

## ICTs Internet Adoption in Aviation Industry: Similarities in India and China

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### ABSTRACT

The revolution in ICTs has profound implications for economic and social development. It has pervaded every aspect of human life whether it is health, education, economics, governance, entertainment etc. The most important benefit associated with the access to the new technologies is the increase in the supply of information. ICTs have cut across the geographic boundaries of the nations and states. Efforts are under way to integrate ICTs to all sectors and developmental activities. Tourism is one such potential area. Tourism and economy are closely interconnected. Thus to improve the facilities supplemented to the visitors using ICT can enhance the tourism resulted in the increase of economy of the nation. Aviation is one of the important factors of tourism industry. If we improve our air transport facilities, tourism industry will definitely be benefited. In our present study we will try to explore some of the ICT facilities that are provided by our aviation system and some are also found in China. We also try to find out some of the lacking facilities in both the countries in order to improve our tourism systems and subsystems including aviation industry.

**KEYWORDS :** *ICT (Information Communication Technologies), Aviation Industry.*

### INTRODUCTION

The fast development of information communication technologies (ICT) and the expansion of the Internet have changed tourism industry structures around the world. Aviation industry is one of the important elements of tourism system. New technologies have been adopted in the aviation industry in Europe and America for more than 30 years, and the trend is likely to continue into the future. India and China, as fast-growing developing countries in Asia, are gaining importance in the international tourism market for their historical and cultural attractiveness as a destination. This study examines how the ICT and Internet gradually modifying the aviation industries in India and China thus indirectly improve the tourism industry structure, how important such changes are and also measures that has to be taken in near future. This exploratory research is conducted based on information collected from websites and authorities of several tourism organisations, such as airlines, hotels, tour operators, visitor attractions and the tourism authorities.

### AVIATION INDUSTRY OF INDIA

Aviation Industry in India is one of the fastest growing aviation industries in the world. With the liberalization of the Indian aviation sector, aviation industry in India has undergone a rapid transformation. From being primarily a government-owned industry, the Indian aviation industry is now dominated by privately owned full service airlines and low cost carriers. Private airlines account for around 75% share of the domestic aviation market.

Earlier air travel was a privilege only a few could afford, but today air travel has become much cheaper and can be afforded by a large number of people.

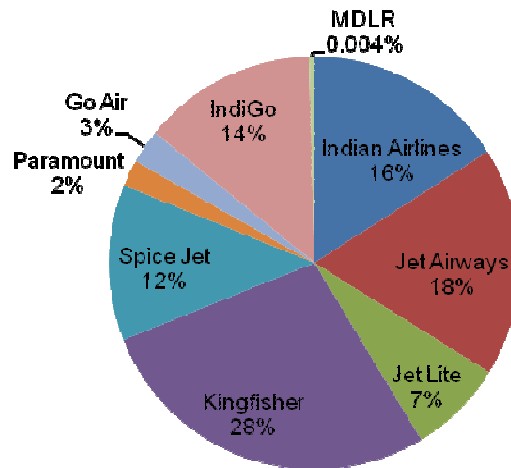
The origin of Indian civil aviation industry can be traced back to 1912, when the first air flight between Karachi and Delhi was started by the Indian State Air Services in collaboration with the UK based Imperial Airways. It was an extension of London-Karachi flight of the Imperial Airways. In 1932, JRD Tata founded Tata Airline, the first Indian airline. At the time of independence, nine air transport companies were carrying both air cargo and passengers. In early 1948, Government of India established a joint sector company, Air India International Ltd in collaboration with Air India (earlier Tata Airline). The Government nationalized nine airline companies vide the Air Corporations Act, 1953. Accordingly it established the Indian Airlines Corporation (IAC) to cater to domestic air travel passengers and Air India International (AI) for international air travel passengers. The assets of the existing airline companies were transferred to these two corporations. This Act ensured that IAC and AI had a monopoly over the Indian skies. A third government-owned airline, Vayudoot, which provided feeder services between smaller cities, was merged with IAC in 1994. These government-owned airlines dominated Indian aviation industry till the mid-1990s. In April 1990, the Government adopted open-sky policy and allowed air taxi-operators to operate flights from any airport, both on a charter and a non charter basis and to decide their own flight schedules, cargo and passenger fares. In 1994, the Indian Government, as part of its open sky policy, ended the monopoly of IA and AI in the air transport services by repealing the Air Corporations Act of 1953 and replacing it with the Air Corporations (Transfer of Undertaking and Repeal) Act, 1994. Private operators were allowed to provide air transport services. Foreign direct investment (FDI) of up to 49 percent equity stake and NRI (Non Resident Indian) investment of up to 100 percent equity stake were permitted through the automatic FDI route in the domestic air transport services sector. However, no foreign airline could directly or indirectly hold equity in a domestic airline company.

By 1995, several private airlines had ventured into the aviation business and accounted for more than 10 percent of the domestic air traffic. These included Jet Airways, Sahara, NEPC Airlines, East West Airlines, ModiLuft Airlines, Jagsons Airlines, Continental Aviation, and Damania Airways. But only Jet Airways and Sahara managed to survive the competition. Meanwhile, Indian Airlines, which had dominated the Indian air travel industry, began to lose market share to Jet Airways and Sahara. Today, Indian aviation industry is dominated by private airlines and these include low cost carriers such as Deccan Airlines, GoAir, SpiceJet etc, who have made air travel affordable. Airline industry in India is plagued with several problems. These include high aviation turbine fuel (ATF) prices, rising labor costs and shortage of skilled labor, rapid fleet expansion, and intense price competition among the players. But one of the major challenges facing Indian aviation industry is infrastructure constraint. Airport infrastructure needs to be upgraded rapidly if Indian aviation industry has to continue its success story. Some steps have been taken in this direction. Two of India's largest airports-Mumbai and New Delhi-were privatized in 2003. Current market share of Indian carriers in the domestic aviation market is shown below (table 1 and Graph 1):

**Table 1**

Kingfisher Airlines and Kingfisher Red (previously Air Deccan)	28%
Jet Airways and Jet Lite (previously Air Sahara)	25%
Air India and Indian (previously Indian Airlines)	16%
IndiGo	14%
SpiceJet	12%
GoAir	3%
Paramount Airways	2%
MDLR Airlines	0.004%

Chart 1: Market Share of Indian Carriers in Domestic Aviation



### CHINA AIRLINES

In China too, at the beginning airlines an industry strictly controlled by the central government and its air authority, Civil Aviation Administration of China (CAAC). All the systems were solely developed and provided by the only supplier in China, TravelSky Technology Limited. This company used to be known as Civil Aviation Computer Information (CACI). Systems provided by TravelSky include Inventory Control System (ICS) which became operational in 1985; Airport Passenger Processing system (APP) launched in 1988; Air Cargo System (ACS) started operation in 1994; and Computer Reservation System (CRS) launched in 1996. In 1999, the website based on the company's data network, [www.travelsky.com](http://www.travelsky.com), was launched. According to the government regulation, Travelsky's reservation system is the only GDS within China allowed to issue tickets with its e-Terminals that connects all ticketing agents, of which 500,000 are domestic ticketing agents and 1 million are international till 2002. All major GDSs (four global ones – Amadeus, Sabre, Galileo and Worldspan, and three regional ones in Asia – Infini, Axess and Topas) are linked with Travelsky.

In 2002 the government merged the nine largest airlines into three regional groups based in Beijing, Shanghai, and Guangzhou, respectively: Air China, China Eastern Airlines, and China Southern Airlines, which operate most of China's external flights. By 2005 these three had been joined by six other major airlines: Hainan Airlines, Shanghai Airlines, Shandong Airlines, Xiamen Airlines, Shenzhen Airlines, and Sichuan Airlines. Together, these nine airlines had a combined fleet of some 860 aircraft, mostly Boeing from the United States and Airbus from France.

Tianjin Airlines; first private airlines was established in 2004 and the scene got changed. Private airlines provide their own counters and web sites for ticket booking and enquiries. Currently, the twenty seven airlines in the Chinese mainland handled 138 million passengers and 22.17 million tons of cargos effectively.



Figure 1: International Airports of New Delhi and Beijing

### **APPLICATIONS OF CIT IN AVIATION**

In the present work we study the applications of CIT in the airline industry in three major categories: airline management, ticket reservation, and baggage handling.

#### **AIRLINES MANAGEMENT AND USE OF CIT:**

In both India and China, IT-enabled services bring out cost reduction in providing better services to Passenger Handling and Terminal Facilitation Services. Information Technology and Telecommunication Services provide the following improved services at airline management:

- IT technology is providing technical data of Airports, flight plan and real time flight information in the Web site.
- IT technologies also supplying data about flight that are currently in air or about to take off. Airport authorities use these data for better management of flights and also take decisions for the future.
- Long distance telephone services using VoIP through intranet instead of PSTN (Public Switched Transmission Network) is used by major airlines.
- Many of the airlines in India and China owned their own customer's call centers that are directly connected to the website and interactive sessions with callers through voice processing applications are possible.
- Almost all of the major airlines in India and China, providing self-service kiosks at the airports with facilities for smart cards and e-commerce to help customers make reservations, obtain e-tickets, check baggage or simply find information. Few of them have facility to access through wireless communication services for journey travel plan, organize his schedule of travel, selection of seat in the aircraft, terminal reporting time all over his personal area network devices fitted with blue tooth devices.

#### **TICKET BOOKING AND CIT:**

Initially, air China and air India has developed an auto-ticketing machine system in cooperation with the Banks. The ticketing machine was a web-based CRS terminal, which is linked to the bank's ATM cash point. The concept was that customer can use their cash card to buy a ticket at the cash point. After the transaction is completed, the bank's ATM machine issued a receipt for customer. The customer can then exchange the receipt for tickets at the airport before check-in. However, after privatization of airlines, private companies started their own web-side based e-ticket booking facilities. After booking (that can be made before 4-6 hours, depending on the airlines), the electronic ticket receipt is e-mailed to the customer. Electronic ticket is a ticket-less travel benefit. An electronic image of ticket is stored in the airline reservation system. The itinerary receipt is customers' confirmation of travel. Customers are required to print and carry this receipt to gain access to the airport and to complete check-in formalities. To enter the airport and for check-in, customer must present the itinerary receipt along with a valid photo identification (Official Government issued photo identification/ driving license/ election photo identification/ Passport).

Payments for online bookings can be made through 'MasterCard' and 'VISA' credit cards and Debit Cards as specified by the airlines customer is using. Today almost each and every airlines has its own web sites that provides all the facilities related to customer satisfaction including flight details, ticket booking, ticket details etc.



Figure 2: Official Website of Air India and Air China

#### **BAGGAGE HANDLING AND CIT:**

Baggage is one of the major causes of irritation to travelers. In India and China too, major airports are well equipped with RFID Devices. Radio Frequency Identification Device (RFID) technology is available to improve baggage handling. RFID is an IT-enabled Baggage Monitoring Services that ensures the following:

- It tracks every bag as it moves through the airport by scanning each bag as it passes various points in the baggage system and recording the location and time.
- It also monitors the overall baggage system by providing both graphical and text-based views of the baggage volume presently in the system, as well as a forecast of the expected volume of baggage in the immediate future.
- Displays the track history of each bag, including the time taken to travel between each location it visits.
- Exports this baggage data to a data warehouse for off-line analysis.

The above information allows operational staff to handle capacity problems and take preventive measures and enables aircraft dispatchers to make informed decisions on departures based on real status of transfer baggage.

#### **FUTURE MEASURES AND CONCLUSION**

In both India and China, many of the ICT implementations have already been done. But there is a need of improvement or we can say that both are lacking in few new technology that can be implemented in order to improve the customer satisfaction. First of all, there is a need of unified system for providing customer services. Unified Authority for all functions including airline activities inside the terminal building through networking and virtual private network for the manifold functions through single window with opportunities for faster and efficient passenger handling:

Customer Relation Management (CRM) applications with speech-enabled technology with integrated voice and data for information and value added services such as Flight Information, news, weather reports, stock quotes, traffic reports and sports results which will not only enhance customer satisfaction but will also create a new source of revenue. The Integrated CCTV systems must also display passenger arrival; queue up at ticket counters, security checkpoints. These details can be captured, documented and database made, which will be useful for future planning, flight departure programme etc. Biometric passenger profiles system can facilitate quick check in, faster security check and passenger traffic analysis of frequent flyers and their personalized airport services. These systems have already been implemented in London and Singapore. This will improve quality of service and customer satisfaction. More than that, the congestion of passengers in terminal lounges will be managed well by dynamic creation of space within the existing infrastructure. This will

help in handling more passengers without additional investment on infrastructure building. Government has to work on the above mentioned points to improve the customer and passenger satisfaction. As we are progressing very quickly, we are hoping for these things will be done before implemented in China.

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