Module 10
Distribution Economics

prepared by InterVISTAS for the Istanbul Technical University

The Structure and Trends in Airline Distribution

1.1 Introduction

The aviation value chain consists of a number of interlinked segments. It can be broadly divided into the upstream segment (aircraft manufacturers, aircraft component manufacturers and lessors), the downstream segment (airlines), the infrastructure segment (airports and air navigation service providers or ANSPs), the sales and distribution segment (global distribution systems, travel agents and freight forwarders) and outsourced services (catering companies, ground service providers, maintenance and repair operators, etc.). This reading will focus on the two relevant levels of the aviation value chain: the downstream segment (airlines and other air travel suppliers) and the distribution segment (global distribution systems and travel agents).

In the mid-1990s two fundamental changes occurred that have had a profound impact on airline distribution. First, the emergence and penetration of Internet communication technologies has had and continues to have a profound effect on how airlines market their products and services. With the advent of the Internet, airlines for the first time had a globally ubiquitous platform they could use to market their products and services directly to consumers. Airlines began to rely more heavily on personalized websites, bypassing global distribution systems. The U.S. General Accounting Office estimates that the share of online bookings increased substantially in recent years. From 1999 to 2002 alone, the share of online reservations went up from 7% to 30%. In addition to the advent of the Internet, airlines have net, substantially reduced commissions paid to travel agents in an attempt to reduce distribution costs.[1]

Figure 2-1 and Figure 2-2 summarize the airline distribution industry before and after the advent of Internet technologies.

[1] GAO, "Airline Ticketing: Impact of Changes in the Airline Ticket Distribution Industry", July 2003.

Figure 2-1: Summary of Historic Airline Distribution before the Internet

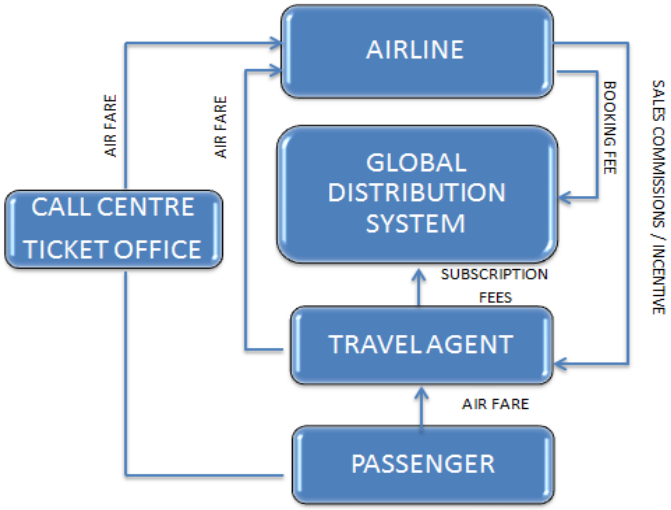
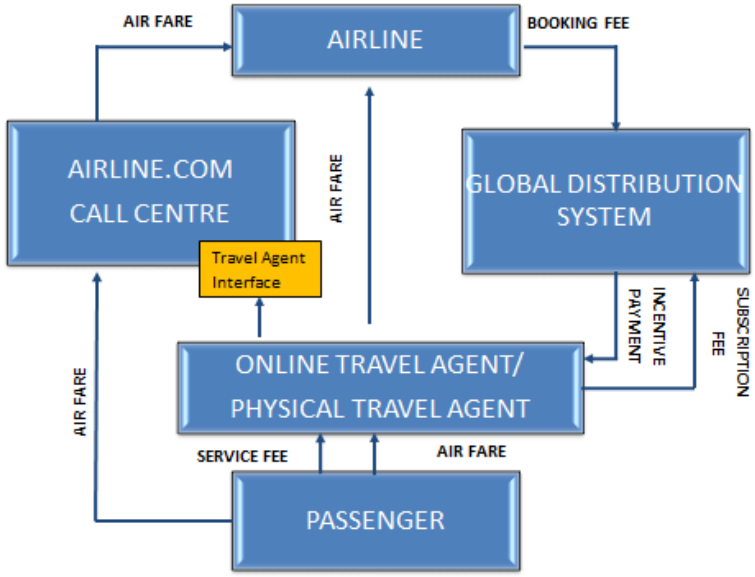


Figure 2-2: Summary of Airline Distribution after the Advent of the Internet



Several major changes have occurred as a result of increased penetration of Internet technologies.

First, airlines have developed various Internet-based tools which allowed them to bypass global distribution systems and avoid booking fees associated with the GDS distribution channel. Namely, airlines developed

branded websites and online technologies capable of booking tickets by directly accessing airlines' internal reservations systems. In bypassing the global distribution channel, carriers save on booking fees every time a travel agent makes or changes a booking through a global distribution system. Carriers can also personalise or customise the product to better meet the particular passenger needs.

Second, as already described, airlines have sharply reduced commissions paid to travel agents as a result of continuous effort to reduce distribution costs. This has resulted in substantial savings to airlines.

Attempts to reduce distribution costs are part of a broader spectrum of cost-reduction strategies that airlines have pursued in recent years in an effort to achieve profitability. Since deregulation of the airline industry in the United States in 1978, U.S. carriers have lost roughly $60 billion dollars in domestic markets in real terms.[2] Airlines are particularly susceptible to fluctuations in the business cycle. Different segments along the aviation supply chain react differently to changes in economic conditions. Some segments tend to exhibit volatile profits levels, while others are characterised by more stable performance during different stages of the economic cycle. At the volatile end of the spectrum are catering service providers, lessors and airlines. The airline industry is often described as "hyper cyclical" which means that airline profitability levels are more susceptible to fluctuations in the business cycle compared to those of an average industry in a given economy. At the stable end of the spectrum are freight forwarders, ground service operators and manufactures, which tend to exhibit greater resilience in terms of profit margin fluctuations at the various stages of the business cycle.

Financial performance further varies for different players within specific segments. In the airline industry, low cost carriers (LCCs), which emerged and penetrated the airline markets across the world following economic deregulation of the industry, tend to do much better than legacy carriers. Many low cost carriers in the United States rely primarily or solely on direct distribution methods (i.e., selling tickets to travellers through online websites) as a means to avoid transaction fees associated with the use of GDSs. Participation in GDSs would erode profit margins and put upward pressure on fares, depriving low cost carriers of their main competitive advantage – low fares.

Increased competition from low cost carriers and chronic overcapacity in the airline industry has also forced legacy carriers to investigate ways to lower costs, among other means by shifting away from more expensive to less expensive distribution channels. Under its renewed distribution strategy, Irish mainline carrier Aer Lingus substantially reduced the level of commissions paid to travel agents and made the lowest fares available only through its website, providing an incentive for travellers to book directly with the carrier. Currently, the carrier sells 45% of its tickets online. Other legacy carriers have also adopted similar strategies.

Figure 2-3 below illustrates graphically a recent shift in air travel distribution.

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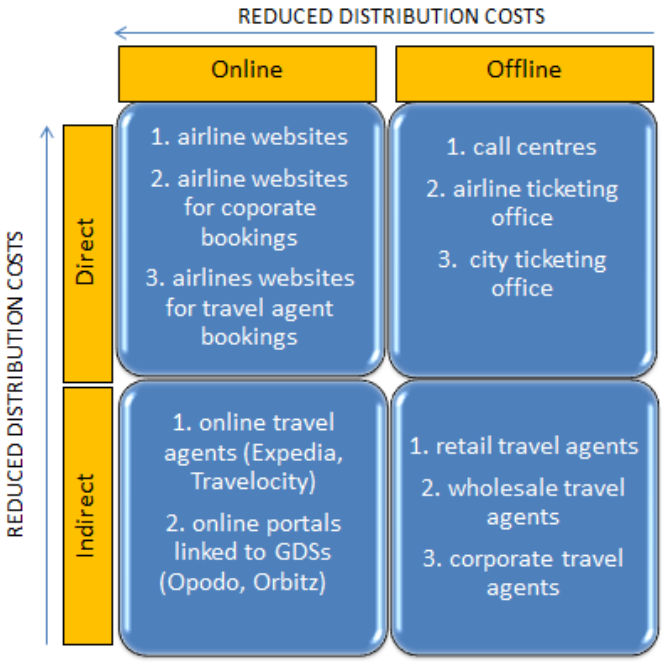
[2] Borenstein, Severin. "On the Persistent Financial Losses of U.S. Airlines: A Preliminary Exploration", National Bureau of Economic Research Working Paper 16744, January 2011, page 1.

Figure 2-3: Summary of a Shift in Distribution Strategies



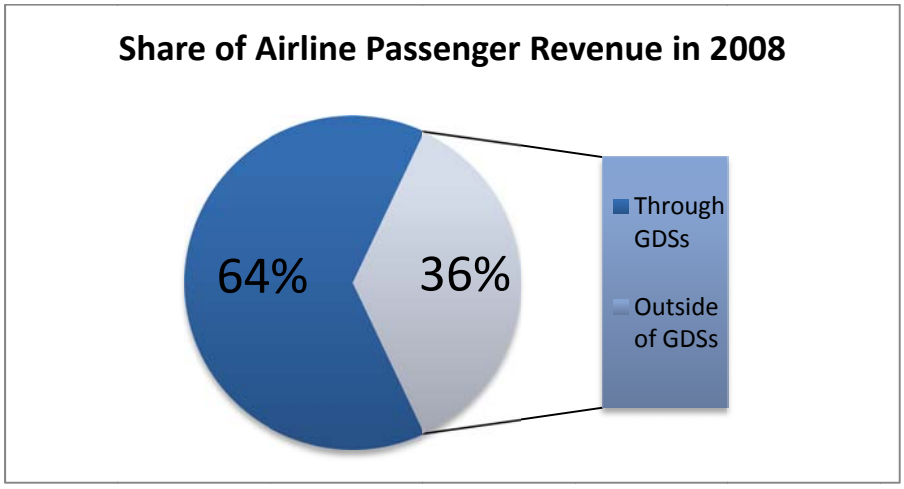
To summarize the main points of the diagram above, the airline distribution industry has undergone major changes in recent years which are characterized by the following two broad trends:

- Under increased pressure to reduce costs in a competitive post-deregulatory environment, airlines have moved away from costly indirect distribution channels that involve multiple intermediaries to less expensive direct sales tactics.
- The emergence and spread of new Internet technologies has facilitated the development of new online means to deliver air services and products to consumers, marking a shift away from offline distribution channels (call centres, ticketing offices, etc.) to online channels (branded airlines websites, online travel agencies, etc.).

There is a clear shift away from traditional distribution channels (such as physical travel agents and GDSs) to new and emerging distribution alternatives (such as airline websites and other web-based agents). An increasing share of air travel tickets is booked through online sources, and an increasing share of tickets is booked bypassing physical travel agents and GDSs. Nevertheless, GDSs continue to play an important role in airline distribution, particularly in certain market segments, such as corporate travel. Business travellers, who represent the highest yield traffic, continue to use travel agents as part of standard corporate policies. Consequently, while the percentage of bookings through non-GSD channels has been steadily increasing, the share of GDS bookings remains high.

In 2002, the GDS providers had a market share of 63% of the U.S. distribution market based on the number of transactions.[3] In 2008, the GDSs continued to account for a substantial share of U.S. air travel distribution, representing roughly 64% of airline passenger revenue and accounting for 376 million sale transactions.[4] In the United States, the share of tickets sold through GDS-based channels exceeds global indicators, where the split is closer to 50 / 50. As a rule, airlines tend to rely more heavily on direct marketing for domestic sales and use GDS-based channels for international itineraries. As an example, in Canada 25% of domestic travel, 40% of Canada-US transborder travel and 75% of international travel is booked through the GDS channel.

Figure 2-4: Share of U.S. Airline Passenger Revenue from Sales Through and Outside of GDSs in 2008.



1.2 Main Industry Participants

When a traveller wishes to purchase a seat on a plane, a booking has to be made. In order to make a booking, the booking agent must provide basic information about the passenger and required services including the passenger's name, address, price and billing information, origin and destination of the trip as well as connecting points if necessary. In addition, a booking can specify information on the traveller's frequent flyer status, meal, seat or other preferences.[5] Passengers can make a booking by contacting the airline directly or by using an intermediary such as the travel agent.

Travel agents have traditionally relied on global distribution systems to make bookings on behalf of customers. A travel agent can access GDSs via a computer reservation terminal (CRT). Typically, a travel agent pays a subscriber fee in order to be able to access information stored in a GDS. However, subscriber

[3] U.S. GAO, "Airline Ticketing: Impact of Changes in the Airline Ticket Distribution Industry", July 2003, page 23.
[4] PhoCusWright, "The Role and Value of the Global Distribution Systems in Global Distribution, November 2009, page 7.
[5] U.S. GAO, "Airline Ticketing: Impact of Changes in the Airline Ticket Distribution Industry", July 2003, page 5.

fees by travel agents are an insignificant source of revenue for GDSs. In fact, sometimes GDSs may provide services to travel agents at no charge or at a price below cost. When a travel agent enters a booking in a CRT, the booking is created in the GDS that supplies the terminal, which in turn contacts the airline's internal reservation system in order to confirm the booking.

GDSs are computer reservation systems which have inbuilt capability to store and distribute information on airline schedules, fares, applicable terms and conditions and seat availability to travel agents and provide the latter with the ability to make flight reservations. GDSs also provide information on and allow booking related services such as car rentals, hotels, tours and others.

Today, GDSs are essentially platforms that bring together travel service suppliers (airlines, car rental companies, hotels, etc.) and travel service buyers (travel agents) who ultimately package services and deliver them as an end product to consumers. GDSs obtain information from a number of sources including directly from airlines or from central agencies supported by carriers such as the Official Airline Guide (OAG) and the Air Tariff Publishing Company (ATPCO).

The main source of revenue for GDSs today is fees paid by the airlines. Every time a booking is made through a GDS, the GDS charges an airline a booking fee. The booking fee is paid per segment of a flight itinerary. For example, if the traveller books a Toronto-Chicago-Madrid-Frankfurt flight through a GDS, and assuming that the GDS charges $3 per segment for booking, the total cost of the booking for the operating airline will be $9. Part of the revenue collected by GDSs from booking fees is remitted to travel agents.

In the United States, a significant market share is concentrated in the hands of two GDS providers (Sabre and Travelport) who together hold around 90% of the GDS market.

The predecessors to global distributions systems were known as computer reservation systems (CRSs) and were originally developed by airlines. CRSs were created in the 1960s as a means for airline employees to track flight and schedule information and sell airline seats to passengers. In the mid-1970s, airlines provided access to CRSs for travel agents to facilitate the process of booking tickets. One of today's largest global distribution systems, Sabre, was originally developed by American Airlines in partnership with IBM. Similarly, United Airlines invested in developing Apollo and TWA created PARS.[6]

It is important to distinguish between a global distribution system (GDS) and a computer reservation system (CRS). While the two notions are related, they are not the same. CRSs were originally developed as an internal ticket booking function to facilitate the process of airline reservations. With time the evolution of CRSs led to new functionality being added, including the ability to sell other travel services (car rentals, hotel accommodation, sightseeing tours, etc.). In addition, CRSs began to supply other software and information technology services to airlines that could be used for maintaining information on personnel and aircraft and for baggage handling. The nature, complexity and variety of travel options offered by CRSs to

[6] U.S. GAO, "Airline Ticketing: Impact of Changes in the Airline Ticket Distribution Industry", July 2003, page 6-7.

users expanded substantially, rendering GDS as a more appropriate term that captures the increased diversity and complexity of original CRSs.[7]

1.3 Traditional Distribution Channels

In the past, travellers could buy airline tickets in two primary ways: (1) by contacting an airline directly through its call centre or by visiting a ticketing office at the airport or in the city, and (2) by using a travel agent who in turn used a global distribution system to gather information on prices and schedules in order to put together an itinerary.

When a traveller contacted the airline directly, an airline representative or a ticketing agent would access the airline's computer reservation system directly to obtain information on seat availability, fares and restrictions applicable to fares. Those travellers booking directly with an airline would have access only to schedule and fare information of that carrier and potentially its code-share partners. Thus, the main disadvantage of purchasing directly from the airline was substantial time costs involved in searching and comparing fares and other attributes of air travel between different carriers.

Alternatively, when a traveller booked tickets through a travel agent, the latter relied on an intermediate platform (such as the GDS) which aggregated information on fares and schedules for multiple carriers and made it available to the travel agent for reservation on traveller's behalf. Physical travel agencies have been more recently complemented by online travel agencies (e.g., Expedia, Travelocity and Orbitz), which in turn can also rely on GDSs. Before the advent of Internet technologies, airlines used travel agents and GDSs as a primary means of selling products and services to end users (i.e., travellers). As a primary distribution channel, GDSs accounted for a lion's share of all ticket sales in the United States. In 1999, GDSs represented roughly 71% of all ticket sales.[8]

GDSs are essentially central communication platforms used to connect air travel suppliers and air travel buyers. The success of a GDS as a distribution intermediary depends, on the one hand, on the number of airlines that provide information to the GDS and, on the other hand, on the number of travel agents who subscribe to it. As a consequence, a GDS with a higher number of travel agent subscribers will have a better chance of convincing airlines to participate than a GDS used by a smaller number of travel agents. In addition to air travel service, GDSs provide information on related travel services such as hotel accommodation, car rentals, sightseeing tours, etc. Today there exist three major GDSs: Sabre, Travelport and Amadeus. The GDS market is highly concentrated; high concentration is the result of industry consolidation that took place after the GDS market was deregulated.

Since GDSs were developed by airlines as internal computerized systems in the late 1960s, little investment has been made in upgrading the technology used by GDSs. In the 21st century, GDSs still use command line displays, which contrast sharply with the user-friendly interactive interfaces that have been developed by airlines for their websites. Included below is a graphical depiction of a typical interface used by GDSs.

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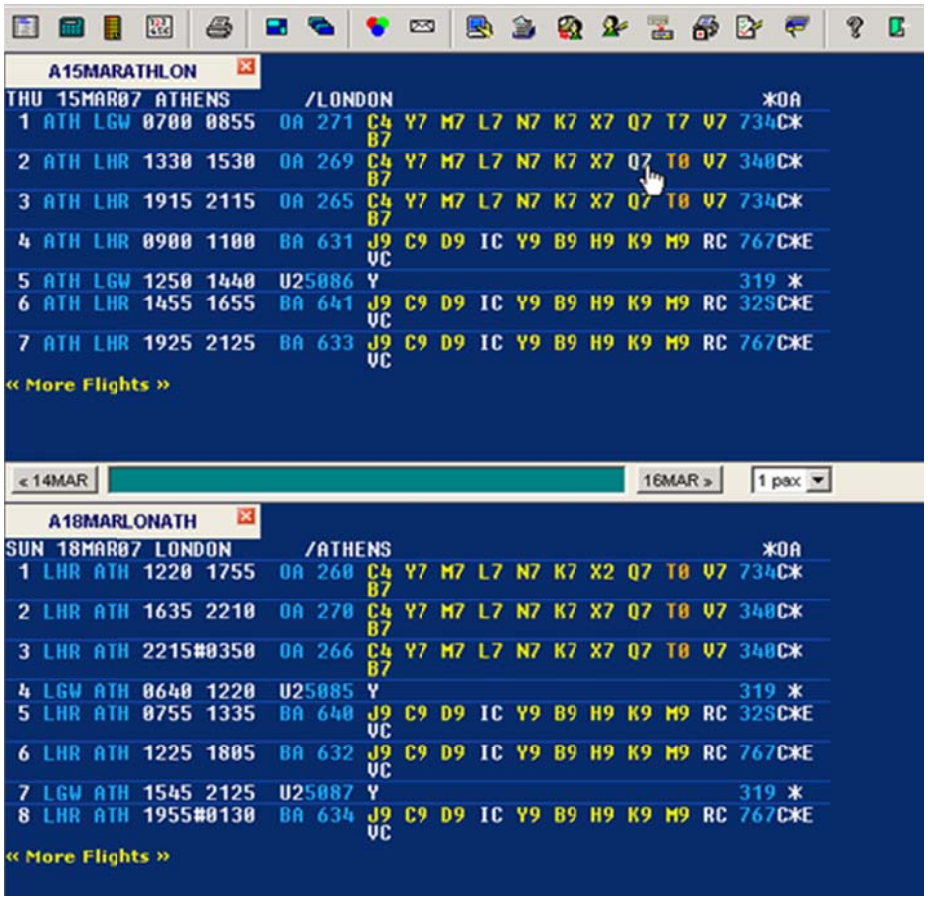
[7] U.S. GAO, "Airline Ticketing: Impact of Changes in the Airline Ticket Distribution Industry", July 2003, page 12.
[8] U.S. GAO, "Airline Ticketing: Impact of Changes in the Airline Ticket Distribution Industry", July 2003, page 23.

Figure 2- 5: Global Distribution System User Interface (Travelport/Galileo)



GDSs aggregate information on fares, schedules and seat availability from a number of sources including directly from carriers and indirectly from central agencies such as the Official Airlines Guide ("OAG") and the Airline Tariff Publishing Company ("ATPCO"), which are in turn supported by carriers. U.S. and foreign carriers provide information on airline fares to ATPCO and information on airline schedules to OAG. GDSs package the information on fares, schedules and seat availability together and provide it to travel agents.

Carriers typically do not provide full information on their seat inventory to GDSs – a buffer with a small number of seats is retained to prevent flight overbooking. For instance, if an airline has 100 seats available on a flight, the airline may close off seat sales through the GDS at 90 seats and leave 10 seats as a buffer. GDSs allow subscribers to make bookings on the seats remaining in the buffer through an electronic direct access link to the airline's database. Direct access links can be broadly divided into two categories: (1) "look but not book" links and (2) "look and book" links. The "look but not book" link allows travel agents to access the internal reservation system of a participating carrier and check seat availability against the integrated display of the GDS. It is possible that while the GDS displays no seat availability on a particular

flight, the internal airline reservation system would show, for example, 10 seats remaining. The travel agent can then send a message from the GDS to the participating airline's reservation system to make a booking. However, due to a delay between the time when a request is made and an actual booking, the request could sometimes be rejected. All GDSs in the United States have the "look but not book" link. The "look and book" link enables travel agents to browse the inventory of a participating airline and, in the event that seats are available, make a reservation instantaneously.

The emergence of advanced computerized technologies and Internet penetration in the late 1990s brought about a technological breakthrough, which in turn caused significant changes in air travel distribution strategies. In particular, equipped with new Internet marketing tools carriers have put greater emphasis on the use of branded websites to advertise and sell tickets to air travellers. Presently, under 40% of airline industry revenue comes from non-GDS sources. Over 60% of airline industry revenue comes via physical and online travel agencies which in turn rely on GDSs to do their bookings. The share of tickets marketed by airlines directly to consumers continues to rise.

1.4 New and Emerging Distribution Channels

In recent years several important developments significantly transformed the traditional distribution model, as airlines attempted to diversify away from costly distribution channels. Importantly, alternative models that have emerged emphasize a direct relationship between suppliers of air transport services (airlines) and buyers of those services (business and leisure travellers) and aim to reduce and minimize the number of intermediaries in the distribution chain. The principal new distribution channels that have emerged are summarized below.

Airlines' websites. Airlines have made substantial investment into developing capability to market their products and services directly to consumers through personalized websites. The core distinctive feature of this new marketing environment is that it delivers highly personalized product offerings, allowing consumers to pay a base price for the ticket and add on other features (e.g., additional bags, insurance packages, preferred seating, etc.) as the customer desires.

The airline industry is one of many industries that capitalized on the new technological capabilities that have been made possible by the Internet. In general, the travel industry heavily relies on the online distribution method as, unlike in many other industries, consumers search and buy travel information rather than a physical product. It is estimated that more than nine in 10 U.S. travellers used the Internet at some point to plan their travel in 2008.[9] With the rise of electronic technologies in the 1990s, airlines no longer needed to rely on travel agents or airport or city ticket offices to issue paper tickets – electronic tickets could be issued instead and sent directly to a passenger's email. The ability to advertise, sell and issue tickets directly to consumers provided airlines with greater autonomy and stimulated the development of interactive websites with user-friendly interfaces.

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9 PhoCusWright, "The Role and Value of the Global Distribution Systems in Global Distribution, November 2009, page 1.

The main advantage of using direct sales to travellers through branded websites is the cost savings associated with bypassing expensive intermediaries. By shifting away from traditional distribution channels, airlines save on commission fees paid to point-of-sale travel agents and booking fees paid to GDSs for facilitating reservations. Commission sales paid to travel agents were a substantial cost to airlines. To put words in numbers, the U.S. General Accounting Office estimated that in the mid-1990s when commission fees were at their highest levels, U.S. carriers paid roughly 10% in commission to travel agents on domestic tickets and 16% on international tickets.[10] Since that time, commission rates have been steadily declining.

The main disadvantage of using branded websites as a sale vehicle is a limited number of potential customers. Travel agents play an important role as a distribution channel in certain market segments such as international itineraries or large corporate or government clients who are often affiliated with a large travel agency. Put differently, by using a travel agent a carrier could gain access to a broader base of potential customers.

Online sales have been widely used as a primary distribution channel by low cost carriers in the United States, Europe and other parts of the world. In fact, direct online sales to consumers continue to increase and presently account for the vast majority of tickets sold by low cost carriers in the United States. Transaction fees associated with sales through traditional distribution channels (travel agents and GDSs) inflate the cost of doing business and eat into profit margins of low cost carriers. In an attempt to maintain profitability, low cost airlines have bypassed the middleman and relied primarily on their websites for distribution. As an example, Southwest and JetBlue sell roughly 90% of their tickets directly using their websites.[11] Similarly, leading low cost carriers in Europe such as Ryanair and easyJet widely employ direct sales strategies as a way to keep distribution costs down.[12] While a single channel distribution strategy limits the circle of potential customers for airlines, it has proved to work for low cost carriers. Ryanair and Southwest have shown consistent profitability and robust financial performance, even though they do not use online or physical travel agents or global distribution systems to market their service.

Integrated websites. These are websites that essentially act as an online travel agency which allows users to compare fares, schedules and other flight information between different carriers (e.g., Expedia, Orbitz or Travelocity). Integrated websites may be independent or owned by travel suppliers. Expedia is an example of an independent online booking site originally designed by Microsoft that subsequently spun off as a separate entity. Orbitz is a publicly traded company in which Travelport holds a significant share. Travelocity is owned by Sabre. Passengers booking through an integrated website bypass travel agents.

A booking made through a web-based booking engine may or may not be processed through a GDS. For example, Travelocity was developed by Sabre and the online engine uses Sabre to obtain information on fares and schedules and book tickets. Web-based applications such as Orbitz have the functional capability to do both: make a booking through a GDS or by directly accessing airlines' internal reservation systems.

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[10] U.S. GAO, "Domestic Aviation: Effects of Changes in How Airline Tickets Are Sold, July 2006, pages 6-7.

[11] Koo, Bonwoo et al. "Online distribution of airline tickets: Should airlines adopt a single or a multi-channel approach?' *Tourism Management* 32 (2011), page 70.

[12] Koo, Bonwoo et al. "Online distribution of airline tickets: Should airlines adopt a single or a multi-channel approach?' *Tourism Management* 32 (2011), page 70.

Orbitz is an online booking engine that was developed by five main U.S. carriers. When a ticket is booked using Orbitz, the booking can be routed through a GDS or bypass it. Orbitz used Worldspan (now Travelport) for booking transactions. In 2002, Orbitz developed and implemented technology that allows it to bypass the GDS and access each participating airline's reservation system directly – called Supplier Link. This technology functions similar to the technology used by GDSs, but unlike GDSs it comes at a substantially lower price for participating carriers. It is estimated that airlines can save up to $12 on the typical booking fee of $16 by using Orbitz technology. Supplier Link has certain limitations and cannot be used, for example, to purchase itineraries that involve international destinations or interlining between carriers.[13]

There is a separate class of independent online booking engines that are often referred to as "opaque" travel distributors because of the manner in which they sell tickets. Essentially, tickets are sold based on the principle of a blind auction, where a website accepts bids from customers of airline tickets, but the identity of the carrier operating the flight and the exact departure time does not get disclosed until the ticket is purchased.[14] An example of an "opaque" travel agent is Priceline.com.

In a new industry development, general online search engines are moving into selling airfares and air transport services either as standalone marketing tools or through partnerships with existing distribution entities (such as GDSs). As an example, Google is developing capability that will enable the largest search engine to market airline fares. The additional capability will enable passengers to use a Google-powered flight search tool to find and compare fares across different carriers. In 2011, Google acquired ITA Software, a company which through its QPX software provided online access to an airfare search engine. The acquisition raised concerns with U.S. antitrust authorities over competition among providers of flight search websites in the United States. The U.S. Department of Justice approved the acquisition but imposed a set of conditions which require Google to provide access to QPX software for other airfare websites on commercially reasonable terms, among other conditions.

Travel agent-carrier direct partnerships. Online travel agencies have sought direct links to integrate their systems with those of air carriers, bypassing global distribution systems, in order to provide travellers with personalized offers. As an example, online travel agency Priceline has made investment into developing a direct-connect link to American Airline's internal database that would enable Priceline to issue American's tickets.[15] Kayak has been also developing a direct booking relationship with Air Canada under which passengers would be able to book a ticket directly through Kayak's website rather than being redirected to the carrier's website.[16] To incentivize travel agencies to bypass GDSs, airlines have developed special programs and interfaces for travel agents.

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[13] U.S. GAO, "Airline Ticketing: Impact of Changes in the Airline Ticket Distribution Industry", July 2003, page 16-17.
[14] U.S. GAO, "Airline Ticketing: Impact of Changes in the Airline Ticket Distribution Industry", July 2003, page 18.
[15] Farelogix, "Preservation of Airline Passenger Choice & Industry Innovation", Information Briefing, March 2012, Appendix C.
[16] At the time of the writing of this report Kayak was still redirecting booking requests to Air Canada's website.