THE COMPETITION TRIBUNAL CT 88/1

IN THE MATTER OF an application by the Director of Investigation and Research under subsection 64(1) of the Competition Act, R.S.O. 1970, c. C-23 as amended;

AND IN THE MATTER OF a Limited Partnership formed to combine the operations of the Reservec and Pegasus computer reservations systems;

AND IN THE MATTER OF The Gemini Group Automated Distribution Systems Inc.;

BETWEEN:

The Director of Investigation and Research

Applicant

- and -

Air Canada
Air Canada Services Inc.
PWA Corporation
Canadian Airlines International Ltd.
Pacific Western Airlines Ltd.
154793 Canada Ltd.
153333 Canada Limited Partnership
The Gemini Group Automated Distribution Systems Inc.

Respondents

- and -

Consumers' Association of Canada
American Airlines Inc.
Wardair Canada Inc.
Attorney General of Manitoba
Alliance of Canadian Travel Associations
Bios Computing Corporation
Air Atonabee Limited

Intervenors

AFFIDAVITS OF EXPERT EVIDENCE OF THE RESPONDENTS WITH CONFIDENTIAL INFORMATION DELETED

CT - 88/1

THE COMPETITION TRIBUNAL

IN THE MATTER OF an application by the Director of Investigation and Research under Section 64(1) of the Competition Act, R.S. c. C-23 as amended:

AND IN THE MATTER OF a Limited Partnership formed to combine the operations of the Reservec and Pegasus computer reservation systems.

AND IN THE MATTER OF The Gemini Group Automated Distribution Systems Inc.

B E T W E E N:

THE DIRECTOR OF INVESTIGATION AND RESEARCH,

Applicant

- and -

Air Canada, Air Canada Services Inc., PWA Corporation, Canadian Airlines International Ltd., Pacific Western Airlines Ltd., Canadian Pacific Air Lines, Limited, 154793 Canada Ltd., 153333 Canada Limited Partnership, and The Gemini Group Automated Distribution Systems Inc.

Respondents

EVIDENCE OF WILLIAM J. DUFFY

March 3, 1989

THE COMPETITION TRIBUNAL

IN THE MATTER OF an application by the Director of Investigation and Research under Section 64 (1) of the Competition Act, R.S. c. C-23 as amended:

AND IN THE MATTER OF a Limited Partnership formed to combine the operations of the Reservec and Pegasus computer reservation systems.

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B E T W E E N:

THE DIRECTOR OF INVESTIGATION AND RESEARCH,

Applicant

- and -

Air Canada, Air Canada Services Inc., PWA Corporation,Canadian Airlines International Ltd., Pacific Western Airlines, Ltd., Canadian Pacific Air Lines, Limited, 154793 Partnership, and The Gemini Group Automated Distribution Systems Inc.

Respondents

AFFIDAVIT

I, WILLIAM J. DUFFY, of the town of Wellesley, in the State of Massachusetts, one of the United States of America, MAKE OATH AND SAY:

1. I am Executive Vice President of SH&E, Inc., located in its

office in Waltham, Massachusetts, U.S.A. and as such have knowledge of the matters hereinafter deposed to.

2. I have participated in the preparation of the attached evidence and, to the best of my information, knowledge and belief, the attached evidence is true.

SWORN before me at the [illegible])
of [illegible], in the)
State of Massachusetts)
United States of America)
on the [illegible] day of March, 1989)

William J. Duffy

[illegible]
Notary Public for the State of Massachusetts

Defined Terms

In the attached evidence, the following terms have the respective meanings assigned to them below:

Defined Terms	Meaning
AC	Air Canada
American	American Airlines, Inc.
CAB	United States Civil Aeronautics Board
CDN	Canadian Airlines International Ltd.
Covia	Covia, Inc.
CPAL	Canadian Pacific Air Lines, Limited
CRS	computer reservation system
Delta	Delta Air Lines, Inc.
DOT	United States Department of Transportation
Eastern	Eastern Air Lines, Inc.
Gemini	The Gemini Automated Distribution Systems, Inc. and The Gemini Group
IATA	International Air Transport Association
Northwest	Northwest Airlines, Inc.
PWA	PWA Corporation
SH&E	Simat, Helliesen, & Eichner, Inc.
TWA	Trans World Airlines, Inc.
United	United Airlines, Inc.

OVERVIEW OF THE CRS INDUSTRY

1 SUMMARY

CRSs are extremely large-scale operations. The large US travel agency market of over 32,000 agencies will likely be served by only 4 CRSs. These will all be jointly owned by two or more carriers, as set out below:

CRS	Owning Airlines
Sabre	American, Delta (proposed)
Apollo	United, USAir, British Air, KLM, Swissair
PARS	TWA, Northwest
SystemOne	Continental, Eastern

It is unlikely that any market outside of the US will support more than one CRS on a full cost recovery basis, and it is likely that there will be 6-8 CRSs worldwide.

In 1986, the European carriers elected to replace their individual CRSs with two modern and jointly owned CRSs (Amadeus, Galileo). In Asia/Pacific Rim, two CRSs are being considered.

Modern CRS technology has been developed by the US CRSs. It is likely that all CRSs worldwide will use the technology of one of the surviving US CRSs.

2 US CRS AUTOMATION

By the mid-1960s, the US carriers recognized the need for a common industrywide system for automating the US travel agency system.[1] The development of a common US system

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1. This type of commercial and technological cooperation between carriers was fully precedented by joint ventures like Aeronautical Radio, Inc. (ARINC), Societe Internationale de Telecommunications Aeronautiques (SITA) and Airline Tariff Publishing Co. (ATPCO) each of which is an organization created by multiple airlines to efficiently provide necessary industry-wide functions (the first two in telecommunications and the

would have been pro-competitive and efficient. From an economic perspective, the tremendous economies of scale in CRS technology dictated a joint carrier solution.

In 1967, 21 airlines signed a Memorandum of Understanding for the purpose of investigating the development of a common travel agency automation system -- the Donnelley Official Airlines Reservations System (DOARS).

That initial effort was unsuccessful, and in 1969 United, several other carriers, and the American Society of Travel Agencies (ASTA) petitioned the CAB to approve an agreement to mount a second project to develop the Automated Travel Agency Reservations System (ATARS).

In 1974, the US carriers filed an application with the CAB requesting authority for discussions regarding the development of a Joint Industry Computerized Reservations System (JICRS). The study was conducted with CAB approval, completed by July 1975, and concluded that the system was technically feasible and economically viable.

As the JICRS carriers struggled to reach agreement on several critical issues, in January 1976 United announced that it would market its own Apollo reservation system to the agencies. American responded almost immediately to the United initiative by marketing Sabre to agencies, and TWA followed with PARS.

This initial agency automation involved little more than installing in the travel agencies the same reservation terminals that the carriers' own internal reservations agents used. The incremental cost per agency of simply extending access to their in-place internal reservation system was low and USAir, Frontier, Western, and other smaller carriers embarked on similar attempts at agency automation.

But United, American, and TWA immediately began to evolve separate "on-line" or "subscriber" systems especially for travel agency use which involved a more user-friendly dialogue, separate displays,[2] agency "back office" systems,[3] etc. The smaller CRS

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last in fare data bases).

2. The display of service and fare alternatives which was presented to the carrier's own reservation agents was different than that presented to the CRS subscribing agencies.

3. Computers and software designed to integrate the agency's internal accounting, client

economies of scale.

4 THE CRS INDUSTRY IN OTHER WORLD REGIONS

Outside of the US and Europe, the largest concentration of travel agencies is in Asia/Pacific Rim, where two jointly-owned carrier systems are being considered.

As the European CRSs were being formed, a group of major Asian carriers (Cathay Pacific, JAL, Qantas, Singapore, Thai) studied the joint development of an Asian CRS referred to as "Fantasia." By December 1988, Cathay Pacific, Singapore, and Thai Airlines announced the formation of Abacus, a jointly-owned CRS which would welcome ownership participation and commercial support from other Asian airlines. It has been announced that Abacus is negotiating for the use of the PARS software (with necessary modifications), and has agreed in principle for an exchange of equity with Amadeus.

At the same time, Qantas has been considering a modified version of Sabre for use as the "Fantasia" system in Asia.

In September 1988, the Arab Air Carrier Organization (AACO), an association of 16 Middle East airlines, announced their intention to conduct a feasibility study of the joint development of a CRS for that world region.

5 MARKET CONSTRAINTS

The universal move toward consolidated jointly-owned CRSs is the result of two basic economic forces. First, it is driven by the extremely large-scale of CRS technology. Second, it is the most workable industrial organization to insure a neutral distribution system.

All CRSs must be airline owned -- there has never been a successful non-airline or "third party" CRS. The carriers view agency automation as too vital to trust to third party interests, and have a significant cost advantage vis a vis non-airlines in that the provision of their internal reservations and CRS services permit economies of shared costs.

Airline CRS objectives include participation in the control of agency automation (to control sales costs and insure neutrality) and, where possible, profits from CRS operations. CRS revenues include participant fees charged to other airlines and travel vendors for bookings arranged through the CRS, the imputed fees for bookings of their own seats, and travel agency subscriber revenues.

TRAVEL AGENCY AUTOMATION MARKET

CRS revenue maximization dictates that the CRS maximize its subscribing agency base and the subscribing agency usage of the CRS. Both the substitutability between CRSs and CRS economics preclude supra-competitive subscriber fees and stimulate service competition.

In the case of Gemini, competition from Sabre and the other US CRSs is a constant stimulus to service improvement and competitive fees. Further, any increase in travel agency operating costs (e.g., through increased subscriber fees) must be recovered through higher commissions. In Canada, these would principally be payable by AC and CDN.

AIRLINE DISTRIBUTION MARKET

The pro-competitive effect of joint CRS ownership is easily seen in the case of Gemini. Its establishment neutralizes the CRS as a competitive weapon and thereby enhances competition between AC and CDN and their affiliated airlines in the air transport market.

The current level of booking fees has been established by Sabre and Apollo at approximately US$1.85/booking. Gemini has adopted that price. If Gemini chose to raise booking fees charged to participating carriers, Gemini's owning carriers could expect retaliation from other CRSs in the form of higher booking fees charged to them. Since AC and CDN pay more booking fees to other CRSs than the other airlines pay to Gemini, it would not be in their best interest for Gemini to initiate a booking fee price increase.

All major national markets except the US will be served principally by a single CRS. By consolidating the Canadian travel agencies under Gemini, the Canadian carriers are positioned to negotiate comparable treatment from major foreign CRS owners. For example, assuming that, on average over time, 1/2 of scheduled air travel between Canada and France is sold in each national market, non-discriminatory access to the Canadian travel

agency distribution system through Gemini is as important to the French carriers as is non-discriminatory access to the French travel agencies through Amadeus by the Canadian carriers. Joint CRS ownership establishes a balance of countervailing power between the owners of the major CRSs worldwide.

ATTACHMENT 1

MARKET SHARES OF U.S. CRS VENDORS
LARGE AND MEDIUM HUB CITIES WHERE A CRS VENDOR'S SHARE EXCEEDS 40 PERCENT
1986

SABRE		APOLLO		PARS		SYSTEMONE	
Dallas	91%	Omaha	78%	St. Louis	77%	* Miami	45%
El Paso	91%	Denver	76%	Kansas City	62%	Charlotte	43%
Nashville	84%	Honolulu	74%	* Albuquerque	46%	Tampa	41%
Austin	80%	Portland OR	73%	Las Vegas	41%		
Cincinnati	76%	Raleigh	67%				
Tulsa	75%	Salt Lake City	67%				
Syracuse	75%	Cleveland	66%				
Oklahoma City	74%	Greensboro	64%				
Anchorage	72%	Seattle	64%				
Memphis	72%	Reno	63%				
San Antonio	72%	Milwaukee	62%				
Jacksonville	69%	Sacramento	55%				
Minneapolis	67%	Rochester NY	53%				
Phoenix	64%	* Chicago	51%				
Boston	61%	Philadelphia	50%				
New York	61%	* Buffalo	47%				
Tucson	61%	Pittsburgh	45%				
Houston	57%	Norfolk	43%				
Washington DC	57%	San Francisco	42%				
Indianapolis	55%						
Detroit	54%						
Baltimore	51%						
San Diego	51%						
Hartford	44%						
* Albuquerque	43%						
* Chicago	42%						
Columbus	42%						
* Miami	42%						
* Buffalo	41%						
Los Angeles	41%						

* Denotes cities where two CRSs each have more than a 40% share.

Source: U.S. DOT, Study of Airline Computer Reservation Systems, May 1988, Appendix IV.

MARKET CONCEPTS RELEVANT TO THE COMPETITIVE EFFECTS OF GEMINI

1 SUMMARY

Computerized reservation systems (CRSs) provide services simultaneously in both the travel agency automation and the airline distribution markets.[1] The evaluation of the competitive effects of the formation of Gemini must be based on an understanding of the relevant market in each case -- in both the geographical and product dimensions -- as well as a practical approach to the evaluation of market shares.

Regarding the Canadian market for travel agency CRS automation:

-- in the product dimension, this market currently includes all North American CRSs (and eventually non-North American CRSs). Despite some product differentiation, they are all effective substitutes, and there are no barriers to entry.

-- geographically, the entire Canadian market is relevant, since Pegasus and Reservec competed on a national basis, and there are no restrictions on CRS entry at the sub-national level or regional pricing differences.

-- to assess the potential market power of any CRS vendor, a relevant measure of concentration is the potential capacity of the CRSs to supply the Canadian travel agency market. Historical output shares in a rapidly maturing and highly contestable industry are not reflective of the potential for incumbent firms to capture future business.

Regarding the market for distribution of airlines' services through CRSs to Canadian travel agencies:

-- every airline must pay to participate in every CRS whose subscriber base includes a significant number of travel agencies who are important to that airline's sales program. The major CRS owning carriers participate in other CRSs for this reason.

-- any change, like the formation of Gemini, which leads rival carriers to provide

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1. The airline distribution market involves the retailing of air services, i.e., the dissemination of information about carrier service and fares, and the reservation and sale of seats.

distribution services to each other on a neutral basis is pro-competitive in both the airline distribution market and the downstream market for air transportation services.

Regarding the incentive for US CRSs (other than Sabre)to enter the Canadian market:
- it was logical for American Airlines to introduce Sabre into the Canadian market in 1983, since American carried more transborder traffic than any other US carrier.
- in 1984, the US CRS owning carriers accounted for 54% of US carrier total transborder traffic. With the recent consolidation in the US industry and the increase in joint ownership of PARS and Apollo, the US CRS owning carriers collectively account for over 90% of US carrier transborder traffic.
- the incentive for the US CRSs to enter the Canadian market has clearly increased since 1984.

2 AGENCY AUTOMATION MARKET

Travel agencies are the principal channel for the distribution of airline services. In both the US and Canada, over 70% of airline sales are arranged through travel agencies. Currently, there are over 3,800 travel agency locations in Canada, and over 32,000 locations in the US.

The Canadian travel agency industry is competitive and expanding. A successful travel agency must have access to information on current fares, services, and space availability for all airlines worldwide, the ability to make and confirm seat reservations quickly and efficiently, and an efficient process for generating air travel-related documents such as tickets.

These services are provided to travel agencies by CRS automation. In addition, the CRS vendors offer important related services, like computerized systems for managing the travel agency's internal accounting. The vast majority of Canadian travel agencies -- and virtually all of the larger agencies -- contract to purchase these CRS agency "subscriber" services.

When a travel agency location contracts to become a subscriber to a CRS, the CRS vendor provides and installs the necessary terminal equipment (cathode ray tube (CRT) display terminals, ticket printers, etc.), connects those terminals to its communications net-

work, assigns a unique identification code to that agency location to be used in controlling CRS access and monitoring transactions, and provides training and other support services (e.g., "help desk" facilities, equipment maintenance).

The "price" for this basic subscriber service may, depending on the CRS vendor, include a fixed initial installation fee, monthly equipment leasing charges, monthly fees, plus added charges for any other services like the use of the CRS vendor's agency accounting and management software. Various credits or deductions may be applied to these subscriber fees.

2.1 PRODUCT MARKET DIMENSION

The CRS service provided in the travel agency market is essentially an electronic information and sales medium embracing airline services as well as a wide range of other travel-related services. That service is provided to travel agencies and to the "travel management departments" of large corporations.

Within the community of CRS vendors the relevant market includes, at a minimum, the services of Gemini and the five US CRSs. At maturation in the 1990-91 time period, the two major European CRSs (Galileo and Amadeus) will also be potential entrants into the Canadian travel agency automation market.

SUBSTITUTABILITY BETWEEN CRSs

CRSs are fundamentally similar in design (functional and technical) and intended usage, and are so perceived by travel agencies. All CRSs contain essentially the same basic airline information and reservations capabilities. As a result, they are largely substitutable from the agency's perspective, and there is vigorous CRS competition for US and Canadian agency subscribers.

This competition between CRS vendors has naturally taken the form of some degree of product differentiation. Each CRS vendor will emphasize different aspects of CRS functionality,[2] and capitalize on special capabilities of their internal reservation

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2. American and United (Sabre, Apollo) were the first to develop agency back office accounting systems.

systems.[3] Moreover, rational marketing leads each CRS-owning airline to focus initially on those potential travel agency subscribers who are most important to the sale of that airline's air transportation and who are located in areas where that airline represents a significant share of service and air transportation sales.[4] Despite these qualifications, all North American CRSs are potential substitutes in the Canadian market, and all have incentive to serve that market.

As a group, the US CRSs are currently superior in functionality to the Canadian CRSs. The comparative marketing advantage of the Canadian CRSs has been better information on Air Canada and CDN, of value in the Canadian travel agency market.

Over time, the similarity in CRS services will increase as various CRSs adopt functional enhancements which have been introduced successfully by their competitors, and as they negotiate better access to information on each others' services.

Experience has proven that there are no restrictions to entry by any of the US CRSs into other national travel agency markets, including the Canadian market. To date, SABRE has been very successful in marketing and competing in the Canadian market.

Potential competition from Sabre and Apollo has prompted the European and Asian carriers to embark on their own more competitive CRS alternatives which, in every case, are jointly owned.

Overall, any significant and non-transitory increase in the price of Canadian CRS services to Canadian travel agencies would draw entry from other US and, potentially, non-North American CRS vendors. Especially given the rapid penetration of the Canadian travel agency market by Sabre, other US CRS vendors have the potential to supply the Canadian market unless Gemini provides a highly competitive service.

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3. Because TWA was most heavily engaged in international service, PARS assumed an early lead in pricing international itineraries.

4. For this reason, Pegasus was more successfully marketed in Western Canada where CPAL provided the most service.

2.2 GEOGRAPHICAL DIMENSION

Geographically, the relevant market for evaluating the competitive effects of Gemini is the national (Canadian) market.

Any competitive effects arising from the merger of Pegasus and Reservec should be analyzed in the geographical market where they competed, as well as in markets into which they should logically have extended. Pegasus and Reservec competed with each other nationally.

There are no significant differences affecting the cost or potential supply of CRS services across regions at the sub-national level.[5] Thus, none of the CRS vendors currently serving the Canadian agency market have established regional differences in the pricing of their CRS services to subscribing agencies.

There are no restrictions to entry of actual or potential competitors at the sub-national (or national) level. Although each CRS vendor will enjoy an added incentive in marketing its CRS services to Canadian agents located in regions in which that vendor-carrier provides a significant share of air transportation services, any CRS vendor would be able to enter (without cost disadvantage) the agency automation market in any region exhibiting supra-competitive prices and CRS profit opportunities.

All North American CRS vendors have the capacity to supply CRS automation services to Canadian travel agents, regardless of location. There are no legal or ownership restrictions affecting entry into this business in Canada, and no tariffs or other import costs associated with the importation of CRS services from abroad.

2.3 MEASURING THE DEGREE OF COMPETITION

In general, the objective of measuring the level or degree of competition is to determine the ability of (actual or potential) producers to compete for and obtain business in the fu-

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5. There are economies in communication costs and agency servicing (e.g., equipment maintenance) which enable any CRS competitor to provide its service at slightly lower costs in "high density" areas in terms of the number of potential travel agency subscribers. There are no regional patterns.

ture. In many industries, large scale production technology dictates that a limited geographical market can be efficiently served by a relatively small number of firms, but free entry into (and costless exit from) that geographical market by other potential competitors denies market power to the incumbent firms.

In this view, the degree of competition is best measured by the productive capacities of all incumbent or potential suppliers to the limited market. The Canadian CRS market is an ideal example of the need to focus on the productive capacity of actual and potential competitors, since it is freely open to competition from US CRSs.

The actual market shares of the incumbents throughout or at the end of the 1983-87 period do not represent the potential for competition or market power in the Canadian CRS market. Pegasus 2000 was a failing business prior to the formation of Gemini, and the incentive for other US CRSs to enter this market has increased over the same period (Section 4).

In measuring the competitiveness of the Canadian CRS market, it must be recognized that the entire Canadian travel agency market can be served by Gemini and the US CRSs, singly or in combination, that all have adequate capacity and incentive to serve this market, and that the threat of market entry will prevent Gemini or any CRS from exercising market power.

In this perspective, the potential capacity of all US CRSs -- as well as Gemini -- which could be made available to the Canadian market is the most realistic approach to measuring the market shares. In that view, even Gemini represents a minor share of capacity and potential competition.

THE MEASUREMENT OF HISTORICAL MARKET SHARES

To the extent that historical sales (or output) is considered relevant once the market matures, a single measure is required as a proxy for this multidimensional service -- the retrieval of information, generation of reservations, etc.

CRS services are an input required to produce the travel agency's output, and vary directly with that output -- the more airline and other travel vendor services are sold by

the agency, the greater its use of the CRS service. Assuming that agency non-airline vendor sales are broadly proportional to airline sales, and that the agency use of CRSs (information as well as reservations) is proportional to agency bookings or output, then airline segments booked generated by CRS subscribing Canadian agencies is the relevant measure of output. A segment booked represents travel on one direct flight which may have intermediate stops but involves no connections. Unfortunately, to date, this data has not been available for Sabre's operations in Canada.

The number of CRS terminals in use in the agencies is only a surrogate for CRS bookings. In this case, it is necessary to assume that the number of bookings/terminal is constant within and between agencies. Such an assumption is not necessarily reasonable.

The number of subscribing agency locations by CRS is an even less reliable proxy for segments booked as a measure of CRS output. This would only be an accurate proxy to the extent that the average number of bookings/agency were the same across CRS vendors. This may also not be a reasonable assumption.

3 AIRLINE DISTRIBUTION MARKET

All carriers depend on the travel agency system as the primary distribution channel for their air transportation services. Since virtually all travel agencies obtain their information on airline services, prices, and availability from the CRSs, and reserve seats and ticket passengers through the CRSs, the CRSs collectively are a vital link between the carriers and their ultimate markets.

The CRS services provided in this airline distribution market include the instantaneous dissemination of information about each travel vendor's (airlines, hotels, etc.) service, prices, and availability to all travel agencies subscribing to that CRS, and the actual reservation and sale of travel services through the CRS by the subscribers to that CRS. The sellers in this market are the CRS vendors. The buyers are all travel vendors (airlines, hotels, railways, etc.) who rely upon travel agencies for the distribution of their services.[6]

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6. Clearly, not all travel service vendors (e.g., regional Canadian airlines) rely for distribution on travel agencies in all national markets (e.g., Brazil), and these vendors would not purchase the services of (i.e., become a participant in) any CRSs whose agency subscriber base was centered in national markets which are not important to them.

When an airline (or other travel vendor) contracts to have its service displayed in a specific CRS, it becomes a participating airline, and agrees to pay booking fees which depend on the nature of the display and/or sale of its transportation through the CRS. Depending on the CRS, participants may pay different fees for the display of schedules and fares (only), seat reservations made through the CRS, ticketing fee and other services (e.g., advanced seat selection).

3.1 PRODUCT MARKET DIMENSION

Each participating airline enters into bilateral negotiations with each CRS to determine the terms under which its service will be displayed and sold through that CRS. Each participating airline's bargaining position rests on its importance to travel agencies and the fact that its participation enhances the CRS product in the travel agency market. The CRS vendor's bargaining position rests on the importance of the CRS's agency subscriber base to the participating airline's overall marketing.

The balance of these negotiations is important to the overall effect of the CRSs on competition because they can have a significant effect on yet a third market -- the downstream market for air transportation services in which the CRS owners and CRS participants are in direct competition.

Any change in the structure of the CRS industry which, on balance, improves carriers' bargaining positions vis a vis the CRS is pro-competitive in both the airline distribution and the air transportation markets.

In this perspective, the merger of Reservec and Pegasus to form Gemini is strongly pro-competitive, since both CDN and AC share equally in any influence which Gemini might have over airline distribution in Canada, and Gemini strengthens both of their bargaining positions vis a vis other CRSs.

3.2 GEOGRAPHICAL DIMENSION

For reasons given above, including the fact that both Pegasus and Reservec sought to

provide airline distribution services throughout the Canadian travel agency community, the relevant geographical market is national.

4 US CRS INTEREST IN THE CANADIAN MARKET

4.1 IMPORTANCE OF TRANSBORDER TRAFFIC TO US CRSs

The owning airline can and will market its CRS service -- like its airline service -- in any region in any national market where it perceives an opportunity for profit. The owners will focus their CRS marketing efforts initially in areas where they provide significant service.

These considerations explain the behavior of the US CRSs with respect to the Canadian market. Sixty two percent 62%) of total international scheduled travel to and from Canada involved the US in 1986 (Attachment 1). Canadians represented an estimated 50% of transborder scheduled air traffic, and that traffic was presumably sold in Canada.

As Attachments 2 and 3 indicate, the carriers associated with the five US CRSs carried 53.7% of total transborder traffic by US carriers in 1986. Sabre's initial entry into Canada in 1983 was logical as American was the largest U.S. transborder carrier with the greatest traffic volume at a single Canadian city: its 455,000 passenger enplanements at Toronto in that year were 70 percent greater than those of any other U.S. carrier at a Canadian city. A further factor in its Canadian entry was its strong CRS position in U.S. cities from Detroit to Burlington, Vermont: essentially paralleling the Canadian cities which generate over 70 percent of total transborder traffic.

In contrast, TWA did not and does not serve any Canadian city, so the initial absence of PARS in Canada was predictable. Delta and Eastern, as latecomers to the CRS market have been concentrating on trying to capture domestic market position and secondarily on longer haul international markets (Europe and South America, respectively). United, despite a growing presence in Vancouver and Toronto transborder markets and related CRS strength in nearby U.S. cities (e.g., Seattle, Detroit, Cleveland) has been largely dedicating its international CRS efforts to the Far East following its acquisition of Pan Am's Pacific Route Division in 1986.

Recent U.S. carrier mergers and equity participation in CRS by previously non-CRS-

owning airlines has dramatically changed both the absolute and relative incentives for the other U.S. systems to enter major Canadian cities. While TWA had no airline presence in Canada, Northwest (which acquired 50 percent of PARS in December 1986) enplaned nearly 340,000 passengers in Canada in 1986 (including the traffic of its merger partner, Republic) with traffic strength in both Eastern and Western provinces. Delta's acquisition of Western nearly triples its Canadian service presence and provides strong incentive for the marketing of Datas II in Western Canada. The combination of Datas and Sabre will increase Sabre's incentive to expand in Canada. With the sale of partial interest in Covia to the USAir Group in 1988, United's Apollo system represents the largest U.S. CRS in terms of Canadian passenger enplanements (even excluding the further interests of European carrier investors).

In the aggregate, U.S. carrier CRS "owners" represented approximately 54% percent of all U.S. carriers' enplanements in transborder markets prior to these consolidations: after the consolidations they represent over 90 percent. The incentive for U.S. CRS' to contest the Canadian travel agency market has thus increased sharply over the past several years.

4.2 POTENTIAL ENTRY BY US CRSs

Especially given this increased incentive, it is likely that any weakening of competition between the incumbent CRS competitors in the Canadian market (Sabre, Gemini) would induce other US CRSs to enter the Canadian market, at least selectively.[7]

From the perspective of the other US CRSs, the Canadian automation market is in a delicate balance. First, the overall market is relatively small -- there are nearly as many travel agency locations (3800) in the metropolitan New York market alone as there are in all of Canada. Second, the US CRSs are accustomed to dominance of regional CRS markets by a few leading vendors.

During 1986, the median two-firm share of 57 large and medium hub CRS markets examined by the US Department of Transportation was 86.2%.[8] The pattern exhibited by

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7. PARS in both east and west, Apollo in the east, Systemone and Datas (or Sabre/Datas) in the west (Attachment 3).

8. U.S. Department of Transportation, Study of Airline Computer Reservation Systems, May 1988, Appendix IV.

the 57 largest markets would indicate that higher concentration would be expected in the many additional and smaller markets.

MEDIAN CONCENTRATION PROFILE OF US CRS SYSTEMS
1986

	ONE FIRM	TWO FIRM	THREE FIRM
26 LARGE HUBS	55.4%	83.0%	94.4%
31 MEDIUM HUBS	63.1	87.1	95.8
57 LARGE & MEDIUM	61.3	86.2	95.2

Given their increased incentive, and given any weakening in the competitive situation in the Canadian market (or in actual competitive behavior), the other US CRSs could easily enter the Canadian market. Like American's Sabre, they have a fully-established US subscriber base and have realized the significant economies of scale in CRS operations. This affords them a lower long-run average cost than Gemini, and a significantly lower incremental cost of extending selectively into the more attractive Canadian agency markets.

ATTACHMENT 1

AIRLINE PASSENGERS ARRIVING IN CANADA BY CITIZENSHIP AND WORLD AREA

1986

CITIZENSHIP / WORLD AREA	TOTAL ARRIVALS BY AIR (A)	CHARTER (B)	SCHEDULED ARRIVALS BY AIR	PERCENT OF SCHEDULED	PERCENT OF TRANSBORDER SCHEDULED
CANADIAN					
FROM U.S.	3,042,996	762,034	2,280,962	31.2%	50.3%
FROM OTHER	2,272,141	797,883	1,474,258	20.2%	
SUBTOTAL	5,315,137	1,559,917	3,755,220	51.4%	
NON-CANADIAN					
FROM U.S.	2,295,232	38,896	2,256,336	30.9%	49.7%
FROM OTHER	1,480,490	185,982	1,294,508	17.7%	
SUBTOTAL	3,775,722	224,878	3,550,844	48.6%	
TOTAL					
FROM U.S.	5,338,228	800,930	4,537,298	62.1%	
FROM OTHER	3,752,631	983,865	2,768,766	37.9%	
TOTAL	9,090,859	1,784,795	7,306,064	100.0%	

SOURCE: STATISTICS CANADA
(A) INTERNATIONAL TRAVEL SECTION (PHONE CONVERSATION WITH J. BAILEY, 8/8/88)
(B) AIR CHARTER STATISTICS, 1986 (CATALOGUE 51-207 ANNUAL), TABLE 1

ATTACHMENT 2

CONSEQUENCE OF U.S. AIRLINE CONSOLIDATIONS AND CRS INVESTMENTS ON CANADA PASSENGER MARKET PARTICIPATION

SCHEDULED PASSENGER ENPLANEMENTS BY U.S. CRS AFFILIATION

1986

	SABRE	DATAS II	SYSTEMONE	PARS	APOLLO	SUBTOTAL CRS AFFILIATED	TOTAL U.S. CARRIER CANADA ENPLANEMENTS
PRE-CONSOLIDATION	632,265	210,847	415,508	0	418,395	1,677,015	3,120,851
SHARE	20.3%	6.8%	13.3%	0.0%	13.4%	53.7%	
POST-CONSOLIDATION	683,607	562,262	487,490	338,954	756,102	2,828,415	3,120,851
SHARE	21.9%	18.0%	15.6%	10.9%	24.2%	90.6%	

N.B. TOTAL U.S. CARRIER CANADA ENPLANEMENTS INCLUDES 90,171 PASSENGERS AT CANADIAN POINTS OTHER THAN THE SEVEN IDENTIFIED IN ATTACHMENT 3.

SOURCE: ATTACHMENT 3

ATTACHMENT 3
(PAGE 1 OF 2)

U.S. CARRIER PARTICIPATION IN CANADIAN TRANSBORDER PASSENGER ENPLANEMENTS BY CRS AFFILIATION
1986

	SABRE	DATAS II	SYSTEMONE	PARS	APOLLO	OTHER	TOTAL	% OF TOTAL CANADA
TORONTO	AA 518,660	DL 0	EA 228,367	TW 0	UA 154,404	4,387	1,341,881	43.0%
				NW 42,545	AL 287,514			
				RC 106,004				
				148,549	441,918			
MONTREAL	AA 113,605	DL 210,847	EA 187,141	TW 0	UA 0	126,880	743,799	23.8%
				NW 12,897	AL 31,047			
				RC 42,236	PI 19,146			
				55,133	50,193			
VANCOUVER	AA 0	DL 0	EA 0	TW 0	UA 227,175	31,388	530,372	17.0%
	OC 51,342	WA 194,102	CO 26,365					
	51,342	194,102	26,365					
CALGARY	AA 0	DL 0	EA 0	TW 0	UA 30,596	17,882	201,023	6.4%
		WA 109,467	CO 43,078					
		109,467	43,078					
WINNIPEG	AA 0	DL 0	EA 0	TW 0	UA 0	13,814	112,354	3.6%
				NW 98,470				
				RC 70				
				98,540				
EDMONTON	AA 0	DL 0	EA 0	TW 0	UA 6,220	7,914	101,251	3.2%
		WA 47,846	CO 2,539	NW 36,732				
		47,846	2,539	36,732				
TOTAL OF ABOVE								
PRE-CONSOLIDATION	632,265	210,847	415,508	0	418,395	1,353,665	3,030,680	97.1%
POST-CONSOLIDATION	683,607	562,262	487,490	338,954	756,102	202,265	3,030,680	97.1%

CARRIER CODE LEGEND

SABRE:
- AA - AMERICAN AIRLINES
- OC - AIR CAL (ACQUIRED BY AMERICAN IN 1987)

DATAS II:
- DL - DELTA AIRLINES
- WA - WESTERN AIRLINES (ACQUIRED BY DELTA IN 1987)

SYSTEMONE:
- EA - EASTERN AIRLINES (ACQUIRED BY TEXAS AIR CORP IN 1986)
- CO - CONTINENTAL AIRLINES (OWNED BY TEXAS AIR CORP)

PARS:
- TW - TRANS WORLD AIRLINES
- NW - NORTHWEST AIRLINES (50% INVESTOR IN PARS, DECEMBER 1986)
- RC - REPUBLIC AIRLINES (ACQUIRED BY NORTHWEST IN 1986)

APOLLO:
- UA - UNITED AIRLINES
- AL - USAIR (INVESTOR IN COVIA/APOLLO IN 1988)
- PI - PIEDMONT AIRLINES (ACQUIRED BY USAIR GROUP IN 1988)

SOURCE: U.S. DEPARTMENT OF TRANSPORTATION/FEDERAL AVIATION ADMINISTRATION, AIRPORT ACTIVITY STATISTICS OF CERTIFICATED ROUTE CARRIERS, 1986

ECONOMIC ANALYSIS OF PEGAGUS 2000

1 SUMMARY

Prior to 1983, Air Canada's Reservec was the sole provider of CRS automation services to Canadian travel agents. In that year, American Airlines introduced Sabre, an extremely profitable system whose enhanced functionality was a standard in the highly competitive US CRS market. CPAL launched Pegasus 2000 in April 1984, as an extension of its internal reservations system (Pegasus).

In perspective, Pegasus 2000 was at best a tentative entry into the Canadian CRS market. In comparison to the systems with which it competed (Sabre, Reservec), CPAL's limited investment in Pegasus 2000 resulted in a non-competitive product with limited functionality.

By 1986, Pegasus 2000's financial performance was far worse than originally projected. Over the 1984-86 period, Pegasus experienced a net cash outflow of $21.5M and an operating loss of $11.5M. More important, although initial operating losses are not unusual in CRS ventures, Pegasus 2000's financial performance beyond 1986 could only be expected to have deteriorated. It is estimated that operating losses would have exceeded $ over the 1987-89 period alone, and that CPAL (then CDN) was facing an immediate investment in Pegasus 2000 of at least $ in software alone.

As important, one objective of CPAL in launching Pegasus 2000 was to gain a significant share of the agency automation market in Canada in order to be able to negotiate with other CRS vendors for access to the worldwide travel agency distribution system. It had not accomplished that objective by 1986, nor was it likely to with continued Pegasus 2000 operations.

2 PEGASUS' PROJECTED FINANCIAL PERFORMANCE AS OF 1986

PEGASUS MARKET POSITION

Since the launch of Datas II by Delta in 1982,[1] CPAL and All Nippon (the seventh largest carrier worldwide in terms of enplanements) have been the only carriers worldwide to have attempted to enter the CRS industry in a market already dominated by CRS competitors. In launching Pegasus 2000, a relatively minor (in relation to other CRSs) modification of CPAL's internal reservation system, CPAL initially targeted a "niche" market of agents primarily located in Western Canada as well as the travel agents' then unmet need to be able to connect intelligent personal computerss to the CRS.

By 1986, CPAL had failed to establish Pegasus 2000 as a significant participant in the Canadian CRS market. By early 1986:

- more CPAL agency bookings were generated through Sabre than through Pegasus 2000,
- only 7 carriers worldwide had agreed to pay booking fees for bookings made through Pegasus 2000; one of those (Pacific Western Airlines) later discontinued paying (September 1986). Air Canada, who paid booking fees to Sabre, did not agree to pay same to Pegasus 2000 until June 1986.[2]

CPAL had not been prepared and/or able to make the investment required to establish a competitive CRS. CPAL's total cash investment in Pegasus 2000 over the 1983-85 period was $10.3M. By contrast, by 1984 the cumulative investment in CRS system software alone was $70.5M for Apollo, $55.3M for Sabre, and $32.2M for Datas II.[3] Clearly, CPAL had entered the Canadian CRS market with minimal investment in Pegasus 2000 and, to compete against Sabre and Reservec in that market, would have had to make a

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1. In 1982, Delta ranked second (behind Eastern) in the US industry in terms of enplanements (37.7 million). Currently, American and Delta are proposing to merge Datas II into Sabre.

2. Generally, carriers will agree to become a "participating carrier," i.e., to pay booking fees, in every CRS which has established a significant agency subscriber base in markets which are commercially significant to them.

3. Derived as cumulative "development expenses" from Table 4.1, US DOT Study of Airline Computer Reservation Systems, May 1988. PARS and Systemone software investment was not reported; all values converted to Canadian dollars at the 1984 rate of 1.3/1.0.

significant investment in enhancing Pegasus 2000 functionality.

Over the 1984-86 period, Pegasus 2000 experienced a cumulative cash loss of $21.5M and an operating loss of $11.5M. During the same period, CPAL's total operating losses were $24M.[4]

FINANCIAL PROJECTIONS

The decision to abandon Pegasus 2000 was not premature, as there were no prospects of its eventual profitability. The financial projections that follow lead to the conclusion that Pegasus 2000's initial operating losses would have continued or increased over time. Attachment 1 presents SH&E's estimates of Pegasus 2000's likely financial performance over the 1987-89 period. The details of this analysis are described in the Appendix.

Total costs would have increased sharply beyond 1987. The rate of Canadian market penetration of Sabre indicated that the Canadian CRSs (Reservec, Pegasus 2000) would have to rapidly accelerate the rate at which they invested in enhancing the functionality of these systems. Had CPAL chosen to persist with Pegasus 2000, it would have to have invested heavily in enhancing that system. In February 1988, a Gemini Task Force estimated that a software investment of $ was required to keep Pegasus 2000 minimally competitive in the Canadian market (see Appendix).

Because of the competitive nature of the Canadian CRS market, this increased investment would not have been accompanied by any increase in unit revenues (i.e., subscriber and participant fees). Total revenues (i.e., unit revenues times output) would have increased due to modest continued penetration of Pegasus 2000.

Even allowing for continued growth in the proportion of CDN revenues booked through Pegasus, the projected growth in Pegasus' subscriber base would not be sufficient to offset the increase in operating expenses and investment (software depreciation) which would have been required.

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4. CPAL's operating profits(losses) were $2.9M in 1984, ($26.6M) in 1985, and ($0.5M) in 1986.

HALO BENEFITS

This analysis does not include any revenue benefits attributed to CPAL from a "halo effect" associated with Pegasus 2000. The "halo effect" refers to the increase in sales of a CRS-owning carrier's air transportation by travel agencies due solely to the fact that the travel agencies subscribe to that carrier's CRS. The existence and magnitude of any CRS halo effect is specific to the CRS, the owning airline, and the air travel markets which the airline serves. The halo effect varies directly with both the subscribing agency's ability to increase sales of the CRS owner's air transportation, and its inclination to do so.

Potential for Diverting Traffic

Regarding the agency's potential for halo diverted traffic and revenues, many factors of the Canadian air travel markets limit the agency's ability to influence consumer preferences. First, the highly successful "frequent traveler" programs have the intent and effect of creating a strong carrier preference by the traveler. More important, the traveler will choose an airline primarily on the basis of fare and service, i.e., departure time, non-stop service, etc. Relative to the US markets, the services provided in Canadian domestic markets are not nearly as substitutable to the traveler.

Overall, many factors -- including the airlines' entire direct marketing campaigns -- combine to create travelers' preference for specific carriers in some or all city-pair markets.

Agency Susceptibility to Halo

Since the travel agencies are the primary distribution channel for air transportation services, carriers compete intensely for whatever discretion the travel agents can exert over traveler preferences. In highly competitive travel agency markets like Canada, the agent will tend to promote those carriers who have the greatest impact on agency profitability.

In this perspective, travel agencies will exercise whatever discretionary influence over sales that they have in favor of the carriers who:
-- pay the highest sales commissions

-- allow the agency to provide the best service to the agency's travel clients
-- increase the agency productivity (reduce its operating costs)
-- have the most effective agency sales force.

Other factors also enter into this decision, including the image and growth of the carriers in the markets important to the agent's clientele.

To the extent that a travel agent's use of, say Pegasus 2000, influences the agent's carrier recommendation, it would have to be based on the fact that the CRS usage had a specific effect on these criteria, and that effect was not compensated by the overall attractiveness of other carriers.

In this perspective, it is easy to appreciate the unresolved dilemma surrounding the ongoing debate over the very existence of an "automatic" halo effect -- does the agency choose the carrier because of the CRS or choose the CRS because of a prior disposition toward the owning carrier?

In comparison to the U.S. CRSs, it is difficult to conclude that Pegasus 2000 produced a halo effect for CPAL, or that it would have generated a significant halo effect without major changes in both operating philosophy and Pegasus 2000 functionality. Initially reporting to the Vice President of Corporate Development, Pegasus 2000 ultimately became the responsibility of the Information Services Division in the Fall of 1985. Except for an interim period during 1985 when it reported to CPAL's Marketing Division, Pegasus 2000 was operated independently of CPAL's marketing organization. It always had its own sales force which was distinct from the airline's agency sales representatives, and was actively promoted throughout as a "neutral CRS." Moreover, CPAL's Marketing Division never made effective use of agency booking data to improve its airlines sales effort.

In addition, Pegasus 2000 did not offer to the agencies many of the functional capabilities that would have allowed a Pegasus 2000 subscribing agency to provide better service to its clients.

APPENDIX
PEGASUS 2000 FINANCIAL PROJECTIONS

Attachments 2 and 3 present accounting profitability and net cash flow data, respectively, for Pegasus 2000 for the periods 1983-1986 (actual), 1987 adjusted for continuing operation, and 1988-1989 estimated. This summary was derived from detailed revenue, expenses and operating projections presented in Attachments 4 through 10. All actual Pegasus 2000 costs and revenues were taken from Pegasus 2000 Statement of Operations provided by CDN .[5] Both costs and revenues are estimated in constant 1987 dollars.

REVENUES (Exhibit 4)

The "constructive revenues" in Attachment 4 include subscriber fees, participant (booking) fees, and an imputation of the value of bookings through Pegasus 2000 on CDN. Regarding the subscriber base, these projections assume that locations (Interchange Addresses or IA's) would have grown to 810 by year end 1987, and by 10 percent to year end 1988 and 1989.[6] Subscriber revenues are projected to have remained constant on a unit basis at the 1986 level of $244/month. This combination of growth in agency locations and constant average revenue per location is likely to overstate revenues, since it is highly possible that competitive pressure for agency subscribers will depress subscriber fees. Alternately, Pegasus may have experienced higher growth but involving even smaller agencies (and average agency revenue).

Other booking fee revenues for 1984-87 were obtained from Pegasus 2000 Statement of Operations and were projected to grow at the growth rate in IAs for 1988-89. These fees in Attachment 4 exclude Air Canada fees, which it is assumed would continue not to be paid absent the Gemini negotiations, and hosting fees which are not agency-CRS related. The imputation of revenues from CPAL/CDN's own bookings is the product of projected bookings times the appropriate imputation rate. CPAL/CDN revenues are actual through 1986; 1987 through 1989 are constructed based on bookings @ $1.55: the last pre-Gemini

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5. That analysis includes an allocation to Pegasus 2000 of shared facilities.

6. See Attachment 7.

Gemini rate established by Pegasus.

EXPENSES (Attachment 6)

Attachment 6 presents cash operating expenses through 1987 obtained from Pegasus 2000 Statement of Operations. The "1987 adjusted"[7] operating expenses, on a line-by-line basis, were derived by applying a variable cost factor (shown in Attachment 6) to projected increases in output. 1988-89 projections were obtained from previous years' values in a similar manner.

The increases in operating costs for 1988-89 at the bottom of Attachment 6 would have resulted from the required investment in enhancing Pegasus' functionality (see below).

Attachment 7 presents the actual and projected Pegasus 2000 locations and average cost/location.

REQUIRED INVESTMENT IN PEGASUS FUNCTIONALITY

In December 1987, Gemini established a "Technology Task Force" composed of both CDN and AC CRS specialists to determine the minimum functionality that would be required if Gemini were to compete successfully in the Canadian CRS market. The Task Force also produced estimates of the level of effort required to bring Pegasus and Reservec up to that threshold standard.

Based on that analysis, the Task Force then developed estimates of the cost of enhancing each of the systems. The Task Force's cost projection for Pegasus 2000 is presented as Attachment 8. The $ identified as "Gemini staff, contract staff, purchase software," and the $ in "development TPF 2.3" comprise their estimates of the total investment in software alone for Pegasus 2000.

SH&E has reviewed the Task Force's agenda of required functionality and the manpower requirements associated with that software development. SH&E believes both the requirements and development costs to be conservative.

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7. When CDN decided in June 1987 to consolidate Pegasus into Gemini, the Pegasus expense rate was reduced (e.g., marketing, maintenance).

Attachments 9 and 10 summarize items related to depreciation and amortization from the Pegasus 2000 Statement of Operations. No adjustment has been made to the capital expenditures and depreciation, but the Pegasus 2000 software investment from Attachment 8 has been included in the Attachment 10 projection of deferred expenses and software.

Additionally, the "software license" and "applications support" recurrent expenses identified in Attachment 8 were added to Pegasus operating expenses in Attachment 6.

ATTACHMENT 1

HISTORIC AND PROJECTED ACCOUNTING PROFITABILITY
PEGASUS 2000
(C$ 000)

	(A) 1983	(B) 1984	(C) 1985	(D) 1986	(E) 1987 ADJ.	(F) 1988 EST.	(G) 1989 EST.	(H) TOTAL
1 TOTAL REVENUE	$0	$114	$1,170	$2,656	$4,114	$5,212	$5,827	$19,093
2 TOTAL CASH OPERATING EXPENSE	$267	$4,089	$6,018	$7,418	$9,013	$10,742	$12,384	$49,931
3 (LESS DEFERRED EXPENSE)	($243)	($3,653)	($1,422)	($1,122)				($6,440)
4 NET CASH EXPENSE	$24	$436	$4,596	$6,296	$9,013	$10,742	$12,384	$43,491
5 AMORTIZATION - DEFERRED EXPENSE			$783	$1,067	$1,530	$1,530	$1,530	$6,440
6 DEPRECIATION		$119	$629	$618	$635	$653	$472	$3,125
7 TOTAL DEPRECIATION/AMORTIZATION	$0	$119	$1,412	$1,685	$2,165	$2,183	$2,002	$9,565
8 TOTAL OPERATING EXPENSE	$24	$554	$6,007	$7,981	$11,177	$12,925	$14,385	$53,055
9 OPERATING PROFIT/(LOSS)	($24)	($440)	($4,837)	($5,325)	($7,063)	($7,714)	($8,558)	($33,962)
10 SOFTWARE AMORTIZATION EXPENSE			$115	$744	$	$	$	$
11 PROFIT/(LOSS) INCLUDING SOFTWARE	($24)	($442)	($4,952)	($6,069)	($	)($	)($	) ($)

SOURCE: ATTACHMENTS 2 THROUGH 10.

ATTACHMENT 2

HISTORIC AND PROJECTED ACCOUNTING PROFITABILITY
PEGASUS 2000
(C$ 000)

	NOTE	1983	1984	1985	1986	1987 ADJ.	1988 EST.	1989 EST.	TOTAL
TOTAL CONSTRUCTIVE REVENUE	(1)	$0	$114	$1,170	$2,656	$4,114	$	$	$
TOTAL CASH OPERATING EXPENSE	(2)	$267	$4,089	$6,018	$7,418	$9,013	$	$	$
SOFTWARE EXPENSE	(3)	$0	$718	$471	$0	$	$	$	$
(LESS DEFERRED EXPENSES)	(3)	($243)	($4,371)	($1,893)	($1,122)	($)	($)	($)	($)
NET CASH EXPENSE		$24	$436	$4,596	$6,296	$	$	$	$
AMORTIZATION - DEFERRED EXPENSES	(3)			$897	$1,811	$	$	$	$
DEPRECIATION	(4)		$119	$629	$618	$	$	$	$
TOTAL DEPRECIATION/AMORTIZATION		$0	$119	$1,526	$2,429	$	$	$	$
TOTAL OPERATING EXPENSE		$24	$554	$6,121	$8,725	$	$	$	$
OPERATING PROFIT/(LOSS)		($24)	($440)	($4,951)	($6,069)	($)	($)	($)	($)

NOTES
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(1) FROM ATTACHMENT 4.
(2) FROM ATTACHMENT 6.
(3) FROM ATTACHMENT 10.
(4) FROM ATTACHMENT 9.

ATTACHMENT 3

HISTORIC AND PROJECTED NET CASH FLOW
PEGASUS 2000
(C$ 000)

	NOTE	1983	1984	1985	1986	1987 ADJ.	1988 EST.	1989 EST.	TOTAL
CASH INFLOW	(1)	$0	$114	$1,170	$2,656	$4,114	$5,212	$5,827	$19,093
CASH OPERATING EXPENSE	(2)	$267	$4,089	$6,018	$7,418	$9,013	$10,742	$12,164	$49,711
CAPITAL EXPENDITURES									
SOFTWARE	(3)	$0	$718	$471	$0	$	$	$	$
HARDWARE	(4)		$2,367	$542	$183	$	$	$	$
TOTAL CASH OUTFLOW		$267	$7,174	$7,031	$7,601	$	$	$	$
CURRENT CASH FLOW		($267)	($7,060)	($5,861)	($4,945)	($)	($)	($)	($)
CUMULATIVE CASH FLOW		($267)	($7,327)	($13,187)	($18,132)	($)	($)	($)	
COST OF CAPITAL @ 12%	(5)	($16)	($456)	($1,231)	($1,879)	($)	($)	($)	($)
CUMULATIVE		($16)	($472)	($1,702)	($3,582)	($)	($)	($)	
CUMULATIVE CASH POSITION		($283)	($7,798)	($14,890)	($21,714)				

NOTES
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(1) FROM ATTACHMENT 4.
(2) FROM ATTACHMENT 6.
(3) FROM ATTACHMENT 10.
(4) FROM ATTACHMENT 9.
(5) ESTIMATED BASED ON DISCUSSIONS WITH CDN

ATTACHMENT 4

HISTORIC AND PROJECTED CONSTRUCTIVE REVENUES
PEGASUS 2000
(C$ 000)

	NOTE	1983	1984	1985	1986	1987 ACT.	1987 ADJ.	1988 EST.	1989 EST.
SUBSCRIBER FEES	(1)	$0	$111	$751	$1,599	$1,899	$2,155	$2,490	$2,739
BOOKING FEES									
CP/CDN	(2)	$0	$0	$123	$576	$605	$1,311	$1,972	$2,264
OTHER	(3)	$0	$3	$296	$481	$708	$648	$749	$824
TOTAL		$0	$3	$419	$1,057	$1,313	$1,959	$2,722	$3,088
TOTAL CONSTRUCTIVE REVENUE		$0	$114	$1,170	$2,656	$3,212	$4,114	$5,212	$5,827

NOTES

(1) 1983-1987ACT FROM PEGASUS 2000 STATEMENT OF OPERATIONS; 1987ADJ-1989 ESTIMATED AT $244/IA/MONTH (1986 EXPERIENCE) TIMES IAs FROM ATTACHMENT 7.
(2) 1983-1987ACT FROM PEGASUS 2000 STATEMENT OF OPERATIONS (NOTE 3b); 1987ADJ-1989 CP/CDN BOOKINGS FROM ATTACHMENT 5 TIMES $1.55.
(3) 1983-1987 FROM PEGASUS 2000 STATEMENT OF OPERATIONS (TOTAL LESS CP/CDN AND AC); 1988-1989 ESTIMATED AT GROWTH IN AVERAGE IAs (ATTACHMENT 7).

ATTACHMENT 5

HISTORIC AND ESTIMATED CP SEGMENTS BOOKED THROUGH PEGASUS 2000

	NOTE	1984 (APR-DEC)	1985	1986	1987 EST.	1988 EST.	1989 EST.
CP SEGMENTS BOOKED THROUGH PEGASUS 2000	(1)	162,898	296,121	402,745	845,963	1,272,563	1,460,681
ACTUAL PEGASUS 2000					655,735	913,961	
ACTUAL RESERVEC		993,788	1,123,634	1,736,477	3,372,661	4,618,920	
TOTAL		1,156,686	1,419,755	2,139,222	4,028,396	5,532,881	6,086,169
PERCENT PEGASUS 2000		14.1%	20.9%	18.8%	16.3%	16.5%	
PROJECTED PEGASUS 2000					21.0%	23.0%	24.0%

NOTES:

(1) 1984-1986 PER CP AIR; 1987 - 1989 ESTIMATED BASED ON PROJECTED SHARE OF TOTAL CANADA AGENCY LOCATIONS AND CDN ACTUAL TOTAL BOOKINGS ON PEGASUS 2000 AND RESERVEC IN 1987 AND 1988, AND ESTIMATED GROWTH TO 1989.

ATTACHMENT 6

HISTORIC AND PROJECTED PEGASUS 2000 CASH OPERATING EXPENSES

(C$ 000)

	NOTE	1983 (1)	1984 (1)	1985 (1)	1986 (1)	1987 ACT. (1)	1987 ADJ. (2)	1988 EST. (2)	1989 EST. (2)	COST VARIABLE WITH % CHANGE IN AVERAGE IA's (3)
SALARIES AND BENEFITS	----									
MANAGEMENT		$49	$468	$380	$401	$374	$432	$445	$454	20%
TRAINING AND SUPPORT		$103	$895	$1,067	$1,636	$1,351	$2,135	$2,400	$2,593	80%
SALES REPRESENTATIVE		$35	$380	$417	$432	$442	$465	$479	$489	20%
DEVELOPMENT AND OPERATIONS			$623	$988	$1,274	$1,397	$1,371	$1,413	$1,441	20%
OTHER		$19	$184	$305	$175	$72	$188	$194	$198	20%
SUBTOTAL		$206	$2,549	$3,156	$3,918	$3,636	$4,590	$4,932	$5,175	
OTHER DIRECT EXPENSES										
TRAINING		$1	$152	$353	$211	$51	$275	$310	$334	80%
TRAVEL & ENTERTAINMENT		$56	$234	$196	$180	$164	$207	$220	$229	40%
ADVERTISING AND PROMOTION		$1	$88	$96	$103	$64	$111	$114	$117	20%
TELEPHONE			$129	$348	$411	$390	$536	$603	$651	80%
OUTSIDE SERVICES			$115	$155	$143	$125	$154	$159	$162	20%
GENERAL & ADMIN.		$3	$110	$183	$178	$265	$198	$208	$214	30%
RENT - FACILITIES			$145	$162	$194	$228	$209	$215	$220	20%
FARES TAPES					$119	$165	$166	$166	$166	0%
SUBTOTAL		$61	$973	$1,493	$1,539	$1,452	$1,856	$1,994	$2,092	
ALLOCATED EXPENSES										
NETWORK/COMMUNICATIONS			$489	$1,163	$1,664	$2,272	$2,234	$2,547	$2,776	90%
CENTRAL SITE PROCESSING			$35	$117	$180	$216	$214	$231	$242	50%
DEVELOPMENT CENTER RESOURCES			$43	$89	$118	$64	$118	$118	$118	0%
SUBTOTAL			$566	$1,369	$1,962	$2,552	$2,567	$2,896	$3,137	
TOTAL ABOVE EXPENSES		$267	$4,089	$6,018	$7,418	$7,640	$9,013	$9,822	$10,404	
FUNCTIONALITY ENHANCEMENT	(4)							$920	$1,980	
TOTAL CASH OPERATING EXPENSES		$267	$4,089	$6,018	$7,418	$7,640	$9,013	$10,742	$12,384	

NOTES TO ATTACHMENT 6

(1) FROM PEGASUS 2000 STATEMENT OF OPERATIONS.

(2) ESTIMATED BASED ON 1986 ACTUAL EXPENSE, COST VARIABILITY WITH CHANGE IN AVERAGE NUMBER OF LOCATIONS (SEE NOTE 3), AND PROJECTED INCREASES IN LOCATIONS (IAs) FROM ATTACHMENT 7.

(3) ESTIMATED BASED ON DISCUSSIONS WITH CDN.

(4) FROM ATTACHMENT 8.

ATTACHMENT 7

HISTORIC AND PROJECTED PEGASUS 2000 IA's (LOCATIONS)
1983 - 1989

	NOTE	1983	1984	1985	1986	1987 ACT.	1987 ADJ.	1988 EST.	1989 EST.
IA's (LOCATIONS)	(1)								
BEGINNING		0	16	170	400	659	659	810	891
ENDING		16	170	400	659	810	810	891	980
WEIGHTED AVERAGE		-	70	276	533	736	736	851	936
ESTIMATED GROWTH RATE	(2)							10%	10%
OPERATING EXPENSE PER WEIGHTED LOCATION	(3)		$58,411	$21,805	$13,918	$10,381	$12,246	$12,631	$13,237

NOTES:

(1) 1983-1987 PER CDN.

(2) CONSERVATIVELY ESTIMATED AT APPROXIMATELY TWO TIMES THE RATE OF GROWTH IN CANADIAN AGENCY LOCATIONS FROM 1986 TO 1988.

(3) BASED ON ACTUAL AND PROJECTED EXPENSES FROM ATTACHMENT 6.

Attachment 8

GEMINI TASK FORCE
FEB. 1, 1988
NEW CRS AND AIRLINE SYSTEMS BUILT ON PEGASUS

NON RECURRING EXPENSES

	AMOUNTS IN THOUSANDS					
	1988	1989	1990	1991	1992	TOTAL
HARDWARE						
. PROCESSORS						
. DASD						
. TAPES						
	-----	-----	-----	-----	-----	-----
. GEMINI STAFF						
. CONTRACT STAFF						
. PURCHASE SOFTWARE						
	-----	-----	-----	-----	-----	-----
DEVELOPMENT TPF 2.3						
. GEMINI STAFF						
. CONTRACT STAFF						
	-----	-----	-----	-----	-----	-----

RECURRING EXPENSES (INCREMENTIAL)

	AMOUNTS IN THOUSANDS					
	1988	1989	1990	1991	1992	TOTAL
SOFTWARE LICENSE						
HARDWARE MAINT.						
APPL. SUPPORT						
	----	-----	-----	-----	-----	-----

ASSUMED:
Incremential costs only in 1988 from 3090-150E to 3090-180E.
$ per month Gemini staff.
$ per month TPF Contractor.

ATTACHMENT 9

CAPITAL EXPENDITURES AND DEPRECIATION
PEGASUS 2000
(C$ 000)

	EXPENDITURE	DEPRECIATION					
		1984	1985	1986	1987	1988 (1)	1989 (1)
1984	$2,367						
1985	$542						
1986	$183						
1987	$172						
1988	$0						
1989	$0						
TOTAL	$3,264	$119	$629	$618	$635	$653	$472

(1) ESTIMATED BASED ON AMOUNT AND TIMING OF EXPENDITURES, 5-YEAR DEPRECIATION PERIOD, AND EXPENSE PREVIOUSLY RECOGNIZED.
SOURCE: PEGASUS 2000 STATEMENT OF OPERATIONS.

ATTACHMENT 10
DEFERRED EXPENSES AND SOFTWARE
PEGASUS 2000
(C$ 000)

	AMOUNT DEFERRED			AMORTIZATION						
	OPERATING	SOFTWARE	TOTAL	1983	1984	1985	1986	1987	1988	1989
1983	$243		$243							
1984	$3,653	$718	$4,371							
1985	$1,422	$471	$1,893							
1986	$1,122		$1,122							
1987 EST.										
1988 EST.										
1989 EST.										
TOTAL				$0	$0	$897	$1,811	$	$	$
EST.								$	$	$
TOTAL				$0	$0	$897	$1,811	$	$	$

SOURCES:
EXPENDITURES THROUGH 1986 AND AMORTIZATION THROUGH 1987 FROM PEGASUS 2000 STATEMENT OF OPERATIONS;
UNAMORTIZED 1987 BALANCE AMORTIZED EVENLY IN 1988 AND 1989;
ESTIMATED 1987-1989 EXPENDITURES FROM ATTACHMENT 8 AMORTIZED OVER THREE YEARS (INITIAL YEAR AT 50% OF AVERAGE).

GEMINI EFFICIENCY GAINS

1 SUMMARY

With the formation of Gemini, AC and CDN will consolidate the Pegasus and Reservec CRSs, along with other related services. This consolidation will result in significant efficiency gains.

This consolidation is a consequence of the economies of scale in the CRS industry, and is fully consistent with the evolution of CRSs in other world markets where those economies of scale and density have led other major carriers to consolidate CRS operations (Section 2).

In order to develop conservative estimates of the overall Gemini cost savings, this analysis considered:

1. the cost savings that would have resulted if Pegasus 2000 and Reservec had been fully integrated in 1988, without implementing a successor system. It is estimated that an annual cost saving of % of the combined Pegasus 2000 and Reservec costs would have resulted, or a $7.1M saving per year at the 1988 combined level of output.
2. the additive cost savings that will be realized by avoiding the need to enhance both Reservec and Pegasus 2000 to bring them to competitive parity with the US CRSs. This is an estimated 5 year saving of at least $.

Additional efficiency gains, which have not been quantified, will result from the avoidance of duplicted operating costs of separate systems plus the cost-effective improvements in the quality of the CRS and other services (e.g., cargo, VIA RAIL, etc.). Gemini was formed to provide such automation quality improvements competitive with US systems, but tailored to the needs of the Canadian market.

These efficiency gains will result from the realization of true productive efficiencies, i.e., a reduction in the resources required to provide the service. None of these gains would likely be realized without the formation of Gemini, nor would they likely be achieved by

means other than the proposed merger.

2 EVIDENCE OF EFFICIENCY GAINS IN THE CRS INDUSTRY

Economies of scale exist when long-run average cost of providing a single service declines as the output of a typical firm increases. They are a property of the production technology and the supply (and price) of inputs in that industry, not of individual firm behavior or ability. Economies of scope exist when one firm can produce two or more services jointly at lower long-run average cost than those of two or more firms specialized in the production of the services individually. Again, these are properties of the industry technology.

The CRS industry is characterized by significant economies of scale and scope. By the nature of CRS technology, unit operating costs/agency decline per subscribing agency (and number of terminals), and unit operating costs/booking decline with both the number of agencies and the average volume of bookings/agency.

Attachment 1 presents actual CRS operating cost profiles over time for the US CRSs. From 1/5 to 1/4 of total cash expenses are associated with central processing, or computer operations -- the software, databases, computers, and staff needed to provide the basic service. Except for a slight increase in the cost of hardware capacity, a CRS can service 10,000 agency locations at almost the same total central processing costs but 1/2 the average central processing cost (per agency) as would be involved in servicing 5,000 locations.

The communications network linking the CRS to participating airlines and to subscribing agencies accounts for approximately 1/3 of total cash expenses. None of the costs of the communications network linking the CRS to other airlines increase with the number of agency subscribers, and the increase in these costs with the volume of bookings is less than proportionate. Especially if the agencies being added to the system are in regions already served by the CRS network, the subscriber network costs increase less than proportionately to the increase in agency locations.

Similarly, other operating costs, especially subscriber services and general administration, increase less than proportionately to the increase in either subscriber locations or total bookings.

The existence and magnitude of these scale economies is demonstrated in Attachment 2.[1] Overall, CRS scale economies extend through a range of output (airline bookings) equal to at least 3-4 times the output required to serve the entire Canadian agency market. Attachment 2 demonstrates that the entire Canadian travel agency market (at approximately 20M bookings) would present severe diseconomies for more than one CRS participant relying entirely, or even primarily on that market.

The significant decline in long-run average CRS cost with output has been a common feature to all analyses of CRS ventures. A 1985 IATA study of a "Neutral Industry Booking System"[2] presented the following estimated costs per subscribing agency location of a de nova CRS:

COST PER AGENCY (US$000)	2000 Agencies	5000 Agencies	Percent Decrease
Capital Costs	$41.6	$23.6	43%
Operating Costs	29.1	21.6	26

In 1987 the 21 European airlines, acting through the Association of European Airlines, conducted a comprehensive evaluation of the feasibility of abandoning their individual CRS initiatives and developing a single CRS to serve all of the European markets.,[3] As a result of that analysis, all of the European CRS operators elected to participate in the joint development and ownership of one of two (Galileo, Amadeus) new CRSs to serve all of Europe.

The actual long run average costs of a CRS will vary with the functionality of the CRS,

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1. These unit costs/booking are based on cash operating expenses, and are associated with US CRS services from 1980 to 1986 which increased in quality over that time. Nonetheless, the underlying economies of scale are evident.

2. IATA Neutral Industry Booking System (NIBS), Final Report, March 1985.

3. Association of European Airlines, Global Distribution System (GDS) Feasibility Study, March 1987.

the scope of services rendered through it, the "local" input costs (i.e., communications networks), the linkage of the CRS to its owning and participating carriers, and other factors. Nevertheless, there is ample evidence that long-run average CRS costs decline through a level of output well beyond that which could have been realized by Pegasus and Reservec had they shared the entire Canadian market, and that the long-run average CRS costs remain relatively constant through a wide and high range of output.

The most compelling evidence of this basic technical and economic reality of the CRS industry is the number of CRSs currently in existence or under development worldwide. CRS technology is so "large scale" that there will likely be only 6-8 CRSs worldwide,[4] and all CRSs -- including Gemini -- will likely be based on purchased modifications of one of four US CRSs.

Attachments 3 and 4 show in terms of segments booked the relative sizes of U.S. and Canadian CRSs as of 1986. Even combined, Reservec and Pegasus 2000 were less than the size of Datas II (a system proposed to be merged into Sabre).

While the same information is, of course, not available for proposed European CRSs, the existence of only two systems (Galileo and Amadeus) in a market area whose carriers enplaned 159 million passengers in 1986 would indicate an average number of segments booked in the range of the U.S. systems.

The combination of Reservec and Pegasus is the only means of achieving a Canadian CRS which can achieve efficiencies from economies of scale.

3 GEMINI EFFICIENCY GAINS

3.1 OVERVIEW

Broadly, efficiency gains are realized when the same service can be produced at lower unit cost[5] over time and/or an improved service can be provided with a less then propor-

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4. See "Overview of the CRS Industry."

5. Involving true resource cost reductions, not merely income transfers.

tionate (to the increase in value of service) increase in cost.

In any real world application like Gemini, there are both service gains (Section 3.2) and resource cost efficiency gains (Section 3.3).

3.2 SERVICE GAINS

Efficiency gains in the form of improved service will be realized if the Gemini services are more valuable to subscribing agencies than the services formerly provided by Pegasus and Reservec individually. The magnitude of those gains is some dollar measure of that increased value, net of relevant Gemini cost increases incurred in providing this enhanced service. These service enhancements will be achieved with the implementation of a successor system and include such additional functionality as improved schedule information, improved fare information (e.g., bargain fare finder), enhanced accounting capability, etc..

In establishing the Gemini CRS, the intention of CDN and AC is to provide to the Canadian travel agencies a CRS service with all of the functionality of the US CRSs but "customized" for Canadian travel agency use.[6] This significant increase in value of the CRS service will not be accompanied by a proportionate increase in charges to the Gemini subscribing agents, since Gemini's subscriber fees must be broadly competitive with those of Sabre and other US CRSs.

Although it is not possible to quantify these gains because of the difficulty of estimating the incremental value to agents of specific improvements in CRS functionality, they nevertheless clearly represent a net gain or improvement in the overall quality of the CRS service provided.

3.3 RESOURCE COST SAVINGS

The analysis of Gemini cost savings must recognize the fact that Gemini will be consolidating two existing services initially, then significantly improving the consolidated serv

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6. This includes features such as the improved ability to price the types of itineraries most required by Canadian travelers, and more extensive representation of Canadian hotels in the CRS system.

ice by changing underlying technology and costs. To separate these dimensions, it is useful to evaluate static (i.e., current service and technology) vs. dynamic (service and technology of successor system) efficiency gains.

STATIC EFFICIENCY GAINS

Attachment 5 presents an illustration of the static cost savings to be realized by Gemini. As indicated above, as CRS volume increases, long-run average costs decrease due to scale economies.[7] In the case of Gemini, the Pegasus and Reservec levels of output will be provided as the consolidated Gemini output, allowing the realization of a lower long-run average cost. The magnitude of the total efficiency gains is the sum of the shaded areas in Attachment 5.

It is important to recognize that Gemini provides internal reservations, CRS, cargo, and other services (e.g., VIA RAIL) formerly provided by CDN and/or AC. This analysis is intended to produce only a conservative estimate of the magnitude of the Gemini efficiency gains associated with the CRS (and internal reservations, since they are highly inter-related). A thorough analysis of the total efficiency gains would include the cost savings associated with these other services.[8]

Significant "static" cost economies per annum can be demonstrated most simply by comparing Reservec and Pegasus 2000 vs. Gemini costs of providing the reservations/CRS services at the 1988 level of output. The 1988 actual Gemini expenses were analyzed (see Section 4) to derive estimates of the most probable potential cost economies which could be realized assuming:

(i) a constant (1988) level of output, and

(ii) no major change in the Gemini service/technology, or resulting costs.

Gemini's 1988 operating experience is well suited to this type of analysis. For the most

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7. Technically, Reservec and Pegasus had different long run average cost curves because of different technologies and cost structures. However, for illustrative purposes, Attachment 5 assumes a common cost curve.

8. These "other" services accounted for % of Gemini's 1988 budget; assuming that the cost savings in these areas are proportional to those in the reservations/CRS area, an added cost saving of % of $ or $2.1M would have been achieved.

part, Gemini was largely a nominal consolidation of the former Reservec and Pegasus 2000 operations, with little actual consolidation of resources or operations[9] -- the Gemini expenses were largely the sum of Pegasus 2000-related and Reservec-related expenses. In addition, no major changes had been undertaken which would be required to implement the successor CRS system.

That analysis indicates that, had Gemini realized all of the consolidation economies that would have resulted in this static case, there would be at least a % cost reduction/year, or a savings of over $7.1M/year at the 1988 level of output. 82% of this cost saving would have occurred in "operations and development," with "marketing and sales" accounting for most of the balance.

The actual cost savings will be higher at higher levels of output over time.

DYNAMIC EFFICIENCY GAINS

The dynamic gains from Gemini are the difference between the cost increases which would be incurred if both Pegasus 2000 and Reservec made parallel investments in establishing improved CRS technology, minus the increased cost resulting from establishing a single enhanced Gemini system. These gains are additive to the "static" gains noted above.

The increase in average cost associated with an enhanced system is comprised of the increased software cost and increased operating costs (e.g., more extensive fares database, increased hardware usage, better trained help desk specialists). The value of the software enhancement expense can be estimated.

In December 1987, Gemini established a "Technology Task Force" to determine the minimum functionality that would be required if Gemini were to compete successfully in the Canadian CRS market. The Task Force developed estimates of the cost of enhancing both Pegasus 2000 and Reservec, and the estimated cost for Pegasus 2000 is presented in

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9. The actual consolidation of service and operations awaited the selection of the successor CRS system to Reservec and Pegasus 2000.

Attachment 6. The $ identified as "Gemini staff, contract staff, purchase software"

and the $ in "development TPF 2.3" comprise the estimates of the total investment in software alone.

This investment of $ (equivalent to $ in annual expense if depreciated over five years) was an estimate of the minimum investment in enhanced functionality, not the investment which would be required to establish a system which is fully competitive with the US CRSs.

The enhanced technology and service will result in increased operating costs. Again, the merger provides the opportunity to incur such increased operating costs only once and not twice as would be the case with separate CRSs. At the time of writing this evidence, such increased operating costs cannot be estimated as a successor system has not been specified.

4 POTENTIAL GEMINI COST SAVINGS: 1988 LEVEL OF OUTPUT

Summary

Attachment 7 presents Gemini's 1988 operating expenses, and indicates the expenses by area associated with the CRS/reservations operations. It also summarizes conservative estimates of the cost savings which could be realized under the assumptions noted above. The total potential cost savings of $7.1 million would be realized by the following major functional areas of Gemini (as described in detail below):

Area	Amount ($Millions)	% of Total
Operations & Development	$5.8	82%
Marketing, Sales and Service	1.1	15%
Overhead	0.2	3%

Some cost savings had already been realized prior to or during 1988, principally in administrative areas. In those cases, no attempt was made to estimate what the "unconsolidated" costs would have been. In other areas, it was necessary to determine the reduction in actual 1988 expenses that would likely be realized with time, given the as-

sumptions of this analysis. In those cases, a range of cost savings is provided, but the lower end of that range is used with a view to providing a conservative estimate of cost saving.

This analysis is focused only on those cost savings which would not likely have been obtained absent the merger. For example, it excludes some 1988 network cost savings which could have been realized without to the merger.

Operations & Development

Attachment 8 presents the 1988 cost detail in Gemini's operations & development area. Column (10) provides the estimated allocation of total expenses (column 9) to CRS/reservations vs. other operations, with the basis of that allocation shown in column (12). Column (11) presents potential cost savings from the consolidation at the 1988 level of output. It is estimated that at least % ($) of the "administration" costs of $ could be saved by complete integration.

In 1988, the "administrative positions" (and, in some cases, personnel) from Pegasus 2000 and Reservec were transferred to Gemini. That combined resource managed the extraordinary task of planning the physical integration of the central processing and communications networks of both systems, and participated in the evaluation of potential successor systems. Had that activity not occurred (as in the simple consolidation scenario here), between % to % of the O&D administrative expense could have been avoided.

Prior to the merger, Pegasus and Reservec maintained separate communications networks centered on Vancouver and Winnipeg, respectively. These networks were almost totally overlapping; over % of the cities served by either were served by both networks. The consolidation will result in a single and higher volume network centered on Winnipeg, and will also support the complete modernization of the network.

In 1988, "data communications" (principally line charges) accounted for % of total Gemini telecommunications costs, and the labor needed to install and maintain the networks accounted for an additional % of total telecommunications costs. Using CRTs

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10. Excluding the $ EMSR expense indicated in Attachment 8 (column 7) which was for the AC SID conversion.

(network costs) and DTEs (all other) as the basis for allocation, $ of the total $ CRS/reservation costs were associated with Pegasus 2000. It is estimated that, if Pegasus 2000 and Reservec had simply consolidated networks and staffing, a cost saving of at least % of the Pegasus 2000's telecommunications costs would be realized, for a saving of $ /year at the 1988 level of output.

The major consolidation savings will be realized in network charges and maintenance and installation. Over 80 percent of network charges are in "data communication" and are primarily leased line charges. The Pegasus 2000 1988 network costs are estimated at $ (an allocation of total CRS costs of $ based on CRTs). It is estimated that the Pegasus 2000 communication traffic could be accommodated by the Reserved network at % of the Pegasus 2000 costs, or a cost saving of % of the Pegasus 2000 expenses. Pegasus 2000's 1988 data communications costs are estimated at $ (% of $); a % cost saving of these costs alone would yield between $ in cost savings.

Maintenance and installation (M&I) costs for Pegasus 2000 are estimated at % ($) of Gemini CRS M&I costs. Over % of M&I costs were incurred in labor, and facilities and equipment (including materials inventories) needed to maintain the concentrators on the two parallel networks, etc. If the M&I function supported only one network, a reduction of % of the Pegasus 2000 M&I expenses of $ could be realized for a saving of $. The potential cost savings in just the data communications component of network costs plus M&I costs would be in the range of $ to $. To be conservative, a cost saving of % ($) of the total Pegasus 2000 telecommunications costs has been assumed.

Of the "development" component ($ total, $ for CRS/reservations) of Gemini's 1988 operations and development expense, almost % was accounted for by labor and facilities. This Gemini expense involved software maintenance and short-term enhancements to both Pegasus 2000 and Reservec. Setting aside the eventual replacement of both systems for the purpose of this analysis, Gemini could have avoided the ongoing cost of maintaining <u>both</u> Reservec and Pegasus; at the least, the Pegasus development costs of $ /year could have been avoided in a 1988 steady-state.

Gemini CRS/reservations operations expenses were $. Based on data used to develop the 1988 plan, the operations cost of Pegasus 2000 alone was % of this total.

or $ Gemini plans to establish a consolidated processing site in Winnipeg, eliminating the need for CDN operation of Pegasus 2000 in Vancouver.

Over % of the Pegasus 2000 and Reservec operations costs are associated with duplicated equipment, labor, and facilities in an activity which exhibits strong scale economies. On a steady state basis, it is estimated that a consolidated Winnipeg operation would support the Pegasus 2000 1988 volume at, at most, % of the actual 1988 Pegasus 2000 costs ($), producing a potential cost saving of $ /year.[12]

Of the $ estimated Pegasus 2000 component of the Gemini operations costs, it is estimated[13] that 1988 Pegasus 2000 operations costs included $ in labor costs $ in facilities, and $ in equipment. With consolidation, at least % of the facilities costs could be avoided, over one-half of the operations labor, and at least % of equipment costs. If the consolidation resulted in a % savings of Pegasus 2000 related 1988 facilities cost, a % reduction in Pegasus 2000-related equipment costs, and a % reduction in labor costs, a savings of $ /year would result. The estimate of $ used here is highly conservative.

Overall, the consolidation would eventually produce a % reduction in CRS/ reservations operations and development costs, or $ per year at the 1988 level of output.

Marketing, Sales, and Service

1988 was Gemini's first year of "consolidated" operations although, as noted above, there was little actual consolidation of costs and operations. Attachment 9 presents an analysis of Gemini's 1988 actual marketing and sales expenditures. Over % of those costs were incurred in support of Pegasus 2000 and Reservec (vs. "other" Gemini services), and the actual CRS/reservations expenditure was $ below plan.

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11. This was an allocation of the CDN Vancouver operations center costs to the support of Pegasus 2000.

12. Gemini operations management estimates a $ /year saving solely in eliminating duplicated service charges.

13. Using the total Gemini cost components by labor, data communications, etc.

Of the total planned marketing and sales 1988 expenditures, approximately % ($) was budgeted to support Pegasus 2000, with approximately $ of that in marketing. If Pegasus 2000 had simply been folded into Reservec, and ignoring the prospects of transitioning to a successor system, all of the Pegasus 2000 annual marketing development and planning costs ($) would have been avoided. In addition, at least % ($) of planned Pegasus 2000 agency sales and % ($) of planned Pegasus 2000 agency services expenses could be avoided by true marketing and sales consolidation.

Overall, the full consolidation of Pegasus 2000 and Reservec should have resulted in a % marketing and sales cost saving, or $ at the 1988 level of output.

Overhead

Attachment 10 presents Gemini's 1988 overhead expenses, allocation to CRS/ reservations, and estimated potential cost savings. The "human resources" expenses are general and administrative, largely salaries and "other" (purchased services, etc.). According to the 1988 budget detail, approximately % ($) of the human resources expenses allocated to CRS/reservations were associated with Pegasus 2000. At least % ($) of these Pegasus 2000 expenses could have been avoided if Gemini did not have to operate and administer two parallel CRSs.

ATTACHMENT 1
(Page 1 Of 6)

HISTORIC U.S. CRS COSTS AS PRESENTED BY DOT
(U.S.$ MILLIONS)

APOLLO

	NOTE	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986
CASH EXPENDITURES	(A)											
OPERATING EXPENSES		$0.4	$1.1	$4.8	$6.4	$15.7	$23.8	$34.4	$39.9	$43.0	$53.6	$68.6
EQUIPMENT INVESTMENTS		$0.4	$2.5	$7.0	$4.2	$23.8	$21.4	$11.9	$34.9	$44.0	$64.0	$46.7
DEVELOPMENT EXPENSES		$1.8	$1.2	$1.8	$2.8	$4.0	$6.2	$9.5	$8.6	$17.3	$13.1	$17.4
SUBSCRIBER NETWORK		$0.7	$3.0	$5.9	$12.2	$29.4	$33.1	$46.1	$59.1	$60.9	$79.0	$95.2
TOTAL CASH EXPENDITURES		$3.3	$7.8	$19.5	$25.6	$72.9	$84.5	$101.9	$142.5	$165.2	$209.7	$227.9
ACCOUNTING COSTS	(B)											
OPERATING												
COMPUTER OPNS.											$26.4	$32.9
COMMUN. NET.											$27.2	$35.7
SUBSCRIBER SVC.											$41.4	$49.1
SUBTOTAL											$95.0	$117.7
DEP./AMORT.												
DEP. OF EQUIP.											$27.2	$35.3
AMORT. OF OTHER											$21.0	$28.8
SUBTOTAL											$48.2	$64.1
TOTAL COSTS											$143.2	$181.8
EST. NON-HOST BOOKINGS	(C)					27.9	44.3	60.6	79.8	57.7	82.5	94.3
HOST BOOKINGS	(D)					5.8	7.3	9.3	12.8	21.7	19.6	25.1
EST. TOTAL BOOKINGS						33.7	51.6	69.9	92.6	79.4	102.1	119.4
ADJUSTED	(E)								80.0	85.0		
TOTAL CASH EXP./BOOKING (CURRENT $)						$2.17	$1.64	$1.46	$1.54	$2.08	$2.05	$1.91
ADJUSTED	(E)								$1.78	$1.94		
TOTAL CASH EXP./BOOKING (1985 $)						$2.46	$1.71	$1.50	$1.57	$2.08	$2.05	$1.97
ADJUSTED	(E)								$1.82	$1.94		

ATTACHMENT 1
(Page 2 of 6)

HISTORIC U.S. CRS COSTS AS PRESENTED BY DOT
(U.S.$ MILLIONS)

SABRE

	NOTE	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986
CASH EXPENDITURES	(A)											
OPERATING EXPENSES		$1.1	$3.4	$6.3	$10.8	$14.1	$22.9	$32.8	$41.5	$45.2	$65.5	$87.2
EQUIPMENT INVESTMENTS		$2.9	$8.6	$22.4	$24.6	$28.4	$19.5	$22.9	$18.6	$21.0	$64.4	$55.7
DEVELOPMENT EXPENSES		$0.9	$1.6	$1.9	$3.5	$4.5	$4.2	$6.6	$8.0	$11.3	$16.7	$17.1
SUBSCRIBER NETWORK		$1.7	$4.7	$8.2	$15.2	$21.3	$25.8	$33.8	$44.7	$53.6	$78.7	$92.6
TOTAL CASH EXPENDITURES		$6.6	$18.3	$38.8	$54.1	$68.3	$72.4	$96.1	$112.8	$131.1	$225.3	$252.6
ACCOUNTING COSTS	(B)											
OPERATING												
COMPUTER OPNS.											$30.1	$34.2
COMMUN. NET.											$35.4	$53.0
SUBSCRIBER SVC.											$45.2	$47.4
SUBTOTAL											$110.7	$134.6
DEP./AMORT.												
DEP. OF EQUIP.											$22.1	$29.3
AMORT. OF OTHER											$20.6	$29.9
SUBTOTAL											$42.7	$59.2
TOTAL COSTS											$153.4	$193.8
EST. NON-HOST BOOKINGS	(C)					35.0	63.5	83.5	97.3	103.1	106.5	125.5
HOST BOOKINGS	(D)					4.3	4.9	6.6	8.9	9.8	16.6	19.2
EST. TOTAL BOOKINGS						39.3	68.4	90.1	106.2	112.9	123.1	144.7
TOTAL CASH EXP./BOOKING (CURRENT $)						$1.74	$1.06	$1.07	$1.06	$1.16	$1.83	$1.75
TOTAL CASH EXP./BOOKING (1985 $)						$1.97	$1.10	$1.10	$1.08	$1.16	$1.83	$1.83

ATTACHMENT 1
(Page 3 of 6)

HISTORIC U.S. CRS COSTS AS PRESENTED BY DOT
(U.S.$ MILLIONS)

PARS

	NOTE	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986
CASH EXPENDITURES	(A)											
OPERATING EXPENSES						$11.9	$16.4	$19.9	$24.6	$32.1	$37.0	$45.5
EQUIPMENT INVESTMENTS						$29.9	$9.1	$14.0	$13.8	$15.3	$7.3	$11.9
DEVELOPMENT EXPENSES						N.R.	N.R.	N.R.	N.R.	N.R.	N.R.	N.R.
SUBSCRIBER NETWORK						$10.7	$6.9	$4.7	$6.0	$6.2	$10.8	$11.5
TOTAL CASH EXPENDITURES						$52.5	$32.4	$38.6	$44.4	$53.6	$55.1	$68.9
ACCOUNTING COSTS	(B)											
OPERATING												
COMPUTER OPNS.											$24.2	$28.4
COMMUN. NET.											$12.8	$17.1
SUBSCRIBER SVC.											N.R.	N.R.
SUBTOTAL											$37.0	$45.5
DEP./AMORT.												
DEP. OF EQUIP.											$12.4	$11.9
AMORT. OF OTHER											$5.6	$7.6
SUBTOTAL											$18.0	$19.5
TOTAL COSTS											$55.0	$65.0
EST. NON-HOST BOOKINGS	(C)						0.4	5.7	14.7	21.9	26.1	30.2
HOST BOOKINGS	(D)						N.R.	N.R.	N.R.	N.R.	3.5	3.5
EST. TOTAL BOOKINGS							N.R.	N.R.	N.R.	N.R.	29.6	33.7
TOTAL CASH EXP./BOOKING (CURRENT $)											$1.86	$2.05
TOTAL CASH EXP./BOOKING (1985 $)											$1.86	$2.11

ATTACHMENT 1
(Page 4 of 6)

HISTORIC U.S. CRS COSTS AS PRESENTED BY DOT
(U.S.$ MILLIONS)

SYSTEMONE

	NOTE	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986
CASH EXPENDITURES	(A)											
OPERATING EXPENSES							$0.0	$2.9	$6.6	$7.4	$13.5	$22.9
EQUIPMENT INVESTMENTS							$0.3	$6.1	$26.5	$24.6	$24.5	$21.8
DEVELOPMENT EXPENSES							N.R.	N.R.	N.R.	N.R.	N.R.	N.R.
SUBSCRIBER NETWORK							$0.2	$2.5	$6.8	$12.4	$18.9	$33.1
TOTAL CASH EXPENDITURES							$0.5	$11.5	$39.9	$44.4	$56.9	$77.8
ACCOUNTING COSTS	(B)											
OPERATING												
COMPUTER OPNS.											$3.7	$5.0
COMMUN. NET.											$9.8	$17.9
SUBSCRIBER SVC.											$10.9	$27.5
SUBTOTAL											$24.4	$50.4
DEP./AMORT.												
DEP. OF EQUIP.											$16.4	$20.7
AMORT. OF OTHER											$4.2	$7.3
SUBTOTAL											$20.6	$28.0
TOTAL COSTS											$45.0	$78.4
EST. NON-HOST BOOKINGS	(C)								2.2	8.2	19.8	27.1
HOST BOOKINGS	(D)						N.R.	N.R.	1.6	4.7	6.8	9.3
EST. TOTAL BOOKINGS									3.8	12.9	26.6	36.4
TOTAL CASH EXP./BOOKING (CURRENT $)									$10.46	$3.43	$2.14	$2.14
TOTAL CASH EXP./BOOKING (1985 $)									$10.68	$3.43	$2.14	$2.23

ATTACHMENT 1
(Page 5 of 6)

HISTORIC U.S. CRS COSTS AS PRESENTED BY DOT
(U.S.$ MILLIONS)

DATAS II

	NOTE	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986
CASH EXPENDITURES	(A)											
OPERATING EXPENSES								$1.8	$6.7	$11.3	$13.2	$15.8
EQUIPMENT INVESTMENTS								$12.1	$16.6	$30.8	$18.4	$15.9
DEVELOPMENT EXPENSES								$6.8	$8.1	$9.9	$6.8	$6.7
SUBSCRIBER NETWORK								$0.9	$5.7	$11.4	$21.9	$23.5
TOTAL CASH EXPENDITURES								$21.6	$37.1	$63.4	$60.3	$61.9
ACCOUNTING COSTS	(B)											
OPERATING												
COMPUTER OPNS.											$3.4	$4.3
COMMUN. NET.											$9.8	$11.5
SUBSCRIBER SVC.											$4.9	$3.4
SUBTOTAL											$18.1	$19.2
DEP./AMORT.												
DEP. OF EQUIP.											$11.9	$15.6
AMORT. OF OTHER											$12.7	$18.1
SUBTOTAL											$24.6	$33.7
TOTAL COSTS											$42.7	$52.9
EST. NON-HOST BOOKINGS	(C)							0.1	4.2	9.6	13.4	16.8
HOST BOOKINGS	(D)							0.1	1.1	2.6	3.7	4.2
EST. TOTAL BOOKINGS								0.2	5.3	12.2	17.1	21.0
TOTAL CASH EXP./BOOKING (CURRENT $)								$90.42	$7.04	$5.18	$3.52	$2.94
TOTAL CASH EXP./BOOKING (1985 $)								$93.22	$7.19	$5.18	$3.52	$3.03

HISTORIC U.S. CRS COSTS AS PRESENTED BY DOT
(U.S. $ MILLIONS)

NOTES

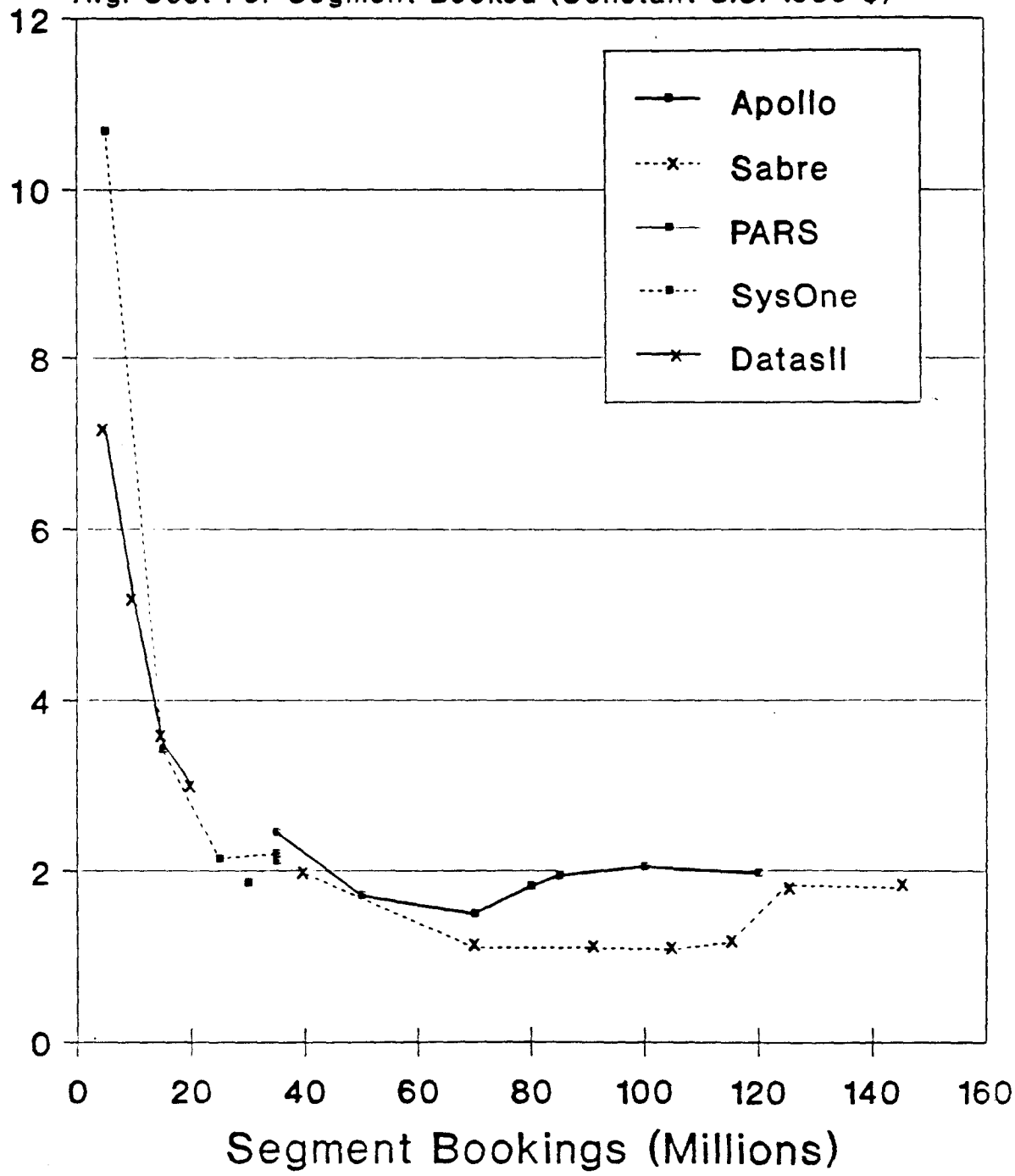
SOURCE; U.S. DEPARTMENT OF TRANSPORTATION, STUDY OF AIRLINE COMPUTER RESERVATION SYSTEMS, MAY 1988

(A) FROM TABLE 4.1.
(B) FROM TABLE 4.12.
(C) DERIVED BY DIVIDING PARTICIPANT BOOKING FEES (TABLE 4.1) BY AVERAGE BOOKING FEE (TABLE 4.3).
) FROM TABLE 4.3.
(E) SH&E ESTIMATE

N.R. INDICATES THAT THE DATA WERE NOT IDENTIFIABLE (BY DOT) OR NOT REPORTED AS A SEPARATE CATEGORY.

Attachment 2

CRS ECONOMIES OF SCALE



Source: Attachment 1

ATTACHMENT 3

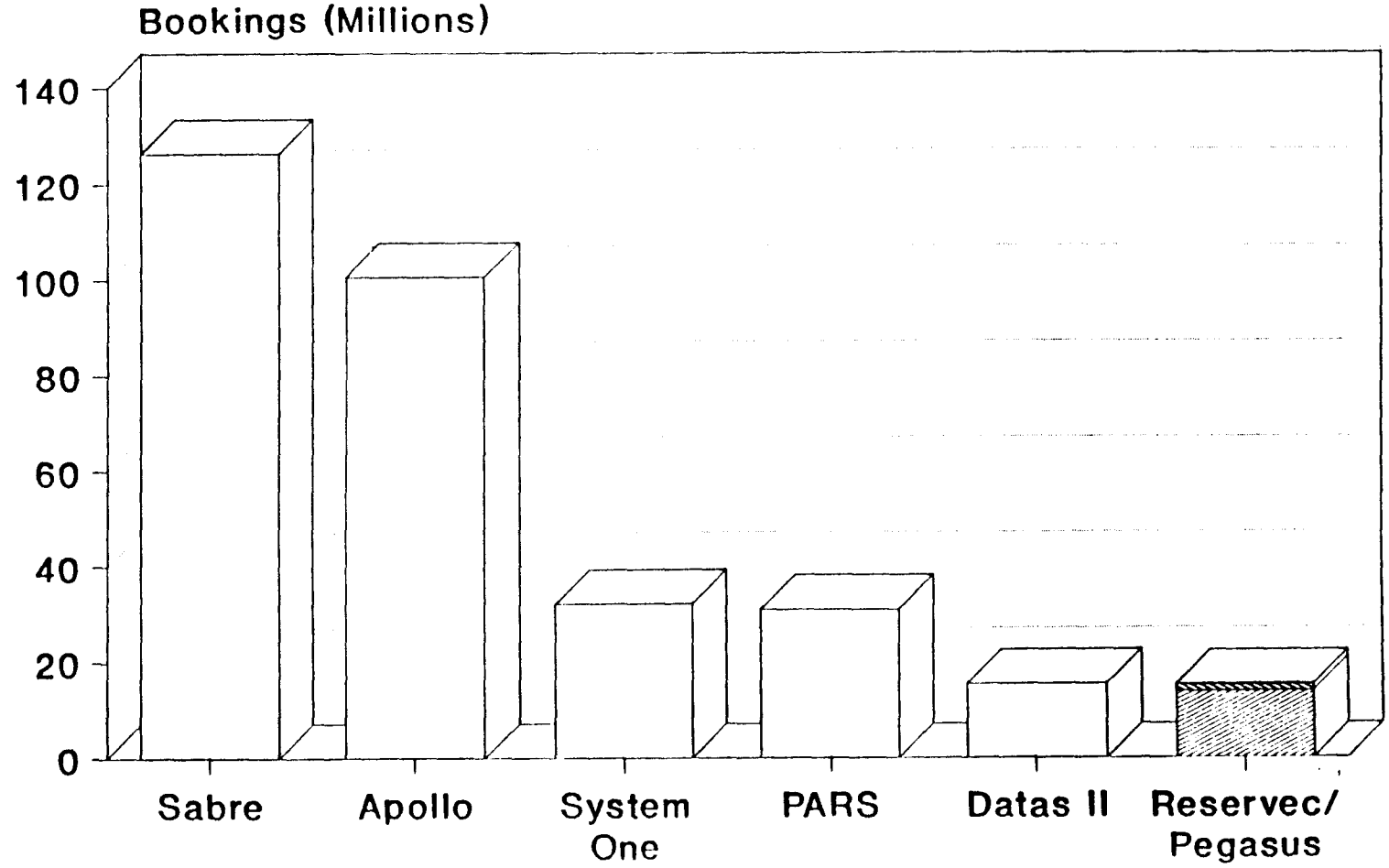
STATISTICAL COMPARISONS OF U.S. AND CANADIAN CRS SYSTEMS
1986

	AGENCY LOCATIONS		AGENCY REVENUES		TERMINALS		SEGMENTS BOOKED	
CRS VENDORS	NUMBER	PERCENT	AMOUNT (US$ 000)	PERCENT	NUMBER	PERCENT	NUMBER (000)	PERCENT
U.S. (PRIMARY)								
SABRE	8,677	35.1%	$9,280,784.9	42.9%	47,339	40.9%	126,358.8	41.3%
APOLLO	6,511	26.4%	$7,017,262.9	32.4%	31,446	27.2%	100,612.9	32.9%
SYSTEMONE	4,271	17.3%	$2,083,864.0	9.6%	16,820	14.5%	32,199.3	10.5%
DATAS II	2,045	8.3%	$1,056,796.4	4.9%	7,856	6.8%	15,462.0	5.1%
PARS	3,189	12.9%	$2,208,146.3	10.2%	12,288	10.6%	30,985.4	10.1%
TOTAL U.S.	24,693	100.0%	$21,646,854.5	100.0%	115,749	100.0%	305,618.4	100.0%
CANADIAN								
RESERVEC	2,900	81.8%			5,225	84.6%	13,800.0	90.7%
PEGASUS 2000	644	18.2%			951	15.4%	1,420.0	9.3%
TOTAL CANADIAN	3,544	100.0%			6,176	100.0%	15,220.0	100.0%

SOURCES:
U.S. DOT, STUDY OF AIRLINE COMPUTER RESERVATION SYSTEMS, MAY 1988 (TABLE 3.1)
NEWCO: AIRLINE RESERVATION SYSTEMS, MARCH 2, 1987

Attachment 4

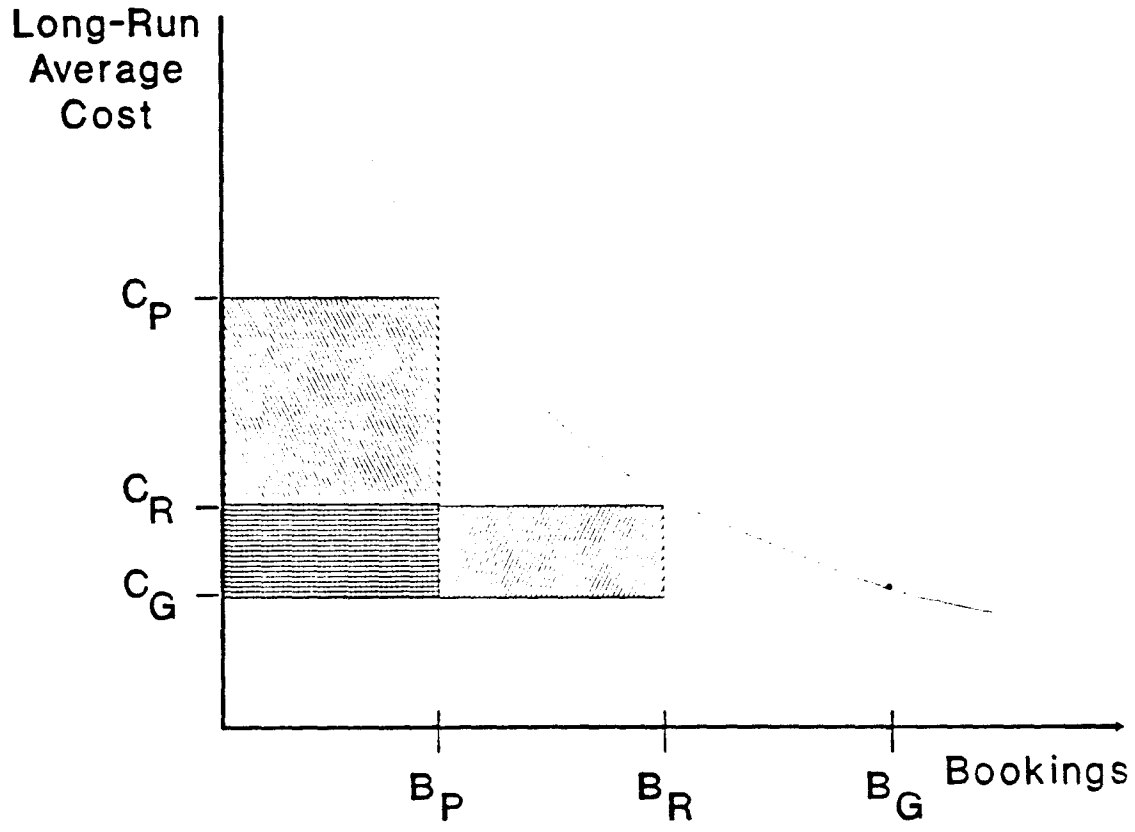
CRS SIZE: 1986 SEGMENTS BOOKED BY U.S. AND CANADIAN SYSTEMS



Source: Attachment 3

Attachment 5

ILLUSTRATION OF STATIC COST SAVINGS TO BE REALIZED BY GEMINI



LEGEND:

C_P - Cost Pegasus
C_R - Cost Reservec
C_G - Cost Gemini

B_P - Bookings Pegasus
B_R - Bookings Reservec
B_G - Bookings Gemini

-- "Pegasus" Gains

-- "Reservec" Gains

GEMINI TASK FORCE
FEB. 1, 1988
NEW CRS AND AIRLINE SYSTEMS BUILT ON PEGASUS

NON RECURRING EXPENSES

	AMOUNTS IN THOUSANDS					
	1988	1989	1990	1991	1992	TOTAL
HARDWARE						
. PROCESSORS						
. DASD						
. TAPES						
	-----	-----	-----	-----	-----	-----
. GEMINI STAFF						
. CONTRACT STAFF						
. PURCHASE SOFTWARE						
	-----	-----	-----	-----	-----	-----
DEVELOPMENT TPF 2.3						
. GEMINI STAFF						
. CONTRACT STAFF						
	-----	-----	-----	-----	-----	-----

RECURRING EXPENSES (INCREMENTIAL)

	AMOUNTS IN THOUSANDS					
	1988	1989	1990	1991	1992	TOTAL
SOFTWARE LICENSE						
HARDWARE MAINT.						
APPL. SUPPORT						
	----	-----	-----	-----	-----	-----

ASSUMED:
Incremential costs only in 1988 from 3090-150E to 3090-180E.
$ per month Gemini staff.
$ per month TPF Contractor.

Source: Gemini Task Force

ATTACHMENT 7

1988 GEMINI OPERATING EXPENSE
(C$000)
(PRELIMINARY AND UNAUDITED)

SUMMARY

	LABOR (1)	DATA COMMUN. (2)	PHONES (3)	ADV. & PROMOT. (4)	TRAVEL & ENTER (5)	FACILITIES (6)	EMSR* (7)	OTHER (8)	TOTAL (9)	ALLOCATED CRS/RES (10)	POTENTIAL SAVINGS (11)	SAVINGS PERCENT (12)
OPERATIONS & DEVELOPMENT												
MKTG, SALES & SERVICE												
OVERHEAD	$											
TOTAL DIRECT												
OTHER												
TOTAL EXPENSES												

* EQUIPMENT MAINTENANCE AND SOFTWARE RENTAL

SOURCE: ATTACHMENTS 8 THROUGH 11.

ATTACHMENT 8
1988 GEMINI OPERATING EXPENSE
(C$000)
(PRELIMINARY AND UNAUDITED)

	OPERATIONS AND DEVELOPMENT											
	LABOR (1)	DATA COMMUN. (2)	PHONES (3)	ADV. & PROMOT. (4)	TRAVEL & ENTER (5)	FACILITIES (6)	EMSR* (7)	OTHER (8)	TOTAL (9)	ALLOCATED CRS/RES (10)	POTENTIAL SAVINGS (11)	BASIS OF ALLOCATION (12)
ADMINISTRATION												
TELECOMMUNICATIONS												
NETWORK												CRTs
MAINT & INSTALL												DTEs
ENGINEERING												% NET/M&I
DIRECTOR												OTHER TEL.
SUBTOTAL												
DEVELOPMENT												BUDGET
OPERATIONS												CRTs
TOTAL OPS & DEV												

* EQUIPMENT MAINTENANCE AND SOFTWARE RENTAL

SOURCE:
COLUMNS 1 - 9: GEMINI
COLUMNS 10 - 12:SEE SECTION 4

ATTACHMENT 9
1988 GEMINI OPERATING EXPENSE
(C$000)
(PRELIMINARY AND UNAUDITED)

	MARKETING, SALES & SERVICE											
	LABOR (1)	DATA COMMUN. (2)	PHONES (3)	ADV. & PROMOT. (4)	TRAVEL & ENTER (5)	FACILITIES (6)	EMSR* (7)	OTHER (8)	TOTAL (9)	ALLOCATED CRS/RES (10)	POTENTIAL SAVINGS (11)	BASIS OF ALLOCATION (12)
ADMINISTRATION												OTHER MS&S
DIR. - AGENCY S & S												AGENCY S&S
MARKETING												LOCATIONS
AGENCY SALES												LOCATIONS
AGENCY SERVICE												LOCATIONS
TOTAL M S & S												

* EQUIPMENT MAINTENANCE AND SOFTWARE RENTAL

SOURCE:
COLUMNS 1 - 9: GEMINI
COLUMNS 10 - 12:SEE SECTION 4

ATTACHMENT 10
1988 GEMINI OPERATING EXPENSE
(C$000)
(PRELIMINARY AND UNAUDITED)

OVERHEAD

	LABOR (1)	DATA COMMUN. (2)	PHONES (3)	ADV. & PROMOT. (4)	TRAVEL & ENTER (5)	FACILITIES (6)	EMSR* (7)	OTHER (8)	TOTAL (9)	ALLOCATED CRS/RES (10)	POTENTIAL SAVINGS (11)	BASIS OF ALLOCATION (12)
HUMAN RESOURCES												OTHER DIRECT
FINANCE												OTHER DIRECT
TOTAL OVERHEAD												

* EQUIPMENT MAINTENANCE AND SOFTWARE RENTAL

SOURCE:
COLUMNS 1 - 9: GEMINI
COLUMNS 10 - 12:SEE SECTION 4

ATTACHMENT 11
1988 GEMINI OPERATING EXPENSE
(C$000)
(PRELIMINARY AND UNAUDITED)

	OTHER EXPENSES											
	LABOR (1)	DATA COMMUN. (2)	PHONES (3)	ADV. & PROMOT. (4)	TRAVEL & ENTER (5)	FACILITIES (6)	EMSR* (7)	OTHER (8)	TOTAL (9)	ALLOCATED CRS/RES (10)	POTENTIAL SAVINGS (11)	BASIS OF ALLOCATION (12)
DEPRECIATION												CRTs
AMORTIZATION												
LEASEHOLD IMPROVEMENTS												
GOODWILL												
SUBTOTAL												CRTs
INTEREST												
INCOME												
EXPENSE												
NET												CRTs
TOTAL OTHER												

SOURCE:
COLUMNS 1 - 9: GEMINI
COLUMNS 10 - 12:SEE SECTION 4

ATTACHMENT 12

GEMINI CRTs AND DTEs INSTALLED AS AT JUNE 30, 1988

	RESERVEC				PEGASUS				TOTAL	
	NUMBER		PERCENT OF TOTAL		NUMBER		PERCENT OF TOTAL		NUMBER	
	CRTs	DTEs	CRTs	DTEs	CRTs/PCs	DTEs	CRTs/PCs	DTEs	CRTs/PCs	DTEs
TRAVEL AGENCY	6,550	10,456	48.6%	50.7%	1,089	2,198	25.6%	32.6%	7,639	12,654
INTERNAL	4,913	6,978	36.5%	33.8%	2,675	3,812	63.0%	56.6%	7,588	10,790
PASSENGER	3,021	4,149	22.4%	20.1%	1,990	2,857	46.9%	42.4%	5,011	7,006
NON-PASS.	1,892	2,829	14.1%	13.7%	685	955	16.1%	14.2%	2,577	3,784
EXTERNAL	2,002	3,182	14.9%	15.4%	482	724	11.4%	10.8%	2,484	3,906
HOSTED	193	361	1.4%	1.8%	129	235	3.0%	3.5%	322	596
GEMINI	402	654	3.0%	3.2%	36	54	0.8%	0.8%	438	708
VIA RAIL	542	773	4.0%	3.7%					542	773
OTHER	865	1,394	6.4%	6.8%	317	435	7.5%	6.5%	1,182	1,829
TOTAL	13,465	20,616	100.0%	100.0%	4,246	6,734	100.0%	100.0%	17,711	27,350
TOTAL LESS VIA & GEMINI	12,521	19,189			4,210	6,680				
AGT & PAX & HOST &1/2 OTH	10,197	15,663			3,367	5,508				
	81.4%	81.6%			80.0%	82.4%				

SOURCE: GEMINI

Exhibit A

Professional Resume:
DR. WILLIAM J. DUFFY

1 SUMMARY

POSITIONS HELD:

1982 -	Executive Vice-President, SH&E, Inc.
1979 - 1982	Vice-President, SH&E
1977 - 1979	Senior Economist, Office of Advanced Systems, Transportation Systems Center [TSC], US Department of Transportation [DOT]
1974 - 1977	Chief, Research Division, TSC
1973 - 1974	Senior Analyst, TSC
1969 - 1973	Assistant Professor, Department of Economics, Boston College
1967 - 1969	Instructor, Boston College
1966	Assistant Instructor, Department of Economics, University of Pittsburgh

EDUCATION:

St. Vincent College	Economics	B.A. 1963
University of Pittsburgh	Economics	M.A. 1965
University of Pittsburgh	Economics	Ph.D.1969

2 CONSULTING EXPERIENCE

Executive Vice-president, member of the Board, and responsible for the Boston office of SH&E, the largest management consulting firm, specialized in aviation, in the world. Have consulted to airlines, manufacturers, the financial community, and government agencies worldwide in all major commercial areas of airline operations and planning.

Dr. Duffy has expertise in the areas of travel distribution systems, computerized reservation systems (CRSs), pricing/revenue management, and management information systems. Experience in these areas includes:

-- assistance in the preparation of expert testimony on behalf of the "Muse Group" carriers in the CAB's CRS investigation.

-- preparation of expert testimony on the profitability of SABRE and APOLLO on behalf of the major non-CRS-owning US carriers before the US Congressional Subcommittee hearings on CRS dominance and pricing.

-- preparation and presentation of expert economic testimony on behalf of the *USAir et al* plaintiffs in the suit brought against American and United airlines.

-- assistance to the NIBS Interest Group of 27 airlines in determining the nature and value of the CRS "halo effect," and the fair market value of various US CRSs.

-- Project Director for the AEA's Global Distribution System Feasibility Study, which developed the automated distribution system concepts currently being embodied by the *AMADEUS* and *GALILEO* groups of European carriers.

-- assistance to individual carriers throughout the world in determining their own long-term distribution system and reservation system strategies.

-- preparation, for a private client, of an evaluation of long-term trends in the hotel distribution system and reservation/sales automation.

-- for Greyhound Lines, the design and development of their new electronic sales information system.

-- assistance to ABC Guides, publishers of the ABC World Airways Guides, in the development of their long term business plans and strategies involving the automation of the travel distribution systems worldwide.

-- assistance to a group of Asian carriers in developing the business plan and marketing strategy for the *ABACUS* CRS.

-- for Pan Am, the design and assistance in development of a completely new passenger revenue accounting system and related management & sales information systems.

-- the design of SH&E's proprietary Passenger Revenue Accounting system for mid-sized international carriers.

-- for UNISYS, the design and assistance in the development of a comprehensive airline revenue management software system to be marketed to airlines worldwide.

-- assistance to US and non-US carriers in the development of more effective pricing and revenue management strategies.

3 GOVERNMENT RESEARCH EXPERIENCE

As Chief of TSC's Research Division, was responsible for forming and managing a professional staff (at most 42 people) comprised mostly of PhD-level economists and operations research analysts. The Research Division conducted over 70 studies sponsored by various elements of the DOT and other federal agencies, involving virtually all major transportation policy decisions:

Foe DOT and the Army Corp of Engineers [ACOE], economic analysis of the impacts of user charges on the inland and intercoastal waterway system

Cost benefit analysis of the elements of the Upgraded Third Generation (UG3) Air Traffic Control System

For the Federal Railroad Administration [FRA] and US Railway Adminstration [USRA], evaluation of alternatives for restructuring the intercity rail system in the Northeast

Demand and financial projections for the Northeast Corridor High Speed Rail project

Design & development of the Federal Aviation Administration's [FAA] aviation activity forecasting system

For DOT and the Maratime Administration [MARAD], economic evaluation of the maritime construction and operating subsidy programs

For DOT and Department of Energy [DOE], economic analysis of alternatives for increasing energy conservation in transportation

Development of transportation demand forecasts used in the DOT's long-term transportation plan Transportation: Trends & Choices

For NASA, the economic evaluation of advanced intercity passenger systems

PAPERS & PUBLICATIONS:

Returns to Scale in the Railroad Industry, DOT/TSC Report WP-222-79-2, May 1979.

Freight System Aggregation & Intermodalism, DOT/TSC Report WP-222-79-8, July 1979.

Institutional Issued Affecting Major Advances in Freight Transportation, DOT/TSC report SS-16-78-9, August, 1978.

Production & Cost Analysis of the FAA ATC Function, DOT/TSC report WP-210-U2-116, October, 1976.

"Issues in Tunneling R&D," invited issue paper presented to the DOT Second Annual Conference in Tunneling R&D, August 1976, issued as DOT/TSC report WP-210-U2-114.

Advanced Research In Transportation, DOT/TSC report WP-210-U2-115, October, 1966.

"Tariff Simplification & Computerization," paper presented at the University of Wisconsin Transportation Seminar, September, 1975.

Advanced Freight System Study: Phase I, co-authored, DOT/TSC report WP-16-77-2, October, 1977.

Study of the Potential For Motor Vehicle Fuel Efficiency Improvement, contributing author, DOT/EPA report to Congress, 1/10/75.

Analysis of Input-Output Techniques of Transportation Energy Research, DOT/TSC report WP-210-U2-60, June, 1974.

4 ACADEMIC EXPERIENCE

At Boston College, teaching responsibilities included advanced quantitative techniques at the graduate level and applied economic theory at the undergraduate level. Appointed to the university's Research Policy Committee and Computing Center Steering Committee; a co-founder of the university's interdisciplinary Center for Environmental Studies.

TEACHING EXPERIENCE:

Graduate	Undergraduate
mathematical statistics, multivariate analysis	economic principles
advanced time series analysis	international trade
econometric theory	development economics
	environmental economics
	economic history
	statistics
	microeconomic theory

PAPERS & PUBLICATIONS:

"An Empirical Investigation of the Cyclic Properties Implied By Current Inventory Models," co-authored, presented at the 1972 Winter Meetings of the Econometric Society and subsequently published in Econometrica, May, 1975.

Comparative Economic Systems: A Decision-Theoretic Approach, co-authored, Allyn & Bacon, 1975.

"Stability of Manufacturing Activity in the U.S. Economy: 1920-72," co-authored, Boston College Working Papers #32, April, 1972. Research conducted at summer faculty research institute at Princeton's Econometric Research Unit under Social Science Research Council grant.

"Balance of Payments Fluctuations in American Economic History: A Spectral Analytic Study," co-authored, Boston College Working Papers #35 and final report to the Council for Research in Economic History under grand contract, January, 1972.

"Predicting Prices in the Silver Commodity Market," presented to Silver Users Association, N.Y. Athletic Club, March, 1972; funded by INSILCO.

"A Decision-theoretic Approach to the Study of Economic Systems," co-authored, Year-

book of East European Economics, Band 3, 1972.

"Further Results on the Effect of Trade on Textiles: 1959-69", Southern Economic Journal, co-authored, 1972.

"Spectral Analysis of the Tokugawa Monetary System," co-authored, Explorations in Economic History, July, 1971.

"Parameter Variation in a Quarterly Model of the post-War U.S. Economy," paper presented to the Winter Meeting of the Econometric Society, 1969.

THE COMPETITION TRIBUNAL

IN THE MATTER OF an application by the Director of Investigation and Research under Section 64(1) of the Competition Act, R.S. c. C-23 as amended:

AND IN THE MATTER OF a Limited Partnership formed to combine the operations of the Reservec and Pegasus computer reservation systems.

AND IN THE MATTER OF The Gemini Group Automated Distribution Systems Inc.

B E T W E E N:

THE DIRECTOR OF INVESTIGATION AND RESEARCH,

Applicant

- and -

Air Canada, Air Canada Services Inc., PWA Corporation, Canadian Airlines International Ltd., Pacific Western Airlines Ltd., Canadian Pacific Air Lines, Limited, 154793 Canada Ltd., 153333 Canada Limited Partnership, and The Gemini Group Automated Distribution Systems Inc.

Respondents

EVIDENCE OF FRANK MATHEWSON AND JOHN EDSFORTH

March 3, 1989

THE COMPETITION TRIBUNAL

IN THE MATTER OF an application by the Director of Investigation and Research under Section 64(1) of the Competition Act, R.S. c. C-23 as amended:

AND IN THE MATTER OF a Limited Partnership formed to combine the operations of the Reservec and Pegasus computer reservation systems.

AND IN THE MATTER OF The Gemini Group Automated Distribution Systems Inc.

B E T W E E N:

THE DIRECTOR OF INVESTIGATION AND RESEARCH,

Applicant

- and -

Air Canada, Air Canada Services Inc., PWA Corporation, Canadian Airlines International Ltd., Pacific Western Airlines Ltd., Canadian Pacific Air Lines, Limited, 154793 Canada Ltd., 153333 Canada Limited Partnership, and The Gemini Group Automated Distribution Systems Inc.

Respondents

AFFIDAVIT

I, Frank Mathewson, of the City of Toronto, in the Judicial District of York, MAKE OATH AND SAY:

1. I am a Professor of Economics at the University of Toronto and as such have knowledge of the matters hereinafter deposed to.

2. I have participated in the preparation of the attached evidence and to the best of my information, knowledge and belief, the attached evidence is true.

SWORN before me at the)
City of Toronto, in the)
Judicial District of York)
on the day of March, 1989)

_____

_____
Commissioner for Taking Affidavits

CARLO GRECO, Student-At-Law, a
Commissioner, etc., Province of Ontario,
for Osler, Hoskin & Harcourt,
Barristers and Solicitors.
Expires June 3rd, 1991.

THE COMPETITION TRIBUNAL

IN THE MATTER OF an application by the Director of Investigation and Research under Section 64(1) of the Competition Act, R.S. c. C-23 as amended:

AND IN THE MATTER OF a Limited Partnership formed to combine the operations of the Reservec and Pegasus computer reservation systems.

AND IN THE MATTER OF The Gemini Group Automated Distribution Systems Inc.

B E T W E E N:

THE DIRECTOR OF INVESTIGATION AND RESEARCH,

Applicant

- and -

Air Canada, Air Canada Services Inc., PWA Corporation, Canadian Airlines International Ltd., Pacific Western Airlines Ltd., Canadian Pacific Air Lines, Limited, 154793 Canada Ltd., 153333 Canada Limited Partnership, and The Gemini Group Automated Distribution Systems Inc.

Respondents

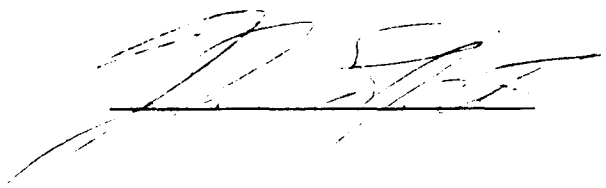
AFFIDAVIT

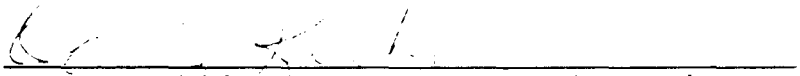
I, John Edsforth, of the City of Renton, in the State of Washington, one of the United States of America, MAKE OATH AND SAY:

1. I am President of Travacom Research Limited of Renton Washington, United States of America and as such have knowledge of the matters hereinafter deposed to.

2. I have participated in the preparation of the attached evidence and to the best of my information, knowledge and belief, the attached evidence is true.

SWORN before me at the)
City of Renton, in the)
State of Washington in the)
United States of America)
on the 7th day of March, 1989)





Notary Public for the State of Washington

COMPETITIVE IMPACT OF THE GEMINI MERGER

I. INTRODUCTION

The competitive impact of the merger of the Reservec and Pegasus 2000 computer reservation systems is analyzed in this evidence. It compares the merged Gemini situation, with the previously existing situation. It also characterizes the impacts that are likely to result if the merger of these systems is required to be dissolved.

II. AIRLINE COMPETITION IN CANADA

The Competitiveness of the Canadian Airline Industry

The possibility of anti competitive impacts from the merger of the computer reservation systems for the travel agencies must be viewed in the larger context of competitiveness between airlines and specifically the Canadian airlines. It should first be noted that the Gemini merger is not a merger of the airlines themselves. They remain as much competitors in the marketplace as they were before the merger.

The 1987 acquisition of Canadian Pacific Air Lines, Limited ("CPAL") by PWA Corporation ("PWA") to form Canadian Airlines International Ltd. ("CDN") has highlighted a trend toward greater direct competition between major Canadian carriers on domestic routes. Since the merger there has been created more effective competition to Air Canada with an airline of comparable size and presence in the domestic Canadian marketplace. In addition, deregulation introduced with the National Transportation Act, 1987 effectively removed any remaining legislative barriers to competition between the domestic air carriers in Southern Canada.[1]

These major Canadian carriers must also compete with U.S. carriers in both the east-west traffic parallel to the U.S. border and trans-border traffic between U.S. and Canadian locations, and with U.S. and other foreign carriers for international travel to and from North America. Indeed, in excess of 60% of airline travel involving one or more Canadian destinations (measured in terms of passenger miles) is on international and transborder routes where the Canadian airlines face direct competition from U.S. and other foreign air

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[1] South of the "designated area" as defined in the National Transportation Act, 1987, Subsection 67(1).

carriers.[2] As a consequence, the competitive nature of the Canadian airlines is significantly impacted by competitive U.S. and international airline operations.

The situation with regard to airline competition on domestic routes in Southern Canada may be considered to be approaching one of evenly balanced competition between two air carrier groups of comparable size and strength. The competitive behaviour in such a situation can range all the way from something approaching a high degree of competitive behaviour to something approaching non-competitive behaviour. The type of inter-company co-ordination which would make possible non-competitive behaviour can most easily be achieved in situations where there are relatively few variables under management control, and where these variables lack complexity and/or embrace a narrow range of options. In the reverse situation, where there are a relatively large number of complex variables under management control, with a wide range of management options, it becomes difficult for the companies to co-ordinate their actions in such a way as to increase prices and profits above the levels which could be achieved under competition. The airline industry in Canada is characterized by this latter situation. The variables involved in inter-airline competition include:

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2 Based on Statscan data for 1988 to the end of November with respect to passenger miles flown by major Canadian airlines.

(1) pricing, both as to the absolute level of fares and also, and more significant, a vast and practically unlimited variety of special fares and fare variants and associated conditions under which the fares are applicable;

(2) scheduling, involving design of services in the complex travel network, and incorporating routings, connections, frequency of service, time-of-day and capacity;

(3) selection of aircraft types and application of these aircraft in the route system;

(4) quality of passenger service, on the aircraft and on the ground;

(5) frequent flyer programs;

(6) configuration of aircraft cabins (e.g. various seat widths, leg room, multiple classes of service);

(7) travel agent incentives;

(8) marketing and promotion activities;

(9) schedule reliability (a carrier must make a trade-off between schedule reliability and aircraft utilization. As it attempts to increase utilization of aircraft by scheduling more tightly, the greater becomes the probability that schedule delays will occur).

The extensiveness and complexity of these variables suggests that competitive behaviour is likely to approach that which would be expected under competitive conditions rather than under non-competitive conditions.

This view is reinforced when it is considered that a number of the conditions which exist in the United States travel market and which may be said to restrict competition in that market, at least on a local basis, are not present in the Canadian airline passenger service market. A significant example of this is the tendency toward hub domination for certain United States carriers at certain major centres e.g. American Airlines at Dallas. Hub domination is not a significant factor in Canadian airline competition. Both major carriers have a significant presence at all of the major Canadian travel centres and there is no reason to believe that a hub domination by either of these two carriers will develop.

III. CONSTRAINTS ON THE EXERCISE OF MARKET POWER

This section of the evidence will address the question of the extent to which Gemini would be in a position to obtain benefits which were unattainable by the individual partners prior to the merger.

Booking Fees

The CRS charges booking fees to the airlines on whom it books reservations. In the United States, airlines are by law required to establish booking fees on a non-discriminatory basis with respect to all U.S. participating carriers. In practice, this means that the same booking fee is charged to all participating carriers (but not necessarily to the host carrier or carriers). As a practical matter, the booking fees charged by the various CRS operators in the United States tend to be very close to each other. The standard basic booking fee in the United States is currently $1.85 (U.S. currency) per segment booked.

Establishment of booking fees by Gemini is controlled on the basis of undertakings made by senior executives of the two owning airlines in June of 1987. These undertakings were made to the Minister of Transport, and committed that "partnership

airlines and allied carriers will not enjoy a preferred level of service. Access to the system will be provided on a fair and equitable basis" (letter from Rhys T. Eyton, President of PWA to the Minister of Transport, dated June 10, 1987). A similar commitment was made on June 29, 1987 by Claude I. Taylor, Chairman of Air Canada, on its behalf. At the present time, Gemini is charging the rate of $1.85 per segment booked (U.S. currency) to all carriers, including the two owning airlines. (In a few cases pre-existing contracts require a lower booking fee. However Gemini's intention is to charge the industry standard fee when these contracts are renewed). Due to the fact that Gemini is constrained by these undertakings from effective selective or discriminatory booking fee increases, any attempt to charge more than $1.85 U.S. would of necessity be on an across-the-board basis and as such would invite retaliation from other CRS's at the instance of their airline owners and international partners. The result is that, even if Gemini were to possess market power in regard to booking fees, as a practical matter, it would be unable to exert such power to increase booking fee levels.

This condition contrasts sharply from that which existed prior to the formation of Gemini. At that time, there was no constraint on the establishment of different booking fee levels for different participating carriers and, indeed, actual booking

fees charged to individual carriers ranged widely. The potential for anti-competitive practices with respect to the establishment of booking fees was far greater prior to the merger than it is currently under Gemini.

Moreover, the booking fee revenues which Gemini receives from airlines other than Air Canada, Canadian Airlines and their respective affiliated and alliance carriers are less than the booking fees which Air Canada and Canadian Airlines pay to CRSs other than Gemini. As a consequence, any booking fee increase initiated by Gemini which triggered a similar increase by such other CRSs would necessarily result in a net economic loss to the two Canadian air carriers.

Travel Agency Subscription Fees

Travel agents pay a subscription fee to the CRS operator for the use of the CRS service. The level of subscription fees reflects both the value of the CRS service to the travel agent and the value to the CRS owner of having the travel agent use his service. The question addressed in this section is whether the formation of Gemini will allow the merged operation to use market power to exact a higher level of subscription fee from travel agents than would be the case if an equivalent service were provided by the two predecessor systems.

In this connection, it is first to be noted that there is vigorous competition provided by the SABRE system, which has made remarkably rapid penetration of the Canadian market. Attempts by Gemini to exact excessive profits from its agency subscription fees would very likely precipitate a migration of Gemini subscribers to the SABRE system. This is of particular concern because it would result in the loss of those booking fees which Gemini obtains only if the agent is a Gemini subscriber. The competitive threat posed by SABRE is especially serious considering the substantial economies of scale enjoyed by SABRE relative to Gemini.

There is also a real probability that, should Gemini attempt to extract excessive profits from travel agents through increased subscriber charges, the point could be reached where other large United States CRSs would find it attractive to compete in the Canadian market. Like SABRE, these other competing systems have already achieved economies of scale and face relatively low incremental costs of expanding their operations in Canada.

Even in situations where, for whatever reason, competition from SABRE or from another potential United States CRS entrant may not be effective as a constraint on Gemini's market power, exercise of any power is effectively precluded by virtue of the

institutional relationship between the airlines and the travel agents. There is a mutual dependency between the airlines and the travel agents. The airlines depend on the travel agents to an ever-increasing extent for distribution of their product. The travel agents depend upon the airlines for the commissions which they require in order to provide for their economic viability. In Canada, the tie between the agents, Air Canada and Canadian Airlines is especially strong, because of the very high percentage of overall agency commissions which are received from the two carriers, and because of the high percentage of passenger revenues of the two carriers which are obtained through bookings by the Canadian travel agencies.

The current configuration of travel agencies throughout the country is not a result of some accidental or random distribution. In an economic sense, it can be considered as an optimum network, given the current demand for air transportation and the revenues, expenses and investments involved in the travel agency business. If Gemini attempted to use market power to increase agency subscription fees (in situations where such could be done without effective threat of competition from SABRE or another American system), then, other things being equal, the returns available to the travel agent would be reduced. The travel agent network would no longer be optimal and would, in the course of time, adjust itself to the new economic situation.

Given that the travel agency business is itself a competitive one, and one which is characterized by relatively low costs of entry and exit, there is every reason to believe that such adjustment would be relatively swift.

The adjustment to an increased cost of doing business by virtue of higher subscription fees would be a decrease in the available supply of travel agency services relative to what would otherwise exist. This would work a net disadvantage to the airlines. The existing level of airline commissions is intended to provide for the viability of the travel agency industry. That being the case, rather than see a shrinkage of that industry as a consequence of increased agency subscription fees, the airlines would prefer to maintain the existing network by providing sufficient incremental commissions to cover the incremental subscription fees and keep the system whole. Thus, there would be a circularity of cash flows involved in the transaction, with the agents providing incremental cash flows to Gemini, with these incremental cash flows flowing through to the owning airlines as dividends or increase in equity, and with the airlines providing additional commissions to the agent. There would be no net economic effect from this circular transaction. As a consequence, there is no incentive to initiate a subscriber fee increase in the first instance.

Finally, it is noted that agency subscription fees have actually decreased rather than increased since the merger took place.

Service and Innovation

If Gemini fails to provide competitive service, or fails to innovate, SABRE or other U.S. CRSs will begin to win over more Canadian travel agents to their systems. A reduction in the number of travel agents for Gemini results in reduced agency subscriber and booking fee revenues and, as a consequence, in higher average costs. Gemini is especially vulnerable to a shrinkage of its travel agency subscriber base because the Canadian market is so small. Because of Gemini's position on the average cost curve, an incremental travel agent is more important to Gemini than to SABRE, i.e. it needs virtually all of its subscriber base to cover its fixed costs. Gemini must provide competitive service and innovate because only competitive service and innovation will enable it to retain its subscriber base and remain viable.

IV. IMPACT OF EFFICIENCIES ATTAINABLE THROUGH THE MERGED OPERATION

There is evidence that there will be annual efficiency gains attained as a result of the merger. This section will address the economic consequences of the generation of these efficiency gains.

As discussed above, the formation of Gemini will not change the levels of booking fees or agency subscription fees, relative to the levels that would otherwise obtain. Thus, the efficiency gains would initially be recognized as an incremental cash flow and operating profit for Gemini, compared to the situation of the two predecessor systems. Whatever its distribution, the immediate impact of the generation of such gains would be a net economic benefit for the Canadian economy.

The distribution of this benefit could be:

(1) an increased dividend to the owning airlines;

(2) retention within Gemini in order to enhance the functionality of its system to travel agents; or

(3) retention within Gemini to reduce charges to travel agents.

(1) If the disposition is a dividend to the owning airlines, the economic impact is effectively the same as a net reduction in the airlines' cost of doing business. Given the evidence previously presented that the airline industry in Canada is competitive, the net reduction in cost of doing business would, in one form or another, be passed through to the travelling public in the form of lower fares and/or improved services.

(2) If the efficiency gains are retained to enhance the functionality of Gemini, the net beneficiary will be the travel agent in the form of an improved product. Given the previous discussion relating to agency subscription fees, such an improvement in quality would logically be accompanied by an increase in agency subscription fees relative to what would otherwise be the case (i.e. Gemini would expect to receive an appropriate return on its investment in increased functionality). The net economics of the travel agencies would be unchanged (they would pay more but would be getting a better quality service), and, ultimately, the net dividend available to the owning airlines through Gemini would be increased. The end result would thus be the same as in the case where the benefit of the efficiency gains is passed back to the airlines directly in the form of dividends - lower fares and/or improved service to the public.

Alternatively, Gemini could decide to provide product improvements without a price increase, in which case it would be reasonable to expect an increase in Gemini's subscriber travel agency base and/or an increased supply of travel agency services. Again the result would be the same, with an appropriate return flowing back to Gemini and its airline owners and on to the public.

(3) Essentially the same result would apply if the benefit of efficiency gains were to be passed back to travel agencies in the form of reduced subscription fees.

Therefore, in all of the above cases, the efficiency gains to be realized through the formation of Gemini will be passed through to the travelling public.

V. DISSOLUTION OF GEMINI

If the merger is disallowed, several scenarios could evolve. In all cases Pegasus would cease to exist as an independent CRS. The shutdown of Pegasus would leave PWA/CDN with the alternatives of (1) operating without an owned CRS and paying booking fees to other CRS's; (2) hosting on Reservec and paying hosting fees to

Reservec and booking fees to other CRS's; and (3) arranging for a partnership or joint venture with another CRS such as SABRE.

Alternative 1 - No PWA/CDN CRS. Under this alternative, many of the travel agencies currently associated with Pegasus would likely opt to subscribe to Reservec. The market position of Reservec would not then be materially different than that of Gemini at the present time. However, without the merger the economic and competitive benefits arising from joint ownership and efficiency gains would not be attained.

Alternative 2 - PWA/CDN hosts in Reservec. The competitive results under this alternative are largely similar as under Alternative 1. However, in this case there is an even greater likelihood that Pegasus travel agents would migrate to Reservec.

Alternative 3 - PWA/CDN Joint Ventures with a U.S. CRS. If PWA/CDN enters into a joint venture with a CRS system such as SABRE then the result would be an erosion of Reservec's market share. This would almost certainly force Reservec to seek a similar joint venture with a U.S. CRS. As a consequence there would be no viable Canadian CRS, a result which would be contrary to one of the stated purposes set forth in Section 1.1 of the Competition Act, namely "to promote the efficiency and adaptability of the Canadian economy, in order to expand

opportunities for Canadian participation in world markets". This would also most likely lead to increased import substitution at the CRS level, thereby denying the achievement of efficiency gains contemplated by subsection 96(2) of the Act.

CT-88/1

THE COMPETITION TRIBUNAL

IN THE MATTER OF an application by the Director of Investigation and Research under Section 64(1) of the Competition Act, R.S. c. C-23 as amended:

AND IN THE MATTER OF a Limited Partnership formed to combine the operations of the Reservec and Pegasus computer reservation systems.

AND IN THE MATTER OF The Gemini Group Automated Distribution Systems Inc.

B E T W E E N:

THE DIRECTOR OF INVESTIGATION AND RESEARCH,

Applicant

- and -

Air Canada, Air Canada Services Inc., PWA Corporation, Canadian Airlines International Ltd., Pacific Western Airlines Ltd., Canadian Pacific Air Lines, Limited, 154793 Canada Ltd., 153333 Canada Limited Partnership, and The Gemini Group Automated Distribution Systems Inc.

Respondents

STATEMENT OF QUALIFICATIONS OF JOHN EDSFORTH

CT-88/1

THE COMPETITION TRIBUNAL

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Applicant

- and -

Air Canada, Air Canada Services Inc., PWA Corporation, Canadian Airlines International Ltd., Pacific Western Airlines Ltd., Canadian Pacific Air Lines, Limited, 154793 Canada Ltd., 153333 Canada Limited Partnership, and The Gemini Group Automated Distribution Systems Inc.

Respondents

AFFIDAVIT

I, John Edsforth, of the City of Renton, in the State of Washington, one of the United States of America, MAKE OATH AND SAY:

1. I am President of Travacon Research Limited of Renton, Washington, United States of America, and I have been asked to provide expert evidence in connection with this proceeding.

2. My qualifications to provide expert evidence in this proceeding are set out in the attached personal resume marked as Exhibit A to this my affidavit.

SWORN before me at the)
City of Renton, in the)
State of Washington in the)
United States of America)
on the 7th day of March, 1989)

Notary Public for the State of Washington
My Commission Expires 5-31-91

EXHIBIT A

PERSONAL RESUME

John F. Edsforth

EDUCATION

Master of Science - California Institute of Technology

Bachelor of Engineering (Engineering Physics) - McGill University

EMPLOYMENT HISTORY

1956-1968	Director of Industrial Engineering, Canadian Pacific Ltd. Responsibilities included management of a staff involved in research and implementation with respect to the company's rail, trucking and marine operations.
1968-1970	Manager, Operations Research, Boeing Commercial Airplane Company. Responsibilities included development of analytical systems and methods for evaluation of markets for commercial airplanes, and for financial analysis of company investments related thereto.
1970-1980	Group Manager, Transportation Consulting, Boeing Computer Services Company. Responsibilities included management of a consulting staff involved in transportation research and development of computing systems applicable to the transportation industry.
1980-Present	President, Travacon Research Limited, a firm which provides transportation consulting services to shippers, carriers and governmental agencies.

EXPERT PARTICIPATION IN REGULATORY PROCEEDINGS

Canadian Transport Commission - Railway Transport Committee

- Inquiry into cost of capital methodology for Canadian railways (1984/1985).
- Revision of Uniform Classification of Accounts for Canadian railways (1980).
- Inquiry into rate-setting methodology for canola products (1982).

- Inquiry into treatment of ownership costs of government-donated assets on railway grain-dependent branch lines (1982).

- Inquiry into regulations for railway handling of dangerous commodities (1981).

- Inquiry into railway rates for movement of intermodal traffic to and from Newfoundland (1983-1985).

- Regina Railway Relocation (1986-1987).

- Abandonment of Canadian National Railway, Cowichan Subdivision (1981).

Canadian Transport Commission - Water Transport Committee

- Inquiry into licensing procedures for tug and barge operators on the Mackenzie River (1973).

- Inquiry into regulation of water carriage on the Mackenzie River (1977).

- Inquiring into regulation of water carriage on the Mackenzie River (1985).

National Transportation Agency of Canada

- Inquiry into methodology for establishment of Canadian National Railway property ownership costs to Via Rail, Kingston Subdivision (1988).

- Abandonment of the Canadian National Railways, Chester Subdivision (1988-1989).

- 1984 WGTA Costing Review

Royal Commission respecting the affairs of the British Columbia Railway

- Evaluation of revenues and variable costs associated with handling of intermodal and less-than-carload traffic (1977).

Before the Senate Transportation and Communications Committee and the House Standing Committee on Transport, with respect to proposed legislation, including:

- National Transportation Act, 1987

- Western Grain Transportation Act

- Railway Safety Act.

OTHER RELEVANT PROJECT EXPERIENCE

- On behalf of Transport Canada, conducted an evaluation of impacts upon rail carriers of certain of the provisions of the *National Transportation Act, 1987*.

- Responsible for development of computer reservation system for charter for Wardair Canada Ltd.

- Developed methodology for analysis and forecasting of airline financial results under alternative fleet development options.

- Developed methodology for analysis of returns available to airlines through investment in commercial airplanes.

- Developed methodology for evaluation of the role of passenger preferences in selection of airline flights.

- Developed methods for evaluating available volumes of air cargo as a function of airline rate levels.

- Vancouver Rail Access Study. This study was conducted on behalf of Transport Canada, Canadian Transport Commission and the Provinces of British Columbia, Alberta, Saskatchewan and Manitoba. It consisted of an inventory of rail trackage facilities within the greater Vancouver area, an estimate of capacity thereof and identification of bottlenecks which could emerge based upon forecast levels of facility usage. The study included consideration of individual railway plans for alleviating potential bottlenecks, and of additional measures which could be taken to improve performance of the local railway system.

- Assistance to municipalities with respect to relocation of rail facilities in urban areas, for the purpose of improving safety and capacity of local transportation operations. Projects have included New Westminster, Chilliwack, Fort Saskatchewan and Red Deer.

- Evaluation of processing capacity of public ports within the State of Washington, with concentration upon the inland transportation infrastructure supporting the port facilities.

- Evaluation of container processing capacity of the Port of Portland, Oregon, with concentration upon rail facilities and operations associated therewith.

- Comprehensive transportation study for the Mackenzie River Valley Region of the Northwest Territories. This project embraced water, highway and air transportation, and involved demand forecasting, capacity evaluation and determination of cost effectiveness of alternative government investments designed to improve transportation in the region.

- Evaluation of operations of British Columbia Hydro Rail.

- Participated in Gilson consultations with respect to railway costs incurred in transportating statutory grain.

- Project feasibility studies:

    - construction of new train yard switching facilities and of major modifications to existing facilities.

    - construction of new facilities for terminal handling of motor carrier traffic.

    - expansion of container port facilities.

    - dredging program to improve capacity of an inland waterway.

    - conversion of transport vessels for use in oil exploration.

    - acquisition of subsidiary companies.

    - expansion of operations of a water carrier into a new operating area.

- Evaluation of facility improvements designed to enhance container handling capacity at the Port of Vancouver.

- Evaluation of revenues and variable costs for rail and highway operations of the White Pass and Yukon Corporation.

- Provision of consulting services to Northern Transportation Company Ltd., including:

    - traffic demand forecasting

    - evaluation of equipment requirements

    - fleet planning and scheduling

    - evaluation of impact of waterway improvement projects

    - preparation of financial analyses and forecasts.

    - financial analysis of trucking operations in Northwest Territories and Northern Alberta

    - assistance in development of computer systems.

- Preparation of forecasts of cargo throughput at ports in the State of Alaska.

CT-88/1

THE COMPETITION TRIBUNAL

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AND IN THE MATTER OF The Gemini Group Automated Distribution Systems Inc.

B E T W E E N:

THE DIRECTOR OF INVESTIGATION AND RESEARCH,

Applicant

- and -

Air Canada, Air Canada Services Inc., PWA Corporation, Canadian Airlines International Ltd., Pacific Western Airlines Ltd., Canadian Pacific Air Lines, Limited, 154793 Canada Ltd., 153333 Canada Limited Partnership, and The Gemini Group Automated Distribution Systems Inc.

Respondents

QUALIFICATIONS OF FRANK MATHEWSON

March 7, 1989

THE COMPETITION TRIBUNAL

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- and -

Air Canada, Air Canada Services Inc., PWA Corporation, Canadian Airlines International Ltd., Pacific Western Airlines Ltd., Canadian Pacific Air Lines, Limited, 154793 Canada Ltd., 153333 Canada Limited Partnership, and The Gemini Group Automated Distribution Systems Inc.

Respondents

AFFIDAVIT

I, Frank Mathewson, of the City of Toronto, in the Judicial District of York, MAKE OATH AND SAY:

1. I am a Professor of Economics at the University of Toronto and have been asked to provide expert evidence in connection with this proceeding.

2. My qualifications to provide expert evidence in this matter are set out in the attached curriculum vitae marked as Exhibit "A" to this my Affidavit.

SWORN before me at the)
City of Toronto, in the)
Judicial District of York)
on the 8th day of March, 1989)

Commissioner for Taking Affidavits

EXHIBIT "A"

CURRICULUM VITAE

(November 1988)

G. Franklin Mathewson

Home Address: 83 Lonsdale Road
Toronto, Ontario M4V 1W4
Telephone: (416) 923-9749

Office Address: Institute for Policy Analysis
University of Toronto
140 St. George Street, Suite 707
Toronto, Ontario M5S 1A1
Telephone: (416) 978-6127

Citizenship: Canadian

Present Position: Professor of Economics
Department of Economics
University of Toronto

Research Associate
Institute for Policy Analysis
University of Toronto

Previous Positions: Visiting Research Fellow, Department of Political Economy, University College, University of London, 1976-77.

Professor of Economics, Faculty of Management Studies, University of Toronto, 1970-82.

Senior Research Associate, Ontario Economic Council, 1978-79.

Associate Chairman and Director of Graduate Studies, Department of Economics, University of Toronto, 1978-83.

Visiting Scholar, Graduate School of Business, University of Chicago, Spring Quarter, 1984.

Visiting Professor, Center for the Study of the Economy and the State, University of Chicago, Spring Quarter, 1985.

Education:

B.Com.	University of Toronto	1965
Ph.D.	Stanford University	1970

Fellowships and Other Honors:

Social Science and Humanities Research Council Research Fellowship (1987, 1986, 1985).

Social Science and Humanities Research Council Leave Fellowship (1983-84).

Canadian Council Leave Fellowship (1976-77).

Canada Council Doctoral Fellowship (1966-69).

Woodrow Wilson Fellowship (1965).

Editing:

Associate Editor, International Journal of Industrial Organization (1982-1988).

Co-editor with J. Stiglitz, New Developments in the Analysis of Market Structures, MIT Press: Cambridge, 1985.

Editorial Board, Economic Inquiry (1987-present)

Other Activities:

Program Committee, Conference on Industrial Organization, International Economics Association, 1982.

Program Committee, European Association for Research in Industrial Economics, 1983 - 87.

Publications:

"A Consumer Theory of Demand for the Media", Journal of Business, 45(2), April 1972: 212-224.

"A Note on the Price Effects of Market Power in the Canadian Newspaper Industry", Canadian Journal of Economics, 5(2), May 1972: 298-301.

"Metering Costs and Marginal Cost Pricing in Public Utilities", with G.D. Quirin, Bell Journal of Economics, 3(1), May 1972: 335-339.

Cents and Nonsense: The Economics of Canadian Policy Issues with J. Carr and J. McManus, Holt, Rinehart and Winston, 1972, 124 pages.

"Price Effects of Market Power in the Canadian Newspaper Industry: Reply", Canadian Journal of Economics, 7(1), February 1974: 130-132.

"Economies of Scale in Financial Institutions: A General Model Applied to Insurance" with P. Halpern, Journal of Monetary Economics, 1(2), April 1975: 203-220.

"The Benefits and Costs of Rate of Return Regulation" with J. Callen and H. Mohring, American Economic Review, 66(5), June 1976: 290-297.
"Economies of Scale in Financial Institutions: Reply" with P. Halpern, Journal of Monetary Economics, 3, 1977: 127-131.

"The Residential Demand for Electrical Energy and Natural Gas: A Model Estimated for Canada" with R. Hyndman and Y. Kotowitz in W.T. Ziemba et al (eds.), Energy Policy Modelling: United States and Canadian Experiences, Martinus Nijhoff Press, 1980, pp.86-102. (Paper presented at the Canadian Energy Policy Modelling Conference, Vancouver, 1978.)

Economics of Fiscal Transfer Pricing in Multinational Corporations with G.D. Quirin, University of Toronto Press (Ontario Economic Council Research Studies), 1978, 208 pages.

"Some Issues on Public Advertising" with Y. Kotowitz, Journal of Contemporary Business, 7(4), 1979: 123-124.

"Informative Advertising and Welfare" with Y. Kotowitz, American Economic Review, 69(3), June 1979: 284-294.

"Advertising, Consumer Information and Product Qualtiy" with Y. Kotowitz, Bell Journal of Economics, 10(2), Fall 1979: 566-588. (Paper presented at the European Econometric Society Meetings, Geneva, 1978).

Information, Entry and Regulation in Markets for Life Insurance, University of Toronto Press (Ontario Economic Council Research Studies), 1982, 117 pages.

"An Economic Theory of Union-Controlled Firms" with Y. Kotowitz, Economica, 49 (196), November 1982: 421-433. (Paper presented at the Canadian Economics Association Meetings, Quebec City, 1978).

"The Rationale for Government Regulation of Quality"; "Policy Alternatives in Quality Regulation" with D. Dewees and M. Trebilcock, "Markets for Insurance: A Selective Survey of Economic Issues", in D. Dewees (ed.), The Regulation of Quality, Toronto: Butterworths 1983.

Regulation of Canadian Markets for Life Insurance with R. Winter, Department of Consumer and Corporate Affairs, Government of Canada, 1983.

"Entry, Size Distribution, Scale and Scope Economies in the Life Insurance Industry" with S. Kellner, Journal of Business, 56(1), January 1983: 25-44.

"Vertical Integration by Contractual Restraints in Spatial Markets" with R. Winter, Journal of Business, 56(4), October 1983: 497-518.

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"The Economic Effects of Automobile Dealer Regulation" (With Ralph Winter).

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