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COMPUTER-AGE VULNERABILITY IN THE INTERNATIONAL AIRLINE INDUSTRY

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MOST AIRLINE APPLICATIONS of computers predominantly affect the internal administration and efficiency of the airlines, and the resulting advantages and problems are probably common to many other industries. Computer applications in passenger and cargo service functions such as reservations and ticketing, however, have multilateral implications unique to the airline industry, particularly in the international context. While automation undoubtedly has brought benefits in these areas, many airlines are finding it increasingly difficult to compete in marketing their products. This article focuses on the vulnerability of the "have-not" airlines, travel agents, and passengers which has resulted from the development of highly sophisticated computer reservation systems (CRSs).

I. HISTORICAL PERSPECTIVE

In the early days of civil aviation, information on airline schedules and fares was distributed by individual airline companies in the form of printed timetables or newspaper advertisements. Since the flights and fares were few and simple and the choice of airlines and routings was very

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limited, passengers could thereby readily be made aware of all the products offered. As an increasing plethora of fares and services became available and airline journeys involving two or more airlines became commonplace, however, a need developed for consolidation of the various airline timetables for easy reference. This need was met for many years almost entirely by publishers of multi-carrier schedule or tariff guides such as the ABC World Airways Guide, the Official Airline Guide, the Air Tariff, or the Air Passenger Tariff, which included the schedules and/or fares of the vast majority of airlines worldwide. With passengers seeking guidance in selecting the various options available, and with airlines concomitantly seeking to sell their services in a wide variety of locations, the combination of the travel agent and the multi-carrier guide became an increasingly common tool for marketing airline tickets.

A fundamental feature of this airline marketing system was the neutral status attributed both to the multi-carrier guides and to the travel agents, fostering the principle of "fair and equal opportunity for airlines to compete" in foreign markets. In the case of the guides, the publishing companies operated — and still operate — independently of the airlines, and financed their operations primarily from the sale of their publications. In the case of the travel agents, their "neutrality" was generally founded upon common accreditation to all member airlines of the International Air Transport Association (IATA), rather than accreditation to individual airlines, and upon concomitant compliance with detailed rules and procedures agreed upon by airlines within IATA and subsequently approved by governments.¹

This airline distribution system was fertile ground for

¹ IATA rules and procedures regarding travel agents remain in place except in the United States, where they were replaced in 1984 by those of the International Airline Travel Agent Network. They are increasingly flexible, however, especially in Canada, Europe, and the Asia/Pacific region. They are published annually by IATA (including government reservations) in the IATA PASSENGER AGENCY CONFERENCE RESOLUTIONS MANUAL, Ref. No. 5324 (8th ed. issued July 1, 1987).

the advent of automation, considering the massive productivity gains offered by the use of CRSs as compared to the relatively cumbersome use of printed airline guides and the telephone or telex. CRSs were initially introduced by large airlines able to meet the heavy investment costs, which used the systems primarily to facilitate the transaction of reservations by their own sales staffs for their own services. As their systems grew and the technology developed, however, these airlines were able to include access by travel agents and also offer other airlines the opportunity to participate in their systems. In North America and Europe the majority of scheduled airline tickets are currently sold using CRSs for the entire transaction, and the systems are starting to make significant inroads in the other regions of the world. The larger CRSs contain an inventory of thousands of flights and millions of fares, handling millions of transactions each day with an average search and response time of a few seconds.

Unlike the multi-carrier schedule and tariff guides, CRS ownership and operation is generally not independent of the airlines. Of some sixty CRSs currently in use by travel agents around the world, more than fifty are partly or wholly owned by airlines, and in at least forty-five countries — over half the countries in which CRSs are known to be used by travel agents — there is only a single CRS, controlled by the national airline.² Also in contrast to the multi-carrier guides, the schedules and fares of all airlines are not automatically included in a CRS. While it is often in the interest of a CRS vendor to include additional listings because these increase the attraction of the system for a travel agent, such inclusion is at the vendor's discretion. In most countries, the vendor also has the discretion to give more or less favorable treatment to an airline's listings. Where vendors do offer the facility, the airlines concerned generally have to pay for their listings, along

² *Secretariat Study Group on Computer Reservation Systems*, ICAO Doc. CRS-SN/5 (Nov. 1987).

with additional fees for each booking made through the systems.

As a result, the schedule and fare databases currently used by travel agents are no longer "neutral". Further, since for economic reasons travel agents generally prefer to subscribe only to a single CRS service, the neutrality of the whole international airline distribution system is called into question. An added distortion is caused by the fact that travel agents frequently enter into contractual arrangements with CRS vendors which could be considered inconsistent with the agents' fundamental contractual obligations to their airline principals. Thus, while the benefits of CRSs are widely recognized, concerns have been raised by governments, airlines, and passengers regarding bias in the screen displays of the various systems and the potential for abuse of market power by the vendors of the systems.

II. DISPLAY BIAS

Access to a CRS by a user such as a travel agent is via a terminal consisting of a keyboard and a visual display unit. The first step usually is to enter the origin and destination cities, along with the requested date and time of travel. The system responds by displaying on a screen various flight options which are available from its inventory, listed in order of priority dependent on the requested date and time of travel but adjusted according to the priority criteria used in the particular CRS concerned.

While CRSs have the capability of listing all the options between any two points which are contained in their inventory, the screens currently in use permit only a small number of the options to be displayed at any one time. In order to see additional options, the travel agent moves the list up the screen, usually in blocks of one full "screen" at a time, losing some options at the top and gaining new ones at the bottom. In view of the economic pressures of time and resources which travel agents face, there is an understandable tendency to book one of the

first options displayed which meets the client's known requirements. As a result, the order in which the CRS operator lists the available options strongly influences the probability of reservations being made for each one.³

The presentation on the screen may be biased, unwittingly or deliberately, both by the scope of the inventory of flights in the system and by the priority criteria concerned. There are many ways such bias may be introduced, and the examples quoted in recent years are numerous. Unlike most of them, the examples below were not designed for the purpose of demonstrating bias, but rather are taken from actual airline reservation transactions observed by the author in 1987; they are perhaps therefore all the more effective in their simple illustration of the impact which bias may have.

The first example involves a trip from Montreal to Barcelona, departing Tuesday, May 12, using a CRS based in the United States.⁴ In response to entry of the origin and destination cities and the requested date, the CRS displayed the following flight information on the first "screen," edited here for ease of presentation:

³ Estimates from surveys made by CRS vendors in the United States (prior to 1984) showed that seventy to ninety percent of bookings were chosen from the first screen viewed by the user, and fifty percent from the first listing on the first screen. See *Comments and Proposed Rules of the Department of Justice before the Civil Aeronautics Board* (Nov. 17, 1983); *Reply Comments of the Department of Justice* (Dec. 16, 1983), filed consequent upon EDR-466, Docket 41686, *Advanced Notice of Proposed Rulemaking-Airline Computer Reservation Systems* (Sept. 9, 1983).

⁴ The use of a North American-based CRS was inevitable given that the booking was made through a travel agent in Montreal. In general, CRSs in the United States have less evident "bias" than CRSs in many other countries because they are subject to specific government regulation and strong competition. The type of "bias" shown in the example is a vagary of the sheer depth of inventory of schedules in the CRS concerned and its concomitant ability to construct connections over numerous points. Most other systems contain fewer options in their inventory; many, for example, do not display flight options at all between Montreal and Barcelona.

Listing Screen 4 (summary)

- 9 Montreal — Barcelona via London Heathrow *and* Madrid (British Airways to British Airways to Iberia)
- 10 Montreal — Barcelona via Paris Charles de Gaulle, Paris Orly *and* Madrid (Air France plus ground transfer to Iberia to Iberia)

Listing Screen 5 (summary)

- 11 Montreal — Barcelona via Amsterdam *and* Madrid (KLM to KLM to Iberia)
- 12 Montreal — Barcelona via Zurich *and* Madrid (Swissair to Swissair to Iberia)

“No More”

Finally the operator searched separately for Montreal/Madrid and Madrid/Barcelona flights, building up the following legitimate connection:

Screen 6

<u>Listing</u>	<u>Airline</u>	<u>No.</u>	<u>Origin</u>	<u>Destination</u>	<u>Depart</u>	<u>Arrive</u>	<u>Stops</u>
13	Iberia	970	Montreal	Madrid	1830	0715#1	0
	Iberia	740	Madrid	Barcelona	0850	0950	0

By most perceptions this final listing is superior to each of the twelve previous ones. In comparison with the “cream” of the latter — those on the first screen — the departure time is similar but the origin to destination elapsed time, at nine hours and twenty minutes, is nearly two hours less than Listing 1 (Swissair via Zurich), nearly four hours less than Listing 2 (KLM via Amsterdam), and six hours less than Listing 3 (Alitalia via Rome). It takes a highly knowledgeable and persistent operator, however, to scroll through five screens and intervene actively to obtain this optimum listing and make the relevant reservations. Clearly, Iberia is highly vulnerable in this example. Unless it achieves more favorable listings of its transatlantic service with the CRS vendor concerned, the airline’s access to the Montreal market and possibly other markets in which this CRS is used will be very limited.

Even more fundamental barriers than those raised by screen priority are widening the gap between the "have" and the "have not" airlines. Many CRSs sustain a different form of bias in failing to include any flight information at all for smaller or less frequently used airlines, or including such information only under restricted conditions. For example, for travel from Montreal to Harare in Zimbabwe, at least one CRS in 1987 not only ignored the several feasible connections involving the nonstop flights from London to Harare by Air Zimbabwe, but did not even contain these flights in its inventory. Another CRS contained the Air Zimbabwe flights, but reservations on these flights had to be processed through the traditional telex channels and took up to three days to confirm, while reservations on the competing British Airways flights from London to Harare could be made immediately online. Like Iberia in the previous example, Air Zimbabwe and other small airlines are highly vulnerable. Unless they pay for listings and reservations capability on every major CRS worldwide, they face increasing difficulty in obtaining traffic in foreign markets.

Of course, it is not just the "have not" airlines that are made vulnerable in the circumstances described above. The passenger is being provided with a limited and biased range of the possible options. In fact, the criteria applied to determine screen priority frequently and purposely subsume, at least in part, the individual passenger's own decision criteria. For example, in a number of CRSs priority is determined conversely with the number of "points" accrued by each journey option, using a formula which ascribes points to the number of minutes the flight departure time differs from the requested departure time, plus the number of minutes of elapsed time between departure and arrival, plus "penalty" minutes to be attached to journeys involving multiple stops, a change in airlines en-route, or a ground transfer between airports. Thus, in some CRSs a connecting inter-airline option of ten hours duration, which might already be penalized in practice be-

cause of the longer connection time necessary at an intermediate airport, may be ranked on the screen below a connecting intra-airline option of eleven hours and twenty-five minutes duration between the same origin and destination cities because there is a prescribed "penalty" of ninety minutes to be added in the case of the inter-airline connection. The "penalty" of ninety minutes is evidently completely arbitrary, and many passengers may prefer to make up their own minds as to the benefit to be attributed to traveling throughout their journey on the same airline.

The passenger's ability to control his or her own decision process is, however, considerably enhanced by current computer-aided developments in the airline distribution network. CRS terminals, along with simplified reservation systems and ticket printers, are already installed on the premises of airports, shopping centers, banks, and private corporations. CRSs may even be accessed from private homes using personal computers and modems (mainly in North America) or videotex (mainly in Europe). The passenger can technically already sit at a terminal at home, call up pages on-screen from a catalog which contains not only consumer durables but also services, including airline schedules and fares, and make purchases directly and instantly using a "smart card".

Under this scenario, the travel agent becomes perhaps the most vulnerable party in the airline industry. The neutrality of the travel agent has clearly been compromised by the use of biased reservation systems. Passengers have a much greater incentive than travel agents to find the lowest fare, and with the right tools at their disposal they may have no need for an intermediary between themselves and the airlines or the CRS vendor. The airlines themselves may be tempted to add to this incentive by departing from long-established practice and excluding the retailer's commission from fares that are sold directly to passengers.

III. ABUSE OF MARKET POWER

While the implications of the changing nature of the distribution system described above are generating considerable uneasiness in the airline industry, the overriding concern at present is that of potential monopoly or collusive power which may arise in markets dominated by one or two CRSs. Travel agents do not generally need to subscribe to more than one CRS service, provided the schedules and fares for most of the airlines they use are listed on that system. In fact, the use of additional CRSs would almost certainly result in additional costs, because the operating procedures for each system differ. Also, under the terms of their contractual arrangements with CRS vendors, agents are frequently obligated to pay liquidated damages if they change to another vendor's service.⁵ These features of CRS service, as well as the very high investment costs, present substantial barriers to entry by a new operator into the CRS market, and the power of incumbent operators is large and increasing.

This power and its potential influence on the airline industry is illustrated by the fact that the biggest CRS, the SABRE system owned by American Airlines, generated operating revenues of \$405 million in 1987, a sum larger than the individual revenues of more than half of the world's international scheduled airlines in the same year. SABRE's operating profits were \$107 million,⁶ a figure surpassed by a mere handful of airlines in absolute terms

⁵ Economic regulations introduced in the United States in 1984, see *infra* note 12, limit contracts between CRS vendors and travel agents to a maximum period of five years, but are silent regarding liquidated damages clauses for an earlier change by an agent to another system. See 14 C.F.R. § 255 (1984). Such clauses were subsequently included (or retained) in contractual arrangements and have been invoked and/or challenged in a number of well-publicized cases. See *American CRS Lawsuit Without Merit*, *Continental Says*, *Aviation Daily*, Oct. 27, 1987, at 141; see also Godwin, *AAL Charges System One's Conversions Are Improper*, *Travel Weekly*, Nov. 26, 1987. In 1987, some United States vendors were calling for legislation to abolish liquidated damages clauses. Pestronk, *Liquidated Damages Are Unenforceable*, *Travel Weekly*, Jan. 18, 1988; see also *American Opposes DOT Computer Reservations Rulemaking*, *Aviation Daily*, Nov. 5, 1987, at 199.

⁶ Bailey, *CRS: the Battle for Europe*, *Flight International*, Feb. 27, 1988, at 34.

and by no major airline in terms of percentage of operating revenues.⁷ With a capital investment of billions of dollars, SABRE is able to offer a massive and comprehensive database, a high quality and a wide range of services, and benefits from economies of scale and scope which can be matched by less than a handful of other CRSs.

Initially, the services of CRSs were offered only in the countries in which they were based or, occasionally, in other markets in which the airline vendors of the CRSs operated. The vendors of SABRE and other systems based in the United States, along with the vendors of one or two systems from European countries, however, are now actively marketing their services around the world with some success. A positive aspect of this development is that it has instilled an element of competition among CRSs in several countries, resulting in improved quality and price of CRS service to users.

There are a number of perceived or real disadvantages, however. For example, there is widespread concern over the implications of the entry into, and possible takeover of, national distribution systems by foreign operators. With regard to this concern, some governments and airlines have been accused of applying restrictive business practices against the entry of foreign CRSs in the form of legal, telecommunication, technical, and administrative obstacles.⁸ A parallel defense being mounted in some countries to combat an invasion of foreign CRSs is the development of multinational "megasytems."⁹

⁷ *ICAO Digest of Statistics: Financial Data on Commercial Air Carriers*, ICAO Doc. 342, Series F-No. 40 (1987) and updated reports to ICAO.

⁸ Such practices have been reported in an ICAO survey of Member States conducted in 1987, as well as in various press reports and published articles. See, e.g., Fahy, *Regulation of Computerized Reservation Systems in the United States and Europe*, 11 *AIR L.* 240-41 (1986).

⁹ In 1987 two conglomerate CRSs were announced in Europe: "Amadeus" owned in equal shares by Air France, Iberia, Lufthansa, and SAS, with software provided under license from "SystemOne" (owned by Texas Air); and "Galileo" owned in equal shares by British Airways, KLM, Swissair, and Covia Corporation (United Airlines), with software provided by "Apollo" (owned by Covia Corporation). Similar "megasytems" were also proposed in the Asia/Pacific region: "Abacus" founded by Cathay Pacific, Singapore Airlines, and Thai International;

The airline distribution system, therefore, faces the dual threats of worldwide domination by a handful of CRSs and monopoly control in individual countries. The potential for manipulation of the airline market by a dominant or monopoly CRS vendor is substantial. For example, such a vendor could have the power to decide which airlines will have their services included in its system and to manipulate the input provided by those airlines, as well as the power to dictate unduly profitable or discriminatory charges to the airlines. The vendor could similarly direct the activities of travel agents. Additionally, the vendor has direct access to a vast range of commercially-sensitive information with respect to all participating parties, including full details of every reservation transaction made. Where the CRS concerned is owned by an airline, the implications of this market power are particularly important.

IV. COPING WITH THE PROBLEMS

To the extent possible, airlines and travel agents are attempting to resolve the problems arising from CRS developments without resorting to government assistance or legislation. For example, through their international trade association, IATA, the airlines are developing a worldwide fares database with a view to providing CRS vendors with comprehensive, up-to-date, and unbiased fares information at a low cost.¹⁰ Additionally, travel agents are combatting the threat of being bypassed and losing commissions from the sale of airline tickets by entering into tripartite agreements¹¹ with CRS vendors and corporate travel departments which focus on the provi-

and "RICHS" (Regional Integrated Co-Hosting System) for region-wide application by the Orient Airlines Association.

¹⁰ IATA, REPORT OF THE TRAFFIC COMMITTEE TO THE 43D ANNUAL GENERAL MEETING (Oct. 26-28, 1987). See also IATA/ATPCO to Launch "All Fares" Data Base, IATA News Release (Mar. 15, 1988).

¹¹ Such agreements have been formally accepted in the United States through the procedures of the International Airline Travel Agent Network and in Canada through IATA Resolution 804. See IATA PASSENGER AGENCY CONFERENCE RESOLUTIONS MANUAL, *supra* note 1, at 125-175.

sion of "ancillary" services. Such services include discounts on hotel and car hire through bulk purchase, flight travel insurance, and the issuance of travelers' checks.

The response of the marketplace, however, may not be sufficient in itself. The United States government, while leading the thrust toward more general deregulation of the airlines, found a need to introduce domestic regulations against bias in CRSs in 1984,¹² and other governments are considering similar action. On the international front, a number of governments have addressed CRS concerns in the past two or three years by invoking the "fair and equal opportunity" provision which appears in the majority of the bilateral air service agreements that regulate international civil aviation.

CRSs have a range of implications for the role of governments in fostering the public interest. Governments may need to ensure that airlines have equal access to CRSs and receive equal treatment when participating in them. Governments may also need to ensure that the systems themselves are given equal access to telecommunications networks, are available on an equally competitive footing, and are not monopolistic in nature. On a more fundamental note, governments may need to ensure that data storage and transmission through CRSs does not violate national legislation or the constitutional rights of individuals, and that CRSs are not used for fraudulent purposes.

CRSs are frequently subject to general legislation such as that governing competition, contractual arrangements, and/or telecommunications. With the exception of the United States, however, no government has yet addressed CRS issues specifically in its national legislation. Additionally, there are as yet no bilateral or multilateral instruments which focus on CRS issues. One reason for the lack of regulation is the difficulty of finding an effective

¹² 14 C.F.R. § 255 (1984). The functions of the United States Civil Aeronautics Board, including responsibility for the regulations concerned, were taken by the Department of Transportation in 1985.

formula. It must be recognized, for example, that some degree of display bias is inherent in any ordering of flights and that, given the multitude of flight options available for many city-pairs and the limited space available on the screen, the CRS vendor has a need to select and prioritize. Also, there is limited value in setting out detailed anti-bias regulations for CRS vendors when current technology enables the travel agent and/or other users to change the sequence of presentation at the terminal.

In this context, the use of the personal computer rather than a "dumb terminal" is a fast moving trend which has important implications because of the ability it offers users to store and manipulate information provided by the airlines or the CRS vendor. Personal computer software already available at low cost enables selection from a CRS of the lowest fare and associated customized optimum routing, in effect overriding the screen priority parameters set by the vendor. Current personal computer technology includes multiple "windows" on the same screen whereby, for example, flights, fares, a passenger's preference profile, and the "passenger name record" (through which the reservation is developed and recorded) may all be viewed simultaneously and changed interactively. Such technological developments are bringing considerable power to the fingertips of the user. While these developments offer greatly increased opportunities for augmenting bias at the terminal, to the extent that such bias discriminates in favor of individual passenger preferences, problems with bias should become less critical. Airlines and governments may be concerned, however, that a travel agent can apply the same technology to discriminate in favor of a particular airline rather than a particular passenger.

In summary, it appears that direct government regulation of CRS display bias may be ineffective, perhaps unnecessary, or at least premature. There are, however, other means of addressing both display bias and more general CRS issues. Two potential tools are: (1) the di-

vestiture of CRS ownership or operation from the airlines, and (2) the introduction of measures to encourage and maintain competition among CRS vendors.

Occasional calls for divestiture arise both in the United States¹³ and internationally¹⁴ on the ground that divestiture would eliminate the ability of airlines which control CRSs to manipulate the distribution of the products of their competitors. The net benefits of divestiture are, however, somewhat nebulous.¹⁵ Divestiture should reduce bias, since an independent vendor or operator would have no particular incentive to maintain it, provided controls are placed on malpractice in the relationship between the vendor and an airline client. The probable economies of scope available from operating both an airline and a CRS would be lost, however, resulting in the prospect of higher user fees. In addition, vendors would lose some of the incentive to upgrade their systems as technology develops and to provide for the specialized needs of the airline industry. From the governmental perspective, divestiture could simply shift the possibility for abuse in the field of air transport to a sector beyond the control of the air transport regulatory authority, with ensuing national and bilateral implications.

At the same time, airline-owned CRSs will soon face competition from new entrants in the market as mail-order houses and magazine publishers begin using existing

¹³ For example, proponents of divestiture include Edward Beauvais, chairman of America West Airlines; Michael Levine, former senior official of the Civil Aeronautics Board; and the Consumer Federation of America. See Dorsey, *America West Leader to Congress: Force Lines to Divest Res Systems*, *Travel Weekly*, Nov. 26, 1987, at 1; *CRS Legislation Seen as Last Resort*, *Aviation Daily*, Dec. 11, 1987; *States, Consumer Groups Battle Airlines*, *AIR TRANSP. WORLD*, Feb. 1988, at 35.

¹⁴ The most notable call for divestiture internationally comes from the International Organization of Consumers' Unions (IOCU). See EUROPEAN CIVIL AVIATION CONFERENCE, EIGHTH MEETING OF THE WORKING GROUP ON TARIFF POLICY, Sept. 29 - Oct. 2, 1987. In a presentation to the working group IOCU called for divestiture of the *management and operation* of CRSs from airlines, without prejudice to the right of the airlines to own a CRS. *Id.*

¹⁵ See *1985 Report of the Department of Justice to Congress on the Airline Computer Reservation System Industry* at 64-76 (Dec. 20, 1985) for a discussion of the benefits and costs of divestiture in the United States.

international communications and information networks to market goods and services worldwide.¹⁶ While such developments should add a positive stimulus to the reduction of bias, they are also likely to add to airline fears over loss of control of their distribution systems.¹⁷

It may be argued that the existence of a cartel-like product distribution system based on standardized rules and procedures, including fixed rates of commission for agents, is an anachronism in the business world of the 1980s. On the other hand, this traditional system has been elaborated from the internationally-agreed principle that airlines have fair and equal access to foreign markets. With the breakdown of this system, alternative and perhaps more complex and controversial means of maintaining international checks and balances would have to be introduced. It may therefore be preferable for governments to take action to ensure that airlines, jointly if not individually, retain control of airline industry-oriented CRSs and of their partitions in multi-industry CRSs.

The approach of encouraging competition among the CRS vendors, whether owned by airlines or by third parties, shows greater promise than that of divestiture.¹⁸ Such competition could be assured internationally by government action. Specifically, governments could grant access to their territories to foreign CRS vendors, prohibit CRS vendors from denying participation in their system to any airline which is prepared to pay the requisite fees for the services concerned, and ensure that travel agents and other users have unrestricted access to as many CRSs as they wish. Assuming the existence of more general legislation designed to protect the marketplace against abuse

¹⁶ The "JAGUAR" system owned by Murdoch Electronic Publishing, part of a worldwide news and publishing conglomerate, presents one example. Godwin, *Murdoch Offers Jaguar to Vendors*, *Travel Weekly*, Feb. 1, 1988; *System One, Murdoch Will Install Jaguar for Subscribers this Year*, *Travel Weekly*, Feb. 11, 1988.

¹⁷ Such fears were articulated by IATA's Director General in presenting his Annual Report for 1986 to the 42nd IATA Annual General Meeting. Eser, *The State of the Airline Industry 1986*, IATA Rev., Oct.-Dec. 1986, at 6.

¹⁸ The two approaches need not be mutually exclusive.

of dominant position, such action should benefit passengers and travel agents as well as provide nonvendor airlines with fair and effective opportunity to compete. Such action could be taken nationally or, more pragmatically, on the basis of bilateral reciprocity.¹⁹ For example, recently proposed text for a bilateral air service agreement between the United States and the Kingdom of the Netherlands included the following principles: "to allow importation of CRSs into each other's territory; to provide for nondiscriminatory 'national' treatment for installation and display; and to provide fair access to each other's systems."²⁰

Many governments believe that CRS issues are multilateral in nature and should be addressed multilaterally. Recent developments in Europe and the Asia/Pacific regions, where national airlines have joined forces in order to operate conglomerate CRSs²¹, lend support to this perspective. The multilateral approach was articulated at the Third Air Transport Conference of the International Civil Aviation Organization (ICAO) in 1985, resulting in a study by the Organization of all relevant aspects of CRSs with a view to the avoidance of abusive use of these systems at the international level.²²

The technical aspects of this study are well advanced, but the type of vehicle which might be used to package and implement the emerging conclusions has yet to be determined. ICAO in itself has no regulatory authority in the field of air transport. The Organization's conclusions in the field of air transport policy have generally been is-

¹⁹ Not every element of reciprocity need be present; a national airline without its own CRS would conceivably benefit from the availability of several CRSs in its country in which it could participate.

²⁰ As of April 1988, this text had not been finally agreed upon. See *Secretariat Study Group on Computer Reservation Systems, Study Note 11: Existing and Proposed Regulation of CRSs*, ICAO CRS-SN/11 (Nov. 1987); see also *U.S.- Dutch Proposal Includes Charters, Reservations Systems*, *Aviation Daily*, May 7, 1987, at 210.

²¹ See *supra* note 9 and accompanying text for examples of recently formed conglomerate CRSs.

²² ICAO, *Report of the Third Air Transport Conference*, 37-38, ICAO Doc. 9470 (1985).

sued as recommendations to its Member States, carrying no binding force but functioning as a more or less effective medium for moral suasion.²³ ICAO has also issued guidance material, again for optional use and adaptation by its Member States, in the form of model clauses for insertion into bilateral air service agreements or more detailed advice regarding national policy and practice.

Some or all of these traditional approaches could be used for dissemination of the results of ICAO's work on computer reservation systems, at least in the short term. For the longer term, a number of ICAO's Member States have recently proposed a new and more prescriptive approach: the development of a multilateral agreement or a code of conduct regarding CRSs. The nature, scope, and, above all, the practicality of such an instrument have yet to be expounded, but there are precedents for such forms of regulation in other sectors.²⁴ This unprecedented phenomenon in the field of air transport may yet prove to warrant a precedent in the annals of ICAO.

²³ The consultative and advisory role for ICAO is articulated in Article 55 of the *Chicago Convention on Permissive Functions of the Council*. The only Annex to the Chicago Convention in the field of air transport is *Annex 9 - Facilitation*. ICAO has developed two multilateral agreements in the air transport field, each of which arose out of the Chicago Conference in 1944 and entered into force in 1945: the *International Air Services Transit Agreement*, currently ratified by 100 States, and the *International Air Transport Agreement*, currently ratified by only 11 States and hence of little practical value. For the text of these agreements, see ICAO Doc. 2187, 67-75; ICAO Doc. 7500, 3.

²⁴ See U.N. CONFERENCE ON TRADE AND DEVELOPMENT, CONVENTION ON A CODE OF CONDUCT FOR LINER CONFERENCES, at 4, U.N. Doc. TD/CODE/13/ Add.1, U.N. Sales No. E.86.II.D.12 (1974); U.N. CONFERENCE ON TRADE AND DEVELOPMENT, THE SET OF MULTILATERALLY AGREED EQUITABLE PRINCIPLES AND RULES FOR THE CONTROL OF RESTRICTIVE BUSINESS PRACTICES, at 5, U.N. Doc. TD/RBP/CONF/10/Rev., U.N. Sales No. E.81.II.D.5. (1980); U.N.C.T.C. CURRENT STUDIES, THE UNITED NATIONS CODE OF CONDUCT ON TRANSNATIONAL CORPORATIONS, U.N. Doc. ST/CTC/Ser.A/4, U.N. Sales No. E.86.II.A.15 (1986).

Comments

