



POLICY ANALYSIS OF ISSUES RELATING TO AIR CARGO



Submitted to:
Transport Canada



Submitted by:
Jacobs Consultancy Canada Inc.

220 Laurier Ave. West, Suite 500

Ottawa, ON



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JACOBS
CONSULTANCY
AIRPORT MANAGEMENT CONSULTING

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EXECUTIVE SUMMARY

I. INTRODUCTION

With more economies moving towards globalization and product life cycles becoming increasingly shorter, the availability of efficient air cargo has become even more important to meet the needs of the global supply chain. Fundamental shipping patterns and entire logistics chains are evolving to the point where products that were once manufactured completely on a regional basis now have components sourced from one continent, assembled on another, and finally sold on a third.

II. GLOBAL AIR CARGO

Overview

Air cargo represents 35% by value of international cargo, although only 1% by weight. A number of factors have contributed to the spectacular growth of the air cargo industry over the past 20 years - the long-term results show a continual increase in cargo demand, averaging almost 5% per year - including:

- ✓ Deregulation and liberalization which has greatly reduced restrictions on air travel and created many opportunities for new routes, trade and tourism;
- ✓ Global interdependence spurred by world trade agreements;
- ✓ International production and sales of good and services;
- ✓ Global sourcing of consumer perishables, such as fresh fruit and flowers;
- ✓ Increased reliance on inventory management concepts such as "Just-in-Time" and "Zero" stocks; and
- ✓ The development of high value and limited life goods such as fashion apparel.

In 2007, the international air freight and express industry had to contend with record high fuel prices, the spill over of economic problems in the US, and an apparent modal shift of some international air cargo shipments to ocean transport. Even so, traffic levels in the air freight and express sectors grew in the mid-single digit range – only slightly less than the historical average rate. Integrated carriers are playing a growing role in the international air freight market, with international express volumes at over 2.2 million shipments per day, and growth rates averaging 10% per year since 1992.

International Air Service Agreements

While other sectors of the economy have benefited from a multilateral trading regime initiated by the General Agreement on Tariffs and Trade (GATT), and continued under the World Trade Organization (WTO) framework, air transport services have not followed the pattern, particularly with respect to Most Favoured Nation and national treatment because access to agreed routes was limited to national carriers of the bilateral parties.

Many options for further liberalization have been identified, including:

- ✓ The negotiation of specific clauses within the bilateral framework for open route exchanges, multiple designation, capacity freedom, pricing freedom, open third and fourth freedom rights;
- ✓ Multilateral agreements, whereby it is possible for an airline of a signatory country to compete for passengers and cargo regardless of its nationality;
- ✓ A lead sector approach, whereby specific markets such as cargo services are liberalized first;
- ✓ Reduction of limits on foreign investment;
- ✓ A general reduction in taxes and Customs impediments which increase shipping and travel costs and reduce mobility; and
- ✓ Reduction of infrastructure access constraints.

While air liberalization has been a key facilitation factor in the growth of air cargo, governments still primarily focus their efforts on passenger traffic and have not sufficiently recognized the importance of air cargo liberalization to business competitiveness, world trade and economic growth and development. There is compelling evidence that reversing this position, that is emphasizing air cargo liberalization, is both more readily achievable, and provides essential facilitation for economic development.

Another reason cited by the infrastructure providers for a proactive open access policy for emerging markets is because of the opportunity it provides to influence the route structure of the emerging cargo carriers to include Canada in their air transportation logistics planning.

Like many other jurisdictions, Canada has pursued the gradual and incremental liberalization of its bilateral air transport agreements. This led in 2006 to Transport Canada's current "Blue Skies" international air policy, with the direct aim of encouraging the development of new markets, new services and greater competition.

Since launching this initiative, Canada has successfully concluded a number of Open-Skies type agreements and concluded new or expanded air services agreements with a number of other countries. Moreover, Canada has updated its US Air Service Agreement and now air carriers of both countries are allowed not only to pick up all-cargo traffic in the other's territory and carry it to a third country as part of a service to or from their home territory, but also to operate stand-alone all-cargo services between the other nation's territory and third countries.

Many believe a "use-it-or-lose-it" policy (or reverse-onus arrangement whereby the default is open access) should be adopted. It is generally accepted that cabotage will not be on the table for the foreseeable future.

Special Trade and Enterprise Zones (SEZ)

Over the past twenty years a range of designated special trade and enterprise zones (SEZ) have been created internationally – often in emerging markets - with the aim of promoting economic development, although the specifics vary greatly across jurisdictions. These range from special zones in economically depressed regions of developed nations to developing countries with very liberalised trade regulations aimed at attracting foreign capital and increased trade.

These zones tend to be quite wide ranging in terms of general economic activity and some have a transportation element connected to them. Examples include:

- ✓ The **People's Republic of China** has a number of Special Economic Zones which are targeted at foreign capital and economic activity which is predominantly export-oriented. These zones often have special administrative rights including separate planning and financial planning.
- ✓ **India** passed legislation enabling special trade areas in 2005 and to date some 300 zones have been developed. India has a much larger number of smaller SEZs than China, which has not provided the same critical mass which the Chinese SEZs have achieved.
- ✓ Enterprise Zones exist in a number of forms in the **United States**, at both the federal and state level, generally in economically depressed area.
- ✓ An Enterprise Zone program was launched by the **UK** government in the early 1980's in order to promote and encourage private sector industrial and commercial activity through financial incentives and relaxation of some statutory and administrative controls.

WTO obligations place a limit on country competition for Tax and Customs Duty Free Zones (or more generically FTZ). Subsidies to particular businesses or industries are discouraged and may be subject to challenge by other WTO countries.

Establishing a FTZ is not a guarantee of obtaining higher growth rates or attracting foreign direct investment, and reasons for failure include: poor geographical location; low government commitment; operational difficulties; poor management and inadequate promotion. Other reasons cited for failure include: low labour productivity; and high utilities and transportation costs.

International experience also suggests that there are certain factors that greatly increase the likelihood of success for an FTZ. These include a combination of: quality infrastructure; supportive government and lighter regulation; a strong export focus; tax and customs exemptions and large storage and logistics capacities. Policies promoting macroeconomic stability are also important.

Canadian airports, by virtue of their location, have the potential of being transshipment points for air cargo travelling between North America and both Asia and Europe. The air route distances are shorter from some Canadian airports to European and Asian markets than competing US airports. Since trucking costs are less than air freight costs and the combined travel times are not substantially longer (at least in comparison with marine options), costs could potentially be reduced by an air-truck intermodal change at Canadian airports for shipment to/from Asia or Europe.

However, the perceived lack of an effective Duty and Tax Free Zone regime allowing transshipped goods into Canada, the ability to add significant value to them, and border issues, has meant that Canada is not generally seen as an attractive location for logistics centres, in spite of its geographical advantages. This has contributed to Canada's International Air Cargo Transshipment Program not achieving the success it promised.

Current Global Air Cargo Industry Framework

The air cargo industry is a diverse collection of companies and services, with differing business strategies, market roles, and abilities to respond to changes in the economic and operating environment. The progressively shorter time-to-market framework that many shippers are working within has made shipping by air more attractive, particularly for those looking for the fastest connection possible with a guaranteed commitment.

In recent years, air cargo yields (an airline's revenue per kilo of freight) have been under pressure. Overall, freight yield fell over 5 percent per year since 1985. As with passenger services, airlines are looking to improve their air cargo yields through cooperation with their alliance partners. The high cost of fuel has pushed up the airlines' costs, but it has also allowed them more recently to adjust their rates upward to solidify yields to some extent.

The industry is currently in an important transition period with: new security regulations; significant consolidation and reorganization among the cargo airlines and freight forwarders; new model airlines (sometimes called Low-Cost Carriers); and shifts in traditional demand patterns as logistics providers are seeking a more efficient, less costly operating environment. Exhibit 1 provides a summary of the different types of air cargo carriers, market roles, and operating environments. In Canada it is estimated, based on work at Vancouver and Toronto, that integrated carriers account for 20% to 25% of the market, all cargo carriers 30% to 35%, and belly and mixed cargo carriers approximately 45% of the market.

Exhibit 1. Air Cargo Carrier Types and Their Business Characteristics

Air Cargo Carrier Types	Characteristics	Illustrative carriers	Customers	Desired Airport Characteristics
Belly	Baggage holds of passenger aircraft	United, American, Continental	Wholesale, mail, retail	Passenger airport
Mixed	Baggage holds of passenger aircraft and main decks of all-cargo aircraft	Air Canada (1), Cathay Pacific, Northwest, Lufthansa, Air France	Wholesale, mail, retail	Passenger airport
Integrated	Main decks of all-cargo aircraft	FedEx, UPS, DHL	Retail	Airport near population
All-cargo	Main decks of all-cargo aircraft	CargoJet, Kelowna Flightcraft, Challenge Air Cargo, Cargolux, Evergreen	Wholesale	Airport near population (remote airport)

Note 1: Air Canada recently announced it is pulling out of the all-cargo freighter segment with effect from June 2008

Moves towards consolidation and reorganization are affecting the air cargo industry and this trend has accelerated in the last two to three years as many of the larger carriers and freight forwarders have looked to strengthen their market position and ability to respond to shipping demands through acquisitions, restructuring, and consolidation of operations.

The integrated carriers – with their own fleets – and the freight forwarders are the primary drivers of the air cargo industry and the ultimate routing of air cargo volumes and use of airport gateways.

The Integrated Carriers (DHL, FedEx, Purolator, and UPS) have been rapidly increasing their domestic and international market share over the past decade through their highly developed transportation networks and multiple service offerings. However, while delivery speed and reliability—two qualities that air express possesses in abundance—are prized by business and consumers more than ever before, other modes of transport are increasingly providing them at a cost below what is compensatory for pure air networks. The savings from surface transportation can be substantial, in some instances 10 to 12 times cheaper than air transportation. For this reason, every major integrated carrier has invested heavily in the development of time-definite regional and transcontinental surface distribution networks. As the integrated carriers continue to

expand their service offerings, their facility planning is increasingly focused on identifying airports that can accommodate long-term facility development that are geographically well positioned with good access to multiple transportation modes.

Freight Forwarders are still responsible for over three-quarters of the world's international freight shipments and are strongly attracted to the cargo capacity in the belly space of widebody passenger aircraft on routes at airports that serve international gateway cities. Carriers that concentrate aircraft capacity at large gateways often negotiate competitively priced guaranteed cargo space contracts with the freight forwarding corporate offices and therefore attract volumes of cargo activity from across the country. This manifests itself in diversion of air cargo to these cargo hub facilities. The freight forwarder is looking for a larger piece of the complete supply chain and strategic alliances have been forming and takeovers abound. The result of this consolidation within the cargo industry is that fewer freight forwarders have growing strength within the market.

These logistics providers have tremendous influence on which airports are used to serve particular markets. Those countries that have the ability to efficiently accommodate the projected long-term activity growth – through appropriate policy, infrastructure, security, facilitation and customs clearance (including pre-clearance) - will position themselves as key assets to the air cargo industry.

Increased cargo security requirements on passenger airlines are contributing to shippers' preference for dedicated freighter service and both Boeing and Airbus forecast that pure freighters will increase to almost 50% of the industry's future cargo capacity requirements. New security regulations will have an impact on how the freight forwarders and freighter airlines view their networks, and will look to incorporate those airports that are more long-term "security-friendly".

Global Air Cargo Forecasts

Key points regarding the long-term growth outlook for air cargo include:

- ✓ Historically, air trade, in terms of both value and tonnage, has grown rapidly as aircraft take market share from slower modes such as ships. As air freight tonnage represents only approximately one percent of international trade tonnage, even relatively minor movements in market share translate into significant air freight growth. Continued worldwide economic globalization will likely lead to greater international air transportation.
- ✓ In the long-term, it is expected that economic growth will be more important than localized events such as the Iraq war, health related issues such as SARS outbreak and Avian Flu, or security requirements in determining levels of cargo activity and demand for airport cargo facilities.

Airlines in Asia Pacific, which account for 45% of the international total, saw freight demand rise 6.5% in 2007, driven by strong growth in several economies and a growing middle class with disposable income. While a little softening is expected in 2008, strong growth is forecast to continue in this market. Global growth is expected to slow in the first half of 2008 before picking up with overall annual growth of 4-4.5% projected by IATA.

	Forecast period	Annual growth rate
Airbus (a)	2007-2026	5.8%
Boeing (b)	2006-2026	6.1%
FAA (c)	2006-2026	5.2%
2007 Airbus Global Market Forecast. 2006/2007 World Air Cargo Forecast. FAA Aerospace Forecast, 2006-2017.		

One of the reasons highlighted by IATA for a slowing of international air cargo is not only the advent of faster ships and more efficient logistics, but more importantly security issues and the cumbersome processes to clear international cargos.

III. CANADA'S AIR CARGO OPPORTUNITY

Canada's Gateway Initiatives

There are a number of "gateway initiatives" currently being developed in Canada, from Halifax and the Atlantic Canada Gateway, the Ontario-Quebec Continental Gateway and Trade Corridor, to the more recent Manitoba Gateway initiative. The federal government has recognized the importance of a national framework for their development and created the National Policy Framework for Strategic Gateways and Trade Corridors. The most fully formed from a policy and funding perspective is the Asia-Pacific Gateway and Corridor Initiative (APGCI).

There has been a significant emergence of global production networks which are creating opportunities for regions with the right logistics infrastructure. There remains considerable uneven west-east: east-west trade flows which leads to sub-optimal air cargo economics; it is generally recognized that the private sector should determine the most cost effective production flows – and government policy should support flexible logistics and support arrangements to take advantage of changes in the market.

The cargo potential from Mainland China, for instance, is enormous and is affecting every world region. However, the extraordinary growth rates experienced over the last 3-5 years are expected to wane over the next decade. New "hub" routes are being discussed in the US and could satisfy a disproportionate amount of North American air cargo demand, including that headed to Canada, without a proactive response from industry and government.

Specific short-term APGCI initiatives include **continuing efforts to liberalize air agreements with Asia-Pacific countries and the US**. Federal funding to date hasn't matched this priority – at least in terms of infrastructure investment – and has been focused on port, road and rail. There is a perceived divergence between anticipated growth and the quality and quantity of appropriate infrastructure to meet the need. For the most part the aviation sector has been expected to provide the required investment in airport infrastructure, which is significantly different to other modes.

From an aviation industry perspective, governments' approach to the APGCI is seen as heavily focused on port, rail and road, with air a distant second in terms of resource commitment. As well, it is felt that progress to implementation is moving too slowly and is mired in red tape.

Canadian Air Cargo Traffic

Over 1.5 million tonnes of cargo was loaded or unloaded at Canadian airports in 2006, with the majority having a greater tonnage of cargo unloaded than loaded.

Transport Canada estimates that 40% of total air cargo is international, while 35% is domestic and 25% is transborder. Toronto and Montreal-Mirabel handle the most **transborder** cargo, accounting for almost 60% of the total. Toronto and Montreal-Trudeau handle the most **international** (excluding the US) cargo, accounting for two-thirds of the total.

Exports and Imports by Air

Tonnages of exported and imported air cargo, estimated for 2006 from the dollar values reported by Statistics Canada and average values of those commodity types obtained from the US Trade Database for exports and imports by air mode, and growth rates to 2006 are summarised below:

Exhibit 2. Value and Tonnage of Canadian Exports and Imports by Air in 2006

	Value (Million)	Tonnes	Avg. \$/kg
Exports by air	\$39,573	387,323	\$102
Imports by air	\$50,538	615,376	\$ 82
Total	\$90,111	1,002,699	\$ 90

Exhibit 3. Average Annual Growth Rates in the Values of Air Exports and Imports Over the 10-Year Period, 1996-2006

	Air Exports	Air Imports	Exports + Imports
US	4.0%	0.9%	2.3%
Other international	10.7%	8.5%	9.4%
Total	7.7%	5.4%	6.3%

Air mode's share of the value of total exports and imports over all modes has also varied for the two sectors: for the US, the share has fallen slightly from 8% in 2000 to 5.3%, likely due to the increased competition from truck mode; but for other international, the share has increased from 19% in 1996 to 23% in 2006.

The US is by far Canada's largest international market for exports and imports transported by air mode accounting for \$16.7 Billion in exports and \$15.7 Billion in imports in 2006. The next largest market is the United Kingdom with approximately a quarter the total value of US air exports and imports. After the US, **imports** by air are greatest from China, followed by the U.K., Germany and Japan, while **exports** by air are greatest to the U.K. Japan, Germany and Belgium.

Forecasts of Air Cargo Tonnages for Canada

Transport Canada forecast total loaded plus unloaded air cargo would increase from the 1.50 million tonnes recorded in 2006 to 1.90 million in 2010, 2.33 million in 2015 and 2.81 million in 2020. Their forecasts of average annual growth rates for each sector are presented in Exhibit 4.

Exhibit 4. Forecast Average Annual Growth Rates of Air Cargo Tonnage by Sector

	Domestic	Transborder	International	Total
2006-2010	3.9%	4.6%	5.0%	4.5%
2006-2015	3.5%	4.6%	4.8%	4.3%
2006-2020	3.3%	4.5%	4.6%	4.1%

Source: Transport Canada, 2006

Imbalance of Loaded and Unloaded Air Cargo

Directional imbalances continue to be an issue, although somewhat more muted recently as overall import loads to the US from Asia have gone down while export loads have risen. This is partly explained by the short-term effects of the current US recession, but it is partly – and more longer-term - because of the pull of the growing discretionary spending-class in emerging markets and their appetite for imported consumer goods.

Directional imbalances lead to inefficiencies in providing air cargo services and can result in potential air cargo being transported by other modes, or not being transported at all. While the directional balances in air cargo between Canada and its major trading partners could not be determined (Statistics Canada does not collect data on the weight of exports and imports), the US Trade Database includes weight and directional balances. While some differences would be expected for Canada, the US data provides a reasonable proxy.

In traffic to/from Asia and the US, the imbalance with imports exceeding exports is worst for the largest market, China. However, the imbalance with exports exceeding imports is significant for several markets, namely Hong Kong and Singapore, and to a lesser extent, South Korea. Loads to and from Japan and Taiwan, both major markets, are reasonably well balanced. Imbalances in air cargo to and from Asia have generally improved over the past five years.

The US data indicates a significant transborder air cargo imbalance with Canada, with tonnages from the US to Canada far exceeding tonnages from Canada to the US. This is consistent with Statistics Canada data on loaded and unloaded tonnages by sector.

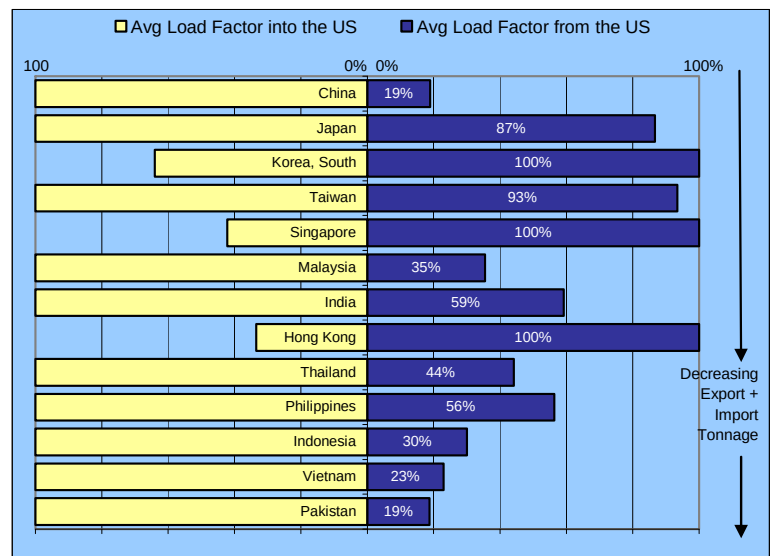


Exhibit 5. 2006 Air Cargo Imbalance between Asia and the US

Diversion of Air Cargo to US Airports

Diversion of air cargo from the local airport to more distant larger airports or cargo hubs is common. The diversion rate varies greatly between airports and over time depending on factors such as available air services at the local and alternate airports, trucking distances, time and costs to the alternate airports, relative airport costs and freight forwarder preferences. Some of the diverted cargo is trucked to other Canadian airports, and some to US airports.

The amount of potential Canadian air cargo diverted to US airports is not known precisely – another casualty of poor cargo data in Canada - but is believed to be significant. A number of air cargo studies conducted over the past decade indicate that: in 2006, **Toronto** had an estimated 60-65% of potential air cargo from the Toronto area being diverted to airports other than Toronto Pearson (YYZ) despite the high level of wide-body international passenger services at the airport; in **Atlantic**

Canada currently, where live/fresh seafood accounts for a large portion of the potential air cargo, it is estimated that 33% of Nova Scotia's, and 15% of New Brunswick and PEI's, potential air cargo is diverted to US airports; in **Winnipeg** in 1998, approximately 4% of the potential air cargo to/from Winnipeg was diverted to US airports; and a **Vancouver** study in 2000 concluded that YVR was capturing approximately one-half of the total cargo market (including trucked transborder, domestic, and international activity).

Based on the findings of these studies it is estimated that the amount of potential Canadian air cargo traffic diverted from Canadian to US airports is of the order of 15-25%, or between 280,000 and 480,000 tonnes in 2006. Almost all of this cargo is bound for international markets, primarily Europe and Asia. This is in addition to the 150,000 to 270,000 tonnes of air cargo on transborder flights which are transhipped through the US to/from international markets.

Thus, currently, the **total** air cargo which originates from, or is destined to, Canadian markets is of the order of 1.8 to 2.0 million tonnes.

IV. RISKS

While there are multiple cargo specific issues, there are also many other more general aviation industry issues that could affect the air cargo carrier sector, including:

- ✓ Many countries and blocks are moving to a more liberalized approach to international air service agreements. The risk to Canada is that it will be bypassed by the major legacy, and more specifically the emerging, cargo carriers if it fails to implement a liberalized air cargo policy in a timely fashion.
- ✓ Airline consolidation in mature markets continues apace and may expand rapidly as the next business down-cycle plays out. Even the US legacy carriers which have baulked at the idea are now at the table discussing arrangements. Consolidation will lead to capacity constraints, affecting both passenger and cargo capacity which will disproportionately affect marginal participants in the global air freight market.
- ✓ An enhanced level of cargo security is seen to be inevitable, particularly for cargo carried on passenger aircraft. The main risk attached to cargo security at present is a lack of certainty which is having significant effects on investment decisions in both infrastructure and airplanes, but over the longer term it will increase costs, the extent of which will determine the effect on the industry.
- ✓ Low-cost carrier growth will continue, particularly in the emerging markets, and long-haul LCCs will appear in increasing numbers. This will impact some routes where traditionally passenger aircraft have taken a large share of the air cargo. LCCs look to fast turn-times on the ground and cargo is not seen as fitting in to that business model. Coupled with the lack of certainty about cargo screening requirements this could mean that some communities end up with less than optimal air cargo for their current and prospective industries that are air cargo-dependent. It does, however, represent an opportunity for an all cargo service if the aggregate quantity of air freight will support a scheduled service.
- ✓ The cost of fuel – which at the time this report was completed was about \$105 a barrel - will form an increasingly complex part of the aviation business model. The average cost of jet fuel has more than doubled since 2001 and fuel cost now represents approximately one third of operating costs of all-cargo carriers. While cargo carriers are instituting surcharges to cover fuel

cost increases (surcharge can be up to 30% of the total airfreight rate), the increase in the unit cost and surcharges are adding to the difficulty of selling air cargo in marginal areas.

- ✓ Modal shifts are occurring and shippers – particularly the integrators – are beginning to offer “semi-fast” routings at a lower price than the more traditional next day service. There is evidence that the historical increase in air cargo is slowing down: while traditionally air cargo has grown faster than general cargo, this has now been reversed and sea freight is rising faster. Sea is now much more efficient than it was previously. For instance, where it used to take 40 days from or to China, it now takes 20 days. This has resulted in some diversion from air to sea, particularly recently as air freight has become comparatively more expensive because of fuel surcharges.
- ✓ Environmental issues will continue to grow in importance. To a certain degree community concerns about the effects of aviation activity will be resolved as the carriers – both on the ground and in the air – renew their fleets. The Integrated Carriers for instance are renewing their road vehicle fleets, utilizing hybrids and testing hydrogen and electrical vehicles, while at the same time also looking to replace the aging aircraft fleets. Also more emphasis is being given to investment in better cargo handling, storage and clearance facilities in the logistics chain to cut down on waste and ensure the “food-miles” flown are as productive as possible.

V. AIR CARGO INDUSTRY OPPORTUNITIES AND CHALLENGES

From a review of the current and forecast Canadian and global air cargo markets, it is apparent that there are many opportunities emerging based on rising trade flows, particularly between Asia and North America. There is an urgency for action to capitalize on these opportunities: once trade patterns are set for these emerging economies it will take significant effort to change them.

In the course of the Study Jacobs Consultancy encountered a number of themes, concerns and opinions about the state of the air cargo industry and the ways and means to improve it. A number of issues were investigated that need to be considered in developing policies to support the development of the Canadian air cargo industry, including:

- ✓ Globalization of manufacturing and outsourcing needs efficient air cargo systems to be effective: there is an increasingly important role for infrastructure providers in global supply chain management and logistics network structures.
- ✓ Global trends of logistics network restructuring, and repositioning of regional and/or local distribution centres are taking shape, and Canada needs to take full advantage of the opportunities being presented.
- ✓ There are increasing transshipment cargo opportunities and competition among airports and jurisdictions over where those transshipment flows will occur.
- ✓ Lack of meaningful Canadian cargo data – both domestically and internationally – creates difficulty for government, industry and communities to focus attention on fact-based policy/plans that have a higher potential for success. Even in the US the current usefulness of data is being degraded as, anecdotally, some federal agencies are choosing to concentrate on the “primary”

cargo carriers (i.e. sea, truck and rail), ignoring that while air cargo represents a very small percentage by weight carried, it is responsible for 30~40% by value.

- ✓ The comparative lack of liberal air access agreements with Canada's major trading partners was raised, although extra-bilateral arrangements have been available. The problem cited with the latter though, is the lack of certainty and the level of administration to periodically renew the extra-bilateral approvals. There is a perceived continuation of bias to protect the "flag" carrier, even when the carrier has shown little commitment to the air cargo or geographic market, although there is some recognition that this bias is changing.
- ✓ Generally, cargo airlines follow the freight forwarders, who in turn tend to follow belly hold capacity and their customer base. Thus, a "build-it and they will come" approach will likely require significant resources and collateral action – such as amenable free trade zone legislation - to be successful.
- ✓ The Integrators see themselves as selling "time" and customs and ATC delays (FedEx states the latter alone accounts for 60% of their delays in the US) reduce the value of what they are able to offer. Thus, another necessary condition for a successful air cargo strategy is to assure unimpeded airspace access, which is a commodity is ready supply at most potential Canadian Gateways.
- ✓ A significant problem highlighted with Canada's FTZ is the level of administration connected with the application for Export Distribution Centre status, and the nature of the approval (it is a single entity not a geographical area).
- ✓ One of the issues that any cargo infrastructure provider has to consider is the availability of redundant, modern cargo facilities in the US Midwest. For instance, because of consolidation over the past few years there are significant facilities available in Dayton and Cincinnati, Ohio.
- ✓ The current level of Nav Canada's Terminal Charge was held up as a significant impact on the ability of Canadian airports to compete with airports in the US for technical stops and cargo services. It was stated that Nav Canada's current fee structure encourages carriers to over fly Canada, rather than land: even with \$100 oil it is still cheaper to fly the longer distance to a US Gateway. For instance, if an aircraft was to stop in Winnipeg, Vancouver or Anchorage the charges would be as shown in Exhibit 6. A B747 would pay up to a 58% premium to land in Winnipeg. However, it was also recognized that Nav Canada is a non-government entity and a philosophical change in the way that the entity develops its rate structure would be required.

Exhibit 6.

Fees & Taxes for Airplane Landing at:		Anchorage	Winnipeg	Vancouver
B747-400F	Landing Fees	\$1,102	\$3,540	\$1,929
	Cargo stand/Parking	\$358	\$83	\$0
	Fuel Airport Surcharge (1)	\$773	\$0	\$0
	Full Fuel Load Cost	Commercially Confidential - N/A		
	Federal Excise Tax (1)	\$6,989	\$4,337	\$4,337
	State/Provincial Fuel Tax (1)	\$0	\$3,469	\$2,168
	Fuel Taxes - Total	\$6,989	\$7,806	\$6,505
	ANS Fee (Int'l)	\$0	\$3,141	\$3,141
	TOTAL	\$9,223	\$14,571	\$11,575
	Differential	0%	58%	26%
(1) Tax and Surcharge estimate based on full fuel load				

- ✓ Federal Gateway and Corridor Initiative investments are perceived as having been made in road, rail and port infrastructure. If considered at all, many in industry consider that the air mode is the “poor relation” of this group. Many also link this inequity to the issue of federal rents paid by Airports. The high cost of developing air cargo gateway infrastructure needs the support of government in the same way as that given to other modes. Allocation of airport rent receipts was articulated as one approach to promote success.
- ✓ Some stakeholders expressed frustration with the tendency for government to both attempt to pick winners, and “spread the gain”. This was summed up as an “equity versus excellence” approach to policy and economic development; and that the “equality” approach is sometimes taken without regard to the availability of extant facilities and infrastructure and therefore scarce federal dollars are being squandered.
- ✓ For the most part, industry is supportive of appropriate security, although it remains concerned about the cost and the lack of certainty, particularly in terms of infrastructure investments. The Canadian industry is keeping a weathered eye on developments in the US, which gives it both optimism and concern. On the positive side of the ledger, industry understands that assurance of air cargo security is important and could be a significant benefit in terms of assurance to its customers concerning the integrity and tracking of its cargo. There are on-going concerns about the cost of full cargo screening, who will bear those costs, how cargo screening will be implemented and the effect on the logistics chain. For instance, current high-capacity EDS equipment is limited to screening 900~1,200 pieces per hour but the integrators typically process 25,000~100,000 pieces per hour during their peak period which implies one facility having to accommodate 100 such machines with the attendant level of investment.
- ✓ Lack of cargo pre-clearance to the US was raised as a critical barrier to transborder air cargo development. In addition, slow clearance which reduces the value of the time bought by shippers in using the air mode is creating concern. While the revamped “Canada-USA Open Skies” Agreement was generally welcomed, the two border service agencies (US & Canada) are both putting in requirements that effectively annul the facilitation benefits of the new agreement. Not only are their processes time consuming, they are also different, in terms of clearance documents and definitions (for instance what constitutes a low-value shipment).
- ✓ Lack of consistency in the application of the CBSA rules are creating competitive issues: for instance, inbound cargo can be cleared at authorized trucking facilities up to five-miles from Toronto-Pearson’s airport boundary, but anecdotally the same approval has not been available in Winnipeg.

VI. STRATEGIES TO SUPPORT AIR CARGO DEVELOPMENT

TC’s air cargo initiatives need to be strategic. To effectively meet that aim, policy initiatives need to:

- ✓ **Emphasize Canada’s economic interests:** policies need to reflect the wider economic impact of Canada’s air cargo industry to determine priorities, content and approach to future bilateral and Open Skies agreements. Globalization means that the interplay of design, development, manufacture and delivery needs effective logistics to support it, and air cargo remains one of the best facilitators of this diverse but integrated production process. The greater economic interests of Canadians requires the most open air cargo agreements with the widest potential array of countries – bi-laterally and multi-nationally – which could be distinct and different to the passenger-based agreements and negotiated with at least the same priority.

- ✓ **Address identified barriers and target effective solutions:** a number of specific barriers to realizing the air cargo market's potential have already been identified. Industry is willing to work with government on an action oriented agenda that results in effective solutions.
- ✓ **Champion efficient and effective logistics processes:** while it was clearly understood that potential transportation and trading partners were at different stages of development, Canada needs to implement, both in the public and private sectors, the introduction of facilitating information technology such as EDI and e-commerce, and trade friendly Customs practices.
- ✓ **Be Action oriented:** stakeholders wanted to see policy reviews that lead to discernable improvements in positioning Canada's air cargo industry for success.

Specific priorities highlighted by the Study included:

- ✓ **Transport Canada's *Blue Skies* policy initiative should be fully and proactively implemented.** As a necessary condition for effective international air cargo development, Canada needs an effective and proactive Open Skies policy that is properly resourced and followed through. Priority should be given to negotiations with Canada's major trading and tourism partners that are open to change. Governmental policies can have a beneficial effect on trade patterns when designed and implemented with clear focus and understanding of the market condition and opportunities. Moreover, time is of the essence and the expanding cargo operations at both competing airports in the US – some of which have the capacity to fully serve Canada if trade flows from the emerging economies are established in that direction – and in emerging markets themselves will affect the number and depth of opportunities for Canada. Airport communities with significant O/D traffic, available infrastructure and the right cargo-related service providers – such as competing international Freight Forwarders - are most likely to succeed and participate in the expanding global supply chain.
- ✓ **Foreign ownership should be relaxed and Right of Establishment implemented.** Airline foreign ownership restrictions need to be relaxed and Right of Establishment implemented.
- ✓ **Liberalize air cargo agreements on a fast track basis.** As a minimum, air cargo should be used as a lever to develop workable bi-lateral or Open Skies agreements as a precursor to work on passenger freedom negotiations. The economic and social benefits of air cargo liberalization are very much wider and different from those attached to passenger service, and TC should move forward on cargo liberalization in advance of air passenger liberalization, recognizing the multiple issues with the latter. Moreover, with the lack of a Canadian international air cargo carrier, unilateral international cargo Open Skies should be considered. More liberalized international passenger air bilateral agreements will also be beneficial, with an increase in the number of flights resulting in an increase in belly cargo capacity.
- ✓ **Upgrade trade administration practices and implement an effective tax and duty free zone policy.** The literature review indicates there are a number of elements required for a successful implementation of the free trade zone concept. TC should prioritize structures that will enhance successful outcomes for aviation communities, supporting the development of air cargo gateway, trade zone and corridor infrastructures. TC should also increase partnerships with the air cargo community and other government organizations on issues such as EDI implementation, and Customs and US cargo pre-clearance systems. Streamlined immigration procedures will also help the air cargo industry as it would allow visitors, particularly those from Asia, to transit Canadian airports without a visa and stimulate the market demands to support additional flights and thereby generate additional air cargo capacity.

- ✓ **Implement supportable air cargo security initiatives.** While most observers anticipate enhanced air cargo security will be implemented, greater certainty is required concerning the extent that this will impact the air cargo system and who will be responsible for the financial aspects, both capital and operational. There is a desire for a system for transborder traffic which, to the degree possible, is recognized as equivalent to US screening by US DHS.
- ✓ **Enhance education and international research programs in air cargo issues.** To support the development of leading edge air cargo policy and the industry it supports, it is suggested that TC initiates academic studies in air cargo issues at credible academic institutions in Canada.

I. INTRODUCTION

“Growth in the global economy and world trade is now being driven by Asian countries, particularly in the emerging markets of China and India. According to the Canadian Trade Commission, China’s Hong Kong, Shanghai and Shenzhen container ports handled 56 million 20-foot equivalent container units in 2005. China’s international trade is expected to double by 2010 and quadruple by 2020. What do these numbers mean for Canada? There is a huge opportunity for expanding trade and commerce through national transportation gateways.”¹

With more economies moving towards globalization and product life cycles increasingly getting shorter, air cargo becomes even more important to meet the needs of the global supply chain. This is especially true in the Asia Pacific region which is projected to have the largest share of the air freight traffic in the next decade.

In many ways the Asia-Pacific region is simply playing catch-up to other economic regions. A number of factors have combined to fuel the spectacular growth of the air cargo industry in the past 20 years not only there but also in many other jurisdictions, including:

- ✓ Deregulation and liberalization of the air transport industry;
- ✓ Global interdependence spurred by world trade agreements;
- ✓ International production and sales of good and services;
- ✓ Reliance on inventory management concepts such as "Just-in-Time" and "Zero" stocks; and
- ✓ The development of high value and limited life consumer goods.

Independent forecasts over the past several years have highlighted the underlying growth in air cargo. In Canada, the private sector has responded with initiatives to enhance fleets and essential airport infrastructure to enable it to respond. Transport Canada (TC) through its own forecasts and policy initiatives has recognized both the potential and some of the barriers to achieving those opportunities. Recent TC initiatives in air cargo policy have been predicated on:

- ✓ Securing as much flexibility for all-cargo services as possible in air bilateral negotiations; and
- ✓ Elevating the importance of serving the wider – non-airline – community.

But Canada’s international air policy doesn’t occur in a vacuum. International aviation is governed by the arcane world of the Chicago Agreement of 1944 and the multi-lateral and more traditional but restrictive bi-lateral air agreements that Canada has become party to since that time. The building blocks of these Agreements are based on the “Freedoms-of-the-Air” which are defined in Appendix A.

¹ Quote from “Canada’s East Coast Gateway via Nova Scotia” brochure found at www.theatlanticgateway.ca

The changes in global bilateral air transport agreements have greatly reduced the restrictions on air travel and created many opportunities for air services, trade and tourism and led to increases in employment and economic activity. To make the most of air cargo opportunities, it is important that the government and industry fully understand the changes that have been made to date, the potential that has yet to be realized, the benefits and costs associated with true Open-Skies, and how, ultimately, this could affect industries and communities in Canada, not only within the aviation industry but also beyond.

II. CURRENT SITUATION: CANADIAN AIR CARGO POLICY

Introduction

Air transport policy is set by Transport Canada (TC), while the negotiation of international air service agreements is a shared responsibility between TC and the Department of Foreign Affairs and International Trade, and administered by the Canadian Transportation Agency (CTA).

Since the mid-1990's Canada has pursued the gradual and incremental liberalization of its bilateral air transport agreements. The 1995 Air Transport Agreement between Canada and the United States represented a major step forward but was still somewhat short of true Open Skies. With the evolving nature of the global aviation industry and as part of this progressive approach to air liberalization, the Federal Government negotiated a new "Open-Skies" agreement with the United States in November 2005 and with the United Kingdom in April 2006.

Leading up to that in November 2004, Transport Canada identified the following key issues and strategies related to air liberalization, for consideration in setting future air policy²:

✓ Domestic Air Services

- Relaxing the regulatory restriction on Canadian ownership for Canadian air carriers;
- Removing the statutory obligation of Canadian control for Canadian carriers; and
- Allowing foreign air carriers to operate air services in Canada's domestic market (cabotage);

✓ Transborder Air Services

- Extending transborder services to include third countries with full traffic rights and with full pricing flexibility for scheduled and charter services;
- Flying to more than one point in the other country on any transborder all-cargo courier flight;
- Operating stand-alone services between the other country and third countries for all-cargo services for scheduled and charter services;
- Offering air services in the other country's domestic market (cabotage); and
- Integrating the two air markets under a single set of rules (such as has been accomplished within the EU).

✓ International Air Cargo

- On a market basis determine the extent to which Canada should seek to relax or remove routing, frequency, pricing and code-sharing restrictions on services between two countries;

² Submission to the Standing Committee on Transport (SCOT) entitled "Air Liberalization: a Review of Canada's Economic Regulatory Regime as it affects the Canadian Air Industry", November 2004.

- Determine the extent appropriate to relax or remove routing, frequency, pricing, code sharing and traffic right restrictions on services between two countries that also involves service to third countries;
- Offering air service in the other country's domestic market (cabotage); and
- Integrating air markets under a single set of rules.

With these principles in mind, on November 27th, 2006, the government announced a new international air policy entitled "Blue Skies". The new policy aims to lead to the development of new markets, new services and greater competition.

The new bilateral agreements relate to the transport of both passengers and cargo. In today's global marketplace, direct connectivity within and between economic regions is vital to continued prosperity and economic growth. The new policy would enable the air transport industry to make greater contributions to Canada's growth and prosperity if fully implemented in the way envisioned at the time of its launch.

Blue Sky: Canada's New International Air Policy

Canada's Blue Sky Policy announced in 2006 applies to Canada's approach to bilateral air transportation negotiations for scheduled passenger and all-cargo services. TC reiterates the economic importance of air transportation, and it's committed to seeking and negotiating more liberalized air service agreements, including reciprocal "Open Skies" agreements.

The policy clearly excludes cabotage rights – the right of a foreign airline to carry domestic traffic between points in Canada.

Stated aims of Transport Canada's new blueprint for air service policy include:

- ✓ Encouraging competition and the development of new and expanded international air services to benefit travellers, shippers and the tourism and business sectors;
- ✓ Providing opportunities for Canadian airlines to grow & compete successfully;
- ✓ Enabling airports to market themselves in a manner that is unhindered by bilateral constraints to the greatest extent possible;
- ✓ Supporting and facilitating Canada's international trade objectives;
- ✓ Recognizing that air transportation is a direct contributor to a dynamic economy and is a leading trade facilitator; and
- ✓ Acknowledging that market forces should determine price, quality, frequency & range of air services options.

Since launching the Blue Skies initiative, Canada has successfully concluded Open-Skies type agreements with Barbados, Ireland, Iceland and New Zealand. In addition, Canada concluded new or expanded air services agreements with Croatia, Serbia, Japan, Kuwait, Jordan, Mexico and Singapore.

In November 2005, Canada updated its US Air Service Agreement. These amended provisions entered into force on March 12, 2007 and allowed air carriers of both countries to:

- ✓ Pick up all-cargo traffic in the other partner's territory and carry it to a third country as part of a service to or from their home territory:
 - For instance, a US carrier can now operate a Columbus – Halifax – Frankfurt service and load/unload cargo travelling between YHZ and Europe;
- ✓ Operate stand-alone all-cargo services between the other partner's territory and third countries:
 - For instance, a US carrier can operate a Toronto-Pearson to Europe service;
- ✓ Offer the lowest prices for services between the other partner's territory and a third country.

More recently, Canada and Mexico took another step towards Open Skies in an amended bilateral announced in December 2007. This agreement has garnered particular interest from some cargo carriers and DFAIT has pursued them, given the enhanced level of interest. It is questionable what immediate benefits will be realized, given the quality and propensity to use trucking, particularly to/from locations near the US border. However, there may be downstream benefits which might result in new and sustainable routes.

The Canadian Government is in process of negotiating with the European Union on the form of an Open-Skies agreement to replace the bilateral agreements Canada has with 19 of the EU's members. The EU is seemingly looking for a comprehensive agreement that is similar to what Canada has outlined in its Blue Skies initiative – namely unlimited 3rd and 4th Freedoms, open 5th and 6th Freedoms, as well as all-cargo 7th Freedom Rights. The EU will press for the “Community Carrier” Clause (which would allow any European carrier to fly from any point in Europe to Canada and not be limited to the sovereign state of registration) and may accept the “principal place of business” Clause in return, as it agreed with Australia and New Zealand. Negotiations are entering the third round and progress is described as positive.

While the renewed Canadian focus on negotiating these agreements is commendable there is a great deal of ground to cover. One measure of how far Canada still has to go is illustrated by the progress made by the United States, which recently signed its 91st Open Skies agreement.

In areas where no formal air service agreements exist, Canada adopted a Foreign Carrier Access (FCA) policy in 1994 – which remains in effect while under review - to open up access to/from some smaller markets of interest. Under the FCA provisions, if a country has no air transport agreement with Canada, and if no Canadian carrier is interested in the foreign market in question, the other state may apply for one of its carriers to operate a total of two weekly scheduled services from the foreign country to one or more points in Canada of its choice, other than Toronto.

The FCA provisions were intended to facilitate foreign carrier access to Canada where no air transport agreement was in place and to provide Canadian communities more direct and convenient routings by foreign carriers willing to offer such service.

Only two carriers have availed themselves of the FCA provisions: Icelandair into Halifax and Cargolux which has a scheduled all-cargo service into Calgary. Both carriers have started cargo operations based on niche perishable markets: horsemeat from Alberta transported on Cargolux; and seafood from the Maritimes transported on Icelandair.

International Air Cargo Transshipment Program

Canada's International Air Cargo Transshipment Program allows Canadian and foreign carriers to carry international cargo transshipments coming from, or destined to, points outside Canada via approved Canadian airports. Established in 1982 at Mirabel Airport this program was initially intended to promote the use of small and underutilized airports, and at the time, was not available to larger airports. The Transshipment Program:

- ✓ Allows Canadian and foreign carriers to carry international cargo transshipments coming from, and destined to, points outside Canada via approved Canadian airports even if the rights are not provided in Canada's bilateral air transport agreements (such as with India);
- ✓ Allows in-transit cargo to be stored in bond until it is transported to its final destination by air or another mode;
- ✓ Has been extended to a number of Canadian airports, including Mirabel, Hamilton, Windsor, Gander, Winnipeg, Edmonton, Calgary, Vancouver, Moncton, and Abbotsford.

Stakeholder interviews revealed mixed opinions on the success of the Program – some question the validity of expanding the program to airports that are already successful as it defeats their perception of the program's original purpose, while others say that all airports should have access – and generates a lively debate which comes down to a perceived choice between "equity " and "excellence". In 2006, no carriers applied to use the program.

Current Canadian Activity

Many Canadian airports are seeking international service and as these locally managed entities, answerable to the communities they serve, look to new markets for additional air cargo opportunities to participate in the growing worldwide supply chain, they are also looking to participate as primary parties in air service negotiations.

At the same time, the rise of global alliances, liberalization in the US and elsewhere, and the emergence of more international and multi-national carriers has made Canada's traditional approach to international air service less sustainable.

The small number of Open Skies Agreements, vis-à-vis the US, has been viewed in some quarters as putting Canadian communities at a competitive disadvantage that will likely be exacerbated by the US - European Union Open Skies Agreement (came into effect on March 30th, 2008).

A more liberal Open Skies for Cargo arrangement could help keep Canada competitive in the cargo sector and enable the country to experience the higher cargo growth that has been experienced in other markets. As new gateways are developed, routes are solidified and associated economic activity builds with manufacturing, value-added services, and international spending.

Summary Observations On The Current Situation In Canada

This following represents the current situation in Canada in terms of international air agreements and ancillary policy initiatives, and provides context for the analysis that follows.

In discussion with a wide range of stakeholders the following observations were reached:

- ✓ There is broad agreement within many air cargo stakeholder groups that the list of objectives espoused by TC in its submission to SCOT remain valid, although the level of support changes depending on the specific issue. For instance, carriers are more supportive of the status quo but prepared to move forward, whereas many business groups would move significantly forward to fully liberate Canada's air service agreements, particularly as they relate to cargo.
- ✓ One of the comments heard consistently was the lack of a strong Canadian international air cargo carrier – and most believe Air Canada³ has limited interest in air cargo – should result in a much more liberal international regime. There was continuing frustration that the carriers' objections, despite their lack of commitment to the industry, was creating inappropriate impediments to developing the wider economic benefits that would flow from better international service, whoever the provider. This was characterized as the desire to adopt a "use-it-or-lose-it" (or reverse-onus arrangement whereby the default was open access) and Canada was encouraged to negotiate international agreements that allowed Canadian carriers to participate fully but to not limit foreign carriers because of a lack of interest by Canadian based carriers. In this regard the FCA arrangements were seen as moving in the right direction.
- ✓ It is generally recognized that cabotage – even reciprocal cabotage with the US – is such a stretch goal that it is likely to break any consensus on other issues. Generally supporters and detractors accept that cabotage will not be on the table for the foreseeable future.
- ✓ The **Canadian cargo carriers** interviewed were relatively satisfied with the status quo, and particularly the current domestic situation.
 - They believe that if transborder or international markets opened up completely, they would have difficulty competing given the market share of two of the existing integrated carriers - FedEx and UPS. They cite as an example the manifest difficulty an industry behemoth like DHL has experienced in trying to break into the US market.
 - Concerns about "Modified 5th Freedom Rights" being granted were expressed. Some believe if co-terminalization rights don't generate enough traffic, US carriers would seek modified 5ths to carry domestic cargo to help support the new routes which would likely be economically sub-optimal from their perspective. This is seen as a wedge issue. The larger questions of "what benefit to the wider economy" were less central to their analysis.
- ✓ **Freight Forwards** generally focus on passenger services and are less concerned about all-cargo negotiations. In part this is dictated by their business model which is dealt with in detail in Section IV. They see Canada as potentially a good Gateway possibility for shippers, both from a Customs and security screening standpoint, although they note the state of flux in both areas which is creating uncertainty and hence business risk.

³ Air Canada Exits Freight Market, Air Cargo News, 22 Apr 08.

- ✓ **Canadian Airports** expressed support for Open Skies for Cargo, even on a unilateral basis. Cargo Canada – an airport based cargo industry group – publicly states that Canada needs to be much more progressive with respect to air liberalization. Particularly they argue that there are significant opportunities to influence the route structure of the emerging country cargo carriers to include Canada in their air transportation logistics planning. In China as elsewhere in Asia-Pacific, new airlines are forming with newly granted trade and route rights, new aircraft fleets and capabilities, and these entities are starting to make long-term route decisions.
- ✓ The perceived lack of an effective **Duty and Tax Free Zone Regime** allowing transhipped goods into Canada, and the ability to add significant value to them, has meant that Canada is not generally seen as an attractive location for logistics centres, despite its geographical advantages. While the EDC Program was seen as a potential solution, most stakeholders believe that its limitations – including the requirement for Canadian distributors to derive 90% or more of their revenues from exports and particularly the burdensome application bureaucracy – has meant that the results have been disappointing. The background to these zones is included in Section III.

III. CURRENT GLOBAL ECONOMIC AND AIR SERVICE POLICIES AND BEST PRACTICES

Introduction

The fifth Worldwide Air Transport Conference (AT Conf/5) held in Montreal in March 2003 had on its agenda, a discussion of key regulatory issues in liberalization, including: air carrier ownership and control; market access; fair competition and safeguards; consumer interests; product distribution; transparency; as well as a discussion for a global framework for ongoing liberalization. The International Chamber of Commerce (ICC) presented a paper at this conference⁴, indicating that while other sectors of the economy have benefited from a multilateral trading regime initiated by the General Agreement on Tariffs and Trade (GATT), and continued working within the World Trade Organization (WTO) framework, air transport services had at the time, not followed the pattern – there was difficulty reconciling bilateral air service agreements with the GATT principles of Most Favoured Nation (MFN) and national treatment because access to agreed routes was limited to national carriers of the bilateral parties.

The paper listed a number of outstanding issues:

- ✓ **Restriction of bilateral agreements** – which among other things prevents carriers from planning their route networks purely on the basis of commercial considerations. Other restrictions including ownership and control, cabotage and the right of establishment prevent free trade in air transport services and the optimal capital movement, which in turn drives up the costs of production. National differences in the way these market impediments operate also make it difficult in the current bilateral system to bring about their removal.
- ✓ **Limits on foreign investment** result in carriers not being able to generally establish themselves outside of their 'national' state.
- ✓ **Competition over aviation rights** – with the development of free trade areas, should negotiation of aviation rights be held at the national or community level?
- ✓ **Divergent competition policies** – there is a growing number of cross-border alliances, however there is a lack of coherence between air transport regimes, causing uncertainty for users and airlines.
- ✓ **Fiscal policies**, particularly in the air transport sector, are the subject of many taxes which increase travel costs and reduce mobility. Some governments also subsidize air transport, which distorts markets.
- ✓ **Customs impediments** can affect the cost of air transport, as well as the speed and reliability of delivery.
- ✓ **Infrastructure access** constraints such as air traffic control systems and airports at capacity.

⁴ Information paper "The Need for Greater Liberalization of International Air Transport" presented by the ACC at ATConf/5 "The Need for Greater Liberalization of International Air Transport".

In December 2005, the International Chamber of Commerce (ICC) also prepared a policy statement regarding the need for greater liberalization of international air transport⁵. In its statement, the ICC supported a freer exchange of air services throughout the world, under competitive conditions transparent for all users of the air transport system. The ICC also indicated that it had become increasingly apparent that bilateral air service agreements (while they have been steadily improving), can no longer of themselves meet the rapidly changing needs of airlines, users or the global economy – that by creating more open markets and more flexibility with respect to foreign ownership, the efficiency of air transport could greatly be enhanced.

Global Air Services Liberalization

“In terms of all-cargo courier services in the TB market, an important restriction remains – these services are limited to only a single point in the other country’s territory on any flight. Air cargo accounts for ½ of 1% of the total cargo tonnage carried in the Canadian transportation system – mainly for high-value, manufactured goods. While this is small, it gains an importance when its role in international trade is considered – for example, 24% of the value of goods imported from or exported to non-US countries arrive by air”.⁶

International scheduled air service remains regulated around the world, stemming from the principle that countries have sovereignty of the airspace over their territory. Given the recognition that air transport is a direct economic contributor and a leading trade facilitator, the globalization and integration / regionalization of international economies, as well as fundamental changes in the airline industry, there is a growing international momentum for greater liberalization of air services.

“Air liberalization” refers to removing statutory and regulatory constraints and modifying related economic policies that unnecessarily limit the operation of air services as well as reducing protection for airlines where such protection cannot be defended in the public interest. The ultimate goal is to encourage the development of new services, lower prices, and increase competition wherever net benefits for a country can be realized.

Many organizations, including ICAO and the OECD, have identified several options for further liberalization, including:

- ✓ Liberalization within the bilateral framework including the negotiation of specific clauses for open route exchanges, multiple designation, capacity freedom, pricing freedom, open third and fourth freedom rights etc.;
- ✓ A lead sector approach whereby specific markets such as cargo services are liberalized first, providing a basis for subsequent liberalization of other services;
- ✓ Phased multilateralism (plurilateralism) which is the gradual branching out from a single core of like minded states that establish fully liberalized air transport markets among themselves; and

⁵ www.iccwbo.org/policy/transport/id5272/index.html

⁶ Quote from “Air Liberalization: A Review of Canada’s Economic Regulatory Regime as it affects the Canadian Air Industry. A Reference to the Standing Committee on Transportation” from the Minister of Transport, November 2004.

- ✓ Full multilateralism where in every participating country it is possible for an airline to compete for passengers and cargo regardless of its nationality.

The International Air Cargo Association (TIACA) believes liberalization measures play a large role in economic development. It also believes that the current bilateral system is far from perfect – it works for developing markets, but developed markets require ‘evolved versions’ of the bilateral regulatory system. The current bilateral system which requires explicit approval by governments for every operation is lengthy and not necessarily compatible with the economic requirements of a trading country’s or carrier’s business flows. TIACA acknowledges that the agreement between the US and EU is an important step towards open skies across the Atlantic, but the association continues to fight for freedom of air cargo movements. The agreement between the US and China, which permits unfettered access by US cargo carriers to Chinese markets is also considered a milestone. TIACA believes that ultimately cargo needs to be separated from the bilateral agreements process, and that full liberalization is not a wish, but a ‘must’, and that regional trading blocs must encourage multilateral agreements between their members.

The Airports Authority of India (AAI) presented a paper at the National Urban Freight Conference in Los Angeles in February of 2006 that evaluated the impacts of air cargo resulting from aviation sector policies, and development of airports in Asia. The paper indicated that air cargo has three imperative roles in the global economy: global sourcing; launching new products; and satisfying customer expectations; and that the air cargo environment is increasingly becoming integrated and ground linked, characterized by door-to-door service from shipper to customer, as opposed to just airport-to-airport.

Another key observation in the report was that air trade rights liberalization is a key facilitation factor; however most governments are focusing their energies on passenger liberalization and for the most part, have not recognized the importance of air cargo liberalization to business competitiveness, world trade and economic growth and development. AAI made the point that trade liberalization is significantly related to growth in airfreight trade, net inflow of foreign direct investment (per capita) and GDP per capita. Econometric modelling demonstrates that nearly 80% of the variance in nation’s economic performance can be explained by the combination of a nation’s level of aviation liberalization.

In the same paper, five major factors in determining an airport’s competitiveness with respect to air cargo were identified:

- ✓ Spatial factors – increase in regional development around the airport impacts to create international trade zones, logistics and convention centres, economic free trade zones, aviation related industrial complexes, and other facilities;
- ✓ Facility factors – level of airport facilities and expandability of facilities at existing airports to augment the capacity in air cargo handling;
- ✓ Demand factors – the level of O-D demand for traffic volumes for hub and spoke network development;
- ✓ Service factors – the level of service to users, types of airport operations, and level of airport charges; and
- ✓ Managerial factors – economical considerations such as airport operation costs, productivity and revenue structure.

Global Air Agreement Initiatives

A number of wider international air service agreements have been developed in the past few years. Several examples are highlighted below.

Multilateral Agreement on the Liberalization of International Air Transportation (MALIAT)

One of the first multilateral agreements, the MALIAT was negotiated specifically to promote an open skies regime between contracting states and became effective December 21, 2001.

Its key features include an open route schedule; open traffic rights including seventh freedom cargo services; open capacity; airline investment provisions which focus on effective control and principal place of business, but protect against flag of convenience carriers; multiple airline designation; third country code-sharing; and a minimal tariff filing regime. Currently there are eight signatory countries: Brunei Darussalam, Chile, Cook Islands, New Zealand, Samoa, Singapore, Tonga, and the USA.

United States

As well as the MALIAT, the US has shown itself to be in the vanguard of negotiating open skies agreements. The rapid deregulation of the US air transport market beginning in the late 1970s gave an international reform of both cargo and passenger air services. The US Open Skies policy has allowed the US and many trading partners to sign a liberal template bilateral accord which has led to a common framework of agreements. This has resulted in the successful conclusion of over 90 Open Skies Agreements, many of them nations with major trading and tourism links to the US.

Most recently on February 14, 2008, US Secretary of Transportation announced that the United States and Australia had concluded a landmark Open-Skies aviation agreement that will eliminate restrictions on US-Australia air services for the carriers of both countries.

Although the 1946 US-Australia aviation agreement had been significantly amended in the 1980s, it still contained restrictions on capacity, routing, pricing and code-sharing, and there was no provision for charter flights. In 1999, the two countries took a major step toward liberalizing air services when they agreed to remove restrictions on US-Australia air cargo services.

The United States is Australia's third largest aviation market and this agreement removes restrictions on Australian and US airlines starting services and routes between the two countries and beyond to third countries. Already V. Australia – an off-shoot of Virgin Blue (which itself is based on the successful Richard Branson “Virgin Atlantic” franchise) - has been given rights to launch ten weekly flights to North America based on this agreement coming into force.

Under the new agreement, airlines from both countries will be allowed to select routes and destinations based on consumer demand, without limitations on the number of US or Australian carriers that can fly between the two countries or the number of flights they can operate. The agreement also removes restrictions on capacity and pricing, and provides opportunities for cooperative marketing arrangements, including code-sharing, between US and Australian carriers.

While Canada can boast of a small number of “quasi” open-skies agreements, with this announcement, Australia becomes the 91st US Open-Skies partner.

European Union

The EU transport policy continues to suffer from an imbalance in the utilization of the different modes of transport. Challenges include infrastructure congestion, high fuel prices and tolls, costs of CO₂ emissions to society and business (through legislated carbon trading programs), lack of adaptation of some modes, external costs not included in the price of road transport, lack of enforcement of social and safety rules, and lack of awareness of the potential of sustainable logistics and intermodal solutions.

In 2006, the EU reviewed its priorities which included sustained mobility (including reviewing air transport liberalization measures, reviewing and completing Single European Sky, SESAR (2007), and an emissions policy), protecting the environment, innovation through increased efficiency and sustainability of the growing transportation sector, and presenting a united front at the international level. Recent EU policy measures include a Policy on Intermodal Freight Transport which supports efficient door to door movement of goods using two or modes of transport in an integrated chain. The EU Freight Transport Agenda includes boosting the efficiency, integration and sustainability of transport in Europe, although this is mostly geared towards intra-EU transport.

The creation of an internal EU air transport market was a major achievement in creating a liberal regional market for air services (Single European Sky). In addition, regional economic arrangements have removed constraints on airline ownership and operations within their borders.

In addition to the US-EU agreement noted above (with second stage negotiations expected to begin in May 2008), the UK and Singapore recently signed an agreement effective March 30, 2008 to remove all restrictions on air services, providing access to the London-US market to a non-EU or US airline.

Asia-Pacific

Many of the Asian countries are leaders in international trade, largely due to the governmental export policies toward a free-trade environment. In most respects, this approach was more of a necessity than luxury as some of the most progressive countries are geographically constrained (i.e. island nation or located on a peninsula, South Korea for example) and allowed their respective countries to participate in, and sometimes drive, globalization.

CASE STUDY 1: The Singapore Sling

Singapore recently concluded three bilateral Open Skies Agreements (OSAs) with Denmark, Norway and Sweden.

With these OSAs, airlines of both Singapore and the Scandinavian countries will be able to fly between Singapore and any point in Scandinavia, and beyond to any third country, without restrictions in capacity, frequency or aircraft type.

The OSAs are even more liberal than conventional OSAs, as they provide for unlimited "hubbing" rights for their cargo airlines. For example, a Singapore cargo airline will be allowed to base its aircraft in any point in Scandinavia and use this as a hub to operate to any other country, without any restriction on destination, frequency of service or capacity. Reciprocal rights apply to any Scandinavian carrier.

Two of the best examples include Singapore and South Korea. The former continues to lead the world in some of the most liberal open skies programs. As shown in the first Case Study, Singapore has signed some fairly important and ground-breaking bilateral Open Skies Agreements with three Scandinavian countries.

In late 2007, Singapore and Canada concluded a new air transport agreement where Singapore carriers are allowed to operate passenger and all-cargo flights as frequently as desired between Singapore and Canada, via selected intermediate points. In addition, they may code-share either with one another, with any Canadian or third country airlines. While this positive approach to liberalizing agreements is generally well received, allowing the development of new/additional access to the Canadian market, there are examples of continuing difficulties which highlight the problems encountered in realizing the opportunities presented by more liberal air service agreements (see Case Study 2).

CASE STUDY 2: Jade Cargo Adjusts Routing through Portland

SHANGHAI, May 18 (WorldACD) - Shanghai-based cargo airline, Jade Cargo International, was poised to enter the Transpacific market with a twice-weekly charter service to Houston (IAH) via Vancouver (YVR).

The service would be launched once Jade had received the necessary governmental approvals, the company said in a statement.

Later in 2007, the airline reported that it had filed to adjust the international routing to include Portland International Airport (PDX) instead of YVR. According to the Vancouver Airport Authority, the airline reported that the Canadian Government advised that it would take approximately 8 months to certify the carrier. That delay did not meet with the carrier's customer timeframe, and while YVR is still considered optimal, PDX (and the U.S.) did not have the time constraint in terms of certification.

South Korea has recently signed an agreement on services with the 10-member Association of Southeast Asian Nations, moving closer to completing a free-trade deal with the regional group as well as opening doors for handling more air cargo. Economic ministers from ASEAN countries and South Korea signed the so-called Agreement on Trade in Services after leaders of the 11 countries met in Singapore. South Korea has openly stated that air cargo and the necessary open skies agreements with key trading partners contribute a disproportionate amount of their country's GDP. Their high-tech and electronics sectors require access to the global market and the government continues to pursue additional bilateral and open skies agreements.

By December 2008, Open Skies between Singapore and Malaysia will be implemented, fully liberalizing the Singapore-Kuala Lumpur route.

Middle East, India and Africa

Middle East. Not unlike some of the progressive countries in the Asia-Pacific region, several countries in the Middle East have implemented aggressive free trade and open skies agreements to stimulate their respective economies and attract foreign investment. Few countries in the world are more aggressive than the United Arab Emirates (UAE) and Dubai. Leaders of both nations realize that their oil reserves have a definitive life expectancy and have therefore taken an overtly liberal policy towards open skies programs. The UAE has sealed an air pact with India, United Kingdom

and other EU countries, giving its four international carriers - Emirates, Etihad Airways, Air Arabia and RAK Airways - an unlimited number of passenger and cargo flights to these countries. Other countries in the Middle East have also been actively pursuing liberalization, including Jordan, Qatar and Egypt.

India. In India, not only has the government engaged in multiple open skies agreements aimed at stimulating air cargo activity, it is also incorporating other aspects of the aviation industry into their liberalized policies. For example, the government is planning commercialization of cargo operations at non-metropolitan airports. The move will enable private sector players to run cargo terminals at these airports that are now managed by the Airports Authority of India (AAI).

To meet increasing demand expected from sectors such as retail and durable goods, the private-public partnership (PPP) model is being considered to upgrade facilities at secondary airports across the country. The plan is based on the recommendations of an inter-ministerial group (IMG) to suggest measures for streamlining cargo operations and stimulating cargo volumes at all the airports.

Many of the recent governmental policies have led to an increase in air cargo traffic in India where the country has experienced nearly 20 percent growth in the last three years with a 34 percent jump in the last year alone. India's robust commerce and fast-growing electronics sector led to recent gains in air cargo growth that has left rail and shipping behind. Over the same three-year period, rail tonnage grew 10 percent and shipping only 9 percent.

Some of the specific policy adjustments that have contributed to this recent growth include the government allowing more Indian carriers to be able to fly to foreign countries as it lifts restrictions under the civil aviation ministry's Vision 2020. Instead of a minimum five-years flying requirement for being eligible to fly abroad, the ministry wants to give clearance on a case-to-case basis, while retaining or increasing the required minimum fleet size of 20 aircraft.

Africa. Progress in air service liberalization in Africa has been slow. In 2000 the African Heads of State endorsed the Yamoussoukro Decision, to gradually liberalize scheduled and non-scheduled intra-African air transport services. The Yamoussoukro Decision provides for:

- (i) The removal of restrictions on traffic rights including 5th Freedom;
- (ii) The fixation of tariffs without requirement for government approval;
- (iii) The removal of restrictions on capacity and frequencies between city pairs;
- (iv) The removal of restrictions on multiple designations;
- (v) Criteria for eligible airlines to comply with the requirements of the operation; and
- (vi) Standards for safety and security.

Implementation has been difficult due to a lack of will in certain states, lack of regional economic regulation and technical regulatory control and the lack of an African Executing Agency to manage the implementation and overcome obstacles.

Regional economic groups such as the Common Market for Eastern and Southern Africa (COMESA) have also agreed to air liberalization between member states. The first phase includes

allowing free movement of intra-COMESA cargo, and scheduled and non-scheduled passenger services. Twelve States in COMESA have implemented Phase 1 of the program, these being Burundi, Djibouti, Egypt, Eritrea, Ethiopia, Kenya, Madagascar, Rwanda, Uganda, Sudan, Zambia and Zimbabwe.

Nigeria liberalized air services in 1996 and experienced very high growth rates of over 10% per year in passengers and 20% per year in cargo in the following six years. Nigeria relaxed its foreign ownership rules which has allowed a new airline, Virgin Nigeria, to service Nigeria following the collapse of its national carrier. Nigeria is currently in the final stages of establishing an international air cargo free zone in its state capital Minna. South Africa also liberalized domestic air services in the late 1990s and has experienced above average growth.

A group of North African countries have also recently expanded their open skies and trade bilaterals. Libya, Tunisia, Algeria, Morocco and Mauritania have backed plans to liberalize air transport in the region by 2008. Ministers from the five-member Arab Maghreb Union (AMU) have set up a committee to examine Morocco's proposal for an 'open skies' deal, according to a joint statement issued following a meeting in Skhirat, south of Rabat. They called on Maghreb aviation companies to draw up plans by the end of April to co-operate on development, maintenance and commercial matters.

Special Trade and Enterprise Zones (SEZ)

Over the past twenty years a range of designated special trade and enterprise zones have been created with the aim of promoting economic development, although the specifics vary greatly across jurisdictions. These range from special zones in economically depressed regions of developed nations to developing countries with very liberalised trade regulations aimed at attracting foreign capital and increased trade.

These tend to be quite wide ranging in terms of general economic activity and some have a transportation element connected to them. Some examples are presented below⁷:

- ✓ The **People's Republic of China** has a number of Special Economic Zones (SEZ) including:
 - The Pudong New Area Special Economic Zone in Shanghai;
 - Shenzhen, Zuhai and Shantou, all within the Guangdong Province (bordering Hong Kong);
 - The Province of Hainan; and
 - Xiamen in Fujian Province.

In general, Chinese SEZs are targeted at foreign capital and many enterprises within these SEZs are either Sino-foreign joint ventures and partnerships, or wholly foreign-owned enterprises. Economic activity is predominantly export-oriented. These zones have special administrative rights including separate planning and financial planning. They have province-level authority on economic planning, as well as legislative authority. They offer special economic incentives for foreign investments. Shenzhen in particular has grown extremely

⁷ Briefing Note Prepared for Winnipeg Airports Authority (undated).

rapidly from a small town to a major industrial centre, with growth of over 20% annually for more than 25 years, making it one of the fastest growing cities in the world.

There is another phenomenon noted in China, that of the “unofficial” duty and tax free zone created at the local or municipal level and focussed on manufacturing and assembly for export. These zones are not sanctioned by the federal government but seem to have been tolerated on the basis of the economic benefits they bring.

- ✓ **India** passed legislation enabling special trade areas in 2005 and to date some 300 zones have been developed. India has a much larger number of smaller SEZs than in China, which some say does not provide the same critical mass which the Chinese SEZs have and the program has not seen the phenomenal growth experienced in China.
- ✓ Enterprise Zones exist in a number of forms in the **United States**, at both the federal and state level. Generally these special trade areas are located in economically depressed areas. As with federally designated zones, the Enterprise Zones created by State legislatures are most commonly situated in underdeveloped areas to provide economic development stimulation and inward investment.
- ✓ An Enterprise Zone program was launched by the **UK** government in the early 1980's in order to promote and encourage private sector industrial and commercial activity through financial incentives and relaxation of some statutory and administrative controls. The program was targeted at economically depressed areas. Individual zones were designated for a period of ten years, after which Enterprise Zone status expired. In a review of 22 of the original 25 Enterprise Zones designated in the 1980's (from a study commissioned by the Office of the Deputy Prime Minister), the zones were found to be successful at attracting high levels of development. However, a high proportion of development was found to be displaced from surrounding areas and the public costs per job were also considered high. Additionally, success of the zones was found to be dependent on some level of public intervention.

These large scale special trade facilities have had varying degrees of success. Smaller, focused attempts have been made to promote trade through Free Trade Zone initiatives.

Economic Development Through Free Trade Zones (FTZ)

Tax and customs duty free zones go by a number of names including Enterprise Zone, Foreign Trade Zone and/or Free Trade Zone. Often they refer to a specific and defined geographical area with special arrangements with respect to taxation and/or economic regulation.

Overall, they are one method of attracting business although trade obligations impose rules around competition for business between jurisdictions. WTO obligations place a limit on country competition for FTZ business. Subsidies to particular businesses or industries are discouraged and may be subject to challenge by other WTO countries. However, well executed FTZ attract investment to establish a critical mass that will be self-sustaining and attract further business investment and shipping cargo.

Establishing a FTZ is not a guarantee of obtaining higher growth rates or attracting foreign direct investment. There are numerous international examples⁸ of FTZ that have failed to meet these objectives. Poor geographical location, low government commitment, operational difficulties, poor management and inadequate promotion have contributed to failed FTZ initiatives. Other reasons cited for FTZ failure include excessive bureaucracy, inappropriate minimum employment and investment floors, government mandated labour market rigidities, low productivity of labour force, lack of standard rental factory space availability, and high utility and transportation costs.

International experience also suggests, however, that there are certain factors that greatly increase the likelihood of success for an FTZ. These are usually characterized as a combination of quality infrastructure, supportive government, lighter regulation, a strong export focus, tax and customs exemptions and large storage and logistics capacities. Policies that promote macroeconomic stability are also important.

Canada was the last G-8 nation to offer provisions for free trade zone (FTZ) capabilities. Canada currently has a combination of programs, specifically the Duty Deferral Program and the Export Distribution Centre Program which approximate the traditional advantages of the FTZ.

Canada's Duty Deferral Program was introduced in 1996 to provide relief for re-exported goods, and deferral of duties on goods bound for the domestic market. GST still has to be paid on imported goods, even if they are to be re-exported, and as duties are reduced or eliminated through trade liberalization, this tax component has become more of an impediment to the creation of effective FTZ in Canada.

In 2001, Canada adopted new legislation thereby allowing firms to operate Export Distribution Centres (EDC)s in Canada. Firms operating within an EDC can purchase Canadian goods on a tax-free basis and import foreign goods on a tax and duty free basis if the goods are primarily intended for import/export. Value added opportunities are limited as the goods cannot be manufactured or substantially changed in the EDC environment. More details are shown in Appendix B.

Advantages seen for EDC's include: activities not confined to a pre-defined area of land providing flexibility as business needs change; and lowered bonding requirements (from 100% of duties and taxes payable to 0% for low risk goods and 60% for high-risk goods). Stakeholders see a number of problems with the EDC arrangements and it is understood no EDC's have been created in the 7 years that the program have been in effect.

Effective FTZ are seen as being useful in promoting trade and the Transshipment program in Canada will likely only be effective if it is complemented by an effective FTZ regime. International Case Studies highlighting key factors for the successful implementation of FTZ are provided in Section III.

Canadian Provincial / Territorial Action

Although it is generally felt that it is the responsibility of the private sector to develop markets, provincial and territorial governments do support gateway and trade corridor initiatives by providing

⁸ "Free Trade Zone and Port Hinterland Development", Economic and Social Commission for Asia and the Pacific, United Nations, New York, 2005.

funding for studies and raising the profile of such initiatives through trade missions, meetings with the Federal Government, press releases etc.

It is important to note that although only some of the Provinces and Territories own and/or operate airports, air access to the northern and remote areas of Canada is critical – not only for the movement of people, but for cargo – inbound perishables, medical equipment etc.

With respect to air cargo, Canadian provinces and territories have influence over the fuel tax applied to international and domestic carriers (all-cargo and or passenger flights). Several provinces and territories have exempted fuel tax on international flights altogether or provide a full rebate (e.g., Newfoundland and Labrador, Saskatchewan, Alberta, British Columbia (on international cargo flights), while others have reduced the aviation fuel tax on transborder and/or international flights (New Brunswick, Manitoba).

Benchmarks and Best Practices

To understand how these have been successfully implemented, three jurisdictions have been studied that can provide examples of best practices and successful application of a number of the concepts described.

Jurisdiction: The United States of America

Anchorage International Airport, Alaska



In terms of worldwide cargo gateways, few airports rank ahead of Anchorage International Airport (ANC) in terms of annual tonnage. In 2006 (new 2007 worldwide rankings are not yet available), ANC ranked 3rd with nearly 2.7 million tons of cargo activity with only Memphis, FedEx's worldwide hub, and Hong Kong international airports accommodating more annual tonnage. While ANC has always been blessed with superior geographic location, these type of global leading numbers did not happen because the leaders of the airport simply constructed long runways and cargo buildings. In fact, until long-range passenger aircraft began overflying ANC and transshipping cargo activity increased at the airport, Anchorage was not the iconic cargo gateway it has become today.

Transloading or crossloading came about through government action. In 1996, the U.S. Department of Transportation granted expanded opportunities to air cargo carriers and then-Anchorage International Airport. These provisions provide great flexibility for air cargo operators, whether or not the specific provisions of any bilateral aviation agreement with a foreign carrier's home country provide for these types of air cargo transfers. Currently, Northwest Airlines, Korean Airlines, China Air Cargo, Japan Airlines and Transmile Air have established major transloading operations in Anchorage.

Under the original 1996 USDOT order, Alaska and Hawaii were the only airports permitted to allow transloading. Recently, Guam has been added but the USDOT has restricted the foreign countries that may participate, including Japan, China and Australia. Three years later, DOT again expanded

the transfer rights by granting all foreign air carriers, which currently hold or obtain authority to serve any points in Alaska, the authority to co-terminalize points in Alaska with other U.S. points for which they have rights.

In practice, these provisions provide for very basic, essential transfers, such as online transfers by a foreign carrier from one of its own aircraft to any of its other aircraft, provided that both aircraft are operating to and from a point in the carrier's homeland. For instance, for cargo to be transported from Los Angeles to Osaka, a Japanese air carrier can transport it from Los Angeles to Anchorage on one of its aircraft used for its Los Angeles/Anchorage/Tokyo route and transfer it in Anchorage to another one of its aircraft used for a Chicago/Anchorage/Osaka route to be transported on the Anchorage/Osaka leg.

A provision contained in a Federal Aviation Administration Reauthorization Bill in late 2003, grants foreign air cargo carriers operating in Anchorage liberalized authority to transfer cargo to other foreign carriers to complete the international journey to the U.S. The law creates additional opportunities for air cargo operators to utilize Anchorage to obtain maximum efficiency in services between North America and Asia, and between Europe and Asia. It also allows the transport of international origin and destination cargo on a foreign air carrier between Alaska and other points in the United States in the course of continuing international transportation, so long as the foreign carrier has a revenue relationship with a domestic carrier serving Alaska.

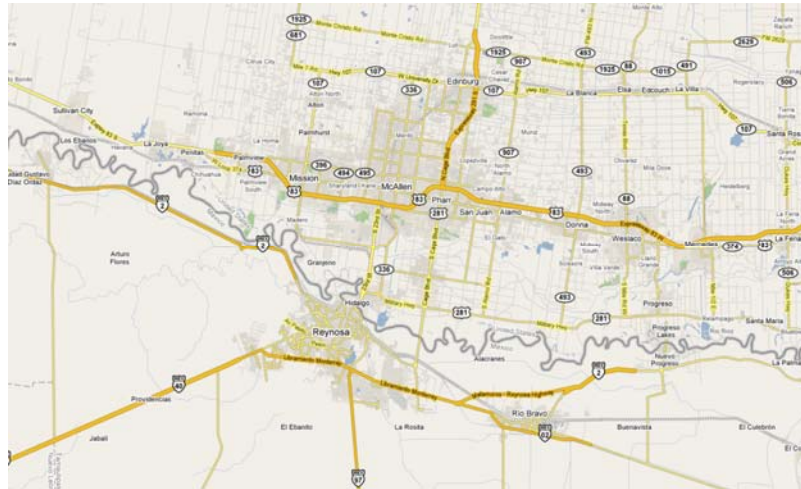
One provision, (called co-mingling) allows cargo traffic moving in foreign air transportation to "mingle" with cargo traffic not moving in foreign air transportation. This allows the foreign carrier to mix cargo with a foreign origination or destination with cargo that has a U.S. origin or destination. For example, on a Tokyo/Anchorage/New York route, a Japanese carrier can mix cargo to be transported to New York with cargo that is transported to London. Once in Anchorage, the cargo destined for London is transferred to another aircraft for the Anchorage/London segment.

Similarly, another provision in the Act, (called change of gauge), allows for air carriers to transfer cargo from one aircraft to different size aircraft, whether smaller or larger. Additionally, cargo may be transferred from one aircraft to several other aircraft. For example, cargo goods to be transported, respectively, from New York to Osaka and Kyoto can all be transported aboard a Japanese carrier's aircraft traveling from New York to Tokyo via Anchorage. Once in Anchorage, the Osaka and Kyoto cargo can be transferred to the carrier's separate aircraft originating in other points, and operating through Anchorage to Osaka and Kyoto, respectively. Furthermore, the separate aircraft leaving Anchorage for Osaka and Kyoto do not have to be the same size aircraft arriving in Anchorage from New York. This is a particularly important issue to Canada.

McAllen Economic Development Zone, Texas

The McAllen, Texas implementation is somewhat different but indicative of a special economic zone that has benefitted from developing trade ties between the US and Mexico. The operator of the Zone is the McAllen Economic Development Corporation (MEDC), which is governed by a Board consisting of business leaders, bankers, lawyers and city officials. It is a not-for-profit corporation under contract with the City of McAllen to create jobs for McAllen by attracting new industry and helping existing companies to expand. The MEDC staff of 40 works with prospective industrial clients, handles marketing and public affairs, and provides corporate support to existing manufacturing and supplier companies.

MEDC works very closely with the Maquiladora, based in the neighbouring Mexican city of Reynosa. The Maquiladora were born out of the major barrier to foreign (non-Mexican) companies making the necessary capital investment in manufacturing operations in Mexico, the concern over ownership rights to the Mexican company, and the extremely high Mexican import duties (100% or higher duty rates were common) that needed to be paid to bring materials into Mexico for further processing. The Maquiladora program allowed both 100% foreign (non-Mexican) ownership and duty-free entry into Mexico of all materials and equipment, regardless of origin, needed to support the operations.



The location is an example of a multi-site Zone, with 780 acres in one area and a second – a multi-modal facility based on 900 acres of land at the McAllen Miller International Airport. In total, there are \$1.3 Billion of annual economic activity and 410 companies based in the Zone. Key success factors include good labour pool; efficient support from MEDC to meet companies needs, efficient inter-modal links; reasonable costs; and beneficial federal duty programs.⁹

Jurisdiction: European Union

In Europe, the general policy is to create a level playing field towards state aid to private enterprise. An exception is aid granted to promote the economic development of areas where the standard of living is abnormally low or where there is serious under-employment. In the EU, the definition of free zones is narrow, whereby free zones are special areas within the customs territory of the Community where goods are free of import duties, VAT and other import charges.

In the Netherlands, there are no free trade zones or free ports; however there are many customs warehouses and free warehouses at designated places and international airports where goods in transit may be temporarily stored under Customs supervision. Goods may be repacked, sorted or relabelled. Goods stored in a European Logistics Centre (ELC) are seen as transit goods from the perspective of the Customs authorities, and neither import tariffs nor Customs procedures are needed. The Netherlands is attractive as a European distribution centre with an estimated 60% of US companies in Europe having located their European distribution centres there.

⁹ Jim McNamara; MaquiLogistics, Inc 05-2004.

The Netherlands is known for its favourable fiscal climate with advanced tax rulings combined with advanced pricing agreements. Also, special tax regulations allow distribution centres to define tax obligations in advance using the cost-plus model where the company's profit is calculated as a percentage of operating costs; and the exact percentage point calculated on the basis of similar business relationships between independent parties. This fictitious profit is then taxed at the usual rate of 35%. Advanced 'bargaining' can be made for four years or longer.

Jurisdiction: Hong Kong

The Hong Kong Special Administrative Region's (HKSAR) trade advantage doesn't rely on the development of a specific FTZ initiative, rather it is based on the proactive stance of the HKSAR's approach to the issue. The Hong Kong Government (HKG) has systematically looked to reduce barriers to trade, not just in duties and taxes – although that is a significant starting point and today only hydrocarbons, hard liquor and cigarettes are subject to duties – but also in open bi-lateral air service agreements and a general predilection for reduced trade bureaucracy.

CASE STUDY 3: Is that iPod really "Made in China"?

Marcus Gee
Globe and Mail, February 6, 2008

A group of skeptical California researchers looked at the guts of an iPod and discovered that, though the device was assembled in China that accounted for only a few dollars of its value. Most other parts - a display from Japan, two critical microchips from the US - were far more valuable.

Rapid trade integration means that goods and parts are shipped to and fro across Asia – and between Asia and North America - at various stages of production.

Canada is not taking good advantage of global supply chains, the complex linkages that see the production process farmed out to various parts of the world to maximize efficiency."

Conference Board of Canada recently cited a study that found only \$3 of a \$300 iPod "Made in China" is actually value added in China. Half the value – the design and intellectual property – is made in the US –and other elements are imported.

Hong Kong's success in attracting a vibrant air cargo industry – 50 airlines and 500 freight forwarders move on average over 3,000 tonnes of goods each day - is based on a combination of winning factors, the most significant of which are:

- ✓ Openness to business and public-private partnership arrangements;
- ✓ Location within SE Asia and specifically the burgeoning economy of mainland China;
- ✓ Proximity to many of China's most vibrant Special Economic Zones with advantages in terms of: low business taxes; access to capital; access to low-cost labour; and logistic corridors allowing for fast intermodal transfers (air-truck-air) of the kind required by a manufacturer such as Swatch watches or Apple (see Case Study 3);

- ✓ Commitment to Open Skies air service policies and excellent air service networks based on the Hong Kong International Airport;
- ✓ Concentration of international consolidators and freight forwarders as a result of those air service links;
- ✓ Airport based cargo service companies taking charge of more of the logistics chain: for instance HACTL (which handles 80% of the cargo at HKIA) runs an integrated air-truck service which takes cargo in sealed, bonded trucks to various destinations in the Pearl River Delta; and
- ✓ Commitment to Electronic Data Interchange (EDI) development through partners such as the Hong Kong Trade Development Council to develop common platforms across modes and with HKG Customs and Finance.

Implications for Canada

There are a number of lessons that are offered by the international success stories highlighted.

First, as a necessary condition for effective international air cargo development, Canada needs an effective and proactive Open Skies policy that is properly resourced and followed through. The Anchorage study shows that governmental policies can have a materially beneficial affect on trade patterns when designed and implemented with clear focus and understanding of the market condition and opportunities. Moreover, time is of the essence and the expanding cargo operations at ANC reduce the number of and depth of opportunities for Canada: as the major trans-Pacific cargo carriers (UPS, FedEx, Polar, Northwest, etc.) increase their presence at Anchorage, in terms of capital investment and aircraft scheduling, fewer city pairs that link Asian markets and Canadian gateways make economic sense. Finally, not every Canadian market is a viable candidate to receive direct freighters if Anchorage over-flights were to occur. Some airport communities with significant O/D traffic, available infrastructure and the right cargo-related service providers – such as competing international Freight Forwarders - are most likely to succeed and participate in the expanding global supply chain.

Second, Canada needs an effective tax and duty free zone policy. The literature review indicates there are a number of elements required for a successful implementation of the FTZ concept and the results internationally have been spotty. In the US over 40% of the FTZs, roughly 250, are not operating in the way intended and over 65 subzones have lapsed and had their designation removed. The principle reasons for success are: (1) a clear understanding of the regulations and benefits of the FTZ; (2) the ability to effectively communicate these benefits, which includes time and resources, and therefore attract companies to the FTZ; and (3) a developmental strategy to implement. This is probably the most important. The most successful FTZ in the US, like McAllen, have multiple staff dedicated to their FTZ. Most of the failures believed that designation will guarantee success but the successful operations have staff developing and maintaining the zone as their profession.

Third, a commitment to upgrade trade administration practices to enhance facilitation while maintaining essential securities. Initiatives such as true-EDI and pre-clearance are necessary if Canada is to realize the opportunities in air cargo.

IV. GLOBAL AIR CARGO INDUSTRY FRAMEWORK

Introduction

The air cargo industry is a diverse collection of companies and services, with differing business strategies, market roles, and ability to respond to changes in the economic and operating environment.

The industry is currently in an important transition period: new security regulations, significant consolidation and reorganization among the cargo airlines and freight forwarders, new model airlines (sometimes called Low-Cost Carriers) and shifts in traditional demand patterns as logistics providers are seeking a more efficient, less costly operating environment.

An understanding of the key participants, their respective customer base, and the optimal airport characteristics for their respective businesses is vital to understand the balance between cargo demand and supply characteristics, which in turn helps define the supportive policy framework they need to best serve their customers, facilitate economic activity and capture the maximum air cargo opportunity for Canada.



While geographic location and a growing local market demand are competitive advantages, the most effective cargo companies and infrastructure providers embrace the changes shaping the future of the air cargo industry and have developed programs that consistently incorporate strategic timing, placement and sizing of facilities. Some of the key trends affecting the air cargo industry, the future activity levels, and its use of air cargo infrastructure are:

- ✓ Demand side issues (supply chain management) with changes in global trading patterns and the effects on the carrier's decision making process;
- ✓ Consolidation and reorganization;
- ✓ Increasing security requirements; and
- ✓ Cargo growth gap.

Each of these are dealt with in detail below and in Case Study 4, The Boeing 787 Story.

Evolution of hub-and spoke networks will ultimately be determined by the balance of power between carriers and shippers. For carriers, economies of scale are critical, while for the shipper, total freight rates, time and service quality are more important.¹⁰

¹⁰ Free Trade Zone and Port Hinterland Development, the Economic and Social Commission for Asia and the Pacific, United Nations, New York, 2005.

Many factors, not just transportation costs, help shape decisions about where to manufacture and source products. Often, monetary savings provided by tax incentives or lower labour costs can often times outweigh other costs associated with global supply chains, including transportation.

Quotas, for example, are cited as causing sourcing migration around the world, particularly to places like the Far East and the Indian subcontinent. Traditional air freight forwarders have evolved into companies whose products and services, including software for analyzing landed costs are tailored to meet the needs of global manufacturers and complex supply chains.

The progressively shorter time-to-market framework that many shippers are working within has made shipping by air more attractive, particularly for those looking for the fastest connection possible with a guaranteed commitment. For example – roughly half the sales of computer games are made within 3 days of the game's release, and 70% are tallied within the first week. Consumer electronics and seasonal apparel are also items with limited shelf life – air freight is simply the only option in these circumstances.¹¹

Global Air Cargo Industry Structure

Exhibit IV-1 provides a summary of the different types of carriers, market roles, and operating environments. A breakdown of the tonnages of cargo carried by the different air cargo carrier types is not available, but at Vancouver and Toronto it is estimated that integrated carriers have 20% to 25% of the market, 35% by all cargo carriers and 45% by belly and mixed cargo carriers.



Exhibit IV-1. Air Cargo Carrier Types and Their Business Characteristics

Air Cargo Carrier Types	Characteristics	Illustrative carriers	Customers	Desired Airport Characteristics
Belly	Baggage holds of passenger aircraft	United, American, Continental	Wholesale, mail, retail	Passenger airport
Mixed	Baggage holds of passenger aircraft and main decks of all-cargo aircraft	Air Canada (1), Cathay Pacific, Northwest, Lufthansa, Air France	Wholesale, mail, retail	Passenger airport
Integrated	Main decks of all-cargo aircraft	FedEx, UPS, DHL	Retail	Airport near population
All-cargo	Main decks of all-cargo aircraft	CargoJet, Kelowna Flightcraft, Challenge Air Cargo, Cargolux, Evergreen	Wholesale	Airport near population (remote airport)

Note 1: Air Canada announced it is pulling out of the all-cargo freighter segment with effect from June 2008

As described in Exhibit IV-1, the belly and mixed carriers (those airlines operating both passenger and freighter aircraft) need to operate at passenger airports.

¹¹ “Air Cargo Saves the Bacon”, by Lara L. Sowinski, World Trade Magazine, September 2004.

The integrated carriers seek operationally efficient airports and can effectively operate from a non-passenger facility given their “closed-loop” network where the carrier owns and operates all assets (aircraft, vehicles, service equipment, etc.) and requires little to no interaction with the passenger terminal.

The all-cargo carriers have a similar operating environment although they rely on freight forwarder consolidations to maintain activity levels and the forwarding community is keen to use as much incrementally priced belly capacity as possible to lower aggregate costs. As a result, these airlines have more than nominal ties to passenger gateways.

Each of these cargo focused airline groups have some flexibility concerning which airport to operate from, although they both rely on proximity to customer concentration and that often results in their use of passenger airports. These market factors affect the overall cargo industry's capacity requirements in a given region.

Other industry operators and their operating environments affect the balance of regional cargo demand and the amount of airport cargo capacity that is required at the local airports.

Exhibit IV-2 presents an illustration of the services provided by the various types of operators, and depicts how these key components conduct business as they transport cargo from the shipper to consignee. It illustrates the interaction between the freight forwarding and logistics community and the airlines and airports. While it is based on US experience the industry dynamics and channels are applicable to Canada.

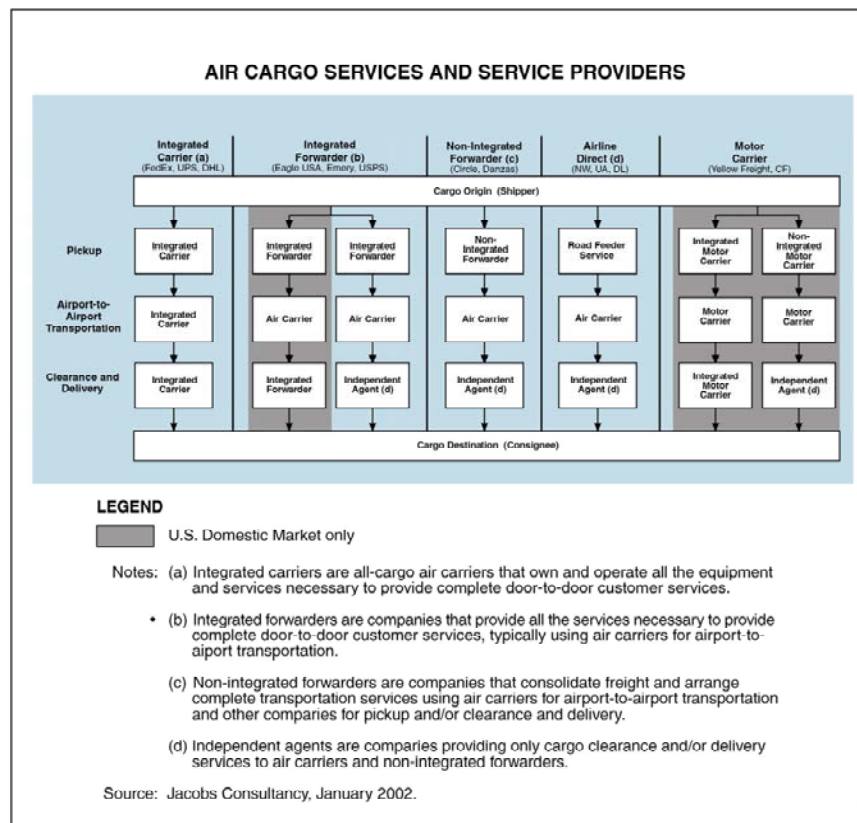


Exhibit IV-2.

The integrated carriers and the freight forwarders are the primary drivers of the air cargo industry and the ultimate routing of air cargo volumes and use of airport gateways. Accordingly, it is important that their modus operandi are well understood by industry observers and policy developers.

The Integrated Carriers

The integrated carriers (DHL, FedEx, Purolator, and UPS) have been rapidly increasing their domestic and international market share over the past decade through their highly developed transportation networks and multiple service offerings. Sophisticated sorting equipment, closed-loop business strategies, and precisely choreographed networks of local stations and regional sorting hubs ensure the delivery of shipments to virtually every address throughout North America overnight and many destinations worldwide within two days. These companies will continue to grow in size and resultant customer base as their expansion plans (operational networks, facilities, worldwide affiliates, and acquisitions) are implemented.



However, while delivery speed and reliability—two qualities that air express possesses in abundance—are prized by business and consumers more than ever before, other modes of transport are increasingly providing them at a cost below what is compensatory for pure air networks. The savings from surface transportation can be substantial, in some instances 10 to 12 times cheaper than air transportation. For this reason, every major integrated carrier has invested heavily in the development of time-definite regional and transcontinental surface distribution networks. For example, over the past several years, FedEx acquired major American Freightways and Caliber Group (RPS and Caliber Logistics), two of the largest independent trucking companies in the United States. DHL has responded to these trends and has recently acquired two of the world's largest freight forwarders, Danzas and Exel, to vertically integrate its business model and capture added value.

Freight Forwarding Community

Typically, freight forwarders are intermediaries that link shippers with cargo carriers (airlines, trucking companies, railroads, ocean carriers) without owning the actual means of transport. Primarily, freight forwarders attempt to:

- ✓ Consolidate shipments from multiple customers; and
- ✓ Leverage their larger volumes with the transportation providers to lower the carriers' rates for transport.

Forwarders are a vital component of the air cargo industry because they organize freight transportation more efficiently and cost-effectively than end-customers themselves, and they take responsibility for organizing and monitoring door-to-door delivery. Finally, by pooling traffic from multiple shippers, the forwarding community helps produce smoother and more predictable demand patterns for the airlines, which is a main reason why this community is such a vital link to the industry.

The forwarders' profit is derived primarily from the spread between what the shipper pays to the forwarder and what the forwarder pays to the carrier. The more space purchased, the lower the forwarder's "buy" rate; because forwarders do not own aircraft they must deliver high volumes to obtain the best rates.

As multiple shipments are gathered for similar destinations (regional or city specific), the forwarder attempts to leverage its buying power with the airlines by creating large consolidations (multiple pallets, containers, etc). As a result, the freight forwarding community, especially the **non-integrated forwarders**, is strongly attracted to the cargo capacity in the belly space of widebody passenger aircraft on international routes at airports that serve international gateway cities. At passenger gateways, international freight forwarders (such as Danzas, Expeditors International, and Kuehne & Nagel) have more opportunities for large consolidations as well as multiple carrier options from which to choose to transfer those large shipments. Carriers that concentrate aircraft capacity at large gateways often negotiate competitively priced guaranteed cargo space contracts with the freight forwarding corporate offices and therefore attract volumes of cargo activity from across the country.

When a single freight forwarder's consolidations become large enough, the company can effectively contract with an all-cargo airline to utilize an entire freighter aircraft's capacity. In this manner the company is including exclusive freighter capacity into its operation and is called an integrated forwarder. As the freight forwarding community consolidates with the larger companies acquiring many smaller, niche companies, it is likely that more companies will increase their network consolidations and transform from the traditional role (as a non-integrated forwarder) to a company that incorporates exclusive freighter capacity into its operations.

Notwithstanding the rapid growth in activity by integrated carriers in the domestic market, freight forwarders are still responsible for over three-quarters of the world's international freight shipments and play an important role in niche and regional cargo activity. The freight forwarding community relies on the wide range of destinations and the lower cost capacity on passenger aircraft to handle daily shipments as well as the main deck capacity of the freighter aircraft to accommodate larger consolidations and oversized shipments. This relationship has become even more important as the cargo capacity in the belly holds of passenger airlines has become somewhat "unreliable" due to increased security requirements and an overall reduction in cargo capacity in passenger aircraft due not only to the rapid growth in low cost carriers (that specialize in quick gate turnaround times) and use of regional jet aircraft that have minimal to no cargo capacity, but also due to historically high passenger load factors which translates into less available belly cargo capacity.

Demand Side Issues and Carrier Decision Making Process

Air cargo is an integral part of many manufacturers' and retailers' global supply chains, allowing companies in a range of sectors to operate in lean inventory environments. Air cargo operations are allowing fast, frequent and predictable transit between more and more parts of the world as an increasing number of companies out-source to

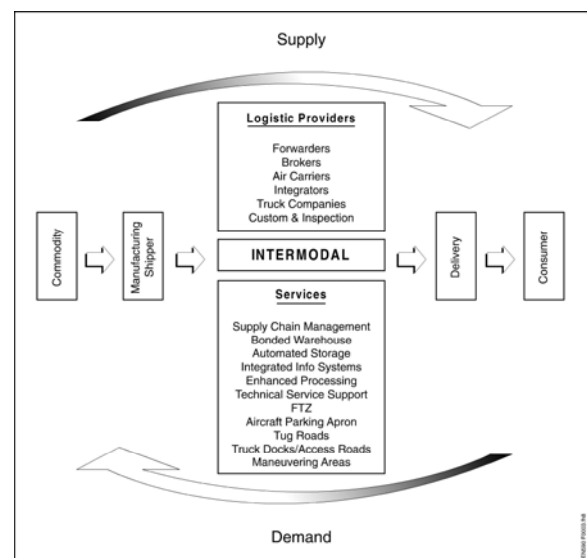


Exhibit IV-3

remote locations. Decreasing product cycles for high value, high tech goods have made fast delivery to market essential. Perishable commodities such as foodstuffs or flowers can be delivered into markets on the opposite side of the world in perfect condition. Periodicals can be delivered to readers worldwide while still current. Local industries have become global traders and consumers can enjoy goods from any part of the world. In this respect the air cargo sector has played an essential, although understated, role in the development of the global economy. Supply chain development, its key components, and how it affects the ongoing globalization is depicted in Exhibit IV-3.

Fundamental shipping patterns and the air routes and the entire logistics chain are evolving to the point where products that were manufactured completely on a regional basis now incorporate plants worldwide. In addition, the products in these rapidly growing sectors (notwithstanding the recent economic softening) such as micro-electronics, computer components and finished products, and pharmaceuticals have high value-to-weight ratios, reducing the relative cost of transportation as a percentage of the goods' total value. In addition, these components or finished goods tend to be more time sensitive and therefore require expedited transportation—the result is a growing trend to ship in a faster, more economical fashion.

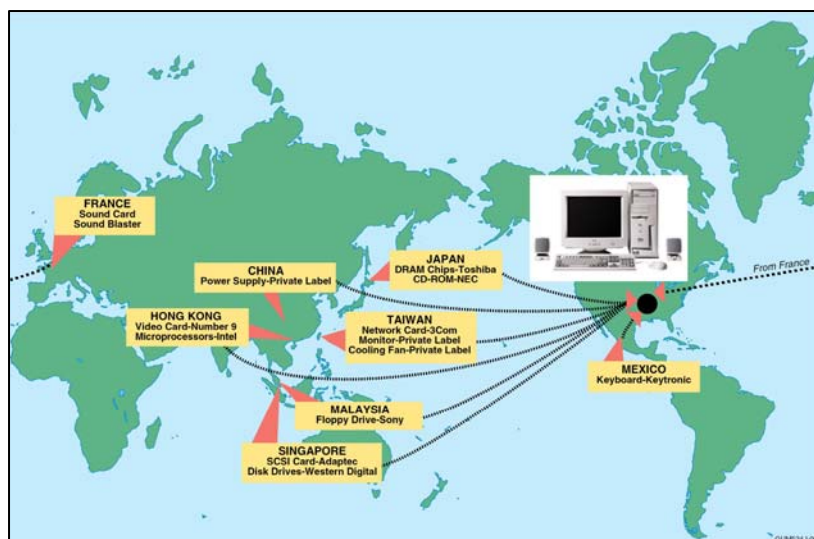


Exhibit IV-4

Another important recent industry development that has accelerated the growth of air cargo is the growing complexity of inventory and component part sourcing. Components may be initially acquired from one continent, assembled in another, and finally sold on a third continent. For example, Exhibit IV-4 illustrates the multiple component parts, and where they are manufactured, that are included in the production of a single Dell computer.

Companies such as Dell and Compaq do not source parts of this nature until a customer has ordered a computer with specific features. Therefore, it is not just the products and their marketing teams competing against each other, rather it is Dell's supply chain vying with that of Compaq. The future impacts of this growing trend are that many of the major manufacturers and shippers will require more direct shipping to points of origination and consumption. This also has implications for effective transshipment and tax free assembly zones. While these exist in Canada the level of take-up indicates the current policy/regulatory issues are not facilitating their growth.

Consolidation and Reorganization

Consolidation and reorganization has been affecting the air cargo industry since the late 1990's. In the last two to three years, this trend has accelerated as many of the larger carriers and freight forwarders have looked to strengthen their market position and ability to respond to shipping demands through acquisitions, restructuring, and consolidation of operations. However, as the transportation industry faces increasing pricing pressures, this trend has affected each of the major sectors of the market including the integrated and all-cargo airlines, freight forwarders, and trucking companies.

As the integrated carriers continue to expand their service offerings, their facility planning is increasingly focused on identifying airports that can accommodate long-term facility development that are geographically well positioned with good access to the multiple transportation modes. They are now considering collapsing operations at some traditional airports while pursuing expansions elsewhere. While they continue to develop their internal networks, the shifts in the freight forwarding and logistics industry may also materially affect the traditional international air cargo market and their gateway structure and facility requirements. Any Canadian air cargo or gateway initiative will have to address these consolidation trends.

Since every freight forwarder is looking for a larger piece of the complete supply chain, strategic alliances have been forming and takeovers abound. The result of this consolidation within the cargo industry is that fewer freight forwarders have growing strength within the market. This is illustrated in the US cargo market, where many of the large freight forwarders have created a "forced gateway" at major international airports such as New York JFK, Los Angeles, and Chicago O'Hare – where they dictate to their customers the air mode origin/destination - due to the large amounts of cargo capacity (both belly space in passenger aircraft and dedicated freighter aircraft) that is available and the attractive rates they can negotiate.¹²

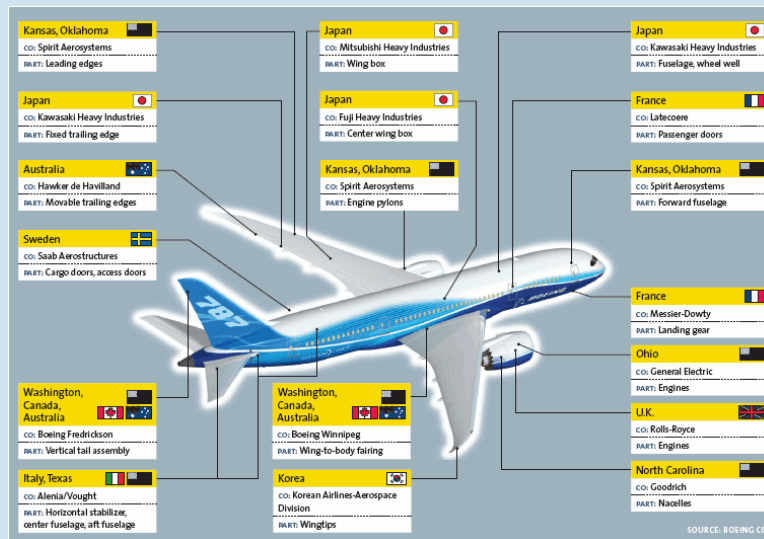
The trend of fewer freight forwarders controlling increasing volumes of cargo activity is an important one for airport operators around the world. These logistics providers have tremendous influence on what airports are used to serve particular markets. Their market power will increase if they can guarantee bi-directional load factors with their increased market presence. The increasing influence that the international freight forwarder has on major route development is an important trend that will influence airport cargo related facility development and marketing efforts. Those countries that have the ability to efficiently accommodate the projected long-term activity growth – through appropriate policy, infrastructure, facilitation and customs clearance (including pre-clearance) - will position themselves as key assets to the air cargo industry.

Increasing Security Requirements

The impact of increased cargo screening throughout the aviation industry will be significant. A worldwide standard for screening cargo has not been adopted and different countries have taken different approaches. For example, in the UK the London area airports have adopted a 100% screening mandate for all cargo activity. At this point, the precise policies and procedures are not confirmed; however, new facilities will be developed to increase the level of security of air cargo activity.

¹² Alternative Gateways, Air Cargo World Online, April 2008.

CASE STUDY 4: Boeing 787 Production Logistics



Boeing calls the 787 – due to enter service with All Nippon Airways (ANA) of Japan sometime in 2009 – a “game changer”.

Much has been made of the innovations in design, material and concept of outsourcing the manufacture of many major components, many of them outside the US.

Less has been made of the significant logistical challenges of moving those significant quantities and “outsized” loads across borders and over great distances to arrive at the right time and in the right order.

40% of the \$8 Billion development cost and the rights to produce the associated major assemblies have been outsourced to aerospace manufacturing companies in 6 countries. Boeing is being transformed and sees itself no longer just a high-tech aerospace manufacturer but also as a high-end systems integrator.

The design of the different elements is happening concurrently in many different centres, “virtually” assembled in a computer model maintained by Boeing, and checked for conformance in real time. Ultimately, independently completed major assembly’s – the wing or the main fuselage or tailplane or landing gear for instance – are moved by three specially adapted B747’s and carried to Boeing’s plant in Everett, Washington.

With Boeing operating as the final assembler of the airplane, the company has to synchronize demand/supply information and logistics activity across multi-jurisdictions to ensure key components arrive at Everett at just the right time over a three day period. Not only would late or misdirected parts shipments affect the critical manufacturing schedule, it also impacts other airplanes on the production line as Boeing has to find space to store large assemblies without disrupting other elements of the production schedule. Parts arriving early also create their own “exception” warehousing and tracking issues.

The development, design, manufacturing and assembly program for the 787 may be a “game-changer” but none of that would be possible without a sophisticated, efficient and seamless air cargo operation.

In 2006, the European Commission accepted a proposal regarding the regulation of the European Parliament and of the Council on common rules in the field of civil aviation security. This proposal included a recommendation that Regulation (EC) No 2320/200 should be replaced by a new act seeking the simplification, harmonization and clarification of the existing rules and the improvement of the levels of security. Specific to air cargo, Article 6 of the Regulation indicates that all cargo, including transfer cargo and transit cargo, will be subject to security controls, and will be protected from unauthorized interference from the point at which security controls are applied until the departure of the aircraft on which it is to be carried. Cargo that is not adequately protected from unauthorized interference after security controls have been applied is to be screened.

Truck and pallet screening will likely be implemented, and airports that can incorporate space in their facility development plan to accommodate this activity will have a clear advantage over space constrained facilities. New security regulations will have an impact on the air cargo industry and will require the freight forwarders and freighter airlines to review their networks to incorporate those airports that are more long-term “security-friendly”. Airports that understand the imminent changes to security regulations, and have the right infrastructure available, will have a competitive advantage and therefore are more likely to be included in future network planning.



VACIS© Truck Inspection Station



Pallet Screening Equipment at MIA

For the amount of air cargo to the US to increase significantly – as well as the successful development of Canada as an intermodal NAFTA Gateway – customs clearance policy and protocol issues will have to be agreed to between the US DHS and Canada's CBSA/TC.

Security legislation and issues flowing from all of this include:

- ✓ Increased security equates to additional time
 - As air cargo is driven by time-sensitivity goods then increased processing time enhances the competitive pressures from other modes;
- ✓ Passenger airline “belly capacity” could be constrained
 - Unconstrained airports may become an invaluable asset to the global air cargo industry and may represent an opportunity for Canada
- ✓ Security enhancements will be put in place as technology continues to evolve

- However, increased costs could make business difficult for small and regional niche cargo carriers.

The Conference Board of Canada in a 2007 Study¹³ highlighted that a “thickening” of the border (i.e. greater border inefficiencies) is reducing the benefits of NAFTA, increasing costs for business, and increasing risk by reducing the predictability for business. Without clear and facilitating regulation, the potential for sub-optimal performance remains.

Yield and Airline Alliances

Embedding freight rate hikes in fuel surcharges has been of some help, but other avenues seem more promising in the effort to boost yields. They include value-added services, partner alliances, specialized cargo and express-delivery services.

In recent years, air cargo yields (an airline's revenue per kilo of freight) in most sectors have been under pressure. This is particularly true of outbound shipments from the North America, where strong Asian imports with a rapid increase in capacity create a sharp imbalance between supply and demand. However, there are doubts if yield is a straightforward reflection of market forces. If the yields are simply determined by the supply-demand balance, they would automatically rise when capacity chases much traffic, but there does not seem to be a statistical correlation that would bear out this hypothesis.

Air cargo yields have been locked in a downward trend for most of the past three decades. According to Boeing, airline yields have declined since 1970, with the exception of a short firming between 1993 and 1995. Overall, freight yield fell over 5 percent per year since 1985. “Such declines reflect airline productivity gains, technical improvements and intensifying competition,” the aircraft maker concludes in its World Air Cargo Forecast published September 2007.

Long-term Contracts

In an effort to guarantee traffic during periods of weak demand, many airlines have forged long-term contracts with forwarders. In exchange for their pledges to provide the airline with cargo in the off-season the agents obtain guaranteed lift at times when space is tight. This practice is particularly popular in the Asia-North America market, as forwarders usually have to scramble for space in the traditional peak period between September and December. Such relationships tend to depress yields slightly.

Committing to firm rates for a long period locks the airline in when surging demand would allow a rate increase. Nevertheless, those long-term relationships work to the benefit of the airline.

This industry trend does have repercussions. For example, Nippon Cargo has responded to the poor westbound yields with a reduction in trans-Pacific flights, and it is not prepared to match any price. The high cost of fuel has pushed up the airlines' costs, but it has also allowed them to adjust their rates upward to solidify yields to some extent. In the past, the difference between a fuel surcharge and a rate increase was rather hazy. Over the past two years, the fuel surcharges are more transparent and match the skyrocketing fuel prices.

¹³ Is Just-In-Case Replacing Just-In-Time? How Cross-Border Trading Behaviour Has Change Since 9/11, *Danielle Goldfarb, The Conference Board of Canada, June 2007.*

Airlines are also looking to improve their yields through utilizing the networks of their alliance partners. American Airlines, for instance, cannot generate enough freight to fill the B777 it puts on the Dallas-Zurich route, so it has begun to use the network of Swissair beyond Zurich, selling destinations in Eastern Europe, the Middle East and Africa.

Such initiatives help with yields but are unlikely to bring about a fundamental change. A real breakthrough requires a reorientation of an airline's cargo division, some carriers argue. Lufthansa Cargo has been stressing its intention to change from a cargo carrier into a logistics player. Joachim Haas, the carrier's head of partner and sales alliances, points to a range of initiatives, from a service revamp to partnerships with 10 major global forwarders, which are designed to change the carrier's profile. "We're becoming a virtual integrator towards the customer," he says.

Some airlines treat cargo as a commodity and market it at bargain basement rates while others turn themselves into logistics players, emphasizing value-added services. Neither strategy is definitely wrong but there is a clear advantage. If an airline develops logistics, the surplus capacity can be sold on the commodity side, but not as easily the other way.

Higher yields can only be achieved through better service standards — shorter cut-off and retrieval times and a higher flown-as-booked ratio. Virtually all the carriers that have embarked on that route are now offering premium express products or they are in the process of developing such services. Yield, and by definition revenue, remains a key reflection of an airline's profitability, and there are no indications that the downward pressure will ease up in the years ahead. To reverse that trend, more airlines are going to tackle the premium express market and develop alliances with regional and niche partners that compliment their business.

Cargo Growth Gap

While the air cargo industry continues to adjust to changes in world market economic demands, airline financial troubles, and shifts in shipping patterns, cargo development plans (infrastructure and facilities) are increasingly important to remain competitive.

Increased cargo security requirements on passenger airlines are contributing to shippers' preference for dedicated freighter service, as illustrated in Boeing's outlook, Exhibit IV-5, for freighter growth.

While belly cargo capacity (after passenger baggage) will continue to supply a large portion of the industry's total requirement, according to both Boeing and Airbus, pure freighters will increase to almost 50% of the industry's future cargo capacity requirements.

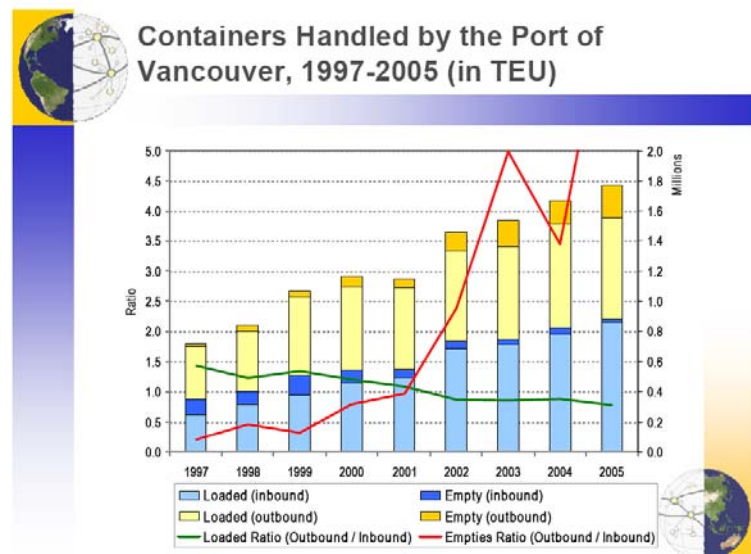


Exhibit IV-5

Passenger airlines will not increase frequencies (or increase the size of aircraft) to accommodate additional demand for cargo space as for most, air cargo is an opportunistic and marginal business line. The freight forwarding community understands the need for additional freighter aircraft in the future but also realizes the operational benefit from consolidating their cargo activity at one airport where that company can access both large volumes of passenger belly and freighter capacity.

Overall, these trends lead to the industry “cargo growth gap,” as illustrated in Exhibit IV-6.

In addition, customer demand for improved services continues to stimulate freighter usage and has manifested by the emergence of new independent large-size freighter operators providing full service wet lease freighter capacity which includes aircraft, crew, maintenance, and insurance (ACMI) contracts. With this trend, those airport operators who correctly plan for additional freighter aircraft (facilities, ramp space, roadway infrastructure, etc.) will better position their airports to take advantage of clear market opportunities in the near and long-term planning horizons.

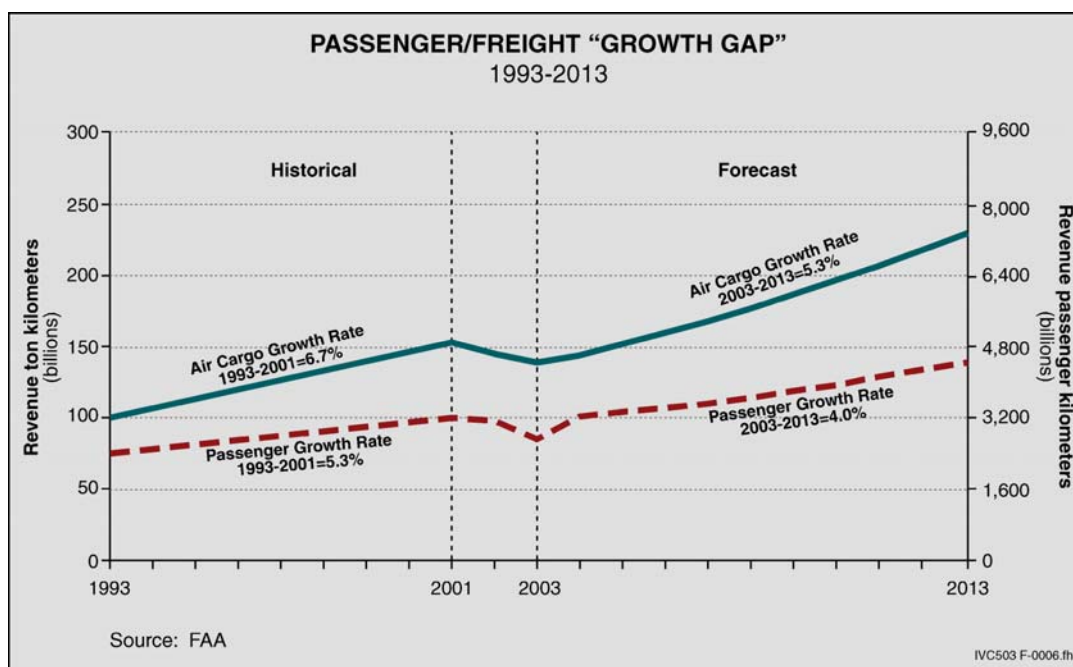


Exhibit IV-6

.Another issue that continues to create logistics and economic issues for the cargo industry as a whole is the directional imbalances in trade. This is a significant issue in the air mode as well as sea containers. Although the following example reflects the experience of the port of Vancouver in handling sea containers, the information is consistent with the issues experienced in the air mode.¹⁴

¹⁴ Gateways, Corridors and Global Freight Distribution: Transpacific Issues, Jean-Paul Rodrigue, Dept. of Economics & Geography, Hofstra University, New York.

Two important mitigating factors with respect to this imbalance are:

- ✓ Environmental issues which affect the non-stop capability of airplanes flying trans-pacific; and
- ✓ The emerging middle-class in Asia-pacific in general, and China in particular, which is developing an appetite for European and North American manufactured goods.

V. GLOBAL AIR CARGO FORECASTS

Introduction

A 2007 study on the performance of the international air freight and express industry¹⁵ found that record high fuel prices, the spillover of economic problems in the US, and an apparent modal shift of some air cargo shipments to ocean transport contributed to a year of significant change; however despite these issues, traffic levels in the air freight and express sectors grew in the mid-single digit range – only slightly less than the historical average growth rate. The study authors believe that 2008 growth levels will be similar to 2007 i.e., in the 4%-5% range. The study also noted that express companies are playing a growing role in the international air freight market, with international express volumes at over 2.2 million shipments per day, and growth rates averaging 10% per year since 1992. In addition, it was noted that leading all-cargo and combination carriers continue to employ new strategies such as product segmentation, joint ventures and alliances to increase their market share and profitability, and that leading carriers in Asia are expanding rapidly to meet growing demand for cargo service.

Air freight will continue to be viable where there are high-value and time sensitive goods, as well as premium fresh and perishable goods. For instance, at Los Angeles World Airports they are anticipating a 50% increase in air cargo, mainly as belly-cargo, to 2020.¹⁶

Global Air Cargo Market Environment

In terms of total cargo carried, the latest reports indicate a total of 79 million tonnes were loaded or unloaded worldwide in the 12-months to November 2007, 35% of which was at airports in the Asia-Pacific region (see Exhibit V-1).

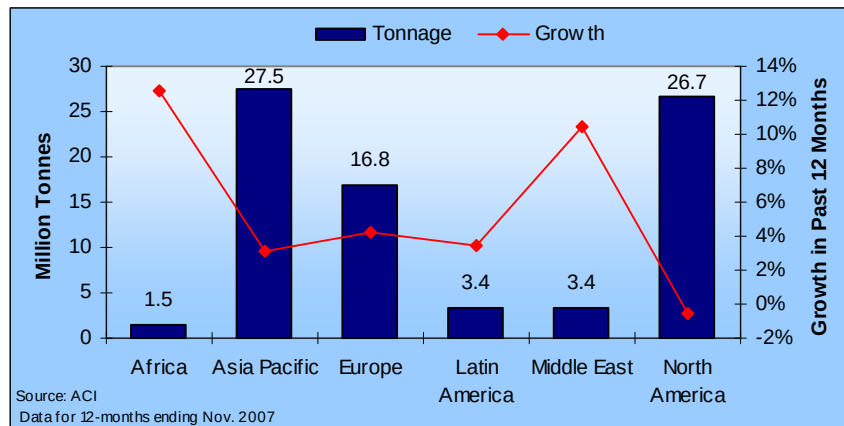


Exhibit V-1. Air Cargo Tonnages by Region

¹⁵ “International Air Freight and Express Industry Performance Analysis 2007”, Air Cargo Management Group, December 2007.

¹⁶ Presentation by CEO of LAWA to ACI-NA Cargo Conference, March 26th, 2008.

Historical Trends

Many events have affected the normal air cargo industry growth pattern over the past 30 years. Economic recession, the threat of terrorism, the implications of increased security requirements, regional military/political unrest, and health scares such as SARS and the avian flu have all resulted in a short-term reduction in air tonnage levels.

However, the overall long-term results show a continual increase in cargo demand, averaging almost 5% per year. As shown in Exhibit V-2, temporary periods of decline have historically been followed by resumption of growth and the industry has continued to produce growth over the long term.

A significant result from the overall expansion of the air cargo market is a commensurate amount of on-airport facilities to accommodate the activity increases. Additional airfield infrastructure (longer runways, aircraft ramp and taxiways) and landside facilities that include ramp-accessible warehouses, truck and vehicular manoeuvring space, and customer parking space has been an important ingredient to the successful growth of the infrastructure providers in meeting air cargo demand.



Exhibit V-2.

More recent data illustrate a similar pattern as worldwide cargo activity (cargo ton miles) grew at 7.1% in 2000 but declined 5.9% during 2001. This decline was the result of the simultaneous worldwide economic slowdown, the collapse of the “technology bubble”, and the tragic events of September 11, 2001.

As indicated in Exhibit V-3 recovery emerged in mid-2002 and continued through mid-2005, largely stemmed by trade between the US and Asia, as well as domestic US traffic.¹⁷

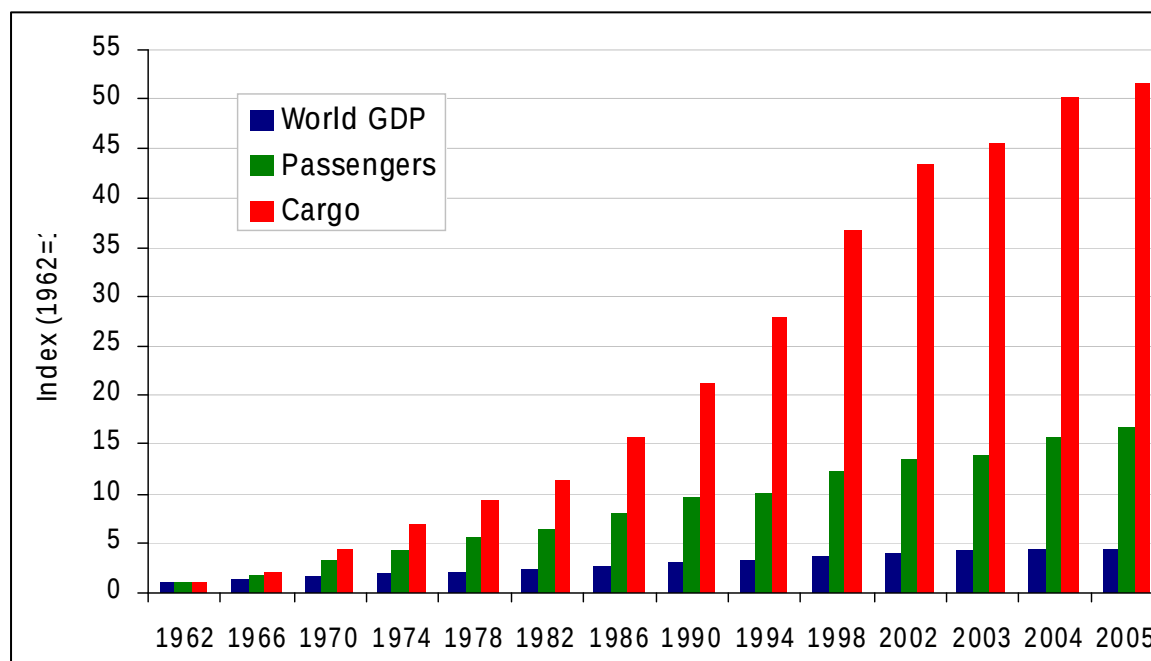


Exhibit V-3. World GDP versus Air Transport

As the historical data show, projected economic growth (international and U.S.) should counter potential future market uncertainties, and will stimulate overall air cargo industry growth into the foreseeable future. There are numerous organizations that project future air cargo activity and the following is a review of several leading forecasts to provide benchmark data for this report.

Although economic activity is the primary influence affecting world air cargo development, it is still necessary to recognize the effects of other factors, some of which are influenced by airline activities such as: acquisition of aircraft; increase of capacity in a particular region or route; and expansion of services which have had particularly favourable impacts on the express and small-package market in the past decade.

Factors beyond the control of airlines and the cargo community as a whole include inventory management techniques, globalization, market liberalization, national (or airport) development programs, and continuing introduction of new air-eligible commodities, all of which play significant roles in air cargo growth.

According to Airports Council International (ACI) data, approximately 55% of the world's air cargo activity is accommodated by the top 30 international airports (includes import and export cargo at

¹⁷ While these examples use US data, JC believes they are indicative of the general North American trend. JC's preference would be to use credible and current Canadian air cargo data but historically this has not been available. In its absence, the US data has been used as a reasonable proxy.

each airport). When looking at only North American airports, the percentage of air cargo is much more disproportionate. As described in Exhibit V-4, the top ten cargo airports handled approximately 18,000,000 metric tons of cargo in 2006 which represents 62% of the total air cargo handled at all North American airports (29,125,000 tonnes). Toronto-Pearson comes in at 15th position in terms of its comparative cargo traffic.

**Exhibit V-4. Comparative Airport Data (Top 10 North American Rankings)
Total Enplaned and Deplaned Cargo**

Airport	2006 Tons	% Change 2005-2006
(1) MEMPHIS (MEM)	3,692,081	2.6%
(2) ANCHORAGE (ANC)	2,691,395	5.4%
(3) LOUISVILLE (SDF)	1,983,032	9.2%
(4) LOS ANGELES (LAX)	1,907,497	(1.6%)
(5) MIAMI (MIA)	1,830,591	4.3%
(6) NEW YORK (JFK)	1,636,357	0.2%
(7) CHICAGO (ORD)	1,558,235	0.8%
(8) INDIANAPOLIS (IND)	987,449	0.2%
(9) NEWARK (EWR)	974,961	2.6%
(10) DALLAS/FT WORTH (DFW)	757,856	2.1%
(15) TORONTO (YYZ)	505,660	6.8%

Source: Airports Council International and airport data.

The three busiest North American cargo airports are largely driven by transit cargo activity—Memphis and Louisville are the national sort centers for FedEx and UPS, respectively, and Anchorage is a major technical stop (fuel stop, crew changes, etc.) location for cargo flights on trans-Pacific routes. Indianapolis and Newark are similar in that one airline (FedEx) is responsible for a disproportionate amount of total airport cargo activity. The traditional gateways (New York JFK, Los Angeles, Chicago O'Hare, and Miami international airports) will continue to accommodate very large volumes of cargo due to the large number of widebody international passenger flights and the associated cargo capacity in their belly compartments.

In addition to the overall industry conditions highlighted previously, JC's analysis has taken into account several independent forecasts prepared by the Federal Aviation Administration (FAA) and the major aircraft manufacturers (Airbus and Boeing). Each of these anticipates an expansion in freighter activity through their forecast period. In order to accommodate both cargo activity and freighter aircraft operations increases, airport cargo facilities will require focused development plans and timing of execution.

Recently, Airbus announced an increase in its 20-year forecast for aircraft deliveries, including 877 new freighter aircraft.¹⁸

¹⁸ Aviation Daily, February 8th, 2008 pp1.

Boeing is also well into new freighter programs. It expects to have completed a 90% design review of the new B747-8 freighter by mid-2008 with production by the end of the year. The company also intends to deliver the first 767-300 freighter conversion and will deliver the first of its B777 freighters in 2008 as well.

The aircraft manufacturers – of wide-body, narrow-body, regional and business jets – continue to see record orders for their products indicating further growth, particularly in emerging markets. Airbus Industries recently increased its 20-year forecast, with 1,600 more aircraft sales projected than just a year ago.¹⁹

Exhibit V-6. Independent Air Cargo Growth Forecasts Worldwide Growth Rates

	Forecast period	Annual growth rate
Airbus (a)	2007-2026	5.8%
Boeing (b)	2006-2026	6.1%
FAA (c)	2006-2026	5.2%

2007 Airbus Global Market Forecast.
2006/2007 Boeing World Air Cargo Forecast.
FAA Aerospace Forecast, 2006-2017.

not only the advent of faster ships and more efficient processing but more importantly the cumbersome processes to clear international cargos. While the move to e-processing in the air passenger mode has been largely achieved – IATA has announced the death of the paper ticket – this is not the case with “e-freight”. IATA has started a pilot program in which Air Canada is participating whereby selected cargo on nominated routes will be processed electronically.

Another 2007 publication²⁰ identifies twenty year forecasts for freighter aircraft, concluding that the freighter fleet will more than double in size by 2026. There is a record backlog of orders for new and converted freighters. There is a growing fleet of wide-body units, and the study authors believe that the market share of this type of freighter aircraft will grow from a current 50% to 64% in the next twenty years.

Air cargo represent 35% of the value of international cargo but only about 1% of the total weight. In the US, air cargo accounts for 0.5% by weight of all cargo transported²¹.

¹⁹ Aviation Daily, Feb. 8th, 2008, pp1.

²⁰ “Twenty-Year Freight Aircraft Forecast 2007-2026”, Air Cargo Management Group, April 2007.

²¹ “Global Market Forecasts” Airbus, 2007.

Freight traffic to triple in twenty years

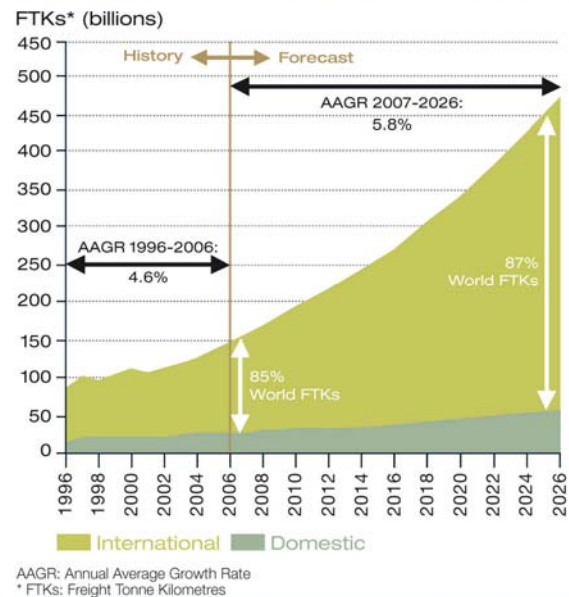


Exhibit V-5

While a 6% forecast growth rate is not insignificant – it results in a doubling of cargo carried in 12 years, this is well short of the 10% total cargo growth seen for international cargo as a whole.

One of the reasons highlighted by IATA is

The economic downturn in the US is clearly having an impact – air freight is often seen as a bellwether for the general economy – and inflated fuel prices also impact airborne freight more than that carried by sea.

Worldwide growth is expected to slow in the first half of 2008 before picking up with overall growth of 4-4.5% projected for 2008 by IATA. Not all regions have been affected equally. Airlines in Asia Pacific, which account for 45% of the international total, saw freight demand rise 6.5% in 2007, driven by strong growth in several economies in the region and a growing middle class with disposable income.²² According to McKinsey²³, within the next twenty years, the spending of the urban middle class will dwarf the current urban affluent segment in both size and total spending power. The biggest opportunities for companies selling mass consumer goods and services will therefore be the newly empowered middle class. McKinsey predicts the following compound annual growth rates (2004-25) in consumption by the urban Chinese: food (6.7%); recreation / education (9.5%), transportation / communication (9.3%); apparel (6.3%); housing, utilities (11.8%); healthcare (11.6%); household products (6.6%); personal products (9.3%). What this means for the Canadian air cargo industry, is an opportunity to transport specialized medical equipment and pharmaceuticals; apparel, electronics, and specialty food items (such as lobster).

The Middle East also showed strong growth in 2007 – up 9.5% in the first 10 months.²⁴

Directional imbalances have been, and continue to be, an issue but the decline in the value of the dollar and the emergence of a new middle class with disposable income in the emerging markets in Asia-Pacific will fill some of this back-haul capacity.

Risks

While there are multiple cargo specific issues, there are also many aviation industry issues that are affecting the cargo and passenger carrier industry. In 2008 these include:

- ✓ Countries and Blocks are moving to a more liberalized approach to international air service agreements;
- ✓ Airline consolidation in mature markets will continue and may expand rapidly;
- ✓ Air Cargo security legislation;
- ✓ Low-cost carrier growth will continue, and long-haul LCC's will appear in increasing numbers;
- ✓ Environmental issues will continue to grow in importance; and

²² "IATA reports slower air freight growth for 2007" AirCargo Asia-Pacific, Feb. 1, 2008.

²³ The McKinsey Quarterly, 2006 Special Edition.

²⁴ Ibid

- ✓ The cost of fuel – which at the time this report was completed was about \$105 a barrel - will form an increasingly complex part of the aviation business model.

Comments on each of these are included below.

As outlined earlier, many Countries and Blocks are moving to a more liberalized approach to international air service agreements. The risk to Canada is that it will continue to be bypassed by the major legacy and more specifically the emerging cargo carriers if it fails to implement a liberalized air cargo policy in a timely fashion.

Airline consolidation in mature markets continues a pace and may expand rapidly as the next business down-cycle plays out. Even the US legacy carriers which have baulked at the idea are now at the table discussing arrangements. Consolidation will lead to capacity constraints, affecting both passenger and cargo capacity which will disproportionately affect marginal participants in the global air freight market.

As already discussed, most industry specialists accept that an enhanced level of cargo security is inevitable, particularly for cargo carried on passenger aircraft. The main risk attached to cargo security at present is a lack of certainty which is having significant effects on investment decisions in both infrastructure and airplanes.

Low-cost carrier growth will continue, particularly in the emerging markets, and long-haul LCCs will appear in increasing numbers. This will impact some routes where traditionally passenger aircraft have taken a large share of the air cargo. LCCs look to fast turn-times on the ground and cargo is not seen as fitting into that business model. Coupled with the lack of certainty about cargo screening requirements this could mean that some communities end up with less than optimal air cargo for their current and prospective industries that are air cargo dependent.

The cost of fuel – which at the time this report was completed was about \$105 a barrel - will form an increasingly complex part of the aviation business model. The average cost of jet fuel has more than doubled since 2001 and fuel cost now represents approximately a third of operating costs of all-cargo carriers. While cargo carriers are instituting surcharges to cover fuel cost increases (surcharge can be up to 30% of the total airfreight rate), the increase in the unit cost and surcharges are adding to the difficulty of selling air cargo in marginal areas.

Modal shifts are undoubtedly occurring and shippers – particularly the integrators – are beginning to offer “semi-fast” routings at a lower price than the more traditional next day service. There is evidence that the historical increase in air cargo is slowing down: while traditionally air cargo has grown faster than general cargo, this has now been reversed and sea freight is rising faster. Sea is now much more efficient than it was previously. Where it used to take 40 days from or to China, it now takes 20 days. This has resulted in some diversion from air to sea, particularly recently as air freight has become comparatively more expensive because of fuel surcharges. Exhibit V-6 illustrates the changes in annual growth rates for two time periods.

Exhibit V-6

	Comparative Annual Growth Rates ²⁵	
	1970 - 2005	1996 - 2005
Maritime Cargo	4.1%	5.4%
International Air Cargo	n/a	5.7%
Total Air Cargo	7.0%	5.1%

Environmental issues will continue to grow in importance. To a certain degree community concerns about the effects of aviation activity will be resolved as the carriers – both on the ground and in the air – renew their fleets. The Integrated Carriers, for instance, are renewing their road vehicle fleets, utilizing hybrids and testing hydrogen and electrical vehicles, while at the same time also looking to replace the aging B727 fleet. Their primary motivation has been economic and to reduce noise issues, but they also see this as part of being a “good corporate citizen”. To date they haven’t seen a significant number of customers in North America asking about GHG emissions issues, although they are aware of how this is being aggressively pursued in Europe. They are trying to get ahead of the issue and recently commissioned a report to outline the issue facing air carriers in Canada.²⁶ A synopsis of the findings is attached in Appendix C. The industry and supporting government departments need to continue to emphasize the relative impact of transport vis-à-vis other GHG emitters: for instance, the mountain pine beetle infestation in western Canada is resulting in emissions that are five times those from the entire Canadian transportation sector.²⁷

There are significant lobbying efforts being arraigned against the carriage of food over long distances (not just by air) and the environmental “footprint” this creates (consider the “100-Mile Diet” and such). There are a number of levels of argument against this lobby:

- ✓ First, there is consumer demand for these foods, particularly perishables, and their availability has helped increase the general health of people in the northern hemisphere: politically, shutting off this flow of produce will be an issue;
- ✓ Second, there is no empirical evidence of the relative environmental footprint of growing many of these products in less temperate climates – clearly a significant amount of artificial stimulation would be required – vis-a-vis a natural growth environment plus transport to market;
- ✓ Third, and perhaps most importantly, banning the carriage of perishable commodities will have a significant and detrimental impact on the economies of developing nations, with all that that implies in terms of global security and stability.

²⁵ Boeing World Air Cargo Forecast.

²⁶ Canadian Aviation and Greenhouse Gases: a Literature Review, Jacobs Consultancy, October 2007.

²⁷ Mountain pine beetle and forest carbon feedback to climate change, W. A. Kurz, C. C. Dymond, G. Stinson, G. J. Rampley, E. T. Neilson, A. L. Carroll, T. Ebata & L. Safranyik, Nature, 24 Apr 2008, p987.

What is emerging as a better priority is the investment in better cargo handling, storage and clearance facilities in the logistics chain to cut down on waste and ensure the “food-miles” flown are as productive as possible by eliminating waste.

While this represents a risk to the continuing growth and stability of air cargo, it can be mitigated with appropriate environmental action.

Summary

Key points regarding the long-term growth outlook for air cargo include:

- ✓ Historically, air trade, in terms of both value and tonnage, has grown rapidly as aircraft take market share from slower modes such as ships. As air freight tonnage represents only approximately one percent of international trade tonnage, even relatively minor movements in market share translate into significant air freight growth. Continued worldwide economic globalization will likely lead to greater air transportation.
- ✓ In the long-term, it is expected that economic growth will be more important than the localized events such as the Iraq war, health related issues such as the SARS outbreak and Avian Flu, or security requirements in determining levels of cargo activity and demand for airport cargo facilities.
- ✓ There are many possible changes in segments of the cargo market. Segments such as integrated and all-cargo may grow more than belly. In fact, especially in the long-haul international market, the growth rate in main deck freighter aircraft will likely increase substantially.

VI. CANADA'S GATEWAY AND CORRIDOR INITIATIVE

Canada's Overall Strategy

Globalization represents both a clustered and geographically diffuse system within which effective and efficient logistics are the key to success. The logistics network provides the backbone on which all the other elements from development to retail are hung. As business concepts such as outsourcing and partnership sourcing arrangements have become more common place, the ability of developing nations to undertake high-tech manufacturing and assembly operations has increased, then gateways – strategic locations that regulate the flows within networks – and the corridors that connect them to the origin and destination markets have increased in importance.

There is a considerable body of academic work available on the issue of the effectiveness and necessary conditions that need to be present to make any gateway a viable reality. In her paper²⁸ “Approaches to Capturing Gateways and Corridors”, Clare Kirkland suggests there are at least four necessary conditions that have to be present for the Gateway Initiative to be successful. These are:

- ✓ Clear value proposition;
- ✓ Winning carriers;
- ✓ Room for growth; and
- ✓ Active public agency involvement.

Jacobs Consultancy would suggest a fifth:

- ✓ Active private developer involvement.

There are a number of “gateway initiatives” currently being developed in Canada, from Halifax and the Atlantic Canada Gateway, the Ontario-Quebec Continental Gateway and Trade Corridor, to the more recent Manitoba Gateway initiative. The federal government has recognized the importance of a national framework for their development and created the National Policy Framework for Strategic Gateways and Trade Corridors.²⁹ The most fully formed from a policy and funding perspective is the Asia-Pacific Gateway and Corridor Initiative.

In 2007 the Federal Government announced the \$33 billion (over 7 years) Building Canada fund, which includes \$2.1 billion for gateways and border crossings. This \$2.1 billion will help support infrastructure at and leading to key locations, and will also advance multimodal and technology initiatives intended to improve system integration. An additional \$1 billion has been allocated to the Asia-Pacific Gateway and Corridor Initiative.

²⁸ Presented to the Asia-Pacific Gateway and Corridor Initiative Roundtable, February 21st, 2008, Clare Kirkland, Regina Regional Economic Development Authority.

²⁹ National Policy Framework for Strategic Gateways and Trade Corridors, TP 14681 2007.

Canada's Atlantic Gateway

Nova Scotia is positioning itself as Canada's East Coast Gateway³⁰ to take advantage of three growing and dynamic trade routes: the north-south NAFTA network; the European Union – NAFTA network; and the Suez Express networks from the South and East Asia and India via the Suez Canal. Drewry Shipping Consultants believes that the flood of trans-Pacific trade, congestion on North America's West Coast, and huge container ships make the Suez Canal route from Asia to North America, via Nova Scotia, an attractive alternative for international shipping companies.

Although Nova Scotia is gearing up for this opportunity, so are other North American east coast ports – New York for example is spending billions to blast and dredge. The Government of Nova Scotia has therefore identified and is currently investigating six infrastructure projects to capture the opportunities: an inland container terminal; a transload / distribution centre; the Burnside-Sackville Expressway; the twinning of Highway 104 at Antigonish; a Port Hawkesbury bypass; and a new high-speed interchange in Truro.

The Halifax Gateway Council is also in the beginning stages of implementing a project to develop a cargo logistics and distribution centre at the Halifax International Airport.

Manitoba International Gateway Strategy

The Manitoba International Gateway Strategy (MIGS) vision is to be the gateway of choice for North American mid-continent global commerce and international travel; and it includes five infrastructure initiatives: the Inland Marine Container Terminal; the International Mid-Continent Trade and Transportation Corridor; the Churchill Gateway Development; the Winnipeg Global Air Traffic Development; and the Winnipeg Inland Port. The air component of this strategy includes enhancing international traffic volumes and value-added activity through Winnipeg as well as developing polar air routes (air arctic bridge). Another opportunity for Manitoba is to be a technical stop on routes between California and Europe, although this concept has yet to be fleshed out.

Ontario-Quebec Continental Gateway and Trade Corridor

The Ontario-Quebec Continental Gateway and Trade Corridor includes the Port of Montreal, the Saint Lawrence Seaway and Great Lakes, and four of Canada's six highest volume land-border crossings.

Asia-Pacific Gateway and Corridor Initiative

The Mission of the Asia-Pacific Gateway and Corridor Initiative (APGCI) is to establish Canada's Asia-Pacific transportation network as the de facto premier facilitating network for trade between North America and the Asia-Pacific Region as shown on Exhibit VI-1.

³⁰ "Canada's East Coast Gateway via Nova Scotia", Nova Scotia Transportation and Public Works.

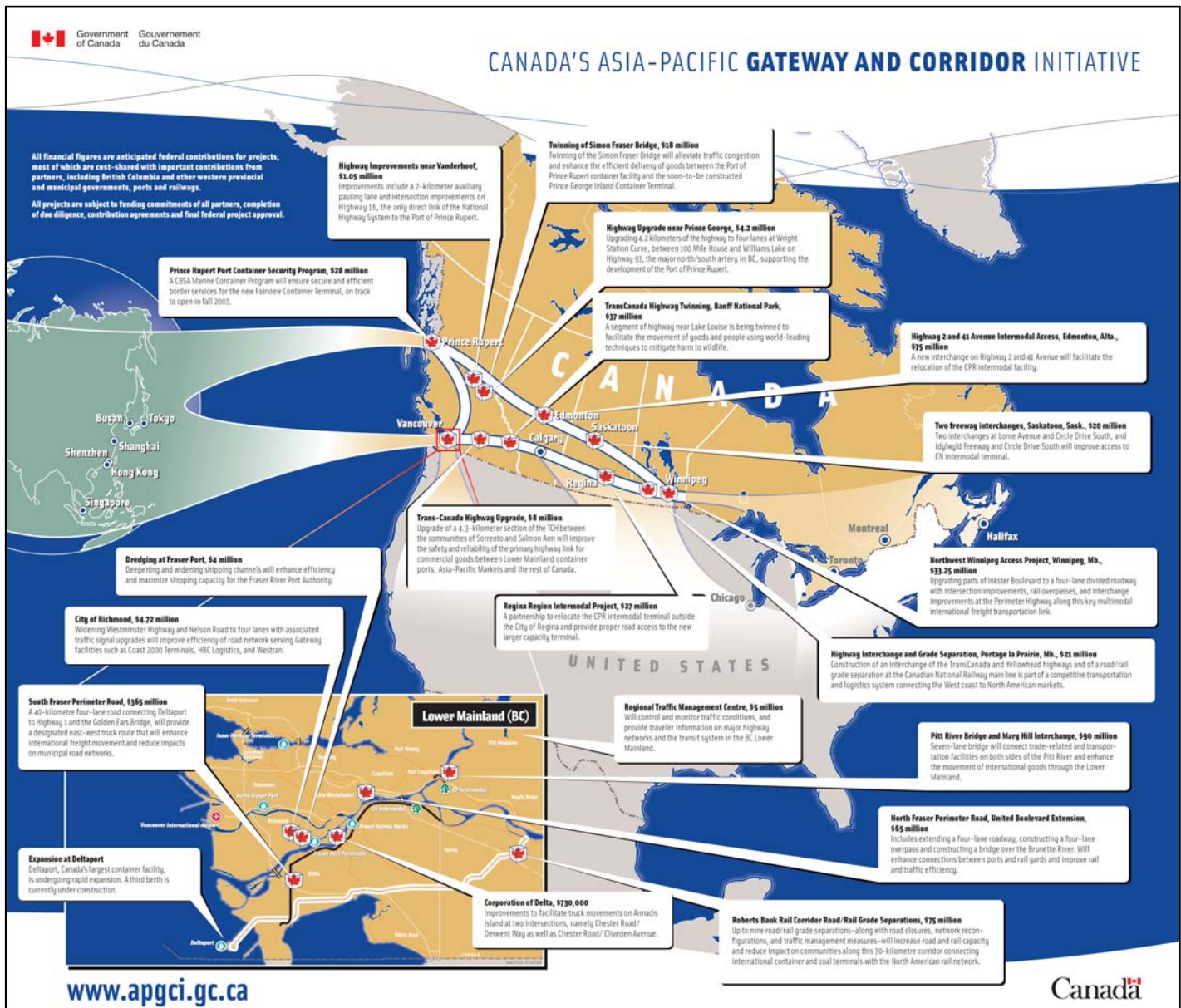


Exhibit VI-1

Specifically, the Initiative seeks to:

- ✓ Boost Canada's commerce with the Asia-Pacific Region;
- ✓ Increase the Gateway's share of North America bound container imports from Asia; and
- ✓ Improve the efficiency and reliability of the Gateway for North American exports to the Asia-Pacific Region.

The Asia-Pacific Gateway and Corridor is defined as the network of transportation infrastructure including BC Lower Mainland and Prince Rupert ports, their principal rail and road connections linking the west coast to markets across western Canada and south to the United States, key border crossings, and major Canadian airports in Calgary, Edmonton, Regina, Saskatoon and Winnipeg.

The Initiative is predicated on Canada's continuing prosperity being tied to efficient and sustainable transportation links supporting international commerce. In developing an integrated long-term plan, APGCI looks to address transportation capacity and multi-model transfer issues. In terms of the China market, these issues include:

- ✓ Canada's total merchandise exports to China amounted to \$7.7 billion in 2006, an increase of 7.9% over 2005;
- ✓ Total merchandise imports from China increased to \$34.5 billion, up 16.8% over the previous year;
- ✓ Current two-way investment, though modest, is growing rapidly and holds substantial potential; and
- ✓ While Canadians continue to invest in Chinese financial services, information technologies and transportation markets, Chinese direct investment in Canada is predominantly in the energy and mining sectors.

Emerging Issues

There has been a significant emergence of global production networks which are creating opportunities for regions with the right logistics infrastructure. There remains considerable uneven west-east: east-west trade flows which leads to sub-optimal air cargo economics. It is generally recognized that the private sector should determine the most cost effective production flows and government policy should support flexible logistics and support arrangements to take advantage of changes in the market.

From an aviation industry perspective, governments' approach to the APGCI is seen as heavily focused on port, rail and road, with air a distant second in terms of resource commitment. As well, it is felt that progress to implementation is moving too slowly and is mired in red tape: examples given include the time to complete environmental studies. Some stakeholders have expressed concern that public policy changes are lagging behind changes in business practices.³¹

³¹ Government of Canada Presentation to APGCI Winnipeg Roundtable, Brian Bohunicky, Feb 27, 2007.

China is a Critical Piece of Future Activity

CASE STUDY 5: China to decide on International Routes by year end

Monday, December 10, 2007 04:41

BEIJING, Dec 10 (WorldACD) - China's plan on the allotment of the new direct international air routes to its domestic airlines will be finalized and published before the end of this year, the TDC trade website reported, citing the General Administration of Civil Aviation of China (CAAC).

The report quoted industry observers as saying that there is still much potential to tap in China-US air routes and the emergence of new flight routes and greater frequency of flights will help promote service quality and price competition.

Air China, China Eastern, China Southern, Hainan Airlines and Shanghai Airlines have applied for the opening of 27 new services to Europe and the Americas, which means an additional of 206 flights per week, and that a sizable proportion of the new flights link destinations in China and the United States.

Since last July, Shanghai Cargo, Hainan Airlines, Jade Cargo International and Great Wall Airlines have all applied to the CAAC for carrier qualification for China-US air routes. They have also applied for starting China-US flights of their own.

The cargo potential from Mainland China is enormous and is affecting every world region. However, the extraordinary growth rates experienced over the last 3-5 years are expected to wane over the next decade. As outlined above, new "hub" routes are being discussed in the US and could satisfy a disproportionate amount of North American air cargo demand.

What the case studies of the manufacture of Boeing and Apple's high-tech, high-value products tell us is that components, sub-components and final assembly parts are the product of the manufacturing effort in a number of different countries and that those elements of the final product have to be moved at just the appropriate time to minimize investment in inventory, and at the right time so that production is not held up. While more and more commerce is moving to a global sourcing and assembly operation, and with the transnational and geographical issues involved, only a well orchestrated, multi-directional air cargo operation has to be in place to meet the needs of the evolving industry.

The examples provided by the earlier Case Studies point to one of the underlying principles shaping the Gateway initiatives, that is the logistics of moving not only goods but also people, quickly and reliably, are crucial determinants of competitiveness. Human and physical capital to support these movements are increasingly concentrated in a few key geographic zones, or gateways, connected to each other and to major markets by corridors.³²

³² Canada's Asia-Pacific Gateway and Corridor Initiative, Cat No. 0-662-49349-4, 2006.

It is felt that much of the low-hanging fruit in terms of legislation, regulation and policy development has been taken and that the new logistics reality that sees the need for clear connectivity between modes is a prerequisite for continuing and growing the size of Canada's slice of the global trade pie. This is also a major driver for the APGCI.

A number of challenges are seen which the APGCI aims to address. Issues such as: capacity constraints at west coast ports; coordination of government policy and regulatory requirements and private sector operations to address inefficiencies in the gateway and corridor system; and effective partnerships, in that there is no one "owner" of the assets and an integrated approach is needed to achieve the essential efficiencies to ensure the overall Initiative is successful.

Specific short-term APGCI initiatives include **continuing efforts to liberalize air agreements with Asia-Pacific countries and the US**. Federal funding to date hasn't matched this priority – at least in terms of infrastructure investment – and has been focused on port, road and rail. One important element that has already been touched upon is the divergence between anticipated growth and the quality and quantity of appropriate infrastructure to meet the need. For the most part the aviation sector has been expected to provide the required investment in airport infrastructure, which is significantly different with other modes.

VII. CANADIAN AIR CARGO OPPORTUNITIES

Economic Outlook

Global Economy

In January 2008, the IMF updated its world economic outlook and reported that following strong growth through the third quarter of 2007, the global economic expansion began to moderate in response to continuing financial turbulence, and that global growth is projected to decelerate from 4.9% in 2007 to 4.1% in 2008.

Projected growth in the US in 2008 has been lowered to 1.5%; while China is expected to grow by 10% (which is a deceleration from 2007's growth estimate of 11.4%).

The main risk in the outlook for global growth is that the ongoing turmoil in the financial markets could further reduce domestic demand in advanced economies and create more significant spillovers into emerging markets and developing economies.

Canada's Economy

In December 2007, the Department of Finance reported that Canada was in one of the strongest periods of economic growth in its history with a record low unemployment rate of 5.9%, being the only G7 country in a surplus position in 2007 and expected to be in the strongest fiscal position in 2007 and 2008. Canada's real income per capita doubling that of the US since the end of 2001.

The challenges facing Canada's economy include the risk of a weaker than expected US economy (primarily related to a major correction in housing markets) which could be exacerbated by the ongoing financial market turmoil, the need to adjust to a higher dollar and increasing global competition, labour shortages and the aging Canadian population. The Conference Board of Canada expects Canadian GDP to grow 2.8% in 2008.

	2007	
	Exports	Imports
United States	79.0%	54.2%
United Kingdom	2.9%	2.8%
China	2.1%	9.4%
Japan	2.0%	3.8%
Mexico	1.1%	4.2%
Germany	0.9%	2.8%
Norway	0.8%	1.3%
France	0.7%	1.2%
Korea (south)	0.7%	1.3%
Italy	0.6%	1.2%

Source: Industry Canada

Canada's Largest Trading Partners

In 2007, Canada recorded a trade surplus of \$42 billion. Canada's largest trading partner is by far the US, with 79% of Canada's exports in 2007, and 54% of Canada's imports. The next largest trading partners include the United Kingdom, China, Japan, Mexico and Germany.

Ontario is Canada's largest exporter at 46% of all exports in 2007, followed by Alberta (18%) and Quebec (16%). Ontario is also the largest importer at 59% of all imports, followed by Quebec (17%), British Columbia (9.5%), and Alberta (4.5%).

Trends in World Trade

The World Trade Organization (WTO) reported³³ robust growth in world and trade expansion in 2006, with global GDP growth of 3.7% (second best performance since 2000). All major regions recorded GDP growth in excess of population growth, and economic growth in the least-developed countries continued to exceed 6% for the third year in a row. 2006 also saw economic recovery in Europe, while the US maintained overall expansion and China and India saw high economic trade growth. The share of world trade of developing countries rose to a record 36%, with China's trade growth continuing to outstrip all others. Germany remained the world's number one exporter of goods, although the WTO expects China could rank number one in 2008.

As shown in Exhibit VII-1, in 2006, Canada's exports represented 23% of North American exports, and 3% of global exports. Imports were 14% of North American totals and 3% of global import totals.

The WTO³⁴ expects final 2007 international trade growth to remain strong however a general slowing will be seen (6% versus 8% in 2006). The world economy is expected to expand 3%, although this to is at a pace slower than in 2006 (3.7%).

Present and Future Challenges

The WTO³⁵ has identified five significant current and future challenges affecting world trade:

- ✓ Globalization has brought economic interaction among nations closer than ever before – in no small part due to revolutions in information and transport technology and growing openness in government policy;
- ✓ There is a trend towards increased inter-dependence which has rendered international economic cooperation more complex and multi-faceted;
- ✓ Multilateral, plurilateral and unilateral actions to reduce tariffs have raised the profile of other measures that determine trade flows, the conditions of competition and opportunities to gain from trade;
- ✓ Much remains to be done in terms of developing a framework for trade in services – a vital component for economic growth; and
- ✓ Determining the relationship between the environment and trade, and addressing the issues raised.

³³ "World Trade Report 2007", World Trade Organization.

³⁴ www.reuters.com "WTO sees trade growth slowing in 2007" (April 12, 2007).

³⁵ "World Trade Report 2007", World Trade Organization.

Exhibit VII-1.

World merchandise trade by region and selected country, 2006

(Billion dollars and percentage)

	Exports					Imports				
	Value	Annual percentage change				Value	Annual percentage change			
	2006	2000-06	2004	2005	2006	2006	2000-06	2004	2005	2006
World	11762	11	22	14	15	12080	11	22	13	14
North America	1675	5	14	12	13	2546	7	17	14	11
United States	1037	5	13	11	15	1920	7	17	14	11
Canada	388	6	16	14	8	357	7	14	15	11
Mexico	250	7	14	13	17	268	7	16	13	15
South and Central America ^a	426	14	30	25	20	351	9	28	23	18
Brazil	137	16	32	23	16	88	7	31	17	14
Other South and Central America ^a	289	13	29	25	22	262	10	27	25	19
Europe	4957	11	20	9	13	5218	11	20	10	14
European Union (25)	4527	11	19	8	12	4743	11	20	9	14
Germany	1112	12	21	7	15	910	11	18	9	17
United Kingdom	443	8	14	11	15	601	10	20	9	17
France	490	7	15	3	6	533	8	18	7	6
Italy	410	9	18	6	10	436	11	19	8	13
Commonwealth of Independent States (CIS)	422	19	36	28	24	278	23	31	25	29
Russian Federation	305	19	35	33	25	164	24	28	29	31
Africa	361	16	31	30	21	290	14	28	20	16
South Africa	58	12	27	12	13	77	17	35	17	24
Africa less South Africa	303	17	32	34	23	213	14	26	22	13
Oil exporters ^b	212	19	40	46	25	81	18	33	25	18
Non oil exporters	90	13	20	14	17	131	11	23	20	10
Middle East	644	16	33	35	19	373	14	31	19	14
Asia	3276	12	25	16	18	3023	12	27	17	16
China	969	25	35	28	27	792	23	36	18	20
Japan	647	5	20	5	9	578	7	19	13	12
India	120	19	30	30	21	174	23	37	41	25
Four East Asian traders ^c	844	9	25	12	15	787	9	27	13	17
Memorandum items:										
MERCOSUR	190	14	28	21	16	134	7	38	20	17
ASEAN	771	10	20	15	18	683	10	25	17	14
EU (25) extra-trade	1480	11	21	11	11	1697	11	21	15	15
Developing economies	4274	14	27	22	20	3749	13	29	18	17
Least Developed Countries (LDCs)	108	20	32	36	30	101	15	18	21	17

^a Includes the Caribbean. For composition of groups see the Technical Notes of WTO, International Trade Statistics, 2006.

^b Algeria, Angola, Cameroon, Chad, Congo, Equatorial Guinea, Gabon, Libya, Nigeria, Sudan.

^c Chinese Taipei; Hong Kong, China; Republic of Korea and Singapore.

Source: WTO.

Review of Canadian Air Cargo Traffic

The Canadian air cargo industry is multi-faceted and operates within, and is dependent upon, the global trade and economic influences presented earlier.



Over 1.5 million tonnes of cargo was loaded or unloaded at Canadian airports in 2006. The breakdown by sector, estimated by Transport Canada, is presented in Exhibit VII-2. The largest portion, 40%, is international, while 35% is domestic and 25% is transborder.

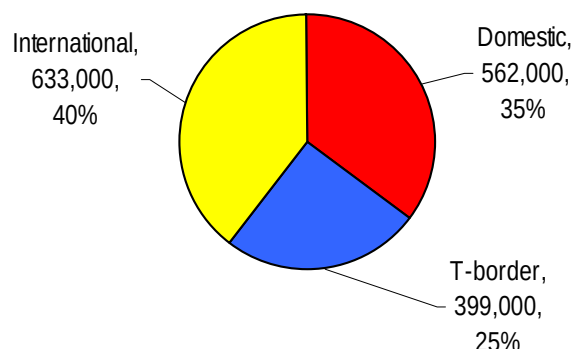


Exhibit VII-2. Air Cargo Tonnage by Sector in 2006

Air cargo tonnages are reported by some of the major airports in Canada, but few report tonnages by sector. Estimates were developed for those not reporting cargo data using values provided by Statistics Canada, adjusted for underreporting of these figures. Exhibit VII-3 presents the estimated values by sector for the major airports. Note that the estimated total tonnage values differ from those in the Transport Canada forecasts – estimated transborder values were higher and international values were lower. Cargo tonnages handled are concentrated at the major airports. A third of the cargo is handled at Toronto Pearson and a further 15% at Vancouver. The top 7 airports account for almost 90% of air cargo in Canada.

Exhibit VII-3. Total Loaded and Unloaded Air Cargo Tonnages at Top 15 Canadian Airports in 2006

Airport	Estimated Tonnage in 2006					Ratio ⁴
	Total	Domestic	Trans-border	International	Note	Loaded/Unloaded
Toronto	505,660	113,800	214,234	177,626	²	0.78
Vancouver	223,000	93,660	50,699	78,641	²	1.03
Winnipeg	155,000	86,012	68,945	43	¹	0.98
Montreal Trudeau	153,400	34,293	14,382	104,725	¹	0.71
Calgary	127,275	24,551	65,987	36,737	¹	0.88
Montreal Mirabel	121,200	7,063	113,523	614	¹	0.83
Hamilton	84,500	78,515	5,964	21	²	1.14
Edmonton	42,700	34,325	2,184	6,191	¹	0.58
Halifax	27,693	20,313	1,307	6,073	²	3.13
Moncton	24,320	21,900	2,340	80	¹	0.75
Ottawa	19,680	13,500	3,770	2,410	²	1.08
St. John's	7,332	4,714	868	1,749	³	0.49
Quebec	6,810	4,609	2,202	0	³	1.01
Victoria	5,937	5,562	375	0	³	0.57
Gander	5,701	2	1,987	3,712	³	0.93

- Notes
1. Total tonnage reported by airport, proportion by sector estimated from Statistics Canada reported values (if 2006 values by sector not available 2005 values were used)
 2. Tonnage by sector reported by airport
 3. Tonnages estimated from Statistics Canada reported values, scaled up by medium value of the ratio of Airport reported values to Statistics Canada reported values. Ratio values only found for airports reporting cargo tonnages. Medium of the ratio value was 2.4.
 4. Based on Statistics Canada reported values

Toronto and Montreal-Mirabel handle the most transborder cargo, accounting for almost 60% of the total. Toronto and Montreal-Trudeau handle the most international (excluding the US) cargo, accounting for two-thirds of the total.

The majority of airports have a greater tonnage of cargo unloaded than loaded (ratio loaded to unloaded less than 1.0 in right column of Exhibit VII-3).



Exports and Imports by Air

Statistics Canada collects data on the value of exports and imports from/to Canada by mode of transport and the data by air mode is reported in the Transportation in Canada report (latest available edition is for 2006 values). Tonnages of exported and imported air cargo were estimated from the dollar values reported by Statistics Canada and average values of those commodity types obtained for the US from the US Trade Database for exports and imports by air mode. The values and estimated total tonnages in 2006 are presented in Exhibit VII-4.

Exhibit VII-4. Value and Estimated Tonnage of Canadian Exports and Imports by Air in 2006

	Value	Tonnes	Avg. \$/kg
Exports by air	\$39,573	387,323	\$102
Imports by air	\$50,538	615,376	\$ 82
Total	\$90,111	1,002,699	\$ 90

The value of 1.002 million tonnes compares with the value for transborder and international sectors given in the Transport Canada Aviation Forecasts of 1.030 million tonnes, and with reported/estimated tonnage in this report (Exhibit VII-3) of 0.98 million tonnes.

Air cargo export and import tonnages between Canada and the US are available from the US Trade Database. These values for 2006 are compared in Exhibit VII-5 with values for total transborder air cargo in the Transport Canada Aviation Forecasts and reported/estimated values (from Exhibit VII-3).

Exhibit VII-5. Value and Estimated Tonnage of Canadian Exports and Imports by Air in 2006

	To US	To Canada	Total
US Trade Database	\$62,567	218,709	\$281,276
TC Aviation Forecast			\$399,000
Airport/estimated values			\$553,000

Tonnages from the US Trade Database are much lower than transborder tonnages in the TC forecasts and reported/estimated tonnages for Canadian airports. This is likely due to much of the cargo on transborder flights being transferred at US airports to international flights, and thus being recorded by US customs as transshipments rather than exports or imports to the US. Thus, the tonnages reported by Canadian airports do not reflect the tonnages to the origin/final destination of the cargo, but rather of the origin/destination on the flight on which the cargo was unloaded/loaded.

Trends in the value of exports and imports by air mode³⁶ are presented in Exhibit VII-6 by sector. The values of exports and imports by air mode grew rapidly in the mid-1990s to 2000 to/from both the US and other international markets. Exports and imports transported by air to the US dropped sharply in 2001 and 2002 and remained constant between 2003 and 2006. In contrast, air exports and imports to other destinations fell only very slightly in 2002 and 2003, but grew rapidly between 2004 and 2006. In 1996, the values were similar for the US and for other international destinations, but by 2006 the total value for other international was almost twice that of the US.

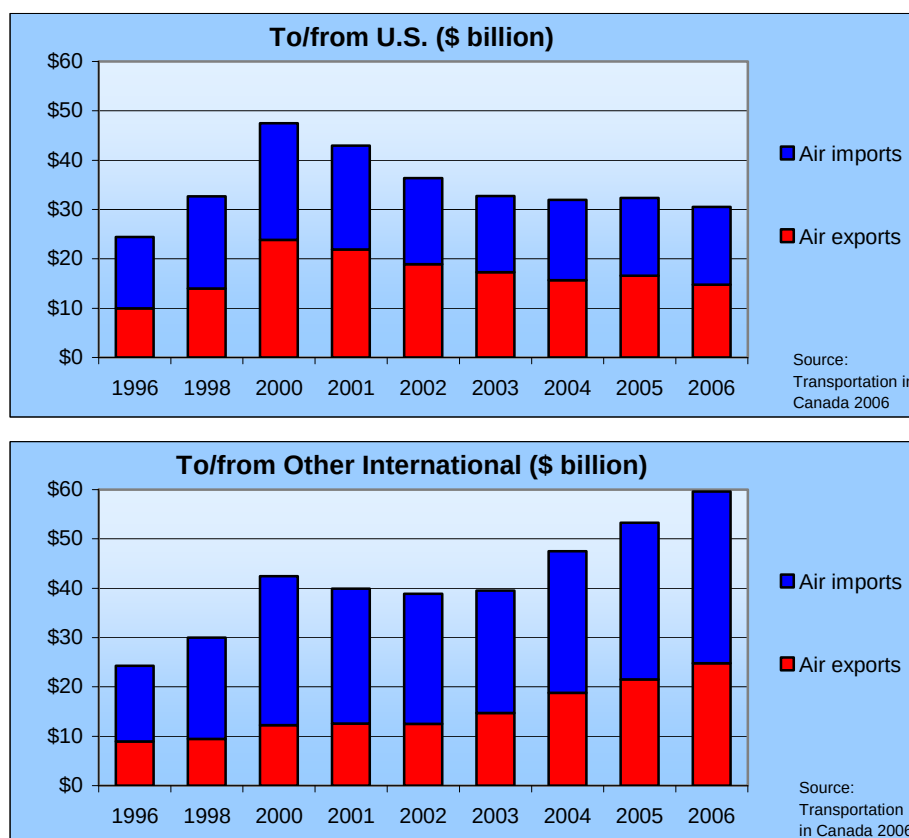


Exhibit VII-6. Value of Exports and Imports via Air Mode by Sector to 2006

Average annual growth rates in the values of air exports and imports over the 10-year period, 1996-2006, are presented in Exhibit VII-7.

Exhibit VII-7. Average Annual Growth Rates in the Values of Air Exports and Imports Over the 10-Year Period, 1996-2006

	Air Exports	Air Imports	Exports + Imports
US	4.0%	0.9%	2.3%
Other international	10.7%	8.5%	9.4%
Total	7.7%	5.4%	6.3%

³⁶ Tonnages are not reported here as Statistics Canada does not collect the weight of exports and imports.

Air mode's share of the value of the total exports and imports over all modes has also varied for the two sectors:

- ✓ For the US, the share has fallen slightly from 8% in 2000 to 5.3%.
- ✓ For other international, the share has increased from 19% in 1996 to 23% in 2006.

The slower growth and decline in air mode's share of transborder air cargo is likely due to the increased competition from truck mode.

The US and Western Europe are the largest markets for exports and imports transported by air to/from Canada, as is shown in Exhibit VII-8. The Asian market is the third largest, but is growing at a faster rate than the US and European markets. Imports from the Asian region are much higher than exports to the region.

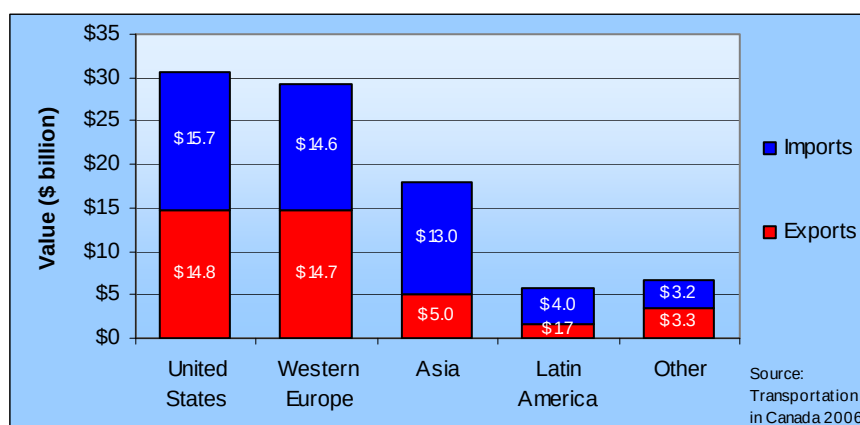


Exhibit VII-8. Value of Exports and Imports via Air Mode by Region in 2006

Most (85%) of the exports and imports by air mode are to/from airports in Eastern Canada, as shown in Exhibit VII-9. This is true for all foreign regions. Surprisingly, the value for Western Canadian airports to/from Asian markets is only \$3.2 billion (18%) compared to \$14.8 billion (82%) for airports in Eastern Canada, although the latter is indicative of the relative strength of Toronto-Pearson.

The US is by far the largest international market for exports and imports transported by air mode accounting for \$16,727 million in exports and \$15,741 million in imports in 2006. The next largest market is the United Kingdom with approximately a quarter the total value of US air exports and imports. The values of exports and imports by country, excluding the US, in 2006 are presented in Exhibit VII-10. After the US, imports by air are greatest from China, followed by the U.K., Germany and Japan while exports by air are greatest to the U.K. Japan, Germany and Belgium. Note that the volume of air cargo to particular countries is dependent on the air services to those countries and much of the cargo may be shipped by surface modes to/from other countries.

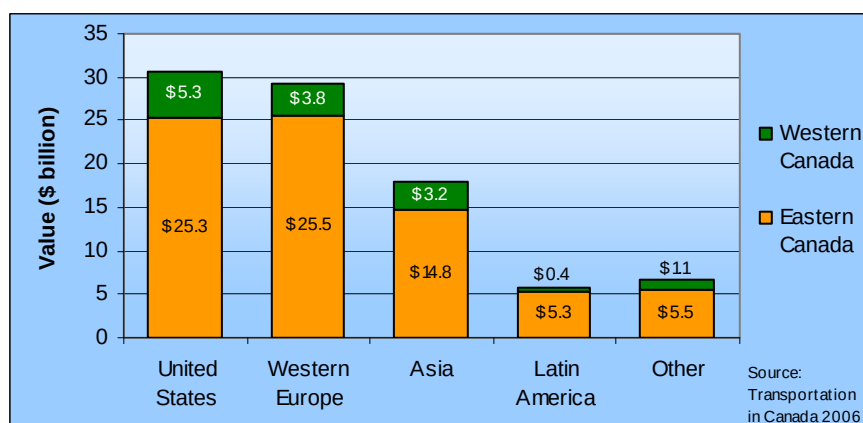


Exhibit VII-9. Value of Total Exports and Imports via Air Mode by Region of Canada and Region of Market in 2006

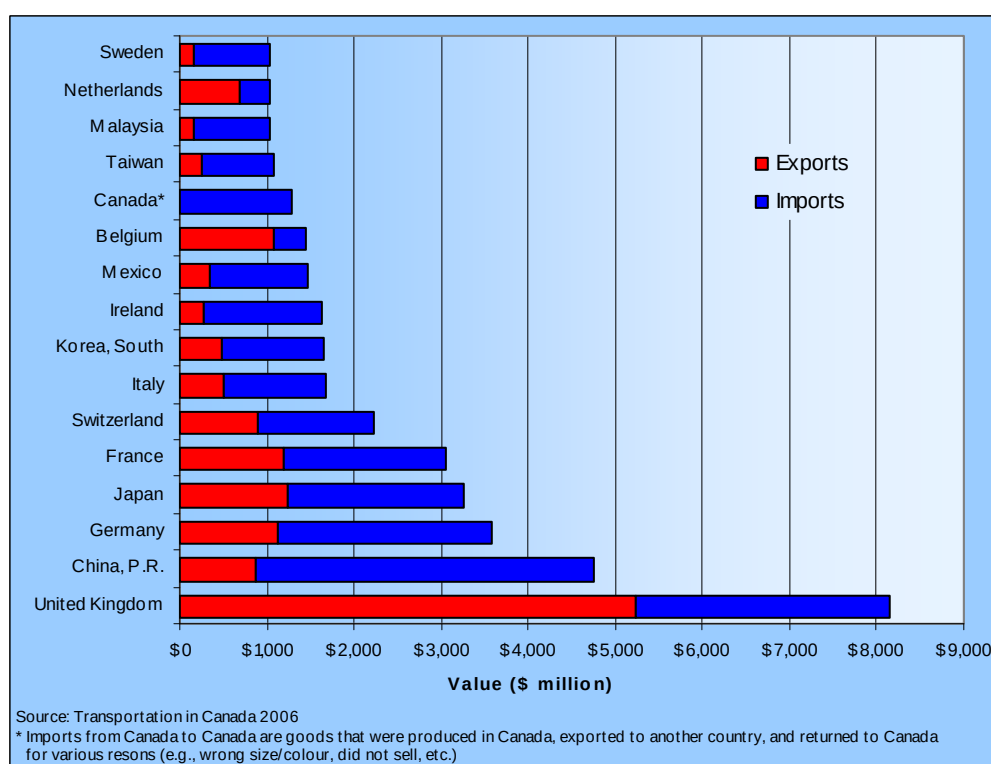


Exhibit VII-10. Value of Exports and Imports via Air Mode by Country in 2006

The value and estimated tonnages³⁷ of goods exported and imported in 2006 are presented in Exhibits VII-11 and VII-12 by commodity type. The most common types of commodities exported by

³⁷ Tonnage estimated using total dollar value for commodity type from Canadian trade data and average value of commodity type in \$/kg from US Trade Database.

air from Canada are machinery and electrical equipment, and other manufactured goods. Both are high value commodities averaging around \$160/kg. Agricultural and food products are the third greatest commodity type by tonnage, but due to their low value these goods make-up only a small portion of the value exported. Aircraft and other transport equipment are high value goods and account for a significant proportion of the air export tonnage

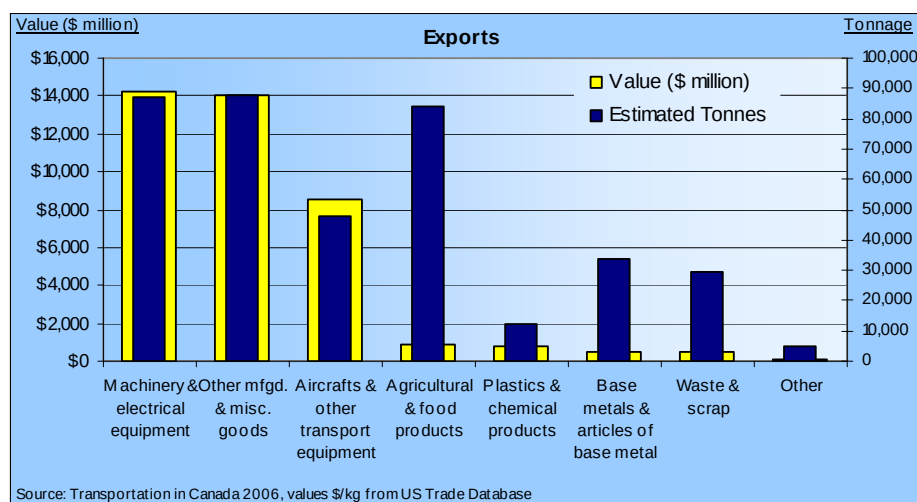


Exhibit VII-11. Value and Estimated Tonnage of Exports via Air Mode by Commodity Category in 2006

Of the imports to Canada by air, machinery and electrical equipment, other manufactured goods and aircraft and other transport equipment account for almost 75% of the total air import tonnage.

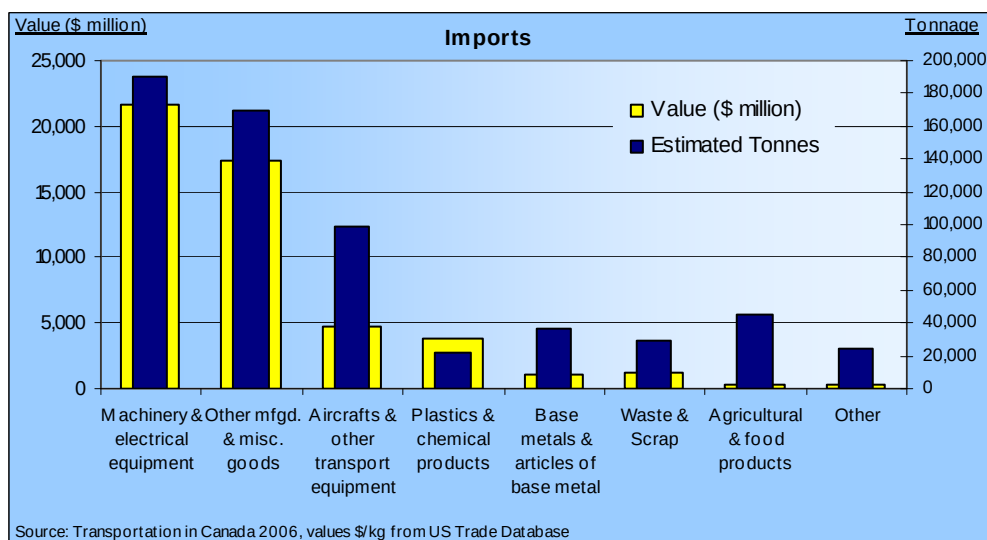


Exhibit VII-12. Value and Estimated Tonnage of Imports via Air Mode by Commodity Category in 2006

Over the two year period from 2004 to 2006, exports by air mode increased by 7.1% per year, while imports increased by 6.1% per year. Growth rates varied by commodity type, as is indicated in Exhibit VII-13. The very low volume commodity, waste and scrape, had the highest growth rates. Of the higher volume commodities, imports of aircraft and other transport equipment had the highest growth rate followed by exports of manufactured goods.

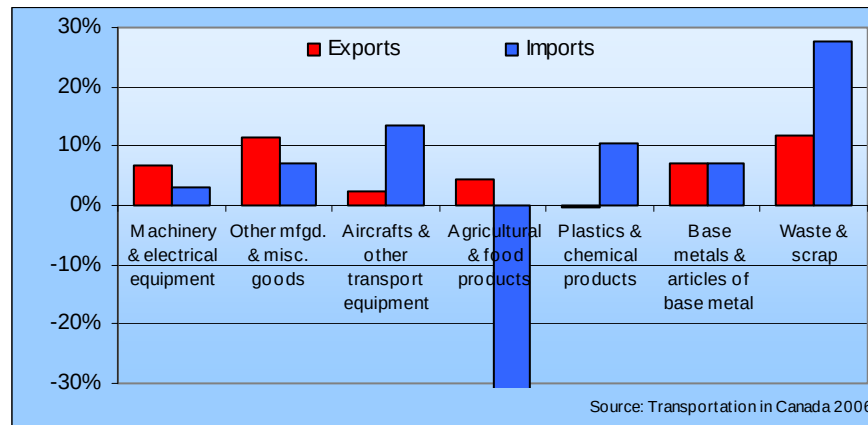


Exhibit VII-13. Average Annual Growth Rate in Value of Exports and Imports via Air Mode by Commodity Category 2004 to 2006

Forecasts of Air Cargo Tonnages for Canada

Transport Canada forecast total loaded plus unloaded air cargo would increase from 1.59 million tonnes in 2006 to 1.90 million in 2010, 2.33 million in 2015 and 2.81 million in 2020. Exhibit VII-14 shows the forecast growth in tonnage by sector. Their forecasts of average annual growth rates for each sector are presented in Exhibit VII-15.

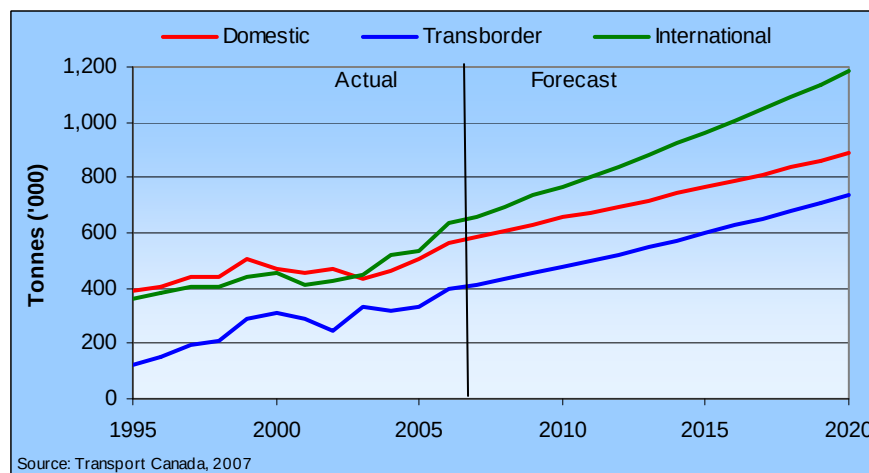


Exhibit VII-14. Forecast Loaded and Unloaded Air Cargo Tonnage by Sector

Exhibit VII-15. Forecast Average Annual Growth Rates of Air Cargo Tonnage by Sector

	Domestic	Transborder	International	Total
2006-2010	3.9%	4.6%	5.0%	4.5%
2006-2015	3.5%	4.6%	4.8%	4.3%
2006-2020	3.3%	4.5%	4.6%	4.1%

Source: Transport Canada, 2006

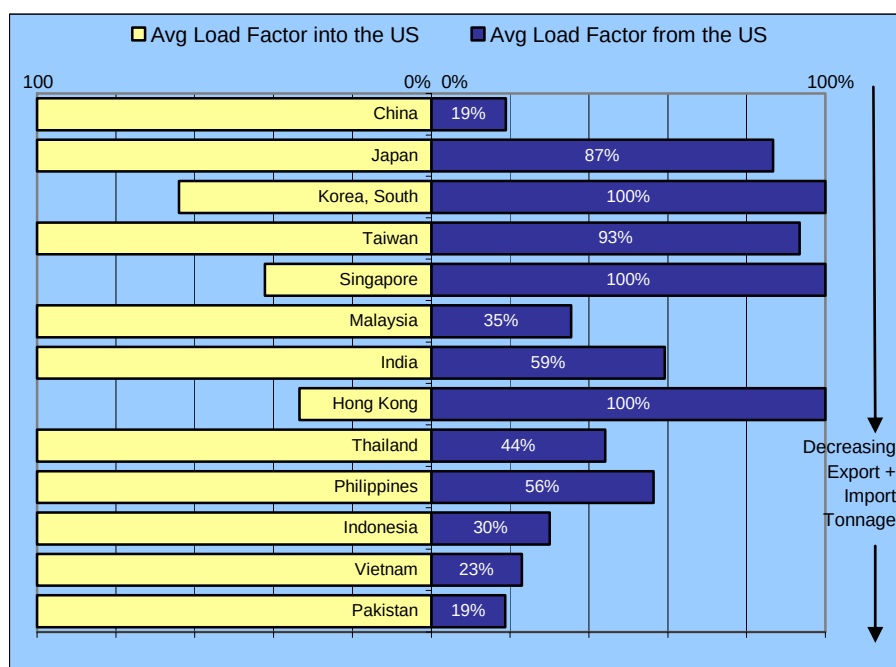
Imbalance of Loaded and Unloaded Air Cargo

A directional imbalance between the amount of air cargo to and from a particular market leads to inefficiencies in providing air cargo services and can result in potential air cargo being transported by other modes, or not being transported at all.

Directional balances in air cargo between Canada and its major trading partners could not be determined as Statistics Canada does not collect data on the weight of exports and imports. However, the US Trade Database includes weight and directional balances were determined for the US. While some differences would be expected for Canada, the US data should provide a reasonable proxy.

The directional balance, expressed in terms of the average air cargo load factor into the US and from the US³⁸, was calculated and is presented for Asian, European and other markets in Exhibits VII-16, VII-17 and VII-18, respectively. In Asia, the imbalance with imports exceeding exports is worst for the largest market, China, and is also significant for the smaller markets of Malaysia, Thailand, Indonesia, Vietnam and Pakistan. However, the

imbalance with exports exceeding imports is significant for several markets, namely Hong Kong and Singapore, and to a lesser extent, South Korea. Loads to and from Japan and Taiwan, both major

**Exhibit VII-16. Air Cargo Imbalance Between Asia and the US, 2006**

³⁸ Assuming 100% load factor in the direction with the greatest tonnage.

markets, are reasonably well balanced. Imbalances in air cargo to and from Asia have generally improved over the past five years.

Imbalances in loaded and unloaded air cargo are generally less between the US and Europe (Exhibit VII-17). As with Asia, most flights would be at capacity inbound to the US and below capacity outbound. Imbalances are greatest to Italy, Sweden, Austria, Germany and Denmark, with a significant imbalance occurring the other way (exports exceeding imports) to Belgium and a lesser extent to the Netherlands, the U.K. and Ireland.

The US data indicates a significant air cargo imbalance for Canada with tonnages from the US to Canada far exceeding tonnages from Canada to the US. This is consistent with Statistics Canada data on loaded and unloaded tonnages by sector.

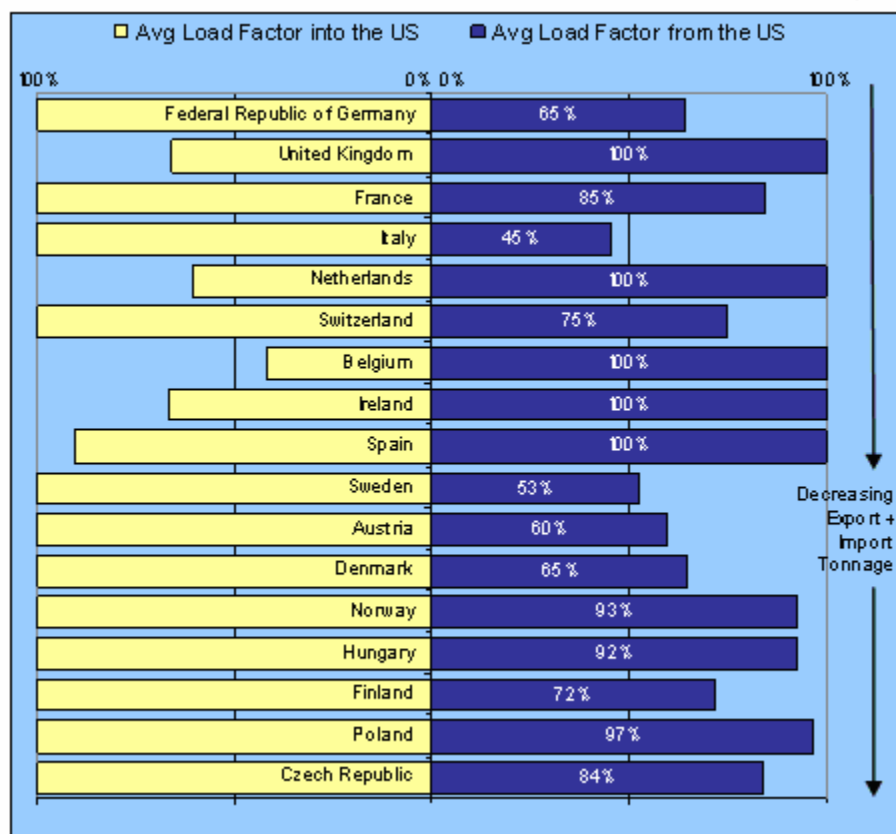


Exhibit VII-17. Air Cargo Imbalance Between Europe and the US, 2006

Significant imbalances occur to other regions of the world, but the direction varies. Imports far exceed exports to Mexico, South and Central America, New Zealand, Turkey and Israel, while the reverse is true for Australia, Russia and oil producing Arab countries.

- ✓ Recently, the backhaul issue has been more muted as overall import loads to the US from Asia are going down while export loads are beginning to rise. This is partly explained by the short-term effects of the current US recession, but the good news is that it is partly – and more longer-term - because of the pull of the growing discretionary spending-class in emerging markets and their appetite for imported consumer goods.

Diversion of Air Cargo to US Airports

Diversion of air cargo from the local airport to more distant larger airports or cargo hubs is common. The diversion rate varies greatly between airports and over time depending on factors such as available air services at the local and alternate airports, trucking distances, time and costs to the alternate airports, relative airport costs and freight forwarder preferences. Some of the diverted cargo is trucked to other Canadian airports, and some to US airports. Almost all the cargo diverted to US airports is bound to/from international markets.

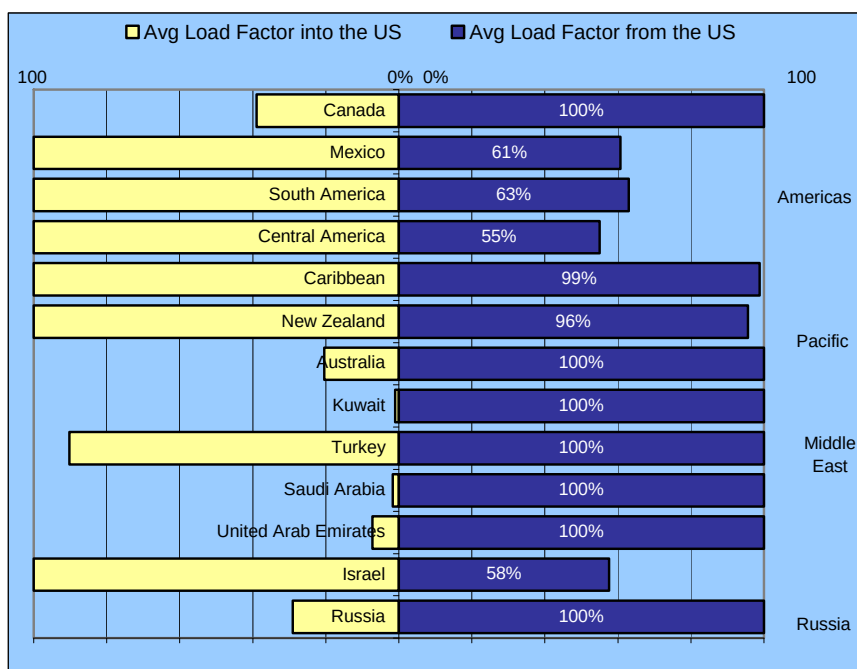


Exhibit VII-18. Air Cargo Imbalance Between Other Countries and the US, 2006

The amount of potential Canadian air cargo diverted to US airports is not known precisely, but is believed to be significant. Information obtained from a number of air cargo studies conducted over the past 8 years indicated that:

- ✓ **Toronto** - in 2006, an estimated 60-65% of potential air cargo from the Toronto area was diverted to airports other than Toronto Pearson (YYZ) despite the high level of wide-body international passenger services at the airport. A primary reason for the diversion is the high level of fees for carriers operating at YYZ, which are due largely to the recent airport development program and to Government policy on airport rents. Most of the diverted domestic and transborder cargo, but almost none of the diverted international cargo, flies from Hamilton. Although the portion of diverted traffic to US airports is unknown, it is expected to be high, likely approximately 220,000 tonnes. This represents roughly a quarter of total air cargo demand for the Toronto area, and half of the total international air cargo demand.³⁹
- ✓ **Atlantic Canada** - in 2006, an estimated 15,000 tonnes of live/fresh seafood exports were trucked from Nova Scotia to Boston and New York airports from shipment overseas (see Case Study 6). A further 6,000 tonnes from New Brunswick and Prince Edward Island were trucked to US airports. Live/fresh seafood accounts for a large portion of the potential air cargo from those provinces and it is estimated that 33% of Nova Scotia's, and 15% of New Brunswick and PEI's, potential air cargo is diverted to US airports.⁴⁰

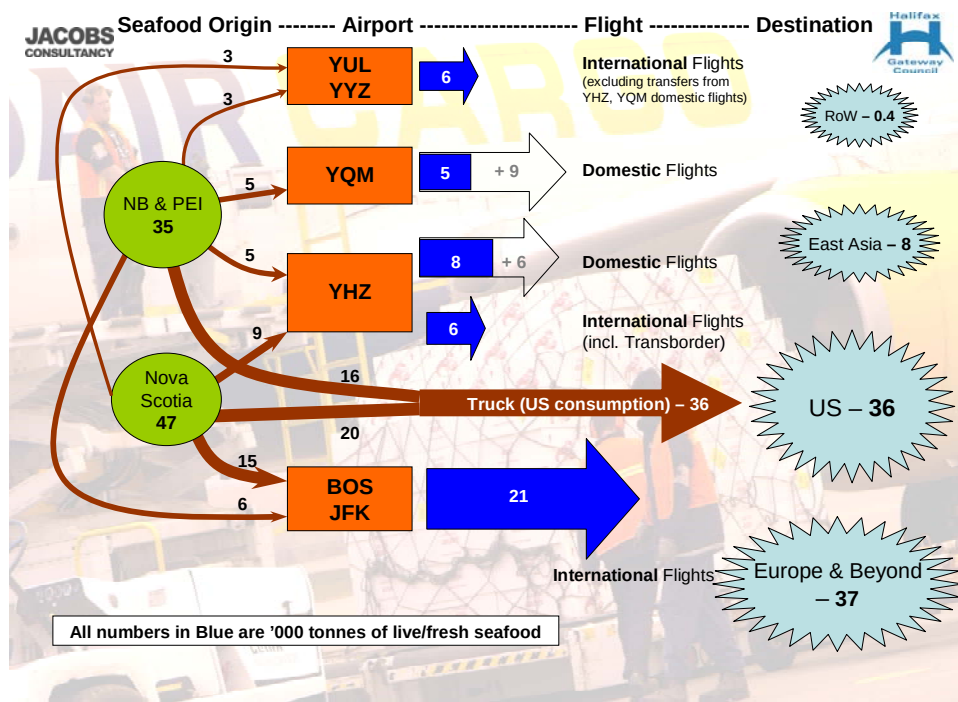
³⁹ GTAA 2006 Market Study.

⁴⁰ Air Cargo Facility Project, Presentation by Jacobs Consultancy to the Halifax Gateway Council, May 8th, 2007.

CASE STUDY 6: Seafood Exports from Nova Scotia

Nova Scotia is the major exporter of live/fresh seafood products, much of which is live lobster. The major markets are the US, Europe and Asia. The industry is heavily dependent on the availability of air cargo services as the produce is perishable and must be delivered within days of being harvested. Exports of live/fresh seafood are seasonal with the peak months being over twice the lowest volume months.

Due to lack of available air cargo capacity and the wide range of markets, only 9,000 of the 47,000 tonnes of live/fresh seafood exported from Nova Scotia departs from the local airport at Halifax. 40% of this amount is flown to another Canadian airport for transfer to an international flight. 15,000 tonnes is trucked to the US and loaded on flights at Boston or New York. Another 3,000 tonnes is trucked to Montreal or Toronto for export by air. Exports from New Brunswick and Prince Edward Island show a similar pattern. An efficient air cargo hub and network system, would reduce the amount of long distance trucking of this perishable and often fragile commodity and allow an expansion of this industry.



- ✓ **Winnipeg** - in 1998, a quarter of air cargo to/from the Winnipeg area was diverted to other airports. Most of the diverted cargo (84%) was international cargo and most (88%) was diverted to other Canadian airports. Only 7% of inbound and 17% of outbound diverted cargo flew from/to US airports, primarily Minneapolis-St. Paul, Chicago and New York. In total, approximately 4% of the potential air cargo to/from Winnipeg was diverted to US airports.⁴¹

⁴¹ Crockatt, M.A., and Shurvell, J.S., *Air Cargo Leakage: Assessing Opportunities for the Local Air Cargo Market*. Transport Research Institute, University of Manitoba, 2000.

- ✓ **Edmonton** - in 2004, approximately 40% of the air cargo to/from the Edmonton area was diverted to other airports, primarily Calgary. The proportion diverted to US airports was not available. Leakage of international cargo has likely been reduced by the introduction of B767 service to London in 2007.⁴²
- ✓ **Vancouver** – in 2000, an YVRAA study concluded that the Vancouver International Airport was capturing approximately one-half of the total cargo market (including trucked transborder, domestic, and international activity). The lack of available cargo capacity, both in bellies of passenger and main deck space on freighter aircraft, helped contribute to this situation. However, it was also recognized that some markets like Japan and other Asian countries and their airlines had restrictions on serving YVR.⁴³

Based on the findings of these studies it is estimated that the amount of potential Canadian air cargo traffic diverted from Canadian to US airports is of the order of 15-25%, or between 280,000 and 480,000 tonnes in 2006. Almost all of this cargo is bound for international markets, primarily Europe and Asia. This is in addition to the 150,000 to 270,000 tonnes of air cargo on transborder flights which are transhipped through the US to/from international markets.

Thus, currently, the total air cargo which originates from, or is destined to, Canadian markets is of the order of 1.8 to 2.0 million tonnes, of which 1.5 million tonnes is handled at Canadian airports.

Potential Diversion to, or Transshipment through, Canadian Airports

Canadian airports, by virtue of their location, have the potential of being transshipment points for air cargo travelling between North America and both Asia and Europe. As discussed in Section III, Anchorage is a major transshipment point for cargo to/from Asia.

Anchorage has a distinct advantage for traffic to/from Asia due to:

- ✓ Its location is roughly halfway between most Asian and US markets, and it is close to the shortest routing for central and western US markets;
- ✓ Good airport facilities and comparatively few operating restrictions (e.g., no nighttime curfew);
- ✓ Well established freight forwarders and international cargo handling companies that understand the market conditions and special handling requirements; and
- ✓ Extended cargo rights.

The potential for diversion of US air cargo to Canadian airports (i.e., cargo trucked between the US and a Canadian airport) is low. Currently there is significant diversion in the other direction due to the larger markets in the US, many more wide-body services, both passenger and freighter, and cost advantages. The additional costs in both time and money associated with crossing the border would further discourage diversion to a Canadian airport. The one advantage Canadian airports have is that the air route distances are shorter from particular Canadian airports to European and Asian markets than from US airports (excluding Alaska and Hawaii). Since trucking costs are less

⁴² Ibid

⁴³ YVRAA 2000 Competition Study.

than air freight costs and travel times are not substantially longer (at least in comparison with sea), costs could potentially be reduced by trucking the cargo to a northern Canadian airport for shipment by air to Asia or Europe. While this may be possible, in practice the widespread potential benefits are mitigated by:

- ✓ The wide range of air cargo markets in Asia and Europe and the difficulty in serving markets with little origin-destination cargo and passenger traffic.
- ✓ The preference of freight forwarders to ship cargo through areas with significant international passenger volumes due to the lower cost of belly cargo.
- ✓ The delays at the border, including the security requirements.
- ✓ The requirement to still make a technical stop on services to many Asian markets. Eliminating a tech stop, typically at Anchorage, would provide an additional cost advantage, but would not be possible for S-E Asian markets or for service from all but the west coast airports. The opening of the polar air routes has allowed non-stop routing from central and northern Canadian airports to N-E Asian markets, at least when travelling in an easterly direction (with the prevailing wind).
- ✓ Lack of an effective FTZ regime in Canada.
- ✓ Typically higher airport and navigation fees for airports in Canada.
- ✓ The additional trucking time of one to two days would be a factor for some cargo and make it more difficult to attract the required volumes for the service to be viable.

Winnipeg examined the possibility of diverting cargo between the US and Asia to services from Winnipeg using the newly available polar air routes in 2001. While some cost advantages were identified, the market shares of US cargo from the N-E US to be captured were high and no service was achieved.

For the most part Canadian government policy is not a significant factor in the low diversion of US air cargo to Canadian airports and the level of diverted US traffic is likely to remain very low.

However, the current airport rents policy has resulted in a higher operating cost environment at the major Canadian airports than their US competitor hubs. In the larger markets, such as Vancouver and Toronto, this could reduce their ability to capture some of the leakage. YYZ has an approximate latent market equal to a third of its current volume which would use the airport if the costs were more in line with the rest of the world⁴⁴. Even more cargo would go through YYZ if costs were competitive with direct competitors like ORD and JFK.

Implications for Canada

- ✓ Lack of meaningful Canadian cargo data – both domestically and internationally – creates difficulty for government, industry and communities to focus attention on fact-based policy/plans that have a higher potential for success.

⁴⁴ GTAA cargo study, 2007.

- ✓ While current imbalance in trade makes it difficult to sustain dedicated air cargo freighter and integrator services between Canada and China, this actually helps in terms of payload-range trade-offs en route to China, and presents “tech stop” and destination opportunities from China;
- ✓ Currently a large amount of regular-sized air cargo to/from Asia is carried in the belly-hold of scheduled passenger aircraft;
- ✓ More liberalized international passenger air bilateral agreements with Asian countries will increase the number of flights and the corresponding belly cargo capacity; and
- ✓ Streamlined immigration procedures would allow Asian visitors to transit Canadian airports without a visa and thereby stimulate the market demands to support these additional flights.

VIII. BARRIERS FACING THE AIR CARGO INDUSTRY

Summary Discussion

From the discussion with stakeholders, a number of issues were raised which are summarized below:

- ✓ The paucity of liberal air access agreements are an issue, although not an insurmountable one as extra-bilateral arrangements are generally available. The problem cited with the latter though, is the lack of certainty and the level of administration to periodically renew the extra-bilateral approvals.
- ✓ Generally, cargo airlines follow the freight forwarders, who in turn tend to follow belly hold capacity and their customer base. Thus, a “build-it and they will come” approach will likely require significant resources and collateral action – such as amenable FTZ legislation - to be successful.
- ✓ The Integrators see themselves as selling “time” and customs and ATC delays (FedEx states the latter alone accounts for 60% of their delays in the US) reduce the value of what they are able to offer. Thus, another necessary condition for a successful air cargo strategy is to assure unimpeded airspace access.
- ✓ Data, or lack of it, affects the ability of carriers, communities and other investors to make appropriate decisions. Even in the US the current usefulness of data is being degraded as, anecdotally, some federal agencies are choosing to concentrate on the “primary” cargo carriers (i.e. sea, truck and rail), forgetting that while air cargo represents a very small percentage by weight carried, it is responsible for 30~40% by value.
- ✓ A significant problem highlighted with Canada is the level of administration connected with the application for EDC status, the nature of the approval (it is a single entity not a geographical area).
- ✓ One of the issues that any cargo infrastructure provider has to consider is the availability of redundant, modern cargo facilities in the US Midwest. For instance, because of consolidation over the past few years there are significant facilities available in Dayton and Cincinnati, Ohio.
 - Cabotage remains off the table for most respondents but the issue with more validity in terms of potential to increase airlift availability is Right of Establishment.
 - In emerging markets the need for lift is overcoming protectionism and restrictions on ownership, hence the recent moves by China to open up its markets to US carriers.
 - Many argue that it is beneficial to use cargo as a way to get a workable bi-lateral or Open Skies Agreement and then work on the passenger freedoms as people get comfortable. Industry would like to see the precepts of the Blue Skies Policy fully implemented.
- ✓ Lack of Full Cargo Open Skies Agreements, including Fiftths: an example cited more than once was the most recent decision of the CTA⁴⁵ connected with an application for extra-bilateral

⁴⁵ CTA Decision (597-A-2007): An application by Martinair Holland N.V. for extra-bilateral authority (Subsection 78(2) of the *Canada Transportation Act*).

authority (Case Study 7). In its finding the CTA noted that previous requests by Martinair for extra-bilateral authority to use fifth freedom rights beyond Toronto to points in the US have been dealt with on a case by case basis and not as a broad expansion of extra-bilateral fifth freedom traffic rights for a significant period of time. The Agency notes that extra-bilateral services are exceptional and, as such, approvals of such rights should be considered on an ad hoc basis.

The Agency also noted that in the case of traffic carried beyond Toronto to the US and third countries, the demand is for transportation between the Netherlands and those third countries. Therefore, the shippers and air carriers most affected are those of the European Union. In such circumstances, it would be appropriate to allow Martinair to continue to provide cargo services beyond Toronto. Furthermore, to allow for flexibility in its operations, Martinair should be permitted to operate beyond Toronto to points in the United States of America or Bogota and San Juan. However, in both cases without fifth freedom traffic rights beyond Toronto. Some in the broad industry group saw a couple of difficulties in the decision:

- ✓ The first was with the perceived continuation of bias to protecting the “flag” carrier which has shown inconsistent focus on the cargo market.
- ✓ The short timeframe of the decision, in that Martinair was authorized to operate for one IATA season, namely from **October 28, 2007 to March 29, 2008**.
- ✓ Infrastructure Issues: some Airports have expressed frustration that an “equality” approach is being taken without regard to the availability of current facilities and infrastructure and therefore scarce federal dollars are being squandered. There were two specific issues of note that have been raised by industry during this assignment: Nav Canada charges (specifically terminal charges for cargo aircraft); and infrastructure investments.
- ✓ In the case of Nav Canada charges, the current level of Terminal Charge has a significant impact on the ability of Canadian airports to compete with airports in the US for technical stops and cargo services. For instance, if an aircraft was to stop in Winnipeg, Vancouver or Anchorage the charges would be as shown in Exhibit VIII-1. A B747 would pay up to a 58% premium to land in Winnipeg.

Exhibit VIII-1.

Fees & Taxes for Airplane Landing at:		Anchorage	Winnipeg	Vancouver
B747-400F	Landing Fees	\$1,102	\$3,540	\$1,929
	Cargo stand/Parking	\$358	\$83	\$0
	Fuel Airport Surcharge (1)	\$773	\$0	\$0
	Full Fuel Load Cost	Commercially Confidential - N/A		
	Federal Excise Tax (1)	\$6,989	\$4,337	\$4,337
	State/Provincial Fuel Tax (1)	\$0	\$3,469	\$2,168
	Fuel Taxes - Total	\$6,989	\$7,806	\$6,505
	ANS Fee (Int'l)	\$0	\$3,141	\$3,141
	TOTAL	\$9,223	\$14,571	\$11,575
	Differential	0%	58%	26%
(1) Tax and Surcharge estimate based on full fuel load				

- ✓ Federal Gateway and Corridor Initiative investments are perceived as having been made in road, rail and port infrastructure. If considered at all, many in industry consider that the air mode is the “poor relation” of this group. Many also link this inequity to the issue of federal rents paid by Airports.

CASE STUDY 7: Martinair Application for Extra-Bilateral Authority

Martinair applied to the CTA to operate up to two all-cargo flights per week on the Amsterdam to Toronto route, and beyond Toronto to points in the US, with fifth freedom traffic rights beyond Toronto, and beyond Toronto to Bogota, Colombia and San Juan, Puerto Rico but without fifth freedom traffic rights during the 2007/2008 IATA winter season

Under Licence No. 975115, Martinair had been authorized by the CTA to operate a scheduled international service between the Netherlands and Canada in accordance with the 1989 Agreement between Canada and the Netherlands.

Route 1 of the Agreement provides for the operation of services beyond Montréal, but not beyond Toronto, on the route Netherlands - Montréal - New York, New York - points in the United States of America to be named by the Netherlands - Mexico City and vice versa. Further, the Agreement provides for the exercise of fifth freedom rights on Route 1 between Montréal and Houston and between Montréal and Orlando.

Route 2 provides for the operation of services between the Netherlands and Montréal and/or Toronto and/or Halifax and/or Ottawa and vice versa but does not provide for services beyond.

The Agreement does not authorize an airline designated by the Netherlands to provide a scheduled international all-cargo air service to Toronto in combination with points in third countries. In addition, fifth freedom traffic beyond Toronto to points in the US is not permitted under the Agreement.

Due to the extra-bilateral nature of Martinair's requested authority, the Agency advised Air Canada and Air Transat, the Canadian air carriers designated to serve the Netherlands.

Air Transat indicated that it did not object to the application, provided that fifth freedom rights are not extended to the Bogota/San Juan operations.

Air Canada stated that Martinair has requested and been granted extra-bilateral rights to operate cargo flights beyond Toronto to points in the United States of America, without fifth freedom rights. In this application, however, Martinair proposed to add fifth freedom rights on the Toronto - Los Angeles sector in addition to operating to an additional point beyond Toronto, namely Bogota.

Air Canada noted that these particular applications were based on specific requirements for unique shipments that, according to Martinair, could not be accommodated by other carriers. The airline further stated that as the Toronto - Los Angeles market has competition from many air carriers, in addition to intermodal services, the granting of this unreciprocated, extra-bilateral request would provide Martinair with a traffic right of significant value.

Air Canada opined that these rights should be negotiated under the Air Transport Agreement between Canada and the Netherlands. It also notes that Canada and the European Union are about to embark on negotiations and that matters involving new rights should be negotiated during these talks.

Specific Air Cargo Security Issues

- ✓ For the most part, industry is supportive of appropriate security, although it remains concerned about the cost and the lack of certainty, particularly in terms of infrastructure investments. The Canadian industry is keeping a weathered eye on developments in the US, which gives it both optimism and concern.
- ✓ On the positive side of the ledger, industry understands that assurance of air cargo security is important and could be a significant benefit in terms of assurance to its customers concerning the integrity and tracking of its cargo. There are on-going concerns about the cost of full cargo screening, who will bear those costs, how cargo screening will be implemented and the effect on the logistics chain.
- ✓ It is generally acknowledged that about 88% of air cargo in the US is in dedicated all cargo aircraft and the rest is carried in passenger aircraft. In Canada, the percentages are reversed. Part of the reason is the restrictions on mail carriage in the US since 9/11.
- ✓ In August 2007 the US implemented the recommendations of the 9/11 Commission which recommended that 100% of the cargo carried by passenger aircraft be screened.
- ✓ TSA has until August 2010 to implement a system – with defined stages along the way – to establish a 100% screening system which is “... comparable to passenger baggage screening”.
- ✓ Screening will be at the “piece” level (which creates difficulty for many in the logistics chain) and TSA has stated that a single point of screening (say at the airport) will not be feasible. As such TSA has established the Certified Cargo Screening Program (CCSP) and associated Facility (CCSF) program and anticipates these off-airport facilities will enable shipments to be consolidated. Generally they are looking to match the UK’s achievement of 50% cargo screened off-airport.
- ✓ Carriers are looking for certainty and for the most part support the current thrust of TC’s evolving approach to cargo security as it relates to transportation on passenger aircraft, that is known shipper, “certified” shipper (self security screen), but concern continues in terms of the cost-burden and a precise level of definition of what level of screening will be required.
- ✓ The US cargo industry, while generally supportive of the new DHS cargo security rules, are working through TSA to move away from individual shipment screening (which may be as small as one box) to full pallet and whole container screening as the technology is commercially available and deployed. The industry is keen to develop alternatives to physical screening where possible to minimize the cost and operational implications. For instance, current high-capacity EDS equipment is limited to screening 900~1,200 pieces per hour but the integrators typically process 25,000~100,000 pieces per hour during their peak period which implies one facility having to accommodate 100 such machines with the attendant level of investment.
- ✓ Freight Forwarders generally oppose putting the onus on the third party transport provider to police the cargo and do the cargo screening – traditionally it hasn’t been their role– and are lobbying that that should within the purview of the shipper or the manufacturer. In many ways they are looking for a policy similar to that of the EU “authorized economic authority” – where the activity is pushed down to shipper level.

Cargo Pre-clearance and Other Border Issues

- ✓ One of the major complaints heard on the “other” issues is that of slow clearance which reduces the value of the time bought by shippers in using the air mode. For instance, while the new “Canada-USA Open Skies” Agreement was generally welcomed, the two border service agencies (US & Canada) and both putting in requirements that effectively annul the facilitation benefits of the new agreement. Not only are their processes time consuming, they are also different, in terms of clearance documents and definitions (for instance what constitutes a low-value shipment).
- ✓ Simplification and unification of clearance is sought and the example of the passenger-NEXUS immigration procedure used as an example of what could be achieved given the political will: the passenger with a NEXUS card is not necessarily aware of what is happening in the background, in terms of different data requirements for the sovereign immigration agencies involved, but when he/she presents themselves at the border the process is identical independent of whether they are entering Canada or the USA.
- ✓ Lack of consistency in the application of the CBSA rules are creating competitive issues: for instance, inbound cargo can be cleared at authorized trucking facilities up to five-miles from Toronto-Pearson’s airport boundary, but anecdotally the same approval has not been available in Winnipeg.
- ✓ Enhanced security has created some un-anticipated benefits, and some Canadian air cargo carriers have said that the requirement for delivering the manifest to the US Border Security Agency before wheels up has resulted in the benefit of clearance en-route, allowing the majority of shipments to be released on landing.

IX. STRATEGIES TO SUPPORT AIR CARGO DEVELOPMENT

Key Drivers

From a review of the current and forecast Canadian and global air cargo markets, it became apparent that:

- ✓ There are many opportunities emerging based on rising trade flows between Asia and North America. There is an urgency for action to capitalize on these opportunities: once trade patterns are set for these emerging economies it will take significant effort to change them.
- ✓ There is a need to understand clearly the business drivers – such as the human and financial capital, infrastructure, planning and immigration issues - the changing economic potential of the emerging economies and the overall potential for Canada to capture a part of the air cargo opportunity it represents, both in terms of supporting general Canadian economic activity or growing the Canadian air cargo sector.

Strategic Themes

Over the course of this assignment, Jacobs Consultancy encountered a number of themes, concerns and opinions about the state of the air cargo industry and the ways and means to improve it. A number of issues were investigated that need to be considered in developing policies to support the development of the Canadian air cargo industry, including:

- ✓ Globalization of manufacturing and outsourcing needs efficient air cargo systems to be effective: this factor supports a continuing expansion in the industry.
- ✓ Global trends of logistics network restructuring, and repositioning of regional and/or local distribution centres are taking shape, and Canada needs to take full advantage of the opportunities being presented.
- ✓ Increase in transshipment cargo and competition among airports and jurisdictions over where those flows will occur.
- ✓ Increasing role of airports in global supply chain management and logistics network structures.
- ✓ The high cost of developing air cargo infrastructure.

Conditions for Success for an Air Cargo Hub

A combination of factors needs to be in place to achieve success, including but not limited to:

- ✓ Proximate location to major global trade routes.
- ✓ Efficient and productive facilities that support quick turnaround times.
- ✓ Reasonable costs.
- ✓ Existence of logistic clusters supporting value-added logistics activities.
- ✓ Advanced information technology and data interchange.

- ✓ Intermodal infrastructure – access to rail and road distribution networks.
- ✓ Geographical location close to markets producing large cargo volumes.

Transport Canada's air cargo initiatives need to be strategic. To effectively meet that aim, stakeholders highlighted the need for policy initiatives that:

- ✓ **Emphasize Canada's economic interests:** TC's policies need to reflect the wider economic impact of Canada's air cargo industry to determine priorities, content and approach to future bilateral and Open Skies agreements. Globalization means that the interplay of design, development, manufacture and delivery needs effective logistics to support it, and that air cargo remains one of the best facilitators of this new diverse and yet integrated production process. However, it was felt by a number of stakeholders that air cargo is often seen as a secondary consideration in any trade or air agreement negotiation. The greater economic interests of Canadians require the most open air cargo agreements with the widest potential array of countries – bi-laterally and multi-nationally – which could be distinct and different to the passenger-based agreements:
 - De-link all-cargo from passenger service air policy issues; and
 - Increase partnerships with local community and other government organizations on issues such as customs and pre-clearance.
- ✓ **Address identified barriers and target effective solutions:** a number of specific barriers to realizing the air cargo market potential have been identified. These include:
 - Tendency for government to both attempt to pick winners, and “spread the gain”. This was summed up as an “equity versus excellence” approach to policy and economic development;
 - Lack of true Open Skies Agreements in terms of depth of the agreements, and the number of them;
 - Need for greater support for the industry in terms of infrastructure investments from all levels of government rather than relying solely on the current infrastructure providers. Allocation of airport rent receipts was articulated as one approach to promote success;
 - Nav Canada's current fee structure encourages carriers to overfly Canada, rather than land in Canada: even with \$100 oil it is still cheaper to overfly to a US Gateway. However, it is recognized that Nav Canada is a non-government entity and a philosophical change in the way that the entity develops its rate structure would be required; and
 - Resolve the data issue for government, industry and communities. Lack of credible data still results in sub-optimal performance.
- ✓ **Champion efficient and effective logistics:** It was clearly understood that potential transportation and trading partners were at different stages of development and that different approaches would be required. There is concern that Canada talks expansively about its competitive advantages, but needs to follow through, both in the public and private sectors:

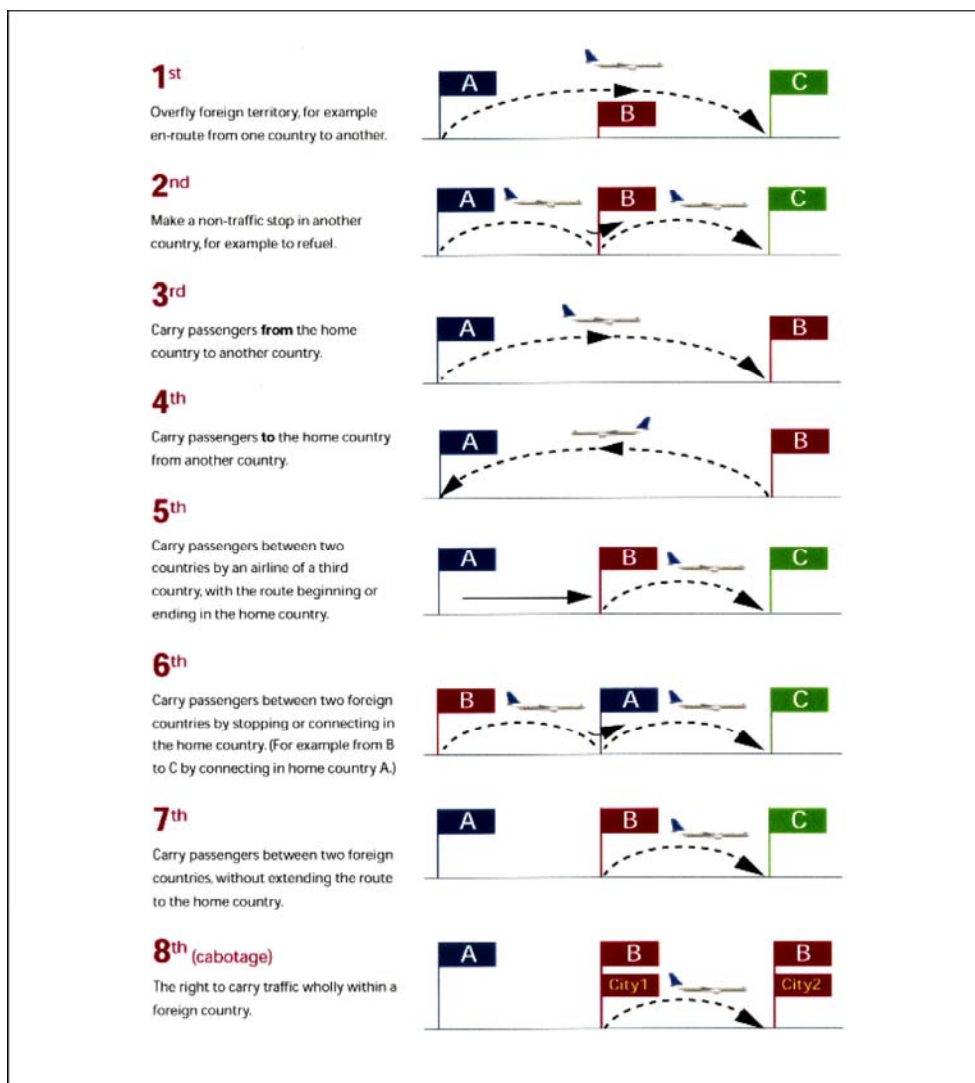
- Support air cargo's inclusion in developing federal gateway initiatives while recognizing the key industry success factors; and
- Facilitate introduction of information technology such as EDI and e-commerce.
- ✓ **Promote Action:** Stakeholders were concerned that policy reviews needed to be action oriented. Specific priorities highlighted included:
 - Comprehensive and unilateral implementation of the federal government's Blue Skies initiative with respect to air cargo;
 - I. Reemphasize the benefits of free trade and the part that effective and efficient logistics networks play in their realization;
 - II. Recognize that the economic and social benefits of air cargo liberalization are very much wider and different from those attached to passenger service, and move forward on cargo liberalization in advance of air passenger liberalization, recognizing the multiple issues with the latter;
 - III. Promote air cargo liberalization to remove restrictions on reciprocity, national carriers, co-terminalization, beyond rights, etc; and
 - IV. Prioritize Open Skies negotiations to those markets that are significant trading partners and open to change;
 - Measures to invigorate and implement duty and tax free zones, cargo transshipment and cargo preclearance systems;
 - I. Develop cargo pre-clearance with the United States;
 - II. Implement cost-effective and streamlined cargo security processes;
 - III. Introduce an effective free trade zone regime; and
 - IV. Support winning business plans that are supported by the market;
 - Create effective federal support programs to implement public-private efforts to support an effective air cargo industry;
 - I. Develop a transportation strategy that optimizes use of available aviation infrastructure;
 - II. Develop intermodal infrastructure; and
 - III. Prioritize institutional structures that will enhance successful outcomes for communities, supporting the development of air cargo gateway, trade zone and corridor infrastructures;
 - Enhance education and international research programs in air cargo issues.

APPENDIX A

FREEDOMS OF THE AIR

FREEDOMS OF THE AIR

With regard to scheduled commercial air transport services, the Chicago Convention accord defined the right to operate commercial services into, from or within a foreign nation by creating five specific operating rights⁴⁶.



The first two freedoms are also often termed “transit rights.” As an outgrowth of the Chicago Convention, many member nations of the ICAO (which was created at the Chicago Convention) signed the 1944 International Air Services Transit Agreement, which granted these two transit rights on a multilateral basis to all other signatories. The latter three freedoms of the air are also often referred to as “traffic rights” because they outline rights related to the commercial traffic of passengers and cargo.

These five freedoms of the air became the basis for bilateral aviation agreements between nations for decades following the Chicago Convention. The fifth freedom has typically been the main bargaining point between and among states that exchange commercial air service rights with one

another.

More than 50 years after the Chicago Convention, in 1996, ICAO identified, but did not officially recognize, four additional freedoms of the air: These “so called” freedoms are typically not covered in bilateral aviation agreements between nations, but are supplementary terms that may be attached to the main agreements.

⁴⁶ *Manual on the Regulation of International Air Transport* (Doc 9626, Part 4).

First Freedom of the Air - the right or privilege, in respect of scheduled international air services, granted by one State to another State or States to fly across its territory without landing (also known as a **First Freedom Right**).

Second Freedom of the Air - the right or privilege, in respect of scheduled international air services, granted by one State to another State or States to land in its territory for non-traffic purposes (also known as a **Second Freedom Right**).

Third Freedom of The Air - the right or privilege, in respect of scheduled international air services, granted by one State to another State to put down, in the territory of the first State, traffic coming from the home State of the carrier (also known as a **Third Freedom Right**).

Fourth Freedom of The Air - the right or privilege, in respect of scheduled international air services, granted by one State to another State to take on, in the territory of the first State, traffic destined for the home State of the carrier (also known as a **Fourth Freedom Right**).

Fifth Freedom of The Air - the right or privilege, in respect of scheduled international air services, granted by one State to another State to put down and to take on, in the territory of the first State, traffic coming from or destined to a third State (also known as a **Fifth Freedom Right**).

ICAO characterizes all "freedoms" beyond the Fifth as "so-called" because only the first five "freedoms" have been officially recognized as such by international treaty.

Sixth Freedom of The Air - the right or privilege, in respect of scheduled international air services, of transporting, via the home State of the carrier, traffic moving between two other States (also known as a **Sixth Freedom Right**). The so-called Sixth Freedom of the Air, unlike the first five freedoms, is not incorporated as such into any widely recognized air service agreements such as the "Five Freedoms Agreement".

Seventh Freedom of The Air - the right or privilege, in respect of scheduled international air services, granted by one State to another State, of transporting traffic between the territory of the granting State and any third State with no requirement to include on such operation any point in the territory of the recipient State, i.e. the service need not connect to or be an extension of any service to/from the home State of the carrier.

Eighth Freedom of The Air - the right or privilege, in respect of scheduled international air services, of transporting cabotage traffic between two points in the territory of the granting State on a service which originates or terminates in the home country of the foreign carrier or (in connection with the so-called Seventh Freedom of the Air) outside the territory of the granting State (also known as a **Eighth Freedom Right** or "consecutive cabotage").

Ninth Freedom of The Air - the right or privilege of transporting cabotage traffic of the granting State on a service performed entirely within the territory of the granting State (also known as a **Ninth Freedom Right** or "**stand alone**" cabotage).

Source: *Manual on the Regulation of International Air Transport* (Doc 9626, Part 4)

APPENDIX B

EXPORT DISTRIBUTION CENTRES (EDC)



700 - 9990 Jasper Avenue,
WORLD TRADE CENTRE EDMONTON
Edmonton, Alberta Canada T5J 1P7
tel 780.426.4620 fax 780.424.7946

Foreign Trade Zone Policy

Background:

Foreign-Trade Zones (FTZ)

According to the U.S. foreign-Trade Zone Board, a foreign-trade zone is a defined physical area within the United States that, for customs purposes, is treated as if it is outside U.S. borders. FTZs are often at ports, airports, or industrial parks. Companies may use FTZs for both storage/distribution activities or, after specific approval by the U.S. FTZ Board, for manufacturing. In the U.S., FTZs may be oriented entirely or almost entirely towards trade, or may permit or encourage some degree of value-added activity. Additionally, products manufactured or value-added in a FTZ can later be sold domestically or re-exported. Finally, FTZs may be defined strictly geographically with restricted access, fences and guards, or defined instead by the firms registered under the program.

The “zone” notion is both appropriate and misleading. While there are hard boundaries to these zones, they are not necessarily confined to a contiguous space. For example, six locations spread among four cities make up the Minneapolis-St. Paul FTZ and include such sites as the airport, two industrial parks and the Minneapolis Convention Center. Importantly, the FTZ program also allows individual firms to receive special “sub-zone” designation, whereby FTZ rules apply at an existing firm location.

The 67th annual report of the Foreign-Trade Zones Board to the Congress of the United States, reported that in 2005, the combined value of shipments into general-purpose zones and subzones totaled \$410 billion, compared with \$305 billion the previous year. Of this, general-purpose FTZs received \$69 billion in merchandise, while subzones received \$341 billion worth of shipments – 83 percent of zone activity took place at subzone facilities, which is consistent with the pattern over the past 15 years. Finally, approximately 340,000 persons were employed at some 2,500 firms that operated under FTZ procedures during the year.

FTZs have exhibited strong growth and economic success throughout the world. There are currently more than 500 distinct FTZs worldwide, a number that have more than tripled in the past 30 years. In the United States alone, there are nearly 250 general purpose FTZs in addition to over 460 sub-zones in all 50 states and Puerto Rico.

Whether a general FTZ or subzone, the program has been designed to give U.S. firms a financial incentive for value-added manufacturing and processing by allowing them to source low-cost materials from outside the U.S. for incorporation into final products. This arrangement helps to level the playing field with international low-cost competitors.

Export Distribution Centre (EDC) Program

There are currently no FTZs in Canada. The closest parallel to an FTZ in this country is a combination of the Export Distribution Centre Program and the Duty Deferral Program. The Duty Deferral Program was introduced in 1996 to provide relief for re-exported goods, and deferral of duties on goods bound for the domestic market. This program helps to alleviate the impediments to trade caused by duties. However, duties are not the only impediment to trade, as the GST still has to be paid on imported goods, even if they are to be re-exported. In fact, as duties are reduced or eliminated through trade liberalization, the tax component has become more of an impediment.

The Export Distributions Centre (EDC) Program was created in 2001 to complement the existing Duty Deferral program and approximate FTZ advantages for eligible companies. The EDC Program allows for the relief of GST (or HST) on goods imported into Canada, and on inputs used to process those goods, provided that the goods are subsequently re-exported. However, the types of activities allowed under the EDC program are more restrictive than those in U.S. FTZs. For example, while activity in FTZs is unrestricted and can include all forms of manufacturing and other value-added activity, the EDC Program limits the amount of value-added activity that can occur.

Specifically, to be eligible for an EDC certificate, a company must apply to the Minister of National Revenue and meet the follow three criteria during a given year: the company will not substantially alter the property; company revenue from exports must be at least 90 percent; and the company engages in only limited amounts of value-added activity (generally speaking, the limit is 10 percent of the final value of goods). As a result, companies that engage in significant value-added activity are not eligible to use the EDC Program. As of September 2004 only 30 companies had used the EDC Program and only 12 accessed the Duty Deferral Program.

In 2005, a transportation and tourism consulting group evaluated the EDC Program to determine why it has not been more fully utilized. Their analysis has led to the following shortcomings of the EDC program in Canada:

Lack of an 'operator' concept:

The EDC and Duty Deferral programs are defined by the companies that are registered to use them, rather than a defined geographical area. This has been cited as an advantage of the program because it does not restrict goods and activities to certain locations, making it more convenient for the company. However, this means that every company that wants to use the EDC and related programs must apply individually and is responsible for the related paperwork and other regulations. As a result, smaller companies and occasional users may find the program time consuming and expensive to administer.

An operator concept would allow smaller users to benefit if an operator (such as an airport) was registered under the program and its certificate allowed smaller users to operate under the umbrella of the airport's program.

Restrictions on value-added activity:

The EDC program is available only to companies that engage in limited amounts of value-added activity. This is substantially different from FTZs in the U.S.

Applicability to re-export only:

While U.S. FTZs provide advantages for both re-export and eventual entry to the domestic market, the EDC program only benefits re-export. Companies that serve the domestic market to a significant extent (10 percent of revenues or more) are not eligible for the program even for the part of their business that is based on foreign exports. Thus, companies that distribute products or perform services for the entire North American market are likely to fail this requirement.

Failure to develop the 'single-window' concept:

The EDC Program was intended to be a streamlined approach, so that even though the 'EDC' program entailed a myriad of programs behind the scenes, a single application form would be all that is required. However, the single window concept, as well as proposals to streamline the Duty Deferral and EDC programs, appears to have been sidelined and in particular have been made more complicated by the division of the Canada Customs and Revenue Agency into the Canada Revenue Agency (CRA) and Canadian Border Services Agency (CBSA). Now, any user that wants to utilize both the EDC Program and the Duty Deferral Program must apply separately to each respective department.

Complicated customs and program requirements:

Canadian customs require goods to be tracked and documented at every step, from when they are imported into the country until they enter the domestic market or are re-exported. This can involve a number of separate steps, each of which may require the use of a customs broker, which adds costs. Furthermore, any special circumstances with a shipment may require obtaining clearance directly from customs before proceeding. Complicating this even further is the fact that there are a number of different tax and duty relief programs which may apply alone or be used in combination, thus affecting the requirements and documentation needed. Although the U.S. FTZ program requires a similar level of documentation, it is bundled in a single window system common to all users.

Lack of government promotion:

Since the program has been introduced, there has been little done in terms of formal promotion or publicity by the federal government and the various departments and agencies responsible for the programs. No brochures or other promotional materials have been produced to foster awareness of the program and information is even difficult to obtain for those who are actively seeking it. This difficulty has been exacerbated by the split of the CCRA into the CRA and CBSA.

Limited awareness of the program among government trade officials:

Program promotion is further hindered by the lack of awareness of the program by government officials not directly involved in its administration. In fact, InterVISTAS contacted several trade and investment officials at overseas embassies and consulates and found that most were not aware of the program when contacted, and could therefore not be expected to promote the program to foreign firms which might be interested in its benefits.

Lack of industry awareness:

The program is of particular use to companies primarily concerned with distribution, import/export, and limited value-added activity, so it would be expected that industry organizations representing these industries would be interested in promoting the program or informing their members about the potential benefits. Research found that this is simply not the case.

Timing issues:

Canada has been comparatively late in introducing legislation allowing FTZ-like powers. It is the last of the G-8 nations to allow these powers, and was behind a number of OECD and developing nations. By the time Canada introduced EDC legislation, FTZs elsewhere had already seen impressive growth, with Canada missing out on the momentum. Furthermore, the EDC Program and related enhancements only became effective in June 2001. The terrorist attacks on September 11, 2001, caused significant setbacks for the new program. The negative economic impacts of the attacks to the transportation sector were compounded by shifts in the attention and budgetary resources of border agencies towards security, with far less attention to facilitating trade.

Overall, the Government of Canada's policies and programs with respect to Duty Deferral and Export Distribution Centers have failed to produce the intended results leaving Canada very uncompetitive in the world of value-added trade activity.

Therefore, the Edmonton Chamber of Commerce Recommends that the Government of Canada:

- Optimize the existing Duty Deferral program and structure, and immediately enact legislation to replace the EDC Program with a well published and easily accessed FTZ program equivalent to programs available in Europe and the U.S.

APPENDIX C

GREENHOUSE GASES AND THE AIR CARGO INDUSTRY

GREENHOUSE GASES AND THE AIR CARGO INDUSTRY

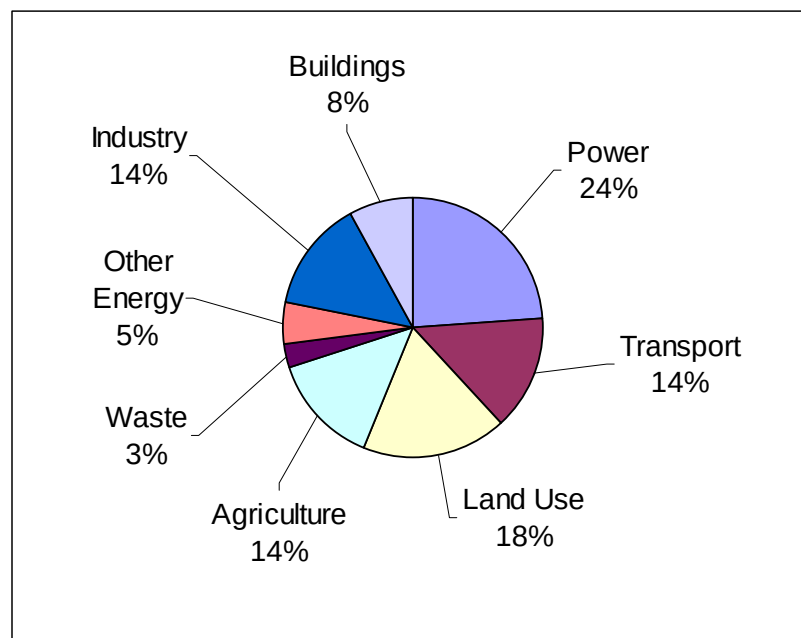
Introduction

Aviation is increasingly being singled out as a major source of greenhouse gas (GHG) emissions, a significant contributor to global climate change, and a source of air pollutants.

This précis is based on extensive research undertaken for the Air Transport Association of Canada⁴⁷.

International Perspective

In 2000, GHGs from the transportation sector accounted for 14% of global GHGs making it the third largest source jointly with agriculture and industry as shown in Exhibit II-1. Power generation accounted for 24% of the GHGs and changes in land use accounted for 18% of global emissions.

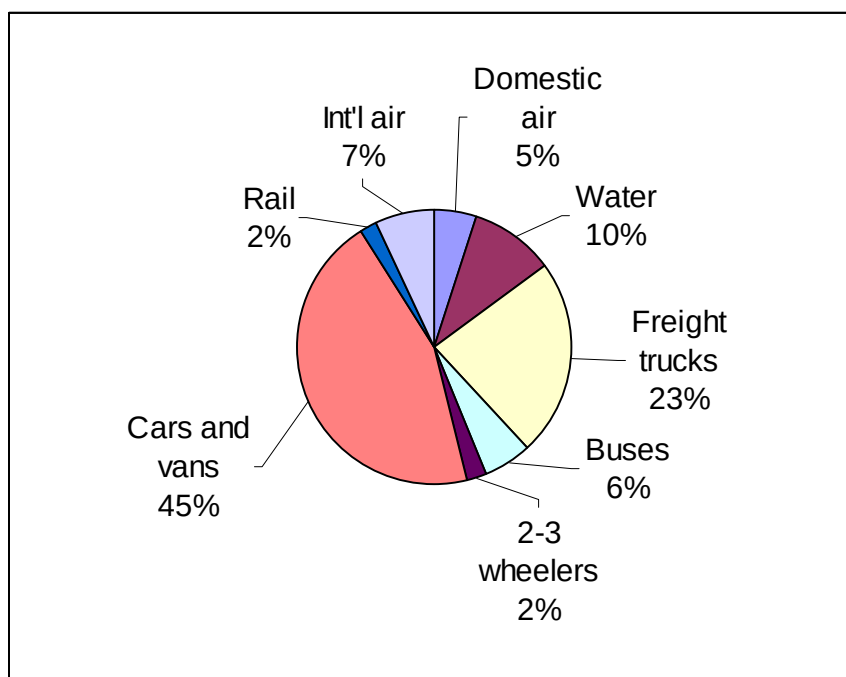


Source: Stern Report

Exhibit II-1. Global Sources of GHGs (2000)

Road transport, as shown in Exhibit II-2, accounted for 76% of the transportation sector's GHGs globally in 2000. Domestic air transport (within a country's boundaries) was 5% of total transportation GHGs while international air transport accounted for 7%. In total, aviation contributed about 1.6% of total global GHG emissions which were 42 Giga tons (42,000 Mega tons) (Stern, WRI 2006). According to the Stern Report total GHG emissions are expected to grow to about 61Giga tons by 2030.

⁴⁷ Canadian Aviation and Greenhouse Gases: a Literature Review, Jacobs Consultancy, October 2007.



Source: Stern Report

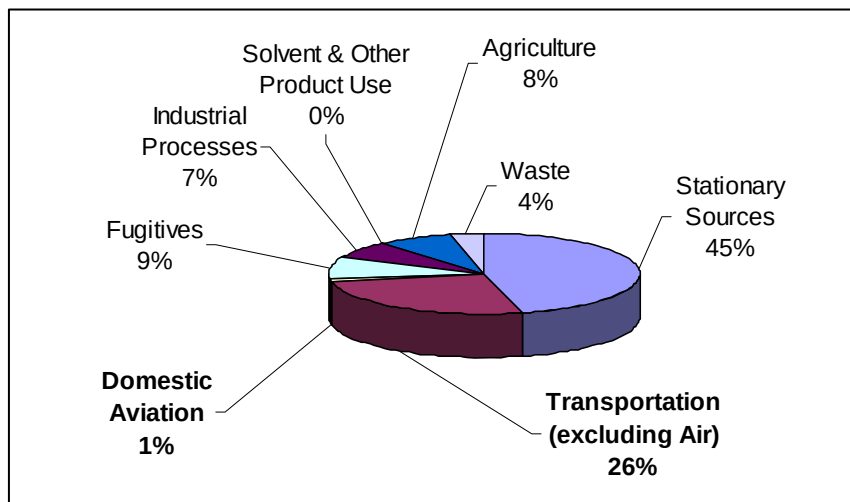
Exhibit II-2. Global GHG Emissions from Transportation (2000)

GHG from Aviation Activity in Canada: Federal Government Estimates

The official source of GHG inventories in Canada is Environment Canada's National Inventory Report, Greenhouse Gas Sources and Sinks in Canada, 1990 to 2005 which is updated yearly. Environment Canada follows the United Nations Framework Convention on Climate Change reporting guidelines for national inventories which incorporate the methodological Good Practice Guidance that has been developed by the Intergovernmental Panel on Climate Change (IPCC). According to the reporting guidelines, for aviation, Environment Canada only includes emissions from domestic air transport (commercial, private, military, agricultural, etc.). Excluded are emissions from fuel used at airports for ground transport (which is reported under other transportation (off-road)) and fuel used in stationary combustion applications at airports.

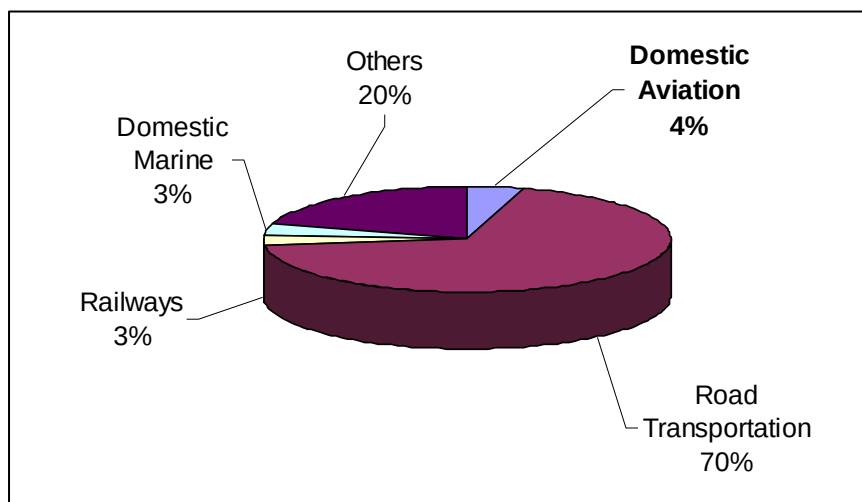
Emissions from international flights are designated as "Bunker" emissions and are not included in national inventory totals. International aviation was excluded from the Kyoto Protocol on the condition that by the end of 2007, countries and airlines would work through ICAO to come up with ways of reducing emissions.

In 2005, total GHGs in Canada were 747 Mega tons (Mt). Transportation accounted for 27% of the total GHGs (200 Mt) in Canada as shown in Exhibits III-1. Domestic aviation accounted for 4.4% of transportation GHGs (8.7 Mt) and 1.2% of total Canadian GHGs as shown in Exhibit III-1 and III-2. Road transportation such as gasoline and diesel automobiles, trucks and off-road vehicles were by far much larger contributors to GHG emissions accounting for 70% of transportation emissions. (Environment Canada 2007)



Source: Environment Canada Inventory Report

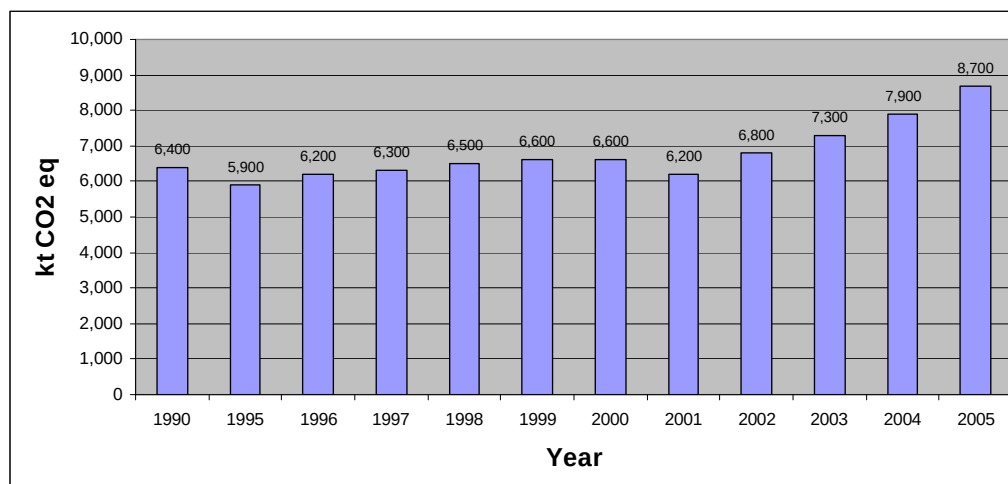
Exhibit III-1. GHG Sources in Canada



Source: Environment Canada Inventory Report

Exhibit III-2. Transportation GHGs in Canada

As shown in Exhibit III-3, GHGs from domestic aviation have increased by about 36% from 1990 to 2005 while aviation's growth measured in tonne-kilometres grew by about 50% over the same period. (Transport Canada Assumptions Report, 2006-2020)



Source: Transport Canada Assumptions Report

Exhibit III-3. Growth in Domestic Aviation GHGs

Aviation's share of GHGs in Canada has not changed substantially since 1990 as shown in Exhibit III-4.

Exhibit III-4. Aviation's Share of Greenhouse Gas Emissions in Canada

	1990	2005
Aviation as a % of Transportation GHG	4.3	4.4
Aviation as a % of Total GHG	1.1	1.2

Source: Environment Canada's Inventory Report

The previous analysis dealt with GHGs from domestic aviation. Although not included in national GHG inventories, Environment Canada's Inventory of GHGs does include a section that estimates the contribution of international flights and is presented in Exhibit III-5. The estimates are based on fuel purchased in Canada by domestic and international airlines that are used on international (including transborder) routes. According to Environment Canada's estimates, international aviation contributed more GHG emissions to global GHGs than domestic aviation. The GHG estimates correlate reasonably well with Transport Canada's estimate of domestic and international revenue passenger kilometres (Transport Canada Aviation Forecasts). Accordingly, Canada's total aviation GHG emissions were about 0.04% of total global greenhouse gases.

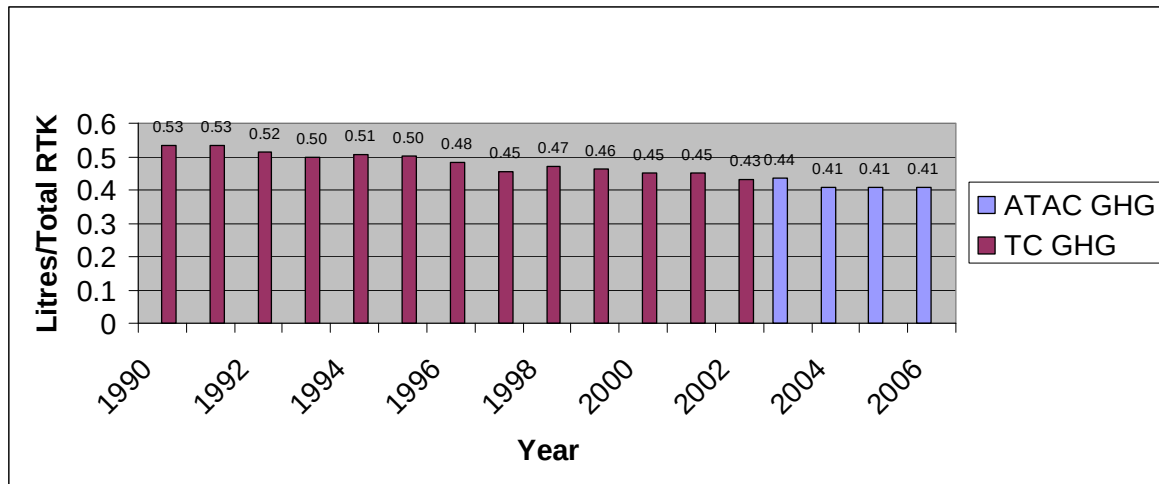
Improvements in Fuel Efficiency (Energy Intensity)

Airlines have always had a critical incentive to improve fuel efficiency given the cost of fuel is the single largest aircraft operating expense; greater than the combined labour costs for flight and cabin crews, and

maintenance workers. For example, fuel costs were reported as 50% of total operating costs for A320s in 2006; fuel costs for a CRJ 200 were 40%⁴⁸.

Internationally, aircraft fuel efficiency per revenue tonne kilometre (RTK) has improved 70% in the last 40 years (IPCC, 1999) and 20% in the last 10 years (IATA 2004) thus lowering emissions of greenhouse gases on a per unit basis.

In Canada, between 1990 and 2006, energy efficiency improved by 25%, an annual improvement of 1.68% as shown in Exhibit III-7.



Sources: Transport Canada Assumptions Report, ATAC AGERS Report

Exhibit III-7. Improvements in Energy Efficiency

Overall Conclusions

Aviation is a very small contributor to greenhouse gases (GHGs)

- Aviation in 2000 (the latest data available) accounted for 1.6% of total global GHG emissions and 12% of transport emissions whereas road transport contributed 10% of the total (600% more).
- Transport GHGs produced 14% of global GHGs and within this sector road transport's share was 76%.
- Domestic aviation contributed just 1.2% of GHGs in Canada in 2005, the same share as in 1990.
- In 2005, the Canadian transportation sector produced 26% of Canadian GHGs and within that sector, aviation contributed 4.4% while road vehicles produced 70%.
- Aviation's share of GHGs has not grown since 1990 although aviation has grown substantially.
- Internationally, Canadian commercial aviation only produced about 0.04% of global GHGs.
- Air pollution at and around airports may be an issue at some locations, although much parallel work is going on to reduce emissions from ground support equipment, buildings, vehicles, aircraft taxiing, etc.

⁴⁸ Aviation Daily, June 12, August 27, 2007

- ➔ There is a scientific concern that, despite the very low levels of GHG emissions from commercial aircraft operations, the standard cruise altitudes of those aircraft could compound the effects of their GHG profile through a process that is commonly referred to as radiative forcing. However, there is significant uncertainty within the scientific community as to the extent and relevance of this process on the overall GHG footprint of the industry. The most recent IPCC report of 2007 concluded that contrails contribute a small radiative forcing impact with a low level of scientific understanding.

The aviation industry is achieving continuous improvements in energy intensity

- ➔ Since 1990, aviation emissions have grown slower than traffic growth because of improvements in aircraft fuel (energy) efficiency.
- ➔ Internationally, energy intensity from jet aircraft has improved by 70% in the last 40 years and 20% in the past 10 years.
- ➔ In Canada, fuel efficiency (or energy intensity) has improved 25% since 1990, an improvement of 1.7% per year.
- ➔ In a voluntary agreement with the Federal Government, the aviation industry has officially committed to improve energy intensity by 24% between 1990 and 2012. The industry will exceed this target and expects to achieve a 30% improvement in energy intensity by 2012.
- ➔ In comparison, there is no evidence to suggest that other modes of transportation such as light duty motor vehicles or the passenger railways have made substantial improvements in energy intensity.
- ➔ The aviation industry in Canada has identified a number of operational and technical improvements that will continue to improve its energy intensity:
 - Air traffic management;
 - Aircraft and airport operating efficiencies; and
 - Aircraft design and engine technologies.

Intermodal comparison indicate that:

- ➔ Aircraft emit substantially lower GHGs per passenger than automobiles for medium and long distances.
- ➔ On short distances, such as Toronto-Ottawa, aircraft emit substantially lower GHGs per passenger when there is only one person in an automobile and aircraft emit somewhat more GHGs per passenger when there are two people in an automobile.
- ➔ GHGs per revenue passenger kilometre from passenger railways do not provide distinct advantages compared with Canadian aircraft.
- ➔ Canadian industry has not improved energy intensity as much as aviation since 1990 (9% versus 25%).

Economic instruments are being proposed as part of a “stick and carrot” approach to GHG reduction

- ➔ Many, such as Stern and the IEA, have concluded that market based instruments are required to mitigate the environmental impacts of aviation’s growth and that technology improvements alone will not be sufficient.
- ➔ Priced-based charges would not necessarily reduce GHGs and would likely be used as general tax revenue as witnessed by recent developments in Europe.

- ➔ Emissions cap and trading schemes promise the potential to reduce emissions at lower cost than price-based charging or regulation of emissions limits.
- ➔ The development and implementation of cap and trading schemes faces many legal, jurisdictional and administrative hurdles.
- ➔ Canada will not be able to go it alone in cap and trading schemes, an international scheme will be required.
- ➔ All market based instruments will increase the costs of air travel.
- ➔ Many airlines are supporting carbon offset programs but there is concern about choosing carbon offset companies and the usefulness of GHG reduction projects.

Improvements in technology and operations can improve aviation emissions

- ➔ Internationally, improvements in air traffic management, operational efficiency and aircraft technology have been identified.
- ➔ ATAC, NAV Canada and the aviation industry have identified a wide range of operational improvements and technological upgrades that should result in a targeted 1.1% reduction in GHGs per year until at least 2012.

Canadian aviation will continue to be a small GHG contributor

- ➔ The IEA forecasts that GHGs from aviation globally will increase by 90% by 2030 unless policy options such as emissions trading, modal shifts and fuel taxes are implemented. Even with these assumptions, GHG growth was estimated at 76%.
- ➔ International growth in aviation GHGs will be the fastest in non-OECD countries (150%) compared with OECD countries (60%) to 2030. For example, capacity growth is estimated at 8.1% per year for China and only 3.4% per year in North America.
- ➔ Aviation GHG growth in Canada to 2030 is forecast at about 80%. Canadian aviation's share of global GHGs could grow from 0.043% to about 0.054% - still a small source of GHGs.

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APPENDIX D

STAKEHOLDERS CONTACTED

STAKEHOLDERS CONTACTED		
Organization	Person	Position (where known)
FedEx	Kevin Ackroyd Karen Cooper	Manager, International Feeder Network Corporate Communications
All Canada Express (for UPS domestic)	Ciril Iskara	Canadian Air Operations
UPS (US flights)	Tom Foote	
Air Canada Cargo	Gerry Simpson	Director, Cargo Management
Cathay Pacific	Stephen Wong	VP Americas
Air Bridge Cargo	Andrew Morch	Vice President
Cargojet	Gord Johnston	VP International and Strategic Alliances
Purolator	George Travassos Doug Sales	Director, Air Operations Regulatory Affairs
Canadian North	Ryan Fawcett	Director – Cargo Services
Cargolux (c/o Aeroground Calgary)	Gary Ausmus	
WestJet	John Watts	Manager
Kelowna Flightcraft	Bob Monaghan Greg Carter	Director, Strategic Development Director, Flight Operations
Martinair	Debbie Lanci	Regional Director North America
Calgary Airport Authority	Stephan Poirier Tom Kirk	Vice-President Development Director, Cargo Development
Edmonton Airports	Glen Vanstone	Director, Cargo
Halifax Airport Authority	Andy Lyall	Air Cargo Specialist
Greater Moncton Airport Authority	Stephanie Dancause-Cote	Cargo Development Officer
Aéroports de Montréal	Dan-Claudin Fratean	Cargo Planner
Prince George	Stieg Hoag	Airport General Manager
Greater Toronto Airports Authority	Mark Ruel	Director, Cargo
Vancouver International Airport Authority	Alix Li	Manager, Cargo Marketing
Winnipeg Airports Authority	Michael Rodyniuk Leslie Gavin	Executive Vice-President Director, Route Development
Canadian Airports Council – Cargo Canada	Mark Ruel	Steering Committee Chair
Federated Customs Brokers	Heather Marchand	
Livingston International	Sharon Cross	Branch Manager
	George Iserhoff	

STAKEHOLDERS CONTACTED		
Organization	Person	Position
Sea Air International Forwarders	Geoffrey Robinson	
Schenker	Eric Allard	VP International Air Freight
Canadian International Freight Forwarders Association (CIFFA)	Gary Vince	Air Freight Committee
Aeroterm	John Cammett	President & CEO
Vista Cargo	Wilma Clarke	Director
AMB/IAT	Steve Lueck	Senior VP
Canadian Association of Manufacturers and Exporters	Jean-Michel Laurin	VP Global Business Policy
European Union	Olivier Onidi	Chief Air Negotiator
Foreign Affairs and International Trade Canada	Nadir Patel	Chief Air Negotiator
Ontario Ministry of Transportation	Paul Steckham	Sr. Policy Advisor
Ministère du transport - Québec	Christine Audet	Analyste
Newfoundland / Labrador Department of Transportation and Works	Doug Shea	Transportation Planning Supervisor
Nova Scotia Department of Transportation and Public Works	Charlie Mackenzie	
PEI Department of Transportation and Public Works	Paul Godfrey	Manager Planning
New Brunswick Department of Transportation	Don Mason	Manager Air Rail and Marine Policy
Manitoba Transportation and Government Services	Gordon Tufts	Transportation Policy Consultant
Saskatchewan Highways and Transportation	Harold Hugg	Director, Northern Access, Air and Safety Branch
Alberta Infrastructure and Transportation	Sara Wong	Sr. Policy Advisor
BC Ministry of Transportation	Reg Faubert	Manager Air/Marine Policy
Yukon Department of Highways and Public Works	Peggy Godson	Manager Planning, Programming and Design, Aviation & Marine Branch
Northwest Territories Department of Transportation	P. Ben Webber	Asst. Director Airports Division
Nunavut Department of Economic Development and Transport	John S. Hawkins	Director Transportation Policy and Planning
Centre for Transportation Studies	David Gillen	Operators and Logistics Director
Grand Power Express International Ltd.	Sean Webster	VP Corporate Development
Canadian Embassy, Beijing	Pierre Pyun	Trade Commissioner
Canadian Consulate General, Hong Kong	John Zimmerman Endy Chung	Consul & Trade Commissioner Asst Trade Commissioner (Transportation)

APPENDIX E

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