

# E-Commerce in Airline Business

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Summary: Airlines were the earliest practitioners of e-commerce and airline ticket sales now consist the largest portion of all product sales made online. That is because online sales bring greater benefits to airlines than to any other industry. Yet, the Internet brings blessings to the airlines as well as worries: it could dilute revenue. In order to reap the benefits of the Internet and to avoid its potential damages, airlines have to use other tools such as computerized revenue management system and e-distribution system. The initial adventures of the airline industry prove that although high technology — including e-commerce-- could bring tremendous benefits, it also carries potential risks. The risks need to be carefully considered and controlled in order for them not to turn destructive or to offset the advantages of high technology.

## E-COMMERCE IN AIRLINE BUSINESS

The vague meaning of the title “Government in E-Commerce Development” posed difficulty in the initial moments as I was trying to figure out what to present at the symposium. Luckily, we can all agree on the meaning of e-commerce: it refers to all commercial activities carried out on the Internet. As for the title, I think it could mean two things:

- How and what a government can do to help e-commerce?
- How can government help its people through the use of the Internet?

I suspect that the organizers of the symposium intended to focus on the first question, and rightly so. The answer to this question may differ depending on who is asked. I think there is one thing that the government can do: it can provide a common platform on which all e-commerce can be carried out. But it is the second function of the Internet — almost completely ignored in this part of the world — that the government should be considering. Indeed, the government could be the biggest winner of the Internet, should it have the courage and wisdom to move most of its functions on line. An on-line government is not only more efficient and cost saving; it could dramatically reduce the chance of corruption because its people would not need to have so many personal contacts with government officials. Should this new function of the Internet be implemented, I suggest it could be called G-to-P (Government-to-People) in line with the naming convention that has produced such well-known terms as B-to-B, or B-to-C.

In the business world, airlines could be the biggest winner of the Internet, or e-commerce, with or without the involvement of a “government.” This is due to the nature of airline business and its cost structure. An airline’s costs usually consist of two parts: direct operating costs and indirect operating costs. Direct operating costs — such as aircraft, fuel, and salaries — make up about 60% of the total cost, and indirect operating costs — such as distribution costs — about 40%. Direct operating costs are more or less “fixed” and there is not much an airline can do to cut them down. So most airlines would focus their cost-saving efforts on reducing indirect costs. It is in this aspect that e-commerce could potentially play an important role. A major part of an airline’s indirect cost is its distribution cost, and it has the following components:

- Reservation system cost
- Sales offices (stations) cost
- Advertising and sales promotion cost
- Agent fees and commissions
- Ticketing fees

Traditionally, airlines pay 3-25% commissions to travel agents who sell their tickets, in addition to spending a huge amount of money and resources on selling and issuing tickets of their own.

To reduce distribution costs, airlines would have to turn to e-commerce, or e-distribution channels, to limit the number of their sales offices and to reduce their dependency on Computer Reservation Systems (CRS) and sales agents.<sup>1</sup> At least in the USA, big airlines have already been doing that. They have set up on-line sales networks, and almost every airline's web site offers on-line booking functionality. Some airlines jointly set up on-line booking sites to offer B-B, B-C, and other travel-related services. Travel websites (such as Priceline) and Internet booking engines (such as Expedia) also offer convenient on-line bookings.

The following chart shows Internet bookings in the US airline industry in the past five years and an estimation of the coming two years.<sup>2</sup>

	Total # of on-line air tickets buyers	Total # of on-line travel market revenue	% of total US airline bookings
1996	25.3 m	US\$276 m	1.3%
1997	32.2 m	US\$827 m	2.9%
1998	41.0 m	US\$1.9 b	4.3%
1999	48.1 m	US\$ 3.2 b	5.9%
2000	54.2 m	US\$ 4.7 b	7.4%
2001 (estimated)	60.5 m	US\$ 6.5 b	9.2%
2002 (estimated)	71.9 m	US\$ 8.9 b	11.1%

Before we analyze the chart, let us look at what it takes to purchase an airline ticket on line. To carry out Internet bookings, passengers need the following:

- A computer
- Internet access at reasonably fast speed
- A credit card

<sup>1</sup> It is estimated that airlines could reduce distribution costs by 75% through the use of Internet bookings.

<sup>2</sup> Sources: Jupiter Communications and Forrester Research. Quoted in "Internet Sales of Airline Tickets: Statement of The Honorable Kenneth M. Mead, Inspector General, U.S. Department of Transportation". In this statement before the US Senate, Mr. Mead voiced concerns that airlines own websites or co-owned websites, such as Orbitz, were not regulated and could potentially be anti-competitive.

- Electronic tickets or e-tickets (This, though, is not absolutely necessary. China Southern Airlines, for example, manually delivers on-line purchased tickets to the customers. But at most airlines, a reservation made on line does not require a traditional ticket. The passenger can go directly to the airport and get a boarding pass from a kiosk with an identification card).

In the USA, almost all regular air travelers have the necessary means to make on-line bookings. Given the potentially tremendous benefits of e-commerce to the airlines and the convenience it could bring to the passengers, why are Internet bookings not growing faster? The answer, again, lies in the nature of airline business.

Airlines sell their product at different prices. The same seat in the same airplane can fetch different prices depending on when and where it is sold. Generally speaking, the earlier you buy a ticket, the cheaper it is. Moreover, airline seats are time-sensitive and perishable—seats that are not sold at time of departure become “spoiled.” On the other hand, seats sold too early at discount prices may dilute revenue. In order to prevent late-coming high-yielding passengers from buying low-fare tickets, airlines impose conditions or “limits” on different low-fare tickets depending on a number of factors, including:

- Length of stay—for example, whether or not there is a Saturday-night stay.
- Advance purchase, or how early the ticket is purchased. Usually a fourteen-day advance purchase is required in order to get a discount ticket.
- Frequent Flyer Membership status—if you fly a certain airline frequently, you receive certain special treatment including getting free tickets.
- Alliance/Code share deals—more and more airlines have entered “alliances” or are sharing their inventory over certain routes to reduce or avoid competition.
- Point of sale (POS)—the price of an air ticket differs depending on where you purchase it.
- Group price—groups usually get a discount.
- Booking agents’ special offers—certain travel agents get special offers from the airline & sell these tickets at a lower price to the passengers.

These conditions change from season to season and from market to market, as air traffic demands fluctuate from time to time and from market to market. The fact is most airlines do not have the technology to handle all these “conditions” fast enough to accommodate Internet bookings. As said earlier, airline inventory is time-sensitive and quantity-limited. If the airline sells them too cheaply, it loses revenue; if the fares are too high, they may remain unsold when the plane departs. Without knowing when to sell a ticket at what price under what conditions, an airline cannot price the tickets on line correctly.

(On-line distribution of non-time-sensitive goods is much simpler, but it does not offer as much benefit as it does to the airline industry. For example, consumers would find it more comfortable to buy a TV set or a toy in the store where they can see it and touch it, and producers can easily distribute these goods through traditional channels. The recent demise of the on-line store E-toys might have been due to this consumer psychology.)

In order to fully realize the benefit of e-commerce and to avoid the potential revenue dilution, airlines are turning for help to new tools such as revenue management systems and Internet distribution systems. Revenue management is also called revenue optimization or yield management. It uses computerized system to analyze historical booking trends and current bookings to forecast passenger traffic demand for each flight and each market segment. In other words, it forecasts passengers' willingness to pay at each price level. Based on the forecast and given fares of the booking class, it recommends an optimal number of seats to be allocated to each booking class in order to maximize revenue. Many airlines are using revenue management systems for such a purpose. But to transmit the recommendations of the revenue management systems on-line requires an automatic distribution mechanism. Such a mechanism should instantly determine the flights, itineraries, prices, and number of seats to put on the web, as well as to monitor market/competitive activities. Only under these circumstances would the airline be able to dynamically, optimally and proactively price all seats in response to requests that may come at any second. Only in this way can Internet bookings prevent revenue dilution and tremendously save distribution costs and transaction costs, as well as generate customer satisfaction.

There is also the financial factor, as the new technology requires huge investments on the part of the airlines. And it is not easy to implement, either. While many airlines have been using revenue management systems for a number of years, not many airlines are implementing the on-line distribution system. In developing countries like China, where the majority of people are not using credit cards or even a computer, the time for e-commerce may take a few more years to come.

Admittedly, e-commerce has the potential to change consumer behavior or customer culture, and to bring about a commercial revolution at least in the airline industry. But at the moment, e-commerce brings greater benefits to the consumers than to the airlines, which explains why many airlines are reluctant to take their business on-line. Other industries may differ from the airline industry, and their e-commerce practitioners may not have to deal with as many complicated factors. But it is safe to say that any industry will have its own problems, and that the promise of the Internet is almost always mixed with certain risks. We cannot expect e-commerce to grow as fast as the Internet age seems to promise. In fact,

experts predict that e-commerce will account for less than 8% of GDP by 2003 in the USA, the largest e-commerce country in the world.

One of the risks of e-commerce is that it increases the chance of making wrong decisions. If something goes wrong, the damage would be huge and swift. This destructive power of technology, yet to be emphasized, has been learned by some companies at high cost. Another risk is the impact it may have on the existing organizations and business patterns. Once e-commerce is implemented, the airline would have to change its business procedures, even its organizational structures, accordingly. These changes could be painful.

Before any city or any other industry launches e-commerce, it may be well advised to take a look at the initial adventures of the airline industry in the USA. These adventures show that, before reaping the benefits of e-commerce, careful planning and huge investments are needed to build up the infrastructure. Even when the entire infrastructure is in place, e-commerce still needs supporting tools such as computerized revenue management system and e-distribution systems to prevent revenue dilution. One should always be wary of the potential risks of any high technology — including e-commerce — and know what one can do as well as what needs to be done. Being hasty may not prove prudent. Needless to say, this statement only applies to the commercial use of the Internet. As far as moving the government on line, the sooner, the better.

Key words: e-commerce, airline, Internet booking, revenue management, e-distribution, revenue dilution, risks of high technology.

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