergers in aviation industry are also very relevant to the present economy because it affects directly the life of large number of people who frequently use airway for commuting from one place to the other place. The direct affect involves the frequency of the number of flights being operated by different airlines in a specific route and the cost that has to be paid by the customer to avail such facility. Mergers in aviation industry would definitely affect both these concerns of the prospective or frequent customer.

Airline mergers and alliances can allow airlines to lower cost and enhance demand by rationalizing the combined networks, and expanding the scope of seamless service. On the other hand, airline mergers and alliances can reduce competition and enhance market power, especially on non-stop routes to and from hub airports. The relative balance of the efficiency benefits and the competition effects depends on a number of factors, including the degree of overlap in the airlines' networks prior to the merger.

The promotion and protection of competition in the airline industry requires attention to both competition and regulatory issues. In particular, competition in the airline industry could be preserved and enhanced through:

Further liberalization of regulatory constraints on competition, especially at the international level, including for example, the application of international trade principles of transparency and non-discrimination within multilateral context;

- Attention to the mechanisms for investment in and allocation of scarce airport capacity including investment in new airports, expansion of existing airports and mechanisms for ensuring that facilities are available to entrants at key times;
- Careful review of proposals for mergers and alliances, careful use of remedies to offset anticompetitive effects and consideration of divestiture or separation in cases of dominance;
- Close review to frequent-flyer programs and other loyalty schemes;
- Careful control over predatory behavior and other anti-competitive practices.

Jet-Sahara Merger: Heraldng The Consolidation In Civil Aviation Industry:

It seek to examine the significance of Jet-Sahara merger against the backdrop of liberalization and privatization of civil aviation sector. Having witnessed a tumultuous journey interspersed with legal hurdles owing to which it was held in abeyance, the resurrected merger has triggered the market driven consolidation of aviation industry. Secondly, it uncover the ramifications of this merger on the health of low cost carrier in the proposed paper. The Jet-Sahara combine will re-assert the leading private airline's supremacy in the Indian skies and empower it to fight the low fares offered by low cost carriers. This deal has erected a conspicuous entry barrier as evidenced by the changing dynamics of low cost carriers with Jet acquiring dominant market share and enhanced airport infrastructure.

Thirdly, it made an attempt to explore the legal underpinnings of this deal to understand the role of mergers and acquisitions in the aviation sector. This deal is saddled with monopolistic traces making Jet the largest player in Indian airspace and the sole private airline to possess international flying rights. (In the current scenario, Kingfisher has attained clearance from the civil aviation ministry to operate international flights courtesy the Kingfisher-Deccan deal). The MRTP Commission gave the green signal to deal silencing all analysts claiming abuse of dominance. The probe was in a way restricted as clauses relating to monopoly, mergers and acquisitions in the MRTP act had been deleted in 1991. With establishment of the new

competition regime addressing legal concerns exhaustively, the aviation industry can expect stricter vigilance in future consolidation advances.

Fourthly, it undertake an analysis of regulatory obstacles that have been exposed through this deal. The transfer of assets such as parking and landing slots were being governed by land lease agreements and couldn't change hands through merger. The civil aviation ministry settled the dust by charting guidelines regulating transfer of airport infrastructure in all merger schemes.

CONSOLIDATION IN AVIATION INDUSTRY

Recently, we witnessed 1st wave of consolidation in aviation industry, it is nothing but an offshoot of liberalization (deregulation). Airlines are the worst performing of any of the individual sectors in the air transport chain and one standard response to poor financial performance is Consolidation. The industry presents a paradox in spite of having robust earning and excess cash, it suffers from syndrome cycle which has made it marginally profitable in spite of rise in traffic in past fifty year.

Looking at the US airlines and European Carriers we can analyze that the consolidation strategy in airlines is done in three main steps: (1) carriers starts with domination of their own home markets through acquisitions; (2) Secondly, they attempted to establish a foothold in the larger foreign markets outside their own, by merger and taking over of foreign airlines.(3) Lastly the airlines focuses on development of global marketing spread through one or more alliances. A similar kind of module is being seen in Indian scenario where Indian carriers have been merging with other domestic airlines, it can be said that we are on the first step of consolidation strategy.

By analyzing the industry we can state that the main factor which ushers for consolidation are: (i) Marketing benefits; (ii) Cost synergies and reductions; (iii) Reducing competition, which an airline will get after merging. Factors can also be country specific like in Indian scenario these are, (i) High Fuel cost leading to high cost of operation; (ii) Absorption of losses in case of merger under section 72(A) of Income Tax 1961 Act;(iii) High Congestion on airport and lack of slots; (iv) Governmental policy [Like to Fly foreign skies an airline need to have 5year and fleet size of twenty, hence by merger kingfisher now can assess foreign skies]. Further the oligopolistic nature of aircraft manufacturer has also fueled the M&A by cutthroat competition in pricing. Initially this low pricing led too rise of new carriers but only few survived, and rest were forced to file for bankruptcy or they merged with the incumbent players of this field.

The procedure for merger in the Indian scenario is governed by Companies Act 1956. At the outset it require worth mention that such procedure is very cumbersome and there is need for more efficient merger mechanics. Further the approved airline merger under the auspices of

tribunal requires a clearance by Home Ministry and Civil Aviation Ministry. In future takeover whether friendly or hostile will be prevalent in airline industry and they will also be required to have above clearances. Lastly once the competition commission of India will start working there will be one more addition to the above stated list.

5.3(a) Airline Alliances, Mergers and Acquisition in India

Example : Air India joins global grouping Star Alliance

Air India formally become part of global airlines' grouping, Star Alliance, which would enable seamless travel to over 1300 destinations for the national carrier's passengers.

In a significant move, Air India has formally become part of the global airlines' grouping, Star Alliance, which would enable seamless travel to over 1300 destinations for the national carrier's passengers.

Ending a seven-year-long wait, the Star Alliance Chief Executive Board (CEB), at its meeting in London yesterday, gave an endorsement vote to induct Air India into the fold.

"We are happy to note that Air India has become part of the Star Alliance. This is one of the biggest alliances in the world", Civil Aviation Minister Ashok Gajapathi Raju told reporters here today.

Air India's revenues may increase by 4-5 per cent by joining the Alliance, he said.

With this, Air India becomes the first Indian carrier to join a global alliance, the largest one now having 27 member airlines in its fold.

A formal induction ceremony would be held here some time next month, for which Air India is getting a Boeing 787 Dreamliner and an Airbus A-320 -- signifying its international and domestic operations, painted with the Star Alliance logo and livery.

The move would help Air India passengers to access the alliance's global network of over 21980 daily flights to 1,328 airports in 195 countries.

The member airlines of Star Alliance together own a total of 4,338 aircraft and fly over 640 million passengers a year, many of whom can also earn and burn frequent flyer miles on the entire alliance network.

On its behalf, Air India would provide seamless connectivity to the passengers of Star partner airlines throughout its pan-India network.

Star Alliance members include major airlines like US carrier United, Singapore Airlines, Lufthansa, Air China, Air Canada, Swiss, Austrian, All Nippon Airways, Thai and Turkish Airlines.

5.4. COMPETITION LAW ISSUES IN AIRLINE MANAGEMENT

The liberalization of the airline industry in the 1990s led to a notable increase in the role of the private sector. No longer were the Indian skies dominated by the state run carrier, but the exclusive monopoly of the state carrier came crashing down.

If there was hope that this would herald a scope for competition in the airline industry with airline companies jostling with each other to provide more attractive fares or services, the hope was short lived. The airlines which had generated not just money but unbridled enthusiasm with their promise to fly high came crashing down. Many reasons have been attributed to such crash, which include unplanned expansion as well as interference of government in key policies despite deregulation and ironically deregulation itself has been blamed as a cause. After a long pause, however, it had been the turn of new private carriers to enter the fray. With the emergence of low cost carriers on one hand and connoisseurs of good times on the other the Indian passenger was pampered with more choice in economy and luxury than ever before. The airlines were however to enter the second phase of market challenge soon.

It is important in the context of a developing country like India to keep two points in mind. The first, no air passenger wishes to return to the days of state dominated control in the aviation airline sector. Second, anti competition behavior on the part of the private players is going to defeat the purpose of deregulation. These two points are often at conflict with each other. While a remedy against anti competitive behavior is necessary it must be balanced with the concern to keep the private sector alive and thriving. With this objective in mind, we may address the anti competitive behavior in the airline sector in India and simultaneously learn lessons from international experience.

Aviation is an important and significant sector contributing to our economy. It has witnessed tremendous growth in recent past with the coming of low cost carriers and increasing competition. The major players in the air industry include Indian Airlines, Air India, Jet Airways, Air Sahara, Kingfisher, Air Deccan, Paramount, Go Air, Spice Jet and Indigo while Kingfisher, Air Deccan and Air India, Indian Airlines and Jet, Air Sahara have respectively merged into single entities in the year 2007.

In the event of these three mega mergers of airlines, which now post-merger account for 80 % market of aviation industry, there has been lot of discussion on competition related issues involved to them. Not only this, there are many other competition issues pertaining to Air sector. Before identifying the same, it will be relevant to give brief insight to our present competition policy and law in India. Competition Act, 2002 which replaced the MRTP Act,

1969 came into being in the pursuit of globalization of Indian economy and liberalization and removing of controls. Its main objectives include- preventing practices having adverse effect on competition, to sustain competition, ensure freedom of trade in Indian markets and to protect interest of consumers. The core of law relating to competition basically provides for - 1. Prohibition of entering into anti-competitive agreements, 2. Abuse of dominant position by an enterprise, 3. Regulation of combination of persons and enterprises (which includes mergers and acquisitions). The objective of the forthcoming paper is to examine the anti competitive practices in aviation sector in the light of above issues.

To begin with, the loyalty programs of the various airlines such as frequent flyer programs, travel agent incentive plans etc constitute anti-competitive practices. Frequent flyer programs basically rewards customers with free travel on the basis of build of miles or points they have gained on each travel by that specific airline. Similarly, in travel agent incentive plans, the travel agent earns more commission and rewards for directing travels of customers towards that specific airline. Such rewards are objected to increase bookings on that particular airline. Likewise, in the corporate arrangement plans, negotiations are done with corporate houses to take most of their travels with that specific airline by giving special incentives to them. Such practices tend to restrain competition in the market and demands of review for purposes of anti competitive issues.

Further, in aviation sector, there are several agencies that host airport services such as catering services, maintenance and refueling services, take off and landing slots, baggage and passenger facilities etc. Merger between the two firms which collectively have dominant position and monopoly in the market in these services shall have significant impact on competition in air services. The merged entity shall have extensive network and high frequency of flights pending in respect to these services. In such event, infrastructural limited capacity and scarcity acts as barrier for new entry and strengthens merging or incumbent position.

Commonly, it has been the practice of two airlines to enter into alliances or cooperative agreements to share frequent flyer programs, code sharing etc. This is another instance of abuse of dominant position which airlines enter into to strengthen their market presence. For example code sharing which means arrangement wherein airlines sell seats under its own name on another airline's flight like for the purposes of complementary routes. Such alliances reduce competition on overlapping routes where allied airlines were formerly the main competitors. This has serious anti-competitive effects and leads to monopolistic behavior in the competitive environment.

The mergers and acquisitions in industry can also lead to anti-competitive impacts by way of price increase and collusion and restraint of new entry. Competition concerns needs to be addressed in relation to the same so as to prevent merged entity for from attaining dominant

position in market to restrain competition. For example, with merger of two main competitor airlines which had peak take off and landing slots on all main airports shall lead to restraint in competition.

Further another important issue which needs attention is entry of new competitor in industry in the light of our domestic air travel policy. There are several issues such as minimum fleet size, minimum equity capital requirements, and route dispersal guidelines for new entrants which need reconsideration. Further limited fixed capacity of airports, acute shortage of landing and takeoff slots may act as barrier to for new entrants while the merged entity continues to hold dominant control over peak timed slots and strengthens incumbent position and their profitability. Fair allocation of slots instead of first cum first rights is necessary in interests of fair competition. Therefore, the need of hour is that consolidation in aviation industry which restrains fair competition should not be done at the detriment of consumers in any manner whatsoever or which has adverse effects on freedom of trade for enterprise.

5.4.1. Competition in Slot Allocation

Civil Aviation plays an integral role in development of an economy. It helps in realizing the socio-economic objective of providing connectivity to foster travel & trade. As per International Civil Aviation Organizations' estimates, every 100 \$ spent on air travel produces benefits worth 325 \$ to the Economy. The Indian Aviation Sector has witnessed tremendous growth in the recent past which is driven by sound demographic, macroeconomic, government aided reforms & market dynamics. The three fold increase in consumerism, rising disposable income; booming aviation sector; burgeoning middle class; increasing business travel; government reforms; entry of low cost carriers; increasing competition etc. have positioned the Indian Aviation

Sector in a high growth trajectory:

In order to maintain this high growth trajectory, it is very important that competitive forces must continue to operate with in this sector. In this report my focus shall be on the competition related issues surrounding Airlines with special emphasis on M&A in light of Competition Act, 2002. In common parlance competition in the market means sellers striving independently for buyer's patronage to maximize profit or other business objectives. A buyer prefers to buy a product at a price that maximizes his benefits whereas seller prefers to sell the product at a price that maximizes his profit. Competition makes an enterprise more efficient and offers wider choice to consumers at lower price. Fair competition is beneficial for the Consumers, Producers / Sellers and finally for the whole society since it induces economic growth. In order to realize this objective to competition in the economy, the Competition Act, 2002 was passed which replaced MRTP Act, 1969. The objective of Competition Act is to prevent anti-competitive practices, promote and sustain competition, protect the interest of the consumers and ensure freedom of trade. The objectives of this Act

are to be achieved through the instrumentality of the Competition Commission of India (CCI) which has been established by the Central Govt. w.e.f 14th October, 2003.

Areas focused under the MRTP Act, 1969:

- Prohibition of concentration of economic power to the common detriment;
- Control of monopolies; and
- Prohibition of monopolistic, restrictive & unfair trade practices.

Where as the theme areas for the Competition Act, 2002 are as follows:

- Prohibition of anti-competitive agreements;
- Prohibition of abuse of dominant position;
- Regulation of combinations;
- Competition Advocacy;

Competition Act, 2002 shall prohibit anti-competitive agreements and abuse of dominance and regulate combinations (mergers amalgamations or acquisition) through a process of inquiry. It shall give opinion on competition issues on reference received and is also mandated to undertake competition advocacy, create awareness and impart training on competition issues. Going by simple rule of demand & supply, if demand for one good is rising then supply correspondingly is increased to match the demand. However, this is not possible for the Aviation sector as capacity cannot be augmented in response to demand. Airports have a fixed capacity and in terms of their ability to handle traffic. In absence of alternate airports, the major metropolitan airports are becoming congested and are constrained in terms of capacity. Now this may act as a barrier to entry for new entrants as there is acute shortage of slots, ground handling and others. This might act as an entry barrier in the current regime where slots' allocation is based upon grand fathered rights. Slots are rights to take off or land at particular time of the time. The issue of slots is important as the existent carriers may shoo away competition by taking advantage of the capacity constrained airports.

5.4.2. Abuse of Dominant Position: Competition Issues and Challenges in Indian Civil Aviation: Indian Civil Aviation in the past seventy or so years has witnessed three different phases, starting from the initial private regime followed by years of nationalization and the recent era of deregulation. The current de-regularized system, with its inherent competition, has succeeded in providing better consumer services. On the other hand, this has posed several challenges to the competition policy framework, calling for a need to strike a balance between protecting the interests of consumers and hence ensuring free and fair competition.

Areas which need the attention of legal fraternity and policy makers include measures to combat abuse of dominant position, encompassing:

- Predatory pricing
- Denial of market access
- Loyalty Programmes
- frequent flyer programmes
- corporate discount schemes
- travel agents commission

Sector in a High Growth Trajectory:

In order to maintain this high growth trajectory, it is very important that competitive forces must continue to operate within this sector. In this report my focus shall be on the competition related issues surrounding Airlines with special emphasis on M&A in light of Competition Act, 2002.

Unlike other industries, capacity in the aviation sector cannot be immediately augmented in face of rising demand. Airports have a capacity constraint binding on them in terms of the landing, take off facilities, air traffic controllers, refueling, maintenance, clearing & catering services etc. It is this capacity constraint that might act as an entry barrier for new entrants. Landing & take off rights are referred to as Slots. These slots are an important consideration for an entrant as peak timed slots register higher passenger load factors as compared to the oddly timed slots. With most of the country's trunk route airports hitting their capacity mark, only oddly timed slots may be available at major metropolitan city airports to a new entrant which discourages new entry.

There are some regulatory barriers inherent in our domestic air transport policy which may constrain new entry & have anti-competitive effects. While the regulations governing minimum fleet size, minimum equity requirements, and route dispersal guidelines to the domestic operations act as an entry barriers; the regulations governing minimum fleet & experience requirements for International Operations & exclusive right to National carriers to fly to Gulf Routes etc. are highly discriminative & are constraining new entry & strengthening the incumbents position. The current regulations seem to favor only the incumbents namely Air India-Indian Airlines and Jet-Sahara. None of the other players are allowed to operate internationally. Given that maximum passenger load factor is registered on Gulf Routes, the exclusive right given to the national carriers is highly a restrictive practice.

The Indian aviation sector has witnessed tremendous growth in the recent years driven by a combination of macroeconomic; demographic; government reforms and market lead dynamics. Ever since 2003, growth had witnessed tremendous increase post arrival of LCC's.

Hence if the current growth trajectory is to be preserved, it is very important that competitive forces must continue to operate in the system. There are some factors intrinsic to the aviation industry that are anti-competitive. For example: Frequent Flier Programs which airlines use to discriminate between the leisure travelers and business travelers. The business class is a huge attraction for the FSC as they have very low price elasticity of demand, which the carriers want to capitalize on. Similarly other loyalty programs include Travel Agent Incentive Schemes where by the commission given to the travel agents are tied to the sales of that Carrier. Price transparency in the system of fare declaration is both a boon as well as a bane. A bane as it enhances chances of collusion. Parties entering in a collusion find it easy to ensure cooperation as the follower will implement the price increase only after seeing the leader make the agreed changes. If any one deviates then the other airline can at a very short notice revert back to the original prices without bearing much cost. So it's a win-win situation. Slot constraint is another problem constraining new entry. Landing & take off rights are referred to as Slots. These slots are an important consideration for an entrant as peak timed slots register higher passenger load factors as compared to the oddly timed

Another important issue that needs to be highlighted is that post Jet-Sahara Deal & IA-AI deal, the number of players serving the International Routes has reduced to half as no other domestic player is eligible for flying Internationally as per the current regulatory framework. Though the later entrant have given the incumbents a run for their money & have taken away a major chunk of domestic market share from these Incumbents by matching their networks and services but they are still barred from joining the International Skies. Ever since 2003, post their entry in the Aviation Sector, benefits have trickled down to the consumers in terms of low fares. What is even more disheartening is that new International players with scanty fleet size & minute experience are allowed to operate in & out of the country but ironically the domestic players who are much better in terms of safety, experience are barred from flying the same International Routes.

Thus, after seeing all this we can say that Competition is a process of rivalry between suppliers seeking to win business. It is essential to a healthy economy and a well-functioning market place but competition by itself may not necessarily deliver the best outcomes. Legislators and judges have long recognized that there are boundaries within which competitive conduct should be supported, and beyond which it should be punished. These boundaries help define the somewhat amorphous law of unfair competition. The main concern that continues to prevent precise definitions is that there are simply "too many unfair practices to define," given the fact that "there is no limit to human inventiveness in this field." Thus, fair competition which requires the prevention of unlawful acts and acts contrary to honest practices can be best explained as competition based on the factors of price, quality, and service; not on the abuse of near-monopoly powers, competitor bashing, predatory pricing, etc.

5.5. OPERATION OF CODE SHARING AGREEMENTS

The aviation industry is facing immense pressure from customers due to increased demands. Such demands cannot be met by a flight carrier due to significant problems such as a limit on licenses and resources. Hence the civil aviation industry in pursuance of the principle of co-operation, which is parallel to that of competition in any industry, has devised the concept of Code Sharing Agreements.

Code Sharing/Codeshare Agreements simply put refers to an arrangement in the form of contract between airlines to sell space on each other's flights. Such flights are displayed as flights for both the operating carrier (the airline that uses its aircraft for the flight) and the marketing carrier (the partner airline that sells space on the operating carrier's flights). Such agreements intend to address the aforementioned problems by providing a greater number of destinations and flight choices that can be conveniently booked through a single source.

The players in the Indian Civil Aviation Industry in a bid to compete in the international arena have entered into such agreements. The implications of these are several and multi-faceted. The paper aims to analyze these aspects and their operation in the Indian Civil Aviation Industry.

The paper structures itself around the issues of

- Uniformity in relation to
- Services
- Form of agreement
- Profit sharing and consequent assumption of liability
- Applicable Legal Framework to the issues mentioned with specific reference to the need for a specific legal framework.

5.5.1. THE EMERGENCE OF CODE-SHARING AGREEMENTS: A LEGAL PERSPECTIVE

The liberalization of the aviation industry in India has precipitated the boom for domestic and international air carriers. With the concept of code-sharing becoming popular among Indian carriers especially now that the domestic private carriers can fly overseas once they complete five years of domestic operations in addition to other mandatory requirements, legal liabilities are bound to increase and become complicated.

Code sharing involves one airline advertising and selling the services of another airline as its own and the transportation of passengers and cargo on an airline other than the one identified in the travel documents. The carrier performing the flight is usually referred to as the operating carrier while the other airline is typically identified as the marketing or contracting

carrier. Code-Share agreements enable airlines to increase their traffic and revenues thereby profits, network size, service frequency, offering more destinations through its frequent flyer programmes and coordination of operations.

In order to identify the proper defendant claim arising from a code-shared flight, the Guadalajara Convention, which was adopted in 1961, applies to which India is a party. It ensures that a carrier performing carriage without having entered into a contract with the passenger will be liable according to the Warsaw Convention as modified by the Guadalajara Convention. This convention has formally introduced the distinction between a contracting and an actual carrier. As per this convention, both carriers will be jointly liable and the plaintiff is released from the difficulty in proving which carrier caused the damage which could be due to lost baggage, delay in the flight taking off, diversion of the flight due to unavoidable circumstances, passengers been offloaded due to overbooking .etc. especially in congested airports. Jet Airways already has a code-share agreement with Brussels Airlines in order to give its passengers wider destinations in Europe to choose from.

Thus the role of the Guadalajara Convention will increase and become more important with a steadily growing number of flights under Code-Sharing agreements.

5.5.2. FREQUENT FLYER PROGRAMS AND CODE SHARING ALLIANCES: COMPETITION CONCERNS

There are certain factors intrinsic to airline industry that are anti-competitive such as 'Frequent Flyer Programs' ("FFP's") operated by various airlines that is a form of unfair pricing practice and can have adverse effect on competition. Also, the airlines alliances in the industry that inter alia include 'Code Sharing Agreements' tend to restrain competition in the market. The object of the paper is to study nature and impact of Code Sharing Alliances and FFP's on competition. In India, many airlines such as Indian Airlines, Kingfisher, and Jet Airways operate FFP's for its customers and provides various benefits in relation to same. FFP's are basically loyalty inducing programs offered by airlines which rewards customers with free travel on the basis of build up miles and gained points on each travel by that airline. Through these FFP's, the airline tends to enhance the value of subsequent flights on its airline by increasing opportunity for free travel, once the customer flies on FFP.

Such rewarding tends to induce future loyalty among customers and not only strengthens airline's market position, but also tends to fetter competition in market by making it difficult for new entrants to enter market and expand. Such loyalty inducing pricing and rebates programs become abusive when they lead to foreclosure effects. Section 4 of the Competition Act, 2002 ("the Act") prohibits abuse of such dominant position by an enterprise by way of imposition of unfair or discriminatory price in provision of services or by limiting or restricting market. Such loyalty programs also prevent customers from accruing most advantageous offer at a given time thereby denying market access. Further, airlines by way of

FFP's raise the switching costs between various airlines –they make traveller keen to continue its services such that, if they switch to another they would not be able to gain points and thus free travel. Switching costs act as barrier for entrants to gain market share and are detrimental to competition in market. Also, the inducement caused by way of FFP to customer by the airline has the effect of stipulation to purchase exclusively from that airline and is related to the law prohibiting exclusive purchasing agreements. FFP's are basically targeted for business class travellers who have less price elasticity demand and therefore treat customers in discriminatory manner over other leisure travellers. Such discriminatory pricing is prohibited under the Act.

In the air industry, alliances constitute a framework for cooperation between airlines such as Code Sharing Alliances that allows one airline to sell seats under its own name and code on another airline's flight. However when two main competitors in the market enter into such code share agreement on overlapping networks, it dampens competition which may also lead to price collusion and rise by the two airlines. For example in 2006, Air Deccan signed an alliance with Jet Airways for code sharing and pooling engineering resources. This Jet-Sahara-Air Deccan alliance can have severe impact on competition as both of them have a very heavy domestic presence and overlapping networks with a combined market share of over 50 per cent, which may lead to monopoly on some routes.

Further, if Computer Reservation System displays each alliance partner's flight under each partner codes, independents or entrants shall have more difficulty in getting their flights listed prominently. Also, considering the issue that customers may be unaware of code sharing when purchasing ticket and may find themselves on carrier which they consider to offer low quality of service and would not have been willing to choose, it can be said that code sharing operations act as detrimental to fundamental issue of transparency in consumer information and interests.

To conclude, competition in airline industry could be preserved and enhanced through, inter alia, close and careful review of FFP's and such alliances and careful use of remedies to offset such anti-competitive effects. Remedies such as, requiring incumbent airlines to grant new entrants access to their FFP and control on merging airlines to keep their FFP separate and in case of code share alliances, to assess such alliances on the basis of increase in fares and elimination of competition on the basis of market power or network effects, that should be discouraged and also pro competitive effects of economic efficiencies that can outweigh potential competitive harm.

5.5.3. LOW COST CARRIERS (LCCS) IN INDIA

India with more than a billion population shares only 0.3 per cent of the world's aviation production and 0.013 per cent air travel per capita. The concept of low-cost regional airlines, tried and tested successfully in several developed countries, is perhaps India's best bet, in

view of the projected growth of the economy and the improvement of infrastructure. However, the success of a low-cost airline would depend on the active support, particularly in the form of economic packages, from the government.

Ironically, there are no legal mechanisms in place to govern fuel surcharge. Therefore, passengers and airlines are often left with no recourse but to cough up the charges. In the context of multiplicity of operators and the possibility of them forming a cartel, the need of the hour is an appellate authority which could look into grievances with regard to fixation of tariff rates, fuel surcharge etc. This paper addresses the need to create an Airport Regulatory Board comprising representatives from the Civil Aviation, DGCA along with airline operators. There must also be legislation for the conversion of the DGCA into a Civil Aviation Authority with full powers over regulation over civil aviation.

The 'New Wave' in the Airline Industry: Public-Private Partnership, Foreign Investment and LCCs: The liberalization of aviation industry in India has precipitated the boom for domestic and international passenger carriers, with domestic and international passenger and cargo traffic growing at enormous rates, across 122 airports currently being managed by the Airports Authority of India. This substantial growth of Indian aviation industry is mostly due to: (i) low fares offered by Low Cost Carriers (LCC) like Deccan, Spicejet, GoAiretc; and (ii) Scheduled domestic air services are now available from 75 airports as against just 50 earlier. Thus, both Low cost carriers, and the expansion of airports form a large part of the growth of the aviation industry. In this paper, we try to examine both recent trends, from the lens of foreign participation through FDI, and Private-Public Partnerships in the Construction/modernization of airports, and examine the implications thereof, primarily for Low Cost Carriers, which are a major reason behind India's growth in the domestic aviation industry.

The Aviation Sector was however, not always this open. Before the 1990s, there were just 9 private airlines in India. The liberalization process began in the 1990s when India adopted an 'open skies' policy with respect to aviation. The liberalization process reached its peak in the 21st century, when, in 2006, the vide Press note No. 4, the FDI cap in Greenfield airports was lifted to 100%, on the automatic route and for existing projects also to 100% on the automatic route, subject to Government approval for investment above 74%. In 2008, vide Pressnote No. 4, this was modified so that the FDI ceiling in Scheduled Air Transport Services was set at 49% and investment therein by Non-Resident Indians at 100% on the automatic route, and the ceiling for Non-Scheduled Airlines at 74%, with NRIs being allowed to invest upto 100% on the automatic route. It was this opening up of the aviation market that heralded the change we see airports, with the modernization of the Delhi and Mumbai airports, as well as the construction of new international Greenfield airports at Hyderabad and Bangalore. These new developments have involved public-private relationships, such as the one with the GMR in the modernization of the Delhi Airport.

But over the last few years, one major effect of the liberalization of the aviation sector and the entry of foreign players in the aviation market has been the overcrowding of the competitive market. As a response, in April 2007, the Ministry of Civil Aviation raised the minimum equity capital requirements for Airline carriers to start or continue operations, from Rs. 30 crores to Rs. 50 crores for Airbuses and Boings. The main reason and effect of this is that small players, such as the Low Cost Indian Carriers are kept at bay.

Thus we see two processes going hand in hand. On the one hand, there is the introduction of foreign players in the aviation market, leading to airport modernization/expansion/construction, while on the other we have Indian players, particularly the Low Cost Carriers being unable to compete with the high competitive equity requirements, and thus being pushed out of the market. We propose to study the implications of this paradox, i.e. the effect of the privatization and liberalization policy on airports [i.e. the construction of new airports] and the effect of the same on Low Cost Airlines [i.e. them being pushed out of the market].

Thus, we will first examine this privatization process and trace the evolution of the Foreign Investment in the Indian Civil Aviation Industry. Then, we will study the nature of such investments, particularly with respect to the Private-Public Partnerships in modernization of the Delhi Airport, and the construction of the Hyderabad Shamshabad airport. This will be done keeping in mind the revolution of sorts brought about by the low-cost airlines, and the negative effect on these airlines by the recent spate of privatization. We conclude that although the opening up of the aviation industry to foreign investment, particularly in the construction and modernization of airports is commendable, such policies should not be at the cost of the Low Cost Carriers, as they currently seem to be.

5.5.3(a) Case : Low-Cost Airlines in India : Took off pride, landed in troubles

Abstract: The primary objective of the case study is to analyse the sustainability of Low-Cost Carrier (LCC) model in Indian aviation industry. This case would enable a discussion on the factors that are critical for the successful functioning of LCCs; the factors that have led the Indian ULCCs into trouble; and the sustainability of LCCs in the long run. Since 2003, when Air Deccan entered with its LCC model, Indian aviation was revolutionised. While with the increase in demand, opportunities increased, so did the threats with the increase in competition. In a span of 2 years, the industry witnessed 25% annual growth and the entry of four new players. It was estimated that by 2010, air passengers would increase to 50 million. However, instead of doing well, by 2007 Indian LCCs were bleeding. In 2007, Air Deccan merged with Kingfisher Airlines while, GoAir moved out of the LCC model, adding business class in its aircraft. With SpiceJet and IndiGo remaining as the only LCCs in India, the case delves into the reasons behind the failure of LCCs in India and enables an interesting discussion on what needs to be done to make the LCC model successful, given the potential demand.

Pedagogical Objectives :

1. To understand the critical success factors for a LCC player globally and in India in particular.
2. To analyse the performance of LCCs in India and the reasons behind the failure of LCCs in the country.
3. To explore and evaluate various options to make Indian LCCs operations economically viable.

Introduction :

With the introduction of open sky policy in 1991 and the consequent deregulation of Indian aviation, private players have transformed the industry. However, with the emergence of Low-Cost Carrier (LCC) model in 2003, the industry was revolutionised. Pioneered by Air Deccan, the model relied on cutting costs in every possible area and pass on the benefits to customers. With tickets sold at a price as cheap as INR 500, the low-cost model triggered huge growth in air traffic with passengers estimated to reach 50 million by 2010. To tap the growing opportunities, nearly four LCCs entered the industry in 2005. To lure more passengers, LCC players decreased their ticket fares to uneconomical levels and expanded capacity that increased cost. However, with the rise in the ATF prices, this high cost, low price spiral led the LCCs into losses. In order to break even, they tried to increase fares, but it impacted the load factors. Caught in a vicious cycle, Air Deccan merged with Kingfisher, while GoAir shifted from the LCC model and added business class in its aircraft. With the country left only with two loss-making LCCs, SpiceJet and IndiGo, the question regarding the sustainability of the LCCs in the long run arises.

Indian Civil Aviation Industry : Since its first commercial flight in 1912, the Indian aviation industry has witnessed several changes. The flight flew from Karachi to Delhi under the partnership of Indian State Air Services and Imperial Airways of UK. History marks the actual beginning of Indian aviation in 1932 when J.R.D. Tata launched Tata Airlines. In 1946, Tata Airlines was transformed into a public airline, renamed as Air India for international services. Apart from Air India, in 1947, private domestic airlines - Indian National Airways, Air service of India, Deccan Airways, Ambica Airways, Bharat Airways and Mistry Airways were also operating. In 1953 under Air Corporation Act, all these airlines were nationalised and merged into a state-owned airline - Indian Airlines - for domestic services...

Emergence of LCCs in India :

LCCs were everything that an Indian passenger could ask for. Initially Air Deccan priced its tickets at INR 500 including INR 200 for taxes. In comparison to FCCs, Air Deccan offered 75% of its seats at 50% lower price. The airline even introduced the concept of 'Dynafares', wherein it gave bigger concessions for passengers who booked tickets 90 days in advance. With R.K. Laxman's (famous Indian cartoonist and novelist) 'common-man' as its brand

ambassador, Air Deccan targeted those passengers, who travelled by road and rail paying exorbitant fares...

LCCs in Troubled Times

By 2008, the market share of LCCs was shrinking. LCCs blamed FCCs for all the mess in the industry. The competition between LCCs and FCCs resulted in 5%–7% of revenue loss for the former. According to Ajay Singh, director SpiceJet, "Clearly, they (full service providers) need a differentiating strategy". Further G.R. Gopinath, managing director, Air Deccan said, "What people have forgotten is the key word in marketing called segmentation. Free market is all about fair competition but if Taj today starts competing with say an Udipi, it's detrimental for both"...

5.5.4. CONCERNS OF CARTELIZATION AMONG AIRLINE COMPANIES IN INDIA: LEGAL ISSUES.

‘Cartelisation’ is a process where enterprises collude to fix prices, limit or control production, share the market or customers, or indulge in collusive bidding. Cartels usually operate in secrecy due to which these are hard to detect, or successfully, investigate and prosecute and because of this competition laws across the globe reserve their most severe treatment for cartels. Almost all the sectors, including the aviation sector are prone to Cartelisation.

Cartelization is when enterprises collude to fix prices, indulge in bid rigging, or share customers. Cartels have the capacity to adversely affect consumer welfare and the economy of a country. The most common activity undertaken by cartels is price-fixing which eventually results into artificial increase in prices.

Chapter IV of the Constitution directs the State policy in matter of concentration of wealth, welfare of consumers' vis-à-vis Fundamental Rights (under chapter III). It is in pursuance of this that the State enacted the Monopolies and Restrictive Trade Practices Act, 1969. This Act has now been replaced by the Competition Act, 2005. But critics opine that this Act is riddled with loopholes that might condone hard-core cartels and predatory pricing. Section 19 of the Competition Act, 2002 provides that Competition Commission of India may inquire into any alleged cartel (anti-competitive agreement) on receipt of any information from any person, consumer or their association or trade associate.

In case of the airline industry, though there hasn't yet been any proved case of cartelization, there have been concerns regarding the same in the recent years. To illustrate, in the last month there had been a case of simultaneous hike in air fare by a majority of airlines. Accordingly, the Directorate General of Civil Aviation (DGCA) sent letters to all domestic carriers seeking information regarding the hike. Most of the airlines denied any attempt at

cartelization in press statements. Subsequently, the prices were rolled back. In the light of the fact that the Competition Act hasn't been yet enforced, that the powers of the Commission under this Act are milder and more advisory than the powers under the previous Act, that very few cartels were prosecuted under the previous Act, this attempt at cartelization will raise legal issues of the sufficiency and adequacy of the Competition Act, effectiveness of the new regime and the condition of consumers' interests in the absence of enforcement of the Act.