



WORLD TRADE  
ORGANIZATION

# AIR TRANSPORT AND THE GATS

**DOCUMENTATION FOR THE  
SECOND AIR TRANSPORT REVIEW  
UNDER THE GENERAL AGREEMENT  
ON TRADE IN SERVICES (GATS)**

**2000-2005 IN REVIEW**

**VOLUME 1  
AUXILIARY SERVICES**



WTO Publications  
World Trade Organization  
154, rue de Lausanne  
CH-1211 Geneva 21  
Tel: (41 22) 739 52 08  
Fax: (41 22) 739 54 58  
Email: [publications@wto.org](mailto:publications@wto.org)

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This volume constitutes the first part of the documentation produced by the WTO Secretariat for the second air transport review mandated by the General Agreement on Trade in Services.

Originally contained in document S/C/W/270 dated 12 July 2006, this volume incorporates comments and corrections made by delegations orally at the meeting dedicated to the review held on 12 September 2006 and subsequently in writing, the text of the corrigenda contained in documents S/C/W/270/Corr.1 and Corr.2, as well as technical rectifications and typographical corrections.

It deals with auxiliary services.





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## LIST OF ACRONYMS

A		
	ACAC	Arab Civil Aviation Commission
	ACI	Aiport Council International
	ANSP	Air Navigation Service Provider
	ATAG	Air Transport Action Group
	ATC	Air Traffic Control
	ATCONF/5	ICAO's Fifth Air Worldwide Air Transport Conference
	ATM	Air Traffic Managment
	ATO	(US) Air Traffic Organization
	AVSEC	ICAO's Aviation Security Programme
B		
	BSP	Billing Settlement Plan
	B-to-B	Business to Business
	B-to-C	Business to Consumer
C		
	CAMO	Continuing Airworthiness Maintenance Organization
	CANSO	Civil Air Navigation Services Organization
	CASS	Cargo Account Settlement System
	CAST	Commercial Aviation Safety Team
	CCS	Cargo Community System
	CFR	Code of Federal Regulations
	CNS/ATM	Communication, Navigation, Surveillance / Air Traffic Management
	COSCAP	Cooperative Development of Operational Safety and Continuing Airworthiness Programme
	CRS	Computer Reservation System
	CUSS	Common User Self-Service (kiosks)
D		
	DCA	Direct Connect Access
	DDA	Doha Development Agenda
	DOT	US Department of Transport
E		
	EASA	European Aviation Safety Agency
	ECAC	European Civil Aviation Commission
	ERP	Enterprise Resource Planning (software)

<b>F</b>		
	FAA	(US) Federal Aviation Administration
	FAB	Functional Air Block
	FL	Flight Level
<b>G</b>		
	GDS	Global Distribution System
	GNE	Global New Entrants
<b>I</b>		
	IATA	International Air Transport Association
	ICAO	International Civil Aviation Organization
	IOSA	IATA Operational Safety Audit
<b>J</b>		
	JAA	Joint Aviation Authorities
	JAR-145	Joint Aviation (Authorities) Regulation N° 145 (approval of maintenance facilities)
<b>L</b>		
	LACAC	Latin American Civil Aviation Commission
	LCC	Low Cost Carrier
<b>M</b>		
	MALIAT	Multilateral Agreement on the Liberalization of International Air Transport
	MRO	Maintenance Repair and Overhaul
	MSG	Maintenance Steering Group
<b>O</b>		
	OEM	Original Equipment Manufacturer
<b>P</b>		
	PMA	Part Manufacturing Approval
<b>S</b>		
	SAFA	Safety Assessment of Foreign Airlines
	SARPs	Standards and Recommended Practices
	SARS	Severe Acute Respiratory Syndrome
<b>T</b>		
	TASA	ICAO's Template Air Services Agreement
<b>U</b>		
	USAP	ICAO's Universal Security Audit Programme
	USOAP	ICAO's Universal Safety Operational Audit Programme
<b>W</b>		
	WASA	World Air Services Agreement (ICAO database)



# SECOND REVIEW OF THE AIR TRANSPORT ANNEX DEVELOPMENTS IN THE AIR TRANSPORT SECTOR

## GENERAL INTRODUCTION

### **Note by the Secretariat<sup>1</sup>**

This Note has been produced at the request of the Council for Trade in Services in the framework of the second review of the Air Transport Annex. Paragraph 5 of this Annex stipulates that "the Council for Trade in Services shall review periodically, and at least every five years, developments in the air transport sector and the operation of this Annex with a view to considering the possible further application of the Agreement in this sector".

This Note addresses the economic and regulatory developments in the sector. Since the Annex provides no definition of the sector, the Note tries to encompass all aspects of air transport and air transport-related services following the model of the Secretariat document S/C/W/59 on the same subject examined during the Information Exchange Program in 1998, and of document S/C/W/163 and its addenda examined during the first review of the Air Transport Annex in 2001-2003.

In order to ensure continuity, the description of the developments will start when the documentation of the first review stopped. Hence this may be as far back as 1998 for statistical data and 1999 for regulatory data in spite of the fact that the first review ended in late 2003.

As the review is placed under the aegis of the Regular Session of the Council for Trade in Services and is procedurally distinct from the Doha Development Agenda negotiations under the aegis of the Special Session of the Council for Trade in Services, this document will abstain from reporting on references to air transport services during the meetings of the Special Session of the Council<sup>2</sup>, and from analysing offers made in the framework of the DDA negotiations.

The documentation prepared for the first review contained the description of structural elements that may be still valid for the second review, such as, for instance, the definition of the freedoms of the air. In order to avoid repetition, the Secretariat has reissued in a single booklet, with a unified numbering, the seven documents of the S/C/W/163 series, thereafter referred to as "the compilation". Systematic references to this compilation will be made throughout the text.

In order to assist Members in the analysis of the sector, possible issues for discussion are italicised and appear in frames.

Due to the comparatively shorter timeframe, the documentation for the second review does not contain as many elements on non-trade policies and does not go into as much detail on issues covered by the documentation for the first review, such as competition, environment, safety, security, consumer protection. It has, to a large extent, been re-focused on market access issues. However, should Members consider it necessary to have complementary information on those issues, the Secretariat would be pleased to produce more specific papers on those subjects.

Like for the first review, the Secretariat has used many sources: International Civil Aviation Organization (ICAO), regional and national civil aviation regulators, academics, professionals, press and web. However, the data collection, which had to be done in a shorter timeframe than for the first review, has also proven more difficult. For instance, ICAO has ceased the annual publication of the "World of Civil Aviation", a major source of already compiled and fully reliable information, notably on the regulatory developments, and has thereby ceased

<sup>1</sup> This document has been prepared under the Secretariat's own responsibility and without prejudice to the positions of Members and to their rights and obligations under the WTO.

<sup>2</sup> For an overview of these developments until October 2005, see document JOB(05)/300.

the collection of a large series of useful data. Similarly, the International Air Transport Association (IATA) has ceased the publication of its "Regulatory Affairs Review", another useful and reliable source. Consequently, the Secretariat has had to compensate this lack of data by press information, by web researches based on this press information, by contacts within the industry on a systematic basis, and by ad hoc contacts with civil aviation regulators, which have proven sometimes difficult as this could not be done with each regulator and on every subject.

These difficulties explain the patchy character of country-specific information (particularly for developing countries) and of information on specific sectors or issues, such as leasing or ancillary services. This lack of information is felt both on the economic side and on the regulatory side, but is particularly compelling on the regulatory side where apart from OECD countries virtually no information on national regulatory regimes is available.

#### Possible issue for discussion

*In view of these data collection difficulties, Members may wish to consider for this review or for the future, a more systematic data collection process based on a questionnaire addressed to each Member, as was done with great success for telecommunications and maritime transport.<sup>3</sup>*

The structure adopted for this Note is a sectoral one, sub-divided when necessary by themes. In each of the subsectors or themes, economic developments are addressed first, followed by regulatory developments. In order to facilitate the reading and for ease of cross-reference, Annexes have been added to most Chapters.

The following statistical elements<sup>4</sup> may give an idea of the economic importance of the sector under review.

The sector of aviation transports close to 2 billion passengers annually.<sup>5</sup> Forty per cent of international tourists now travel by air, and 40 per cent of intercontinental exports of goods by value and 25 per cent of all companies' sales are dependent on air transport.

The airline and airport industry directly employs 4.3 million people (2.1 million for airlines and handling agents; 330,000 for airport operators and 1.9 million jobs onsite at airports). It creates 5.8 million indirect jobs through the purchase of goods and services from companies in the supply chain, 2.7 million induced jobs through spending by industry employees, and 15.5 million direct (6.7 million) and indirect (8.3 million) jobs through its impact on tourism, which makes a total of 28.3 million direct and indirect jobs. The direct contribution of the sector to world GDP is valued at US\$330 billion in 2004 and its total direct and indirect contribution to US\$880 billion, that is to say 2.4 per cent of world GDP.

The geographical distribution of these jobs and of these shares in world GDP is summed up in Table 1.

<sup>3</sup> For a comparison, see for maritime transport documents S/NGMTS/W/2 and S/NGMTS/W/2/Add.1 to 37, and for telecommunications S/NGBT/W/3 and S/NGBT/W/3/Add.1 to 39.

<sup>4</sup> This section draws on the brochure "The economic and social benefits of air transport" published by the Air Transport Action Group (ATAG), a business coalition formed by the Airports Council International (ACI), International Air Transport Association (IATA), Boeing, Airbus, Rolls Royce and CFM, which summarizes the results of a study done by Oxford Economic Forecasting on the economic impact of air transport.

<sup>5</sup> Defined as the collection of the following services: airlines (passenger carriers, cargo carriers, airline ticketing, general aviation), airport and services (civil airports, general aviation airports, handling and catering, freight services, aircraft maintenance, fuelling-on-site and retail) and air navigation services providers, i.e. a scope similar to that of the documentation review produced for the two GATS Air Transport Reviews, with the possible exception of retail.

**TABLE 1****Employment and GDP contributions of the aviation sector – 2004**

REGIONS	Employment		GDP (US\$ million)	
	Direct	Total (including direct, indirect and induced)	Direct	Total (including direct, indirect and induced)
<b>Africa</b>				
Airport operators	21,459	56,331	816	2,141
Other on-site airport jobs	17,849	46,852	49	129
Airlines	82,562	216,725	2,851	7,485
<b>Asia-Pacific</b>				
Airport operators	102,000	267,750	8,477	22,252
Other on-site airport jobs	443,179	1,163,345	5,052	13,262
Airlines	498,613	1,308,859	32,440	85,155
<b>Europe</b>				
Airport operators	120,000	315,000	17,312	45,444
Other on-site airport jobs	377,119	989,937	12,656	33,223
Airlines	709,272	1,861,839	44,716	117,380
<b>Latin America and the Caribbean</b>				
Airport operators	19,380	50,873	1,060	2,782
Other on-site airport jobs	72,207	189,545	487	1,278
Airlines	84,250	221,156	5,237	13,748
<b>Middle East</b>				
Airport operators	28,521	74,867	1,084	2,846
Other on-site airport jobs	8,395	22,037	93	244
Airlines	127,764	335,379	3,967	10,413
<b>North America</b>				
Airport operators	42,840	107,100	10,231	25,577
Other on-site airport jobs	1,024,099	2,560,248	73,022	182,556
Airlines	544,778	1,361,944	55,672	139,180

Source: "The economic and social benefits of air transport", ATAG.

In spite of its cyclical nature and of external shocks (post 9/11, SARS, oil shock), the demand for air transport has grown steadily over the years. Passenger numbers have grown by 45 per cent over the last decade (i.e. since the entry into force of the WTO agreements), and have more than doubled since the mid-1980s. Freight traffic has increased even more rapidly, by over 80 per cent (on a tonne-kilometres basis) over the last decade and three-fold since the mid-1980s. Improvement in airline efficiency and increased competition have reduced world airfares by around 40 per cent in real terms since the mid-1970s. It is now largely recognized that liberalization, be it internal, regional, bilateral, or plurilateral, has contributed significantly to the acceleration of this movement towards greater efficiency.

## I. AIRCRAFT REPAIR AND MAINTENANCE (MRO)

### A. ECONOMIC DEVELOPMENTS

1. The maintenance, repair, and overhaul (MRO) sector has suffered greatly like the rest of the air transport industry post 9/11. After having reached a peak of US\$42.2 billion in 2001, its turnover fell to US\$33.3 billion in 2002 (US\$34.2 billion in 2003) and started to rise again only in 2004 by 2.5 per cent to US\$37 billion. Current estimates show that in 2006, the MRO market reached US\$39 billion (BACK/SAI and Aerostrategy consultancies). It should be pointed out that this MRO market estimate includes only Western built aircraft.

2. The split of the 2004 MRO turnover figure (US\$37 billion) between the various sub-sectors of maintenance is the following: engines 34 per cent, line maintenance (excluded from the scope of the GATS) 23 per cent, component overhaul 21, per cent heavy maintenance 14 per cent, modifications 8 per cent. Forecasts in a joint report by the consulting firms BACK/SAI predict very different cumulated growth rates for these segments in the next ten years: 46.5 per cent for engines, 30 per cent for line maintenance, 29 per cent for components and 25 per cent for heavy maintenance and modification. For 2014, the predicted total is US\$60 billion.

3. In terms of aircrafts three sub-sectors are expected to provide the bulk of the growth. The first one is narrow body aircrafts which are typically used by low-cost carriers. The second one is regional jets whose number has increased considerably in the aftermath of 9/11 and the ensuing reductions of capacity. The third one is the conversion of planes into cargo freighters as the cargo market was much less severely affected by the cycle than the passenger one and is still predicted to grow steadily. However, overcapacity remains at this stage in certain sub-sectors such as heavy airframe maintenance.

4. The Air Transport Annex of the GATS does not limit the sector of aircraft repair maintenance to the overhaul of *commercial* aircraft only. The MRO market is not limited to the service of commercial aircraft, but covers also general aviation and military aircraft. For these sectors, data are however more scarce. According to the consultant Aero Strategy, their inclusion would bring the total market to US\$100 billion. According to another estimate, the MRO market for the 39,000 Western-built military aircraft is US\$52 billion. This value is largely due to the older average age of the

military aircraft (23 years as opposed to 12 years), and to the level of sophistication of maintenance required. Sixty per cent of this market is located in North America and in Europe. The emergence in this sector of contracts bundling leasing and maintenance may also be noted (e.g. the future aircraft tanker market is the United States). In most instances, the outsourced military MRO is done in the form of government procurement and escapes therefore the present disciplines of the GATS.

5. A number of management tools have become available to the MRO industry and has helped in cost reduction and high quality standards; new management processes such as "Six Sigma" and "Lean Production" have been widely employed and their results can be already seen in elimination of non-value added activities, lower turn times and higher productivity gains.

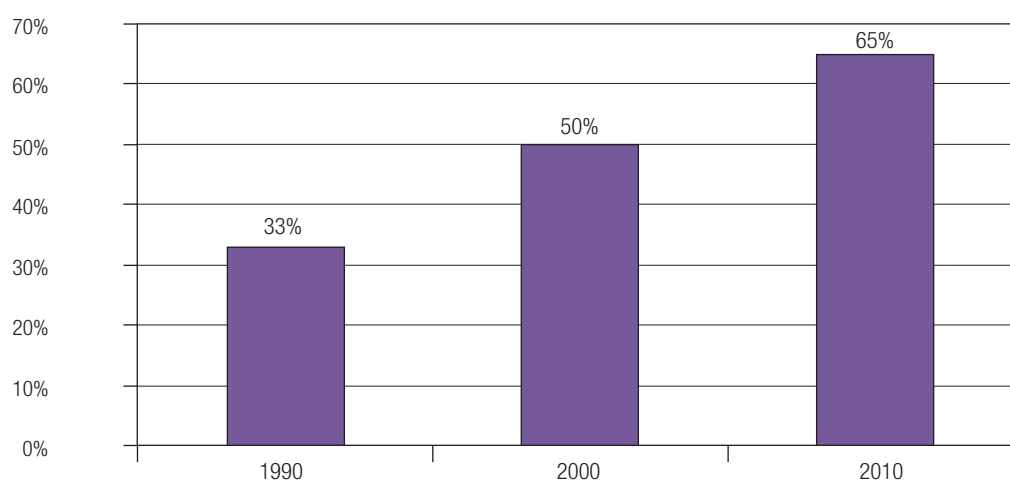
6. The market share of individual regions, in terms of customers, is the following: North America 43 per cent, Asia 18 per cent, Europe 25 per cent, Latin America 4.8 per cent, rest of the world 9.2 per cent. Forecasts, however, predict highly differentiated evolutions by 2014: North America 34 per cent, Asia 22 per cent, Europe 27 per cent, Latin America 6 per cent, and rest of the world 10.2 per cent.

7. From the customer point of view, maintenance costs represent on average 10 per cent of the operating costs. However, this figure is subject to considerable variation depending on the age of the fleet, its structure (the composite fleet of a traditional carrier has higher maintenance costs than the single-type fleet of a low-cost carrier) and the maintenance cycle. Further, when the maintenance is undertaken in-house, costs and, in particular, overhead costs are not always fully accounted. High labour costs in the European Communities and United States have been the main factor for outsourcing labour intensive work (e.g. heavy airframe maintenance) to other parts of the world (China/East Asia, Eastern Europe, Latin America). There is however a limit to that evolution. Airlines always try to keep a minimum of know-how in-house as a sort of "insurance policy" against emergency crises and as a leverage element.

8. Chart 1 indicates the evolution of the proportion of outsourced maintenance in total maintenance turnover between 1990 and 2000, and forecasts for 2010.



**CHART 1**  
**MRO work outsourced\***



\* MRO = Maintenance, Repair & Overhaul.

Source: BACK/SAI 2004.

9. If the estimate for 2010 was met, this would imply a complete reversal of the situation as compared to the early 1990s, when only one-third of maintenance was outsourced. This increases the scope of the maintenance activities covered by the GATS since it diminishes the share of in-house maintenance which is not covered. The main explanation for this evolution is the difference of cost between in-house maintenance and outsourced maintenance which is valued by the consultant BACK/SAI at between 28 and 38 per cent.

10. There are significant regional variations. In the United States, traditional carriers tended to rely strongly on in-house maintenance facilities because the size of the fleets was sufficient to produce economies of scale and the sector was strongly unionized (save for certain exceptions like Delta). Low-cost carriers such as Southwest and cargo/express companies such as Fed-Ex, whose maintenance was completely outsourced were an exception. In the aftermath of 9/11, all "legacy" carriers, save one, American Airlines, have started to outsource their maintenance on a large scale. Delta is the last of the "legacy" carriers to have made this choice in March 2005, and expects up to US\$240 million in savings; however, Delta has kept so far the engine and component maintenance capabilities largely in-house and has entered – successfully for the last 5 years – into the third party/"insourcing" business. Air Canada has chosen a different strategy, closer to that of its European counterparts, spinning off and investing in its maintenance arm (ACTS Air Canada Technical Services) so as to attract third-party work.

Only recently (2005), American has announced that it will "insource" MRO work, as a complement to its captive activities.

11. In Europe, outsourcing was traditionally stronger because many small airlines did not have fleets that could justify economically fully-fledged in-house facilities. Subsidiaries of large airlines such as Lufthansa Technik, Air France Industries and SR Technics have been looking for third-party work since the 1990s. Recent years have confirmed this trend. Alitalia and KLM have spun off their maintenance arms. SR Technics and SABENA Technics, already trained to market disciplines by third-party work, have become independent providers with the demise of their parent airlines.

12. In Asia, in-house maintenance is still a common feature, but the advent of low-cost carriers in particular is expected by consulting firms to translate into an increased share of outsourced maintenance. In addition, some Asian carriers have also spun off their maintenance arms, such as Air India with its newly created Air India Engineering Services subsidiary which has started to look actively for third-party work. Boeing and GE are actively pursuing plans to set up maintenance facilities in India, where the potential for growth is described by some observers as "explosive". In Oceania, both Qantas and Air New Zealand have reviewed their in-house maintenance facilities. Qantas announced on 9 March 2006 that it was seeking to create efficiencies through restructuring and relocating its wide-bodied engineering facilities but retaining them in Australia as



part of the Qantas Group. Its narrow-bodied facilities remain under review.

13. In most instances, airlines subsidiaries remain cost centres using third-party work to compensate part of the cost of maintaining their parent airlines. Lufthansa Technik, which has a fully profitable third-party business, is an exception in this respect.

14. Three types of maintenance providers are sharing the market:

- original equipment manufacturers (OEM) - mainly engine manufactures, marginally aircraft manufacturers but also sub-system manufacturers such as specialists of avionics or of landing gears;
- airline subsidiaries working on a third-party basis or for their parent ("captive") airline; and
- independent providers.

15. There are no global figures describing the respective market share of these types of maintenance providers, and Airline Business, for instance, has stopped collecting data which identifies third-party work within the activity of airline subsidiaries. The only sector where a description of such market share is available, is the engine sector: OEM 46 per cent, airlines as captive 30 per cent, independents 14 per cent, airlines subsidiaries as third-parties 10 per cent. Tables 2 and 3, which list the 30 leading MRO providers in 2001 and 2004, give an idea of the different importance of the respective types of actors.

16. For airline providers, Table 3 does not distinguish activities undertaken in-house as captive from third-party activities. It must therefore be read with caution. Overall, the comparison between Table 2 and Table 3 shows a large stability in the companies present and the rankings. Some providers (Bede Aviation Group, Sequa Chromalloy, Alitalia) have disappeared from this list, while others have been taken over (KLM Engineering by Air France Industries, FLS by SR Technics, AOM industries and Sabena Technics by TAT industries). Table 3 does not yet fully reflect the on-going evolution in the United States nor the likely emergence of new providers in the Middle East (e.g. the US\$15 billion investment and 30,000 staff project of Dubai Aerospace Enterprise which will comprise a maintenance arm). It confirms also the relatively weak share of the independents as compared to airline subsidiaries and manufacturers, showing that increased outsourcing benefited also the latter two types of providers. One

of the explanations is the increasingly heavy investments required by maintenance facilities (e.g. hangars and tools for Airbus new mega-aircraft the A380) that only large and established companies can afford.

17. The providers listed in Table 3 are mostly located in Europe, North America and to a lesser extent in Asia. This gives only a partial idea of the geographical dispersion of the industry, which is much wider for two reasons. First, these providers have facilities present in many WTO Members, be they wholly owned or joint-ventures. For instance, Pratt and Whitney has facilities in Singapore, Ireland, Norway, Japan, New Zealand, China and Chinese Taipei in addition to the United States; Lufthansa Technik is present in Malta, China, and the Philippines in addition to Germany; Singapore Technologies Aerospace operates in the United States, Panama, Sweden, United Kingdom and China, in addition to Singapore. There are also instances of South-South investments, such as the joint venture of the Brazilian manufacturer, Embraer with AVIC, in Harbin, China.

18. The second reason is that, in addition to the subsidiaries and joint-ventures of the major providers, significant providers exist in WTO Members such as China, Brazil, India, United Arab Emirates, Morocco, Tunisia and El Salvador, to name a few. A better idea of the geographical dispersion of the industry might be given by Table 4, which lists the number of "foreign repair stations" certified by the US Federal Aviation Administration (FAA) and by the European Safety Aviation Agency (EASA).

19. Joint ventures remain a classical feature of the sector, either because of locally-imposed restrictions on commercial presence, or because partners feel the need to associate themselves for projects dedicated to the maintenance of certain types of aircraft, engine, or equipment. Additionally, JVs usually provide the "captive" customer base needed to establish the foundation of the partnership. For instance, Lufthansa Technik has just prolonged for 25 years its joint venture with Air China in AMECO, which was initially signed for 15 years in 1989. Similarly, SR Technics has just established a joint venture in Tianjin with Okay Airways, the first privately owned Chinese airline. Easy Tech, the joint venture between easyJet and SR Technics, is another example of a commercial joint venture, as are "Spairliner", a joint venture between Lufthansa Technik and Air France Industries designed to offer the full spectrum of support services for A380 operators in the world, and N3, a joint venture between Rolls-Royce Engines and Lufthansa Technik.



**TABLE 2**  
**Leading civil maintenance operations – 2001**

Rank	Company	Country	Type	Revenues (US\$ million)
1	GE Engine Services	United States	Manufacturer	5,500
2	Lufthansa Technik	Germany	Airline	3,710
3	Air France Industries	France	Airline	1,596
4	Honeywell	United States	Manufacturer	1,500
5	Rolls-Royce	United Kingdom	Manufacturer	1,500
6	Pratt & Whitney	United States	Manufacturer	1,200
7	British Airways Engineering	United Kingdom	Airline	1,016
8	Japan Airlines	Japan	Airline	980
9	Air Canada Technical	Canada	Airline	825
10	Alitalia Engineering & Maint.	Italy	Airline	802
11	SR Technics	Switzerland	Independent	797
12	Delta TechOps	United States	Airline	785
13	KLM Engineering & Maint.	Netherland	Airline	773
14	Sequa Chromalloy	United States	Independent	752
15	SAS Technical	Sweden	Airline	607
16	All Nippon Airways	Japan	Airline	600
17	United Services	United States	Airline	594
18	AMR Corp	United States	Airline	582
19	MTU Maintenance	Germany	Manufacturer	564
20	Qantas Engineering & Maint.	Australia	Airline	500
21	Iberia Engineering & Maint.	Spain	Airline	467
22	SIA Engineering	Singapore	Independent/Airline	466
23	ANZ Engineering Services	New Zealand	Airline	425
24	Snecma Services	France	Manufacturer	410
25	Bedek Aviation Group	Israel	Independent	388
26	Standard Aero	Canada	Independent	380
27	FLS Aerospace	Denmark/United Kingdom	Independent	366
28	Northwest Airlines	United States	Airline	355
29	EADS Sogerma	France	Manufacturer	325
30	Korean Air	Korea	Airline	325

Source: Airline Business.

20. The massive use of IT systems, and in particular of ERP (Enterprises Resources Planning) software, and the increasingly shorter deadlines imposed by customers have forced MRO providers to reduce turnaround times. For instance, the average duration of a "D" check performed by the independent US provider Goodrich has fallen from 40-45 days to 30 days. Providers have also been obliged to adapt their working hours to the higher aircraft utilization rate of low-cost carriers (typically over 8 hours a day for a low-cost carrier, versus five and half hours for a legacy carrier). Hence, for

instance, most line maintenance done by SR Technics for easyJet is carried out at night.

21. The main rationale for the exclusion of line maintenance from the scope of the GATS<sup>6</sup> seems to have been the fact that line maintenance was done in-house. However, the emergence of third-party line

<sup>6</sup> Paragraph 6(a) of the Annex defines "aircraft repair and maintenance services mean such activities when undertaken on an aircraft or a part thereof while it is withdrawn from service and do not include so-called line maintenance".

**TABLE 3**  
**Leading civil maintenance operations – 2004**

Rank	Company	Country	Type	Revenues (US\$ million)
1	Lufthansa Technik	Germany	Airline	5,590
2	GE Engine Services	United States	Manufacturer	5,000
3	Air France/KLM Eng	France/Netherlands	Airline	3,404
4	Rolls-Royce	United Kingdom	Manufacturer	3,296
5	Honeywell	United States	Manufacturer	2,100
6	AMR Corp	United States	Airline	1,894
7	United Services	United States	Airline	1,600
8	Pratt & Whitney	United States	Manufacturer	1,600
9	British Airways Eng	United Kingdom	Airline	1,519
10	Japan Airlines	Japan	Airline	1,512
11	Delta TechOps	United States	Airline	1,386
12	SR Technics Holdings	Switzerland	Independent	924
13	Continental Airlines	United States	Airline	780
14	Northwest Airlines	United States	Airline	737
15	MTU Maintenance	Germany	Manufacturer	716
16	ST Aero	Singapore	Independent	680
17	US Airways	United States	Airline	650
18	SAS Technical	Sweden	Airline	615
19	Thai International	Thailand	Airline	614
20	Goodrich	United States	Independent	570
21	Air Canada Technical	Canada	Airline	567
22	All Nippon Airways	Japan	Airline	536
23	Snecma Services	France	Manufacturer	512
24	Iberia Eng & Maint.	Spain	Airline	509
25	EADS Sogerma	France	Manufacturer	500
26	SIA Engineering	Singapore	Airline	493
27	Korean Air	Korea	Airline	437
28	ANZ Engineering	New Zealand	Airline	367
29	TIMCO Aviation Services	United States	Independent	323
30	HAECO	Hong Kong, China	Independent/airline	276

Source: Airline Business.

maintenance, in particular for low-cost carriers, has rendered this rationale partially obsolete. Another evolution blurring the border between line maintenance and off-line maintenance is the breakdown of heavy checks into smaller packaged service visits so that work can be accomplished overnight.

*Possible issue for discussion*

*Members may want to re-examine the exclusion of line maintenance from the coverage of the*

*GATS in view of the emergence of a third-party line maintenance market.*

22. Another new tendency is the appearance of "total services packages" and of "one stop shops", i.e. of long term contractual relationships where a provider guarantees the availability of a plane or of a complete system rather than an ad-hoc MRO service. The landmark contract in this regard is the US\$1 billion, ten year, 120 aircraft deal between easyJet and SR Technics through which SR Technics has undertaken

**TABLE 4**

**Stations accredited by the US Federal Aviation Administration (FAA) and by the European Aviation Safety Agency (EASA)**

Country or territory	Number of foreign stations accredited by the US FAA	Number of foreign stations accredited by the EASA
Algeria	0	1
Antigua & Barbuda	1	0
Argentina	7	1
Australia	15	14
Austria	1	Not applicable
Bahrain	1	3
Belgium	11	Not applicable
Bolivarian Republic of Venezuela	3	0
Bolivia	1	0
Brazil	15	7
Brunei Darussalam	0	1
Canada	0 <sup>a</sup>	0
Chile	4	1
China	23	14
Chinese Taipei	6	3
Colombia	4	1
Costa Rica	2	1
Croatia	0	1
Cuba	0	1
Czech Republic	2	Not applicable
Denmark	2	Not applicable
Dominican Republic	0	1
Egypt	1	1
El Salvador	1	1
Ethiopia	1	0
Fiji	1	0
Finland	1	Not applicable
France	106	Not applicable
Georgia	0	1
Germany	50	Not applicable
Greece	1	Not applicable
Guatemala	2	0
Hong Kong, China	8	1
Hungary	2	Not applicable
India	2	1
Indonesia	2	1
Iran	0	2
Ireland	12	Not applicable
Israel	13	5
Italy	17	Not applicable
Japan	22	9
Jordan	2	3
Kazakhstan	0	2
Kenya	1	0
Kuwait	0	1
Lebanon	0	2
Luxembourg	1	Not applicable

Country or territory	Number of foreign stations accredited by the US FAA	Number of foreign stations accredited by the EASA
Madagascar	0	1
Malaysia	9	4
Malta	1	Not applicable
Mauritius	0	1
Mexico	19	4
Mongolia	0	1
Morocco	2	2
Myanmar	0	2
Netherlands	20	Not applicable
New Zealand	5	4
Nigeria	0	1
Norway	6	Not applicable
Oman	0	1
Pakistan	0	1
Panama	1	0
Peru	3	1
Philippines	8	2
Portugal	2	Not applicable
Qatar	1	1
Republic of Korea	7	1
Republic of Uzbekistan	0	1
Romania	2	4
Russia	1	6
Saudi Arabia	5	1
Serbia & Montenegro	0	2
Singapore	48	38
South Africa	4	6
Spain	5	Not applicable
Sweden	8	Not applicable
Switzerland	8	75
Thailand	6	3
Trinidad & Tobago	1	0
Turkey	2	2
Ukraine	1	2
United Arab Emirates	4	3
United Kingdom	164	Not applicable
United States	Not applicable	4300 <sup>b</sup>

<sup>a</sup> US and Canada have a technical arrangement through which they automatically accept each other's repair stations, hence there is no need for the FAA to approve any repair stations in Canada.

<sup>b</sup> See compilation page 8, paragraph 32: "... the FAA has the authority to grant JAR-145 approval facilities located in the United States".

Source: FAA & EASA websites.



to ensure full support of the totality of the A319 fleet of easyJet: this will involve the creation of a joint-venture and of facilities at Luton airport ("Easy Tech"). The value of the contract is said to be 25-30 per cent below usual prices due to quicker turn-around times and better engineering planning. Multi-year contacts are not, however, limited to the low-cost carrier sector. Recent examples include Cargolux and Virgin, with KLM Engineering and United with AMECO (an Air China - Lufthansa Technik joint-venture).

23. In the engine sector, quick turn-around and total service packages have translated into a new form of contract known as "power by hours" whereby the carriers pay a fixed price per flight/hour for the maintenance of systems and components. The engine maintenance market, although the largest MRO market sector, is becoming less competitive as engine manufacturers have the advantage to lock their customers in long term "total care" and "power by the hour" agreements at the "point of sale", leaving almost no room for third-parties to compete in the market.

24. Another emerging trend reflects the objective of customers to pass on costs of spare parts inventory (valued by some estimations at US\$44 billion) to their MRO suppliers. Data gathered by electronic networks on predictive maintenance help to reduce the cost of the inventory, as only parts that are likely be used are stocked. This explains the emergence of companies specialized in third-party inventory management of spare parts, such as the US company UFC Aerospace or wider initiatives such as the Boeing programme called "Integrated Materiel Management" (IMM), through which Boeing and a selected number of its suppliers maintain an airline inventory of maintenance supplies, including spare parts and provide them only as needed.

25. The cost of an inventory is particularly high in the engine sector, where the value of spare parts and material represents up to between 60 and 70 per cent of the cost of MRO. This is due to the fact that engine manufacturers sell their engines at what they consider to be discount prices and then recoup the costs of their R & D spendings during the life-cycle of the engines through the sale of spare parts and associated maintenance services. This explains also the increasing attractiveness of Part Manufacturing Approval (PMA) parts, i.e. parts manufactured by third-parties according to specifications approved by the regulatory authority and, in particular, by the US Federal Aviation Administration. The savings vary from 20 per cent to 60 per cent of the price, depending on the part concerned. This market has ceased to be marginal and now attracts the interest of major MRO players. For instance, Lufthansa Technik took in 2002 a 20 per cent

participation in the US firm HEICO, which is one of the main producers of PMA. Recently (March 2006), Pratt and Whitney announced its entrance into the PMA market by providing parts for a competitor's popular engine model. Additionally, a number of companies worldwide have been focusing on the reparability of certain expensive aircraft parts that will provide further savings opportunities. Both PMAs and Repairs have been the topic of discussion amongst regulators, operators, service providers, lessors and OEMs and their economic impact may strengthen competition in the marketplace.

26. Aircraft manufacturers are creating networks of providers in order to reduce maintenance costs. The MRO providers participating in these networks will be allowed to share the data gathered electronically on the totality of the fleet, so as to improve experience and develop predictive maintenance. This is sometimes seen by providers as an attempt by manufacturers to intrude on the MRO market, an allegation denied by manufacturers. Airbus, for instance, has created such a network in 2005 with 11 partners, including most of the MRO major players, except, so far, Lufthansa Technik and Air France Industries. Similarly, Boeing has been discussing extensively its GoldCare programme for total support of the B787 through a network of dedicated providers worldwide. However, both the Airbus venture and the Boeing concept remain to be tested in the marketplace.

27. Rapid advances in information technology have enabled widespread use of e-maintenance tools. Airbus, for instance, has created Air n@v, a technical data consultation tools for airlines and maintenance providers. Similarly, Boeing has developed My Boeing Fleet, a secure web portal dedicated to airplay owners, operators, MRO providers and other third-parties interested. Another Boeing system, "Airplane Health Management", monitors the health of an aircraft in-flight and relays that information in real time to the ground. Rolls Royce Predictive Maintenance System (RRPM), developed for the Trent 900 that will power the A380, is based on similar principles. Another IT application is the system of "computer visibility" developed by the independent provider Goodrich, whereby a customer can follow, step-by-step, the progress of the maintenance work on its aircraft.

## B. REGULATORY DEVELOPMENTS

28. The Secretariat has been made aware of few developments concerning the regulation of maintenance. Developments have been substantial in the wider area of safety, which is directly related to maintenance, or lack thereof.

## 1. Developments concerning the regulation of Maintenance Repair and Overhaul (MRO)

### (a) General evolution

29. According to operators (IATA) there has been considerable progress over the last five years in harmonizing maintenance standards worldwide. The US FAA has rewritten its quality monitoring regulations and rating structures, and harmonized them with similar EASA regulations. Conversely, EASA has revised its own policies to include acceptance of the FAA's approval of minor changes to Original Equipment Manufacturer (OEM) manuals. The regulations governing major repairs of aircraft parts are currently under review and should be harmonized soon. Canada is currently re-writing its own requirements. Latin American, Japanese and Korean regulators are reported to be open to harmonization and awaiting the outcome of the US-EU discussions. China's regulator has recognized the need to revise its own regulations, and India has recognized both the US and EC regulations.

### (b) Maintenance Steering Group (MSG)<sup>7</sup> rules

30. The MSG-3 rules, which are described in the material for first review (compilation, page 3), have not changed during the period under review, though there are plans to do so in the future. Paradoxically, these plans may translate, in certain instances, to an easing of maintenance obligations: based on the experience accumulated, futures guidelines under MSG-3 may, in certain instances, allow airlines to develop less restrictive maintenance plans provided that these are accepted by the regulatory authorities.

### (c) WTO developments

31. Since August 2000, the date of the documentation for the first review dealing with maintenance and repair of aircraft, 12 countries or territories have acceded to the WTO. Of these, 11 have undertaken commitments on maintenance<sup>8</sup> and no MFN exemptions have been listed.

32. Other Members' MFN exemptions covering maintenance were discussed during the second review of MFN exemptions held on 30 November 2004 and 23 February 2005.

<sup>7</sup> The Maintenance Steering Group consists of experts from National Transportation Departments, manufacturers and airline operators. It created the standards for the maintenance cycle (e.g. A, B, C, D checks).

<sup>8</sup> Albania, Armenia, Cambodia, China, Chinese Taipei, Croatia, FYROM, Moldova, Nepal, Oman, and Saudi Arabia.

### (d) European Communities

33. The institutional aspects of the establishment of the EASA in 2002 and its bilateral relationship with the US FAA are dealt with below in the section on the general rules on safety. With regard to maintenance, the EC adopted Regulation 2042/2003 (20 November 2003) "on the continuing airworthiness of aircraft and aeronautical products, parts and appliances, and on the approval of organizations and personnel involved in these tasks".<sup>9</sup>

34. The Joint Aviation Authorities lists of foreign-approved/accepted organisations remain valid, and have been republished and incorporated into EASA rules.<sup>10</sup> The approval certificates of maintenance organizations will become permanent, these organizations will be subjected to a two-year audit cycle to ensure their permanent compliance with the rules.

## 2. Developments regarding safety regulations

35. The two main challenges faced by regulators are, on the one hand, the growth of traffic, which affects the number of accidents and casualties even if the rate of accidents remains stable, and on the other hand, capacity expansion in certain regions of the world. For instance, Africa accounts for one-third of all accidents, while it represents only 5 per cent of all traffic. Similarly, the rate of accidents is five times higher in Latin America than in North America.

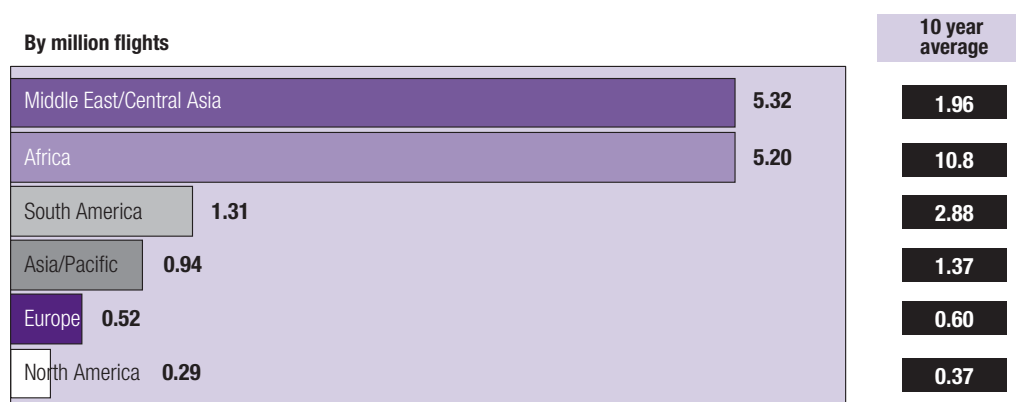
36. Chart 2 gives an indication of the accident rates among regions.

37. One should not overrate the role of maintenance deficiencies in these accidents. Statistics indicate that 70 per cent of accidents are caused by human errors and less than 20 per cent by technical deficiencies which, in turn, may sometimes be linked to structural design problems rather than poor maintenance.<sup>11</sup>

<sup>9</sup> Of particular interest for maintenance are the following sections of the Regulation: Annex I, Part M "foreign CAMO (Continuing Airworthiness Management Organizations) and foreign subpart F (maintenance organisations) approvals"; Annex II, Part 145 "maintenance organisation approvals"; Annex III, Part 66 "certifying staff"; and Annex IV, Part 147 "maintenance training organisation approvals". The complete text of these Annexes can be found at [http://www.easa.eu.int/home/maint\\_en.html](http://www.easa.eu.int/home/maint_en.html)

<sup>10</sup> The Joint Aviation Authorities is the pan-European body through which EC and non-EC Member States harmonized, before the institution of the EASA, their safety and certification policies. For further elements on the transition to EASA, see below paragraph 51.

<sup>11</sup> BAAA, 2003 (see [www.baaa-acro.com](http://www.baaa-acro.com)).

**CHART 2****Accident rates by region – 2004**

Source: IATA.

## (a) ICAO

38. The ICAO Universal Safety Operational Audit Program (USOAP) described in the material for the first review (compilation, page 7) has become compulsory for all existing and new Members of ICAO in 2004. In March 2006, ICAO held a Conference of Directors of Civil Aviation on safety issues, which decided to post on the public website the results of the USOAP by March 2008. A new post-audit procedure now allows ICAO to communicate a State's deficiencies if it fails to correct the problems revealed by the audit. The first round of 131 audits proved disappointing in some regions of the world (governments have failed to implement critical elements of oversight capability in 32.6 per cent of cases) even after follow-up audits (17.6 per cent of the cases). Hence, the same conference decided that a second round of audits would be launched. The scope of these audits, which was until now limited to personnel licensing and the operation and airworthiness of aircraft, will be extended to cover airports, air traffic control and other components of the air transport system.

39. Capacity building is a key challenge as some developing countries have found it difficult to hire and maintain professional staff who have knowledge of the many aeronautical disciplines required by a fully-fledged safety oversight office. ICAO is promoting the development of regional approaches and the pooling of resources so that groups of nations can reach an acceptable level of expertise. In these groups, individual nations delegate safety oversight functions, but retain the oversight authority. In recent years, 13 regional safety groups (Cooperative Development

of Operational Safety and Continuing Airworthiness Programme, COSCAP) have been organized by various nations or are about to be established, as illustrated by Table 5. The World Bank finances some of the initiatives undertaken under the aegis of COSCAP.

(b) European Civil Aviation Commission (ECAC)<sup>12</sup>

40. The Safety Assessment of Foreign Airlines (SAFA) of ECAC has been described extensively in the documentation for the first review (compilation, pages 8-9). This programme has continued to develop its activities during the period under review in all ECAC States. Foreign aircraft (ECAC and non-ECAC ones) can be inspected, and these inspections follow a procedure common to all ECAC members. The results are then reported using a common format. If an inspection identifies significant irregularities, these will be taken up with the operator and the oversight authority; where an irregularity has an immediate impact on safety, inspectors can demand corrective action before they allow the aircraft to leave. Chart 3 describes the quantitative evolution of these inspections; Table 6 describes the results over the last five years; and Table 7 describes the ratio of ECAC and non-ECAC operators inspected during the same period.

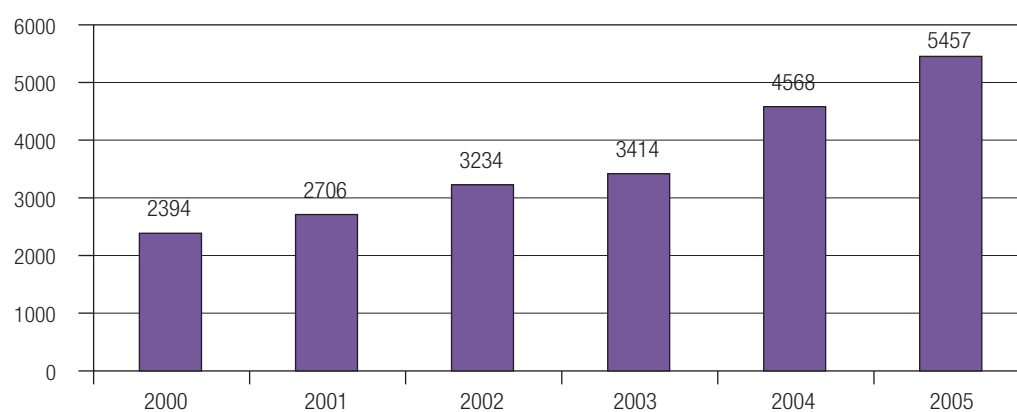
<sup>12</sup> The 42 members of ECAC are: Albania, Armenia, Austria, Azerbaijan, Belgium, Bosnia and Herzegovina, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Moldova, Monaco, Netherlands, Norway, Poland, Portugal, Republic of Georgia, Romania, Serbia and Montenegro, Slovak Republic, Slovenia, Spain, Sweden, Switzerland, the Former Yugoslav Republic of Macedonia, Turkey, Ukraine and United Kingdom.



**TABLE 5****Existing and planned Cooperative Development of Operational Safety and Continuing Airworthiness Programme (COSCAP)**

Implementation stage	Name and members
<b>Fully Functional</b>	<p><b>ACSA</b> (Aeronautical Safety for Central America Agency): Belize, Costa Rica, El Salvador, Honduras, Guatemala, Nicaragua.</p> <p><b>COSCAP-SEA</b> (Southern Asia): Cambodia; Hong Kong, China; Macao, China; Indonesia; Lao; Malaysia; Philippines; Singapore; Thailand; Vietnam.</p> <p><b>COSCAP-NA</b> (North Asia): China, North Korea, Mongolia, Republic of Korea.</p>
<b>Established</b>	<p>Regional Safety Oversight System under Latin America's <b>Latin American Civil Aviation Commission (LACAC)</b> organization.</p> <p><b>RASOC</b> (Regional Aviation Safety Oversight System for the Caribbean): Barbados, Guyana, Haiti, Jamaica, Suriname and Trinidad and Tobago.</p> <p><b>COSCAP-BAG</b> (Bengal Accord Group): Cape Verde, Gambia, Ghana, Guinea, Liberia, Nigeria, Sierra Leone.</p> <p><b>COSCAP-UEMOA</b> (West African Economic and Monetary Union): Benin, Burkina Faso, Côte d'Ivoire, Guinea Bissau, Mali, Mauritania, Niger, Senegal, Togo.</p> <p><b>COSCAP-CIS States</b> (Commonwealth of Independent States): Armenia, Azerbaijan, Belarus, Georgia, Kazakhstan, Kyrgyz Republic, Moldova, Tajikistan, Turkmenistan, Uzbekistan. (Russia and Ukraine are observers).</p> <p><b>COSCAP</b>: Albania, Bulgaria, FYROM.</p> <p><b>PASO</b> (Pacific Aviation Safety Office): Australia, Fiji, Kiribati, Papua New Guinea, Solomon Islands, Tonga, Vanuatu.</p>
<b>To be established</b>	<p><b>COSCAP-North Africa</b>: Morocco, Algeria, Libya, Tunisia, Egypt.</p> <p><b>COSCAP-CEMAC</b> (Central African Economic and Monetary Community): Cameroon, Chad, Central African Republic, Congo, Equatorial Guinea, Gabon.</p> <p><b>COSCAP-SADC</b> (Southern African Development Community).</p> <p><b>COSCAP Gulf States</b>: Bahrain, Egypt, Oman, Sudan, Saudi Arabia, UAE, Yemen.</p> <p><b>COSCAP-Mediterranean</b> (East): Cyprus, Jordan, Lebanon, Syria, Turkey.</p>

Source: ICAO.

**CHART 3****Number of SAFA ramp inspections – 2000-2005**

Source: SAFA report (01 January 2000 to 31 December 2005).



41. Following the publication of EC Directive 2004/36/CE, a joint ECAC-JAA-EC taskforce has been set up to clarify the mechanisms for the implementation of the Directive since ECAC and SAFA have a wider membership than EC but will apply the Directive. The relationship of SAFA with the newly established EASA, a pure EC body, will raise also more complex problems than the relationship with the JAA, which had virtually the same Members as SAFA.<sup>13</sup>

42. A Task Force for ECAC Safety Oversight Issues (SOI) was established in 2000 to set out options indicating how ECAC could assess the consequences of ICAO USOAP audits and what collective actions could be taken with regard to ECAC and non-ECAC States.

43. A Forum on Safety is contemplated to explore the scope for collective solutions to common problems identified by ICAO. This forum would allow national aviation authorities of ECAC States to confront the results of the ICAO USOAP audits on the basis of a harmonised analysis of their respective audit reports, identifying common problems of compliance with ICAO standards and guidance material. The forum could offer the opportunity to develop recommendations for individual or collective actions.

<sup>13</sup> On the transition between JAA and EASA, see below paragraph 51.

44. An expert group, reporting to the Safety Oversight Issues Task Force has so far, analysed the USOAP summary reports of some 60 States and will continue its task until all non-ECAC States are covered. The results of the analyses are made available for safety purposes to ECAC States only, which may use them in their bilateral relations with other States, and are also being integrated within the framework of the SAFA Programme in order, *inter alia*, to target better ramp inspections.

#### (c) IATA

45. It may appear incorrect to describe IATA's self-imposed rules and auditing activities as regulatory developments in the area of safety, since they are a form of self-regulation undertaken without a formal mandate from the States concerned. These activities might not be covered by the GATS. However, their inclusion is justified from an operational and economic point of view, as these rules and procedures are tightly coordinated with international rules and are an extremely powerful instrument to ensure their effective implementation.

46. Before 2001, there were not any common rules for airlines with regard to safety audits. Airlines were auditing one another, often through their consulting subsidiaries, on their ability to deliver safe operations. The audits had varying standards and did not fit into any consistent framework. In 2001, IATA brought

**TABLE 6**  
**Results of SAFA inspections – 2000-2005**

		2000	2001	2002	2003	2004	2005	Total
No. of inspections		2,394	2,706	3,234	3,414	4,568	5,457	<b>21,773</b>
No. of findings		2,587	2,868	3,064	3,242	6,799	8,492	<b>27,052</b>
Actions taken	Information to the authority & operator	150	262	289	360	698	982	<b>2,741</b>
	Restriction on the aircraft operation	0	2	17	23	48	47	<b>137</b>
	Corrective actions before flight authorisation	184	210	225	321	683	708	<b>2,331</b>
	Aircraft grounded	16	28	12	20	17	13	<b>106</b>
	Entry permit repercussions	9	4	6	7	15	10	<b>51</b>

Source: SAFA report (1 January 2000 to 31 December 2005).

**TABLE 7**  
**Proportion of inspections carried out on ECAC and non-ECAC operators – 2000-2005**

	2000	2001	2002	2003	2004	2005	Average
<b>ECAC Operators</b>	61%	64%	66%	63%	67%	71%	<b>65%</b>
<b>Non-ECAC Operators</b>	39%	36%	34%	37%	33%	29%	<b>35%</b>

Source: SAFA report (01 January 2000 to 31 December 2005).

together airlines and industry stakeholders to develop a global safety audit programme, so as to address the ever-increasing costs of inter-airline audits. The programme, named IOSA (IATA Operational Safety Audit), was launched effectively in 2003. It is based on over 700 safety standards and recommended practices, which are contained in the IOSA Standards Manual (ISM). These IOSA standards are derived from all relevant ICAO standards, in particular Annex 1, 6 and 8, as well as from regulations of the European Joint Aviation Authorities (JAA), US FAA and industry best practices. IOSA is not intended to be a substitute for state regulatory authority oversight, but is meant to provide additional data that can assist States in risk-assessment and in planning their own inspections. A growing number of governments envisage to incorporate IOSA as part of their certification process. The report of the 35<sup>th</sup> ICAO Assembly, held in October 2004, underlined these synergies.

47. The IOSA audit standards are based on eight areas that contribute to airline operational safety, namely corporate organization and management systems; flight operations; operational control/flight dispatch; *aircraft engineering and maintenance* (emphasis added); cabin operations; ground handling; cargo operations and operational security. It is important to note that IOSA is an audit of an airline's operational procedures and documentation, not a physical inspection of the aircraft. The IOSA Standards Manual and the associated guidance material are available on the IATA website.<sup>14</sup> They can be used free of charge to all airlines regardless of their IATA membership. An IOSA task force, comprising IATA representatives and airline operations experts, is mandated to refine and improve the IOSA standards.

48. Airlines that have undergone successfully an IOSA audit by an accredited audit organization enter the IOSA registry which acts both as a quality label and as a data-sharing system. To maintain their status on the IOSA registry, airlines must undergo and complete an audit every two years. Leading airlines from all regions have already incorporated the IOSA standards into their airline operations. The IATA board has just mandated that all IATA members be IOSA-registered by 2008.

(d) National developments

(i) *China*

49. On 21 December 2001, China, a key market for MRO providers, issued new "Rules on certification

of maintenance organizations for civil aircraft" and subsequently notified them to the WTO (S/C/N/252, dated 24 November 2003).

(ii) *European Communities*

50. Following the formal creation of the European Aviation Safety Agency in September 2002 by Regulation 1592/2002<sup>15</sup>, national authorities' certification and safety responsibilities are being transferred progressively to this newly-established agency. The relevant functions include: rule-making (i.e. drafting safety legislation and providing technical advice to the European institutions and Member States); inspection training and standardization programmes to ensure uniform implementation of European safety aviation legislation in all Member States; safety and environmental type-certification of aircraft engines and parts; approval and oversight of aircraft design and production organisations worldwide; maintenance organisations outside the EC; and data collection analysis and research to improve aviation safety. The EC Commission recently proposed to extend the agency's responsibility to other important areas of safety regulation, namely rules and procedures for civil aviation operation, licensing of crews in the Member States and certification of non-EC operators. The agency established its permanent headquarters in Cologne in November 2004.

51. EASAs replaces the system established through Regulation 3922/91, whereby Member States were responsible for the regulation of civil aviation safety, and harmonised their requirements and practices through the Joint Aviation Authorities (for a more detailed description of this system, see compilation, pages 8-9). Under the new system, national aviation authorities remain responsible for approving production, maintenance, and maintenance training organizations within their territory as well as the airworthiness certification of individual products listed in their registries. National aviation authorities are expected to use EASA procedures and Community implementing rules. The JAA remain in existence and address operational aspects during EASA certification projects as well as other areas, such as personnel licensing for which the EASA is not yet responsible. The JAA will continue to represent the 15 JAA Member States that are non-EC Members on design and maintenance issues (i.e. Azerbaijan, Georgia, Armenia, Iceland, Albania, Bosnia and Herzegovina, Former Yugoslav Republic of Macedonia, Moldova, Monaco, Norway, Romania, Serbia and Montenegro<sup>16</sup>,

<sup>15</sup> The complete text of the regulation is available at: <http://europa.eu.int/common/transport/air/legislation/airsafety.htm>

<sup>16</sup> The webpage from which this information is drawn dates from December 2005.

<sup>14</sup> [www.iata.org/ps/services/iosa](http://www.iata.org/ps/services/iosa)



Switzerland, Turkey and Ukraine). The Joint Aviation Regulation (JAR) now incorporates all EC Regulations by reference, and the JAA will accept EASA approvals as a JAA recommendation to its non-EC members.

52. EC Regulation 1592/2002 also sets out a number of common principles and requirements for civil aviation safety and environmental sustainability. Regulation 1702/2003 (24 September 2003) determines certification procedures ("part 21") and has served as a basis for EASA to issue airworthiness codes, which are also known as certification specifications. These codes are essentially based on the results of the FAA/JAA harmonization work programme. Differences between the standards issued by the two regulatory systems have been identified and will be addressed in the implementation procedures of future bilateral agreements with the EC. The negotiations of such agreements have started. Until their conclusion, the EC continues to recognize existing Bilateral Safety Air Agreements (BASA) and Bilateral Airworthiness Agreements (BAA) between the United States and certain Member States (France, United Kingdom, Germany, Spain, Italy, Belgium, Netherlands, Denmark, Sweden, Finland, Austria, Poland, Czech Republic). These Member States have formally notified the United States that, as of September 2003, the EASA assumed responsibility as their executive agent for the functions outlined in the EC Regulations.

53. On March 2006, the EC published its first "black list" of airlines barred from serving the Community on safety grounds, following the initiative of several Member States. This list comprises two parts. The first part lists airlines that are completely barred from serving the EC. It includes 92 companies, mostly originating from five African countries, but also from various Asian countries. The second part enumerates companies which are permitted only a limited number of flights. The list is subject to periodic revision. In March 2006, following a series of accidents and incidents involving charter airlines originating from various tourist-destinations, France issued a decree requiring tour operators to indicate to their customers the airline involved.

### *(iii) United States*

54. Given the multifaceted activities of the US Federal Aviation Administration in terms of safety<sup>17</sup>, only a few salient features can be described in the context of this review.<sup>18</sup> The FAA is pursuing the goal of 0.010 accidents per 100,000 departures in 2007, from a baseline of 0.015 in 2005 (and of 0.051 in 1996). Based on current traffic forecasts, the actual baseline still repre-

sents ten accidents a year in the US airspace in 2025. However, the link with traffic is open to discussion. For instance, an Eurocontrol analysis indicates that safety does not decrease proportionately to the amount of traffic, density of traffic or duration of traffic.

55. To achieve its safety objective, the FAA puts the emphasis on data-sharing systems to identify precursors of accidents. Currently, air carriers engage in data-sharing through the Aviation Safety Action Program and Flight Operational Quality Insurance. Clusters of airlines exchange data and an airline may also share data with the FAA, but the information is not centralized so as to allow access to all interested parties. The FAA has developed the Volunteer Aviation Safety Information Sharing Program (VASIP) as a first step towards a broader data-sharing system which could then be eventually extended internationally. This broader data-sharing system is currently being developed under a government-industry initiative, the Commercial Aviation Safety Team (CAST), whose membership includes the FAA, NASA, the Department of Defence, the European Aviation Safety Agency, and the International Civil Aviation Organization on the government side, and the Airline Pilot Association, the National Air Traffic Controller Association, the Flight Safety Foundation and the Aerospace Industry Association on the industry side. CAST sets up analysis and implementation teams that analyse factors contributing to accidents based on forensic data and then identify preventive measures and develop safety enhancements. The group has developed, for instance, 47 safety enhancements so far, 30 of which have already been implemented in the United States. The Terminal Awareness Warning System (TAWS), also known as the Enhanced Ground Proximity Warning System, is one example of these enhancements, and its early implementation by airlines has virtually eliminated the CFIT (Controlled Flight Into Terrain) type of accidents. Another example of these enhancements is the implementation of "Standard Operating Procedures".

56. The Federal Aviation Administration has also undertaken significant international cooperation activities, notably through its network of offices in Europe, China, India, Latin America and the Middle East, and so has the National Safety Transportation Board Academy.

<sup>17</sup> The FAA devoted in the fiscal year 2005, US\$9.42 billion, i.e. 71 per cent of its total budget to safety matters.

<sup>18</sup> For more information see: [www.faa.gov](http://www.faa.gov)

## II. AIRLINE TICKET DISTRIBUTION

57. The GATS captures the universe of airline ticket distribution through three classification items, two stemming from the air transport Annex and one from the MTN.GNS/W/120 classification system, namely, Computer Reservation Systems Services (CRS), selling and marketing of air transport services, and travel agencies services.

- Computer Reservation Systems Services are defined as "services provided by computerised systems that contains information about air carriers schedule, availability, fares and fares rules, through which reservations can be made or tickets may be issued."
- Selling and marketing of air transport services are defined as "opportunities for the air carrier concerned to sell and market freely its air transport services including all aspects of marketing such as market research, advertising and distribution. These activities do not include the pricing of air transport services nor the applicable conditions".
- Finally, CPC 74710 defines travel agency services as "Services rendered for passenger travel by travel agencies tour operators, and similar services; travel information, advice and planning services; services related to arrangement of tours, accommodation, passenger and baggage transportation, ticket issuance services. These services are provided on a fee or contract basis."

58. These concepts do not seem to capture, however, the full range of ticket bookings, distribution, and emission. The *de facto* situation was already more complex than the GATS definitions in 1993 and it has become even more so since, due to factors such as the emergence of online booking channels and the growth of outsourcing. However, the GATS definitions may well be flexible enough (absence of reference to travel agents in the CRS definition, notion of "opportunities for the air carrier concerned" in the selling and marketing definition, possible usage of the technological neutrality concept for online travel agencies) to accommodate some of these new forms of ticket distribution.

59. Tables A1 and A2, contained in the Annex, try to encompass the full range of ticket booking, distribution and emission as it exists, and to compare it with the scope of the GATS definitions. These Tables may give

an idea of possible uncertainties regarding, notably, general sales agents, third-party call centres and other outsourced sales functions for the distribution aspects, as well as IATA billing settlement plans (BSP) and other emission and clearing systems on the emission side.

60. A proper description of the sector needs to encompass all of these aspects. However, developments concerning travel agencies will not be described in the context of this Note, but only through their relationship with CRS and BSP since in GATS terms they belong to the tourism sector and not to air transport. Similarly, the non-air transport aspects of CRS, such as hotels, car rentals, railways, and cruise bookings, will not be dealt with in spite of their economic importance.

61. There are no global figures regarding the share of the various distribution channels and not even a commonly agreed nomenclature of these channels. Furthermore, there are important regional disparities due to the so-called digital divide and local peculiarities such as the importance of group travel, and figures for use of online channels change considerably on a year-by-year basis. There is, however, partial information, by region and by types of channels (e.g. online channels), which will be referred to below in the detailed analysis of each channel.

62. From this fragmented data, the following tendencies seem to emerge: classical CRS continue to be the dominant channel in the market (around two-thirds of the bookings globally), but their share is slowly eroding with the emergence of alternative third-parties B-to-B and B-to-C online channels, and with the growth of direct sales by the airlines through online channels or more traditional means such as call centres. The same dispersion of channels cannot be observed, so far, at the level of emission and clearing of tickets. Finally, outsourcing is growing quickly in this market segment.

### A. COMPUTER RESERVATION SYSTEMS SERVICES

63. The documentation provided for the first review already distinguished between "classical CRS" (e.g. Galileo, Amadeus, Worldspan, Sabre) and new forms of CRS which, at the time, were practically all Business to Consumer (B-to-C) forms. Recent economic developments have led to the use of another distinction, that between business to business (B-to-B) providers and business to consumers (B-to-C) providers. Furthermore, the definition of the Annex is so vast that it may well encompass certain emerging providers in the cargo area.

## 1. Business-to-Business Computer Reservation Systems (CRS)

64. Business-to-Business CRS comprise two types of providers, the "classical CRS", and a newly emerging category, that of "Global New Entrants" (GNE) such as ITA, G2 Switchworks and FACE/ACAP.

### (a) Classical CRS

65. The only CRS that existed at the time of the drafting of the Annex and of the signing and ratification of the GATS were, what can now be termed, "classical CRS", i.e. B-to-B systems created by airlines, based on mainframe technologies and distributing tickets through travel agents as described by Figure 1. They are also often termed Global Distribution Systems (GDS) since they now also distribute hotels rooms, car rentals, cruises and train tickets.

#### (i) Economic developments

66. The present structure of "classical CRS" reflects an economic evolution that has amplified trends already identified during the first review (see compilation, pages 14 to 17).

67. The concentration underway in the CRS sector over the last fifteen years (see compilation, page 14) has left only four global players, three US-owned and US-based ones, i.e. Sabre, Worldspan and Galileo, and a European one, Amadeus. The main economic data available on these four global CRS contained in Table 8.

68. These figures, drawn from the websites of the suppliers above, have to be read with caution. It is unclear, for instance, if the number of employees or

turnover relate to pure CRS activities, or also to other activities such as IT subcontracting for airlines. Similarly, it is unclear whether Sabre takes into account the activities of its joint-ventures such as Abacus, Infini and Axess.

69. CRS are present in a high number of countries/territories. Their availability does not necessarily require a commercial presence. Technically speaking, a CRS can operate without the need to establish a company: fixed lines and terminals can be installed and connected by a third party, training can be done online or by agents travelling to neighbouring countries, and the provision of the service can be adapted to local legal and commercial requirements without establishing a separate legal entity in the country/territory concerned.

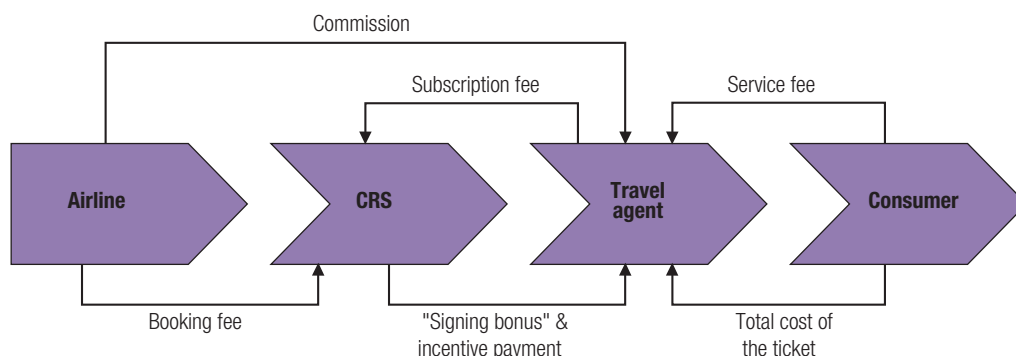
70. Together, the four global CRS processed 1 billion airline bookings in 2004 and an additional 250 million bookings for hotels, cruises and car rentals. Their total revenue is about US\$6 billion. Five elements can be singled out: increasing concentration, evolution of ownership, erosion of the direct market share of CRS, evolution of the pricing model, and diversification.

### Concentration

71. In addition, there are at least five regional players: Topas in Korea, Axess and Infini in Japan, Abacus in South-East Asia<sup>19</sup> and Travel Sky in China. Southern Cross, another regional player in Oceania, has now become Sabre Pacific Ltd. Their size is considerably smaller than that of the four global players (turnover

<sup>19</sup> Axess, Infini and Abacus are now linked to Sabre, which holds, directly or indirectly, substantial shares in these companies (25 per cent in Axess, 35 per cent in Abacus, Abacus itself holding 40 per cent of Infini). Those companies simply distribute Sabre products tailored to local needs.

**FIGURE 1**  
**Mapping of the CRS booking process**



Source: Brattle Group.

**TABLE 8**  
**Main economic data on global CRS – 2003**

	Amadeus	Galileo	Sabre	Worldspan
<b>Employees</b>	5300	2000	1600	2000
<b>Number of travel agents</b>	67,000	43,000	53,000	N/A
<b>Number of countries or territories covered</b>	210	115	45 <sup>b</sup>	70
<b>Turnover 2003 (US\$)</b>	3072 million	2429 million <sup>a</sup>	2707 million	995 million
<b>Air bookings (million) and market share</b>	403 (35%)	265 (23%)	293 (25%)	193 (17%)
<b>Total bookings (million and repartition thereof)</b>	N/A	288 traditional: 68% online: 32% air: 92% non-air: 8% US 39% non-US: 61%	343 traditional: 87% online: 13% air: 85% non-air: 15% US: 63% non-US: 37%	214 traditional: 48% online: 52% air: 90% non-air: 10% US: 79% non-US: 20%

<sup>a</sup> The geographical coverage of Sabre is wider if one takes into account its joint ventures Sabre Pacific, Abacus, Axess and Infini.

<sup>b</sup> In fact the turnover of Cendant Travel Distribution (which has a wider perimeter than Galileo) as Galileo accounts are no longer individualized.

Source: Airline Business.

of US\$100 million for Axess and of US\$40 million for Infini, to be compared with turnovers of US\$1 to 2.5 billion for the major players). It has not been possible to gather information on Topas. Travel Sky (12 million bookings, 32,000 terminals, 5000 travel agencies connected) seems so far to limit itself to the Chinese market.

72. According to analysts, concentration is likely to proceed, leaving only three or even two global CRS in a not too distant future.

#### Ownership developments

73. Divestment by airlines, already observed during the previous review, has continued. Airlines no longer own the majority of the shares of any global CRS.

74. Sabre was spun-off from AMR holdings, the owner of American Airlines in March 2000.

75. Worldspan was sold by its airline owners (Delta, Northwest, and American) in March 2003 to private equity funds led by Citygroup Ventures Capital.

76. Galileo was acquired in totality in June 2004 for US\$2.7 billion by Cendant, a travel conglomerate, from its remaining airlines owners (United, Swiss, Olympic, Air Canada, Alitalia, AerLingus, Austrian) and from the public after a first Initial Public Offering in May 1999.

77. Amadeus was the last CRS, in July 2005, to be sold to non-airline interests. Investment funds Cinven and BC Partners now own 52 per cent of the shares WAM Acquisition S.A, the holding of Amadeus, with Air France maintaining 22.9 per cent, and Iberia and Lufthansa 11.4 per cent each.

#### Erosion of direct market share

78. There are no comprehensive statistics on the respective market shares of the various booking channels. Available data show a progressive decline of the market share of CRS as compared to online travel agencies, and to direct selling by airlines (mainly through Internet but also through call centres). The appearance of Global New Entrants could accelerate this tendency.

79. However, one should not over-rate these developments. Direct channels and on-line B-to-C channels have been successful essentially on the domestic/low-cost-leisure/point-to-point/low-yield segments. A large part of those B-to-C bookings are still made through CRS used as booking engines by online providers, though, allegedly at different prices. CRS continue to dominate the business market, the hub-and-spoke market and the international flights market, although alternative channels are now trying to enter the corporate market (e.g. Travelocity Business, Expedia – which has recorded triple digit growth rates for this market segment – and



Orbitz) and are developing specific products to that effect such as self-booking tools.

80. In the United States, where alternative booking channels have so far been most successful, travel agency off-line bookings (made in 95 per cent of the cases through a classical CRS) still represented 58 per cent of the bookings in 2002.<sup>20</sup> In Asia, including Japan, 80 per cent of the bookings are still made through physical travel agents and, therefore, through classical CRS.

81. What could be a challenge for classical CRS, is the threat by Star Alliance, which alone is said to represent 35 per cent of the GDS revenue, to move to alternative channels. Alliances are already discussing the possibility of obtaining bulk rebates, and Star Alliance and other carriers are thinking of giving direct access to their inventory to travel agents so as to bypass CRS. The support given by airlines to "Global New Entrants" projects (a new form of competitors offering low-cost booking channels and described below) has the same rationale. At least one major travel agency, Carlson Wagon Lits Travel, has developed, with the software company Navitaire, its own GDS by-pass/direct connect system, but this initiative has not yet been emulated.

82. What may prolong the current model is the financial dependence of physical travel agents on CRS. Travel agents have lost or are losing, at least in the United States and Europe, one of their major source of revenue, i.e. booking commissions paid by airlines. They are trying to replace them by service fees, which are unpopular among their clients. In the meantime, financial incentives, which are given on a selective basis to travel agents by CRS in exchange for long-term exclusive commitments, have been extended to virtually all travel agencies. Some commentators even claim that 70 per cent of the booking fees returns, in the end, to travel agents. While this figure might seem exaggerated, the proposal by United Airlines to retrocede US\$5 by ticket to travel agents that switch to alternative channels may give an idea of the size of these incentives. Commentators consider, however, that this discount is not attractive enough to lure travel agents away from traditional CRS.

83. CRS also underline that the overall effects of internet bookings may be neutral and even negative for airlines: while the Internet and other alternative booking channels have reduced the cost of distribution for airlines, they have also considerably reduced the

average yield by empowering the consumer with more sophisticated information.

### Pricing

84. Under pressure from competition of alternative booking channels, CRS have started to change their pricing model, which consists of charging the airline a fixed price for each segment booked (approximately US\$4 per segment booked, i.e. about US\$11 per ticket as the average ticket has 2.5 segments).<sup>21</sup>

85. This change started in 2002, when the three US-based CRS signed full webfare agreements ("Direct Connect Availability" for Sabre) with airlines, exchanging a rebate of between 10 and 15 per cent against the guarantee that airlines would put all their fares, including the best fares they had kept until then for their own websites ("webfares"), on the CRS. These agreements, concluded for three years, are about to expire and airlines have already indicated that they want to renegotiate the structure and the level of the fees with the CRS.

86. Amadeus adopted flexible pricing in 2003, replacing a single rate of €3.12 per segment by four different tariffs ranging from €3.10 to €4.90 with four different level of service and an additional rebate of 17 per cent if the airline was providing it with the full content of its inventory, including its webfares.<sup>22</sup> Sabre also adopted flexible pricing in 2005.

87. The expiry of several GDS contracts in 2005 led to new pricing policies. For instance, Sabre concluded an agreement with low-cost airline AirTran and with US Airways at special conditions (US\$5 per ticket for AirTran). Galileo developed a special "application programming interface" (API) allowing travel agents to connect through Galileo to the website of low-cost carriers at a lower price, a system that will be used for instance by the largest Asian low-cost carrier Malaysia AirAsia. Northwest Airlines, which was one of the staunchest supporters of the Global New Entrants (GNE) alternative (see below), nevertheless concluded in 2005 a five-year contract with Sabre with full inventory content, the terms of which are undisclosed. In Europe, SAS threatened to pull out from all four GDSs

<sup>21</sup> This figure of US\$11 has been questioned. The CRS find it exaggerated (see, for instance, the "frequently asked questions" section of the website of Interactive Travel Services Association (ITSA) which groups the CRS operating in North America), while alternative providers find it underestimated (see, for instance, the submission by Orbitz to the DOT on the Supplemental Advance Notice of Proposed Rulemaking on CRS dated 22 September 2000), but is very commonly referred to in specialised literature.

<sup>22</sup> Only in those markets where such a selective rebate to one airline is allowed, e.g. not in the EC market so far.

<sup>20</sup> According to Galileo quoted by the US final rules on CRS Federal Register, 14 CFR 255, 7 January 2004.





because its costs per ticket had risen from 1-2 per cent to 5-6 per cent. It came to an agreement with each of the GDS on rebates in exchange for a downgraded service. Amadeus discounts for full inventory, including webfares, now reach €0.45, and additional rebates have been added which take into account geographical zones. However, it is difficult to draw definitive conclusions from these few examples.

#### Diversification

88. The diversification of CRS downstream (virtual travel agencies) and upstream (IT services provision) identified during the first review (see compilation, pages 16-17) has accelerated since.

89. There are, however, variations in the diversification strategies followed by the various CRS. Worldspan, for instance, has not tried to diversify downstream and has remained to a large extent an IT supplier. This "neutrality" has helped it obtain contracts with various major virtual travel agencies such as Expedia<sup>23</sup>, Orbitz, Hotwire and Priceline, which use Worldspan as a booking engine for their sites.

90. In the case of Galileo, diversification downstream has happened through its new (June 2004) parent company Cendant. Cendant now owns Galileo but also Orbitz, Gulliver Travels, Octopustravel.com Ebookers, Priceline.com, Cheaptickets.com, RCJ (a firm specialized in time-share), Ramada Inns and Days Inns, Travelodge hotels, Avis and Budget car rental companies. It is worth noting that Galileo is not used by its sister company Orbitz.<sup>24</sup>

91. Sabre has acquired signXis, a software company providing B-to-B IT services to hotels, bought back the minority shares of Travelocity it did not own, and has bought Lastminute.com, a major European virtual agent which already owned Degriktour, Travelprice and Holiday Autos. In March 2006, Sabre also bought the totality of Zuji, which like Orbitz and Opodo, was originally a portal collectively owned by airlines (Air New Zealand, Cathay Pacific, China Airlines, EVA Air, Garuda MAS, Qantas, Royal Air Brunei, Silk Air and Singapore Airlines).

92. Amadeus has acquired former airline-owned portal Opodo, which itself had previously bought the virtual travel agency Karavel. It also owns Travel.com.au (Australia), Rumbo (Spain, Portugal and Latin America) and E-viaggi (Italy). Amadeus also bought shares in ITA Software, the company promoting one

of the Global New Entrants, and in Airline Automation Incorporated (AAI<sup>25</sup>), an IT company specialized in software and services to optimize occupancy rates. Amadeus is used as a booking engine by Lastminute.com, one of the major virtual travel agencies in the European market. Amadeus is also a major provider of IT outsourced services for airlines such as booking inventory management and frequent flyer programme services, and has contracts to that effect with British Airways, Qantas and South African Airways. Amadeus is in discussions with Air France-KLM on the one hand, and Star Alliance, on the other, to provide a complete IT platform.

#### *(ii) Regulatory developments*

#### ICAO

93. The ICAO Code of Conduct for the Regulation and Operation of Computer Reservation Systems (CRS) has not been revised during the period under review. CRS were, however, discussed during the Fifth Worldwide Air Transport Conference (ATConf/5) held in Montreal on 24-29 March 2003, based on a document produced by the ICAO Secretariat describing recent economic and regulatory evolutions.<sup>26</sup>

94. During the Conference, one regional grouping regulating CRS on the basis of the ICAO code, the Arab Civil Aviation Commission (ACAC) tabled a working paper. This working paper expresses concerns that the ongoing deregulation of CRS would allow "bigger airlines" interests to prevail over those of "smaller airlines" which, with free negotiation of fees, would no longer have the financial means to participate in all four systems.<sup>27</sup> It also suggests a definition of a "group" of airlines, so as to allow the collective purchasing of Market Information Data Tapes (MIDT, a valuable but expensive source of commercial information collected by CRS on the basis of their bookings) from CRS by smaller airlines that cannot afford them on an individual basis.

95. The Conference concluded its discussion on product distribution by the following recommendation:

"a) the principles of ICAO Code of Conduct for the Regulation and Operation of Computer Reservation System (CRS) should be considered as the reference framework for the

<sup>25</sup> Now renamed Amadeus Revenue Integrated Incorporated.

<sup>26</sup> ATConf/5-WP/14.

<sup>27</sup> Traditional codes regulating CRS impose identical fees on all customers.

<sup>23</sup> In 2004, Expedia switched part of its business to Sabre.

<sup>24</sup> They share the parent company Cendant.

regulation of CRS in Contracting States or any other code of conduct of a regional nature. States should bear in mind that amendments of such regulations or codes of conduct do not undermine the principles of transparency, accessibility and non-discrimination;

- b) while there exist several instances where the ICAO CRS Code has no applicable provisions as a result of industry or regulatory changes, the scope of application of the ICAO CRS code already potentially applies to the Internet, and States may take this up at their discretion according to their particular circumstances;
- c) States should consider the need to ensure that internet based systems provide consumers with comprehensive and non-deceptive information and airlines with a comparable opportunity to use these new systems as they have with the conventional global CRS where necessary; and
- d) although it is not yet clear whether new regulations covering airline product distribution through the internet should be adopted, some States have been actively examining this issue under the existing CRS rules/regulations, consumer protection laws and competition laws. ICAO should continue monitoring developments closely and disseminating information on this issue, and keep the effectiveness of the ICAO CRS Code under review."

96. By September 2002, the date of the last ICAO survey, 31 States, which generated 60 per cent of all international air transport passengers, had adopted the ICAO CRS code or had a national regulation which conformed to the ICAO code, namely: Antigua and Barbuda, Austria, Belgium, Botswana, Cameroon, Canada, Cuba, Denmark, Ecuador, Eritrea, Fiji, Finland, France, Germany, Greece, Guatemala, Ireland, Italy, Jordan, Kuwait, Luxembourg, Netherlands, Portugal, Romania, Russia, Slovak Republic, Spain, Sweden, Thailand, United Kingdom, and United States.<sup>28</sup>

97. The ICAO Template Air Services Agreements (TASA) submitted to ICAO Members by the ICAO Secretariat during ATConf/5 contains a draft Article (Article 28) on

Computer Reservation Services offering three options: application of the ICAO code, application of the ICAO code in conjunction with existing regulations on CRS and statement of general competition policy principles on CRS. These options are not linked to any of the three overall approaches of liberalization offered by the TASA (traditional, transitional and full liberalization).<sup>29</sup> They do not address market access or national treatment questions, but rather competition issues.

98. The three options are as follows:

#### Option 1

"Each Party shall apply the ICAO Code of Conduct for the Regulation and Operation of Computer Reservation Systems within its territory."

99. This option is an ICAO proposal for use, in particular, by Parties which may not have CRS regulations but are willing to apply the ICAO Code of Conduct for the Regulation and Operation of Computer Reservation Systems.

#### Option 2

"Each Party shall apply the ICAO Code of Conduct for the Regulation and Operation of Computer Reservation Systems within its territory consistent with other applicable regulations and obligations concerning computer reservations systems."

100. This option applies the ICAO Code, and is consistent with any other applicable regulations. These regulations could include the European Union, the European Civil Aviation Conference and the Arab Civil Aviation Commission CRS Codes, or national regulations. The reference to "obligations" recognizes that many States will apply the provisions of the GATS.

#### Option 3

"The Parties agree that:

- a) one of the most important aspects of the ability of an airline to compete is its ability to inform the public of its services in a fair and impartial manner, and that, therefore, the quality of information about airline services available to travel agents who directly distribute such information to the travelling public and the ability of an airline to

<sup>28</sup> At the meeting of the Council for Trade in Services dedicated to the second Air Transport Review held on 12 September 2006, the representative of Norway indicated that his country should be added to the list as it had adopted the EC code of conduct on CRS through the European Economic Area (see document S/C/M/84, page 9, paragraph 50).

<sup>29</sup> The "traditional" approach contains relatively conservative/protectionist provisions while the "transitional" approach embraces elements of the first and the third approach ("full liberalization"). The latter, in turn, contains "open skies" type provisions. For more information on the TASA, see ICAO document ATConf/5-WP/17, dated 27 January 2003.



offer those agents competitive computer reservations systems (CRS) represent the foundation for an airline's competitive opportunities; and

b) it is equally necessary to ensure that the interests of the consumers of air transport products are protected from any misuse of such information and its misleading presentation and that airlines and travel agents have to effectively competitive computer reservations systems."

101. This option recognizes that some bilateral agreements set out in considerable detail the principles applicable to the regulation and operation of CRS, usually because only one of the parties has extensive CRS regulations. This option takes into consideration that, given the rapidly evolving nature of airline product distribution, a less comprehensive approach may be more flexible and more easily applicable to current conditions.

#### WTO

102. Between August 2000, the cut-off date of the first review for CRS and July 2006, 12 countries or territories have acceded to the WTO. Of these, 10 have undertaken commitments on CRS<sup>30</sup> and one listed an MFN exemption covering CRS.<sup>31</sup>

103. MFN exemptions covering CRS have been discussed during the second review of MFN exemptions held on 30 November 2004 and 23 February 2005.<sup>32</sup>

104. CRS were mentioned twice in the context of the China Transitional Review Mechanism<sup>33</sup>, namely in the context of the draft regulation on Ratifying Agents of Foreign Aviation Enterprises to Foreign Computer Reservation Systems and the draft Code of Conduct for Computerized Reservation Systems. These regulations foresee the institution of a licensing system for direct access to foreign computer reservation systems. The Chinese government has undertaken consultations with the foreign operators on the criteria of this licensing regime. CRS regulations have also been the object of one notification by a Member.<sup>34</sup>

<sup>30</sup> Armenia, Cambodia, China, Chinese Taipei, Croatia, FYROM, Moldova, Nepal, Oman and Saudi Arabia.

<sup>31</sup> Albania.

<sup>32</sup> See documents S/C/M/76, dated 4 February 2005 and S/C/M/78, dated 17 May 2005.

<sup>33</sup> Questions by the European Communities in 2004 (S/C/W/242, paragraph 23) and 2005 (S/C/W/259, paragraph 27), answers by China in 2004 (S/C/M/75, paragraph 32) and in 2005 (S/C/M/80, paragraph 35).

<sup>34</sup> S/C/N/238, dated 23 November 2003, Communication by China.

#### European Civil Aviation Commission (ECAC)

105. There are no regulatory developments to report for the 2000 ECAC code of conduct for CRS. This code has not been modified or been the object of further discussions within that forum.

#### Bilateral developments

106. The Annex on Air Transport Services takes full account of bilateral Air Services Agreements concluded prior to the entry into force of the WTO Agreement. It confirms that "any specific commitment or obligation assumed under this Agreement shall not reduce or affect a Member's obligations under bilateral or multi lateral agreements that are in effect on the date of entry into force of the WTO Agreement". However, many bilateral agreements, containing provisions that extend preferential treatment between its parties on CRS, have been concluded subsequent to the entry into force of the WTO Agreement. In the absence of MFN exemptions listed under the GATS by Members concerned to cover such situations, it could be argued that such provisions in bilateral agreements need to be extended in accordance with Article II of the GATS (MFN).

107. The ICAO World Air Services Agreement (WASA) database, which contains all agreements notified by ICAO Members, indicates in its 2004 edition that 19 bilateral agreements containing a clause dealing with CRS have taken effect since 1 January 1995.<sup>35</sup> The complete list of these agreements can be found in the Annex (Table A3). For WASA purposes, CRS clauses are defined by ICAO as covering "access, availability and requirements of computer reservation systems." These agreements involve 18 WTO Members, of which five have listed an MFN exemption covering CRS<sup>36</sup> (out of 31 MFN exemptions listed for CRS<sup>37</sup>, and four non-WTO Members. In the absence of direct access to the text of these agreements, it is impossible to dwell further on the potential MFN obligations. It is worth noting though that the ICAO WASA database probably underestimates their scope as its sample is largely incomplete: many States do not notify to ICAO or do it

<sup>35</sup> To establish this list (and similarly constructed lists drawn from the WASA database, see below) the WTO Secretariat has used the two dates contained in the WASA data base "date of the agreement" and "date of entry to force" and retained whichever date was posterior to 1 January 1995. The case of amendments posterior to 1995 to a bilateral agreement anterior to 1995 has not been taken into consideration.

<sup>36</sup> Netherlands via EC, Singapore, Switzerland, United States and Iceland.

<sup>37</sup> Counting EC-12 as 13 entities.

with substantial delays. Memoranda of understanding and side letters are not generally notified.

#### National developments

108. Overall, the regulatory landscape for CRS appears relatively liberal in terms of market access. According to the operators in general, there are no legal/administrative limitations specific to the CRS business in most countries/territories. However, it is not unusual in State trading or former State trading countries that the local CRS or the CRS linked to the local carrier finds it easier to get local lines than foreigners. Another typical restriction provides that content from a local national carrier is only available on the government-favoured CRS. The number of CRS authorized to operate in a country is, in general, not limited *de jure* but may be so *de facto* due to such obstacles.

109. No limitations on the number of travel agents that CRS can serve have been identified. However, in at least three WTO Members, board members of the local company must include at least one national, and there is one instance where distribution can only be done through a local agent. Problems associated with currency remittances exist in very few countries: the repatriation of earnings is not seen a major issue as most fees are paid by the travel providers (e.g. airlines, hotels) to the central company of the CRS outside the local territory. There are no CRS-specific restrictions identified for land ownership, assets, number of persons employed, legal forms, and number, volume and value of bookings.

110. Most of the national regulatory developments to be reported thus relate to competition issues rather than to market access strictly speaking.

#### United States

111. The most significant regulatory event during the period under review is without doubt the complete deregulation of the US rules on CRS by the final rule issued by the US Department of Transport (DOT) on 7 January 2004 (CFR part 255, Federal register volume 69, n.4, pages 975-1033).<sup>38</sup>

112. The former rules, dating 1984, and modified several times:

- barred each CRS system from using carrier identity as a factor for editing and ranking services;

- required each system to offer at least one display that did not give on-line connections a preference over interline connections;
- required each system to either list one-stop and other direct flights before connecting services or use elapsed time as a significant factor in selecting flights options from the database;
- prohibited systems from charging airlines discriminatory booking fees;
- required each system to make available to any participating airline the booking and marketing data generated by the system from bookings for domestic travel made through the system;
- prohibited types of restrictive contract provisions that unreasonably limited the travel agencies' ability to switch systems or to use more than one system;
- required each system to provide non-owner airlines with information and bookings capabilities as accurate and as reliable as those provided to the owner airline;
- gave the right to each travel agency to use its own equipment in conjunction with a system and to access other systems and databases from the same terminals used to access its primary system unless the agency uses equipment provided by that system;
- required each airline with a significant CRS ownership to participate in other systems at as high a level of functionality as it does in its own system, if the terms for participation are commercially reasonable ("mandatory participation rules"); and
- prohibited systems from enforcing "parity clauses" against airlines that did not own or market a competing system, i.e. from requiring each airline to buy at least as high a level of services from the system as it did from any other system.

113. The deregulation of these rules is the result of a long process. The DOT first issued an Advance Notice of Proposed Rule Making on 10 September 1997 (62FR47606), then a supplemental Advance Notice of Proposed Rule Making on 24 July 2000, and issued a Proposed Rule Making on 15 November 2002. This Proposed Rule Making did not suggest complete deregulation.

<sup>38</sup> Information for this section has been contributed by the US Department of Transport.



lation. Rather, it proposed the re-adoption of the existing rules with two exceptions: the mandatory participation rule and the prohibition against discriminatory booking fees, which would be allowed to expire. The proposed rule making also tentatively concluded that the CRS rules should not be extended to cover the distribution of airlines ticket through the Internet. The DOT then provided a lengthy comment period, that it extended twice, until December 2002, and held a public hearing in May 2003.

114. The final rule issued on 7 January 2004, foresaw the sunset of all the provisions as of 31 January 2004. A six-month transitional exception was provided for the rules prohibiting display bias and two rules barring unreasonably restrictive requirements in the contracts between systems and their airline customers, namely parity clauses and clauses requiring airlines to provide access to all webfares as a condition to any participation in a system, rules that eventually lapsed on 31 July 2004.

115. The DOT has invoked four main reasons for the reform:

- All of the US airlines that controlled a system had divested their CRS ownership interest. Hence they had lost the incentive and ability to use CRS to prejudice the competitive position of non-owner airlines, and to provide information on airline services through the systems to travel agents that gave undue preference to the services operated by the owner airlines. These ownership links and their anti-competitive implications had been the main rationale for the CRS rules.
- Airlines were selling an increasingly large share of their tickets through their Internet websites and a diminishing share through travel agencies using a system.
- The airlines' control over access to their webfares, i.e. the discounted fares originally offered only through individual airlines websites, had enabled them to obtain lower fees from the systems.
- Travel agencies were increasingly demanding and winning contracts from the systems that gave them more freedom to use alternative booking channels and to switch systems periodically.

116. In sum, while CRS retained some market power, it was diminishing and the DOT was of the view that

there was no likelihood that the systems would distort airline competition.

117. To the contrary, the DOT considered that ending the broad regulation of CRS practices would enable each system and each airline to negotiate the terms by which CRS services should be provided. The systems would have the same ability to bargain with their other customers, the travel agencies.

118. The DOT indicated that it would actively monitor developments during the transition period and beyond, and take appropriate investigative, enforcement or regulatory action if it saw evidence that systems or airlines were engaging in anti-competitive conduct in connection with airline distribution through the systems or other channels. The DOT also retained the power to re-examine the sunset of CRS provisions if the systems' conduct or other developments made such a re-examination necessary.

119. One and half years after this reform, there has been no official assessment of its effects. It is difficult to evaluate these effects based only on anecdotal information given by the specialized press. To date, it seems there have been no major changes in the number of airlines participating in CRS, nor of the level of airline participation in CRS. However, the various actors are adjusting their policies. Airlines have made use of their newly-gained bargaining power to obtain lower fees. CRS have adapted and sophisticated their pricing policies. Airlines have in certain instances threatened to pull out from all four systems (SAS) or from at least one of them (American) and CRS have reacted in various ways to these threats: by granting rebates in exchange for a downgraded service in the case of SAS and by a "Back-up Agreement" (between Sabre and Amadeus in the case of American), i.e. an agreement through which two CRS give each other access to an airline's content they would not otherwise have so as to be able to complete bookings. Sabre has also introduced recently a new scheme that would result in reduced incentive payments for travel agents.

120. With regard to the international implications of the US deregulation, the DOT will retain its authority to impose counter-measures when a foreign airline or other firm engages in discriminatory conduct against a US airline. This authority is based on the Air Transportation Fair Competitive Practices Act (49USC 41310). It has been broadened to cases where a US system, and not only an airline, is subject to discriminatory conduct by a foreign firm by section 741 of the Wendell H.

Ford Aviation Investment and Reform Act for the 21<sup>st</sup> Century.<sup>39</sup>

121. Finally, the DOT acknowledges that the United States has signed bilateral air service agreement obliging them to keep systems operating in the United States, not to engage in conduct that discriminates against foreign airlines such as charging discriminatory booking fees to foreign airlines, and biasing displays against foreign airlines and that the final rules no longer include the prohibition of these discriminatory treatments. However, DOT notes that, since US airlines no longer control any system operating in the United States, the CRS systems should have no incentive to discriminate against foreign airlines. It also notes that, in their comments to the Proposed Rule Making, several foreign airlines had argued in favour of the elimination of the prohibition of discriminatory booking fees. Furthermore, DOT and other government agencies would take such action as is necessary and appropriate to ensure that foreign airlines have a fair opportunity to compete for travellers in the United States. Finally, the access provisions for CRS contained in the bilateral agreements<sup>40</sup> do not seem to be affected by the deregulation.

#### Canada

122. On 7 May 2004, Canada published amendments to its 1995 regulations on Computer Reservations Systems.<sup>41</sup> While moving towards a more deregulated system, the amended Canadian CRS regulations retain certain safeguards. The rationale for this reform are similar to those of the US reform.

123. Three main provisions have been eliminated:

- The "obligated carrier" provision, which required an airline that has an ownership interest in a CRS, or has a domestic market share that exceeds 10 per cent and participates in one CRS, to participate in all CRS operating in Canada at the same level. With the advent of the Internet providing new distribution options

for airlines, the obligated carrier requirement limited the flexibility of these airlines to choose the most efficient means to distribute their air services. The obligated carrier provision was repealed to allow airlines to have the freedom to select the channels of distribution and level of participation that best serve their operations.

- The prohibition for a CRS vendor to discriminate in the price it charges to participating airlines. In effect, the obligation prevented airlines and CRS vendors from freely negotiating CRS fees on strictly commercial terms, leading to a situation where CRS fees were higher than would be the case in the absence of this regulatory requirement. The intention is to allow CRS and airlines to freely negotiate CRS fees in the context of lower cost alternative distribution channels.
- Section 36 of the 1995 regulation, which allowed the Minister of Transport to make an order prohibiting airline participation in a CRS when the CRS vendor's contract with the travel agent contained certain elements (e.g. terms of more than three years, impeding a travel agent from using another system or requiring the use of a CRS for a minimum volume of bookings). These regulatory provisions resulted in restrictive subscriber contracts that limited the ability of the CRS vendors to tailor agreements to travel agents' needs and the ability of travel agents to adapt to changing market conditions and other new, low-cost sales technology. The emergence of competitive alternative distribution channels now also provides an option for the travel agent to access the inventory of an airline as well as other travel suppliers outside the CRS distribution channel. The repeal of this provision and the presence of alternative competitive distribution channels provide equal, if not better market discipline to the substance of the CRS vendor's contract with the travel agent.

124. Some major provisions have been retained. For example, the rules stipulating that information contained in CRS displays should be comprehensive, neutral and non-discriminatory continue to apply. In this regard, the amended regulations continue to ensure that travel agents have access to neutral and non-discriminatory information on behalf of consumers and that no carrier is disadvantaged in that computer reservation display.

<sup>39</sup> Public Law 106-181, April 5, 2000.

<sup>40</sup> E.g. the Canada-United States Agreement states in Article 11.3, "recognizing that, consistent with Article 4 (fair competition), all computer reservation systems owned in whole or in part by airlines of each Party have achieved effective access in the territory of the other Party, each Party accepts that computer reservation systems offering services in the territory of the other Party are subject to the national laws and regulations of that Party regarding such systems and their services and subject to compliance with such laws and regulations"; the Netherlands-United States Agreement notes in attachment C, paragraph 6 that "CRS in use in the territory of one party, which comply with these principles shall be entitled to effective and unimpaired access on the territory of the other party".

<sup>41</sup> Information for this section has been contributed by Transport Canada.





## European Communities

125. The European Communities is also in the process of revising its CRS rules.<sup>42</sup> In 2002, the European Commission started a consultation process with the industry. In several meetings, the possibilities for a relaxation of the present rules were assessed. All those consulted agreed that the present CRS rules are not adapted to conditions and that they stand in the way of a more efficient working of the distribution market.

126. Industry views were sought, amongst others, on the following topics: the obligation for parent carriers to participate in all CRS (mandatory participation rule), the prohibition of discriminatory booking fees (charging principles), marketing information data tapes (MIDT), neutral display, and relations between CRS and subscribers.

127. In December 2002, the services of the Commission tentatively proposed changes to the existing Regulation on the basis of the consultations and commissioned an impact study of these proposals to a consultant (The Brattle Group). That resulted in a further prolongation of the bilateral consultations during which the consultant held a series of interviews and meetings with the industry.

128. The study was completed in October 2003.<sup>43</sup> It looks at three options: complete deregulation, partial deregulation (mainly keeping neutral display obligations and rules regulating the contractual relationship between CRS and travel agents) and another option of partial deregulation, where the mandatory participation rule would be maintained in the markets where the airline-held CRS has a dominant position.

129. The most contentious issue proved to be the mandatory participation rule because of the particular position of Amadeus in Europe. Indeed, while all other CRS are independent of airlines, Amadeus remains partly owned by three airlines, raising concerns with other market participants of potential competitive abuse.

130. After the publication of the Brattle report, the Commission decided to continue monitoring the market and to analyse its most recent developments before making a proposal for revising the CRS rules. These developments concern mainly:

- the deregulation of the US market in July 2004 and its consequences on competition in the US distribution market and the lessons to be learnt for Europe;
- the rapid development of alternative distribution channels, in particular of Internet sales, and their impact on the market shares of CRS in the distribution market; and
- the change of control in Amadeus by the investment of venture capitalists BC Partner and Cinven (sale completed in July 2005).

131. The Commission aims to make a new proposal to the Council and the Parliament in 2006.

### (b) Global new entrants

132. The emergence of global new entrants ("GNE") may be the next major development with regard to B-to-B CRS. However, none of the possibilities indicated below, while deemed likely by industry experts, have yet materialized.

#### (i) Economic developments

133. Global new entrants are companies that intend to deliver the same service that CRS provide to airlines and to travel agents for only a fraction of the price<sup>44</sup> (with an average of 20 to 30 per cent for the company FACE-ACAP and up to 80 or 90 per cent for the companies Farelogix and G2 Switch Works). Traditional CRS deny that the service under consideration is of the same nature and call them "Limited Travel Distributors".

134. Technically speaking, GNE add a new layer of software that allows the travel agent to search fares and make bookings on all Global Distribution Systems (GDS)<sup>45</sup>, on the Internet, directly in the inventory of airlines with whom the GNE has signed a direct connect access (DCA) agreement and on the websites of low-cost carriers. This is illustrated by Figure 2, drawn from the website of one GNE.

135. A number of questions have remained open, however. In spite of graphs similar to the above on all GNE websites, it seems that GNE do not get access as such to GDS, since they have not subscribed to GDS services and therefore do not "reorganize" CRS displays. According to GDS, which calls them "Limited Travel

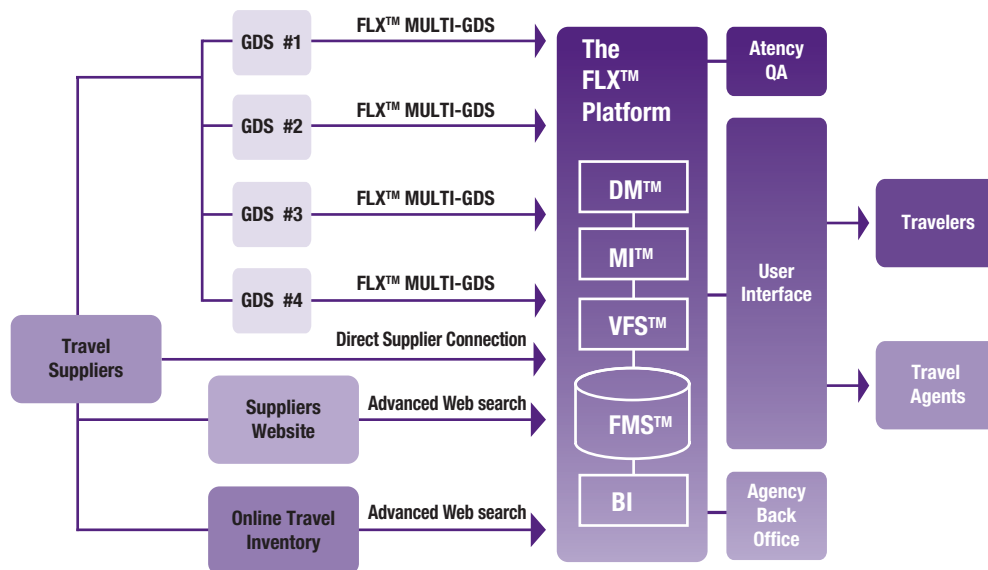
<sup>42</sup> Information for this section has been contributed by the European Commission.

<sup>43</sup> The full report of the consultant has been published on the Internet at the following address: [http://europa.eu.int/comm/transport/air/rules/index\\_en.htm](http://europa.eu.int/comm/transport/air/rules/index_en.htm)

<sup>44</sup> The service may even be better. According to Farelogix, "GDS deregulation means that total content in a single CRS is no longer assured".

<sup>45</sup> See definition paragraph 64.

**FIGURE 2**  
**Typical GNE structure**



Source: FLX website.

Distributors" for this reason, the GNE bookings are handled either through direct connection (in the vast majority of cases) or via the Internet through "screen scrapping" data from providers site.

136. As for direct connect agreements, the company G2 Switch Works, for instance, has signed such agreements with seven US domestic airlines (American, America West, Continental, Delta, Northwest, United and US Airways) which together account for 80 per cent of the volume of the bookings handled by travel agents. Five of these airlines (American, America West, Continental, Delta and Northwest) have bought in advance 8 million "prepaid – segment fees program" i.e. future bookings, in order to help finance the deployment of the G2 system.

137. In March 2006, Star Alliance selected Lufthansa Systems as a preferred supplier of an Alternative Content Access Platform (ACAP), a new name for Global New Entrants, for Asia and Europe. In December 2005, Star Alliance had already signed deals with G2 Switchworks and ITA Software for the North-American market. Star Alliance estimates its distribution costs at US\$2 billion annually.

138. The deployment of GNE depends largely on the financial advantages they will offer to travel agents. So far they have not achieved the breakthrough expected by the industry. Major US travel agents have rejected

as insufficient the proposal by United of a rebate of US\$5 per ticket on the savings made through GNE. In addition, classical CRS have reacted by changing their pricing practices and have managed to re-sign multi-year deals with major airlines.

#### (ii) Regulatory developments

139. There have been no regulatory interventions targeted at GNE in the United States or in Europe. In addition, GNE have not been the subject of any complaints under CRS rules in Europe so far. The Commission is closely monitoring their emergence as they constitute one of the parameters of the possible deregulation of CRS.

140. To a large extent, the advent of GNE creates the same concerns among actors and triggers the same type of preventive judicial actions that Orbitz had done a few years ago. G2 has reacted by capping the share of each domestic airline in its capital to 5 per cent and the overall share of domestic airlines to 16 per cent (the rest of the capital was provided by investment funds: Northwest Ventures Capital and Texas Pacific Group).<sup>46</sup>

<sup>46</sup> G2 was founded by former employees of Orbitz.



## 2. Business to Consumer (B-to-C) CRS

141. It may seem counter-intuitive to deal with online travel providers in the context of CRS. Indeed, online travel providers are not considered as "CRS" by professionals. The GATS definition ("services provided by computerised systems that contain information about air carriers' schedule, availability, fares and fares rules, through which reservations can be made or tickets may be issued") is much broader than what is commonly understood by CRS: B-to-B legacy systems used by travel agents. The GATS definition does not contain a reference to travel agents and it does not require that the inventory should be exhaustive. Hence a B-to-C booking service provider may well fall within this definition.

142. More specifically there is a fundamental difference between the definition of CRS contained in the GATS and the ICAO Code of Conduct on the one hand, and the definition used in various national codes on the other.

143. The national codes or regulations define "CRS vendors" in terms of their relationship with travel agents and therefore clearly exclude business to consumer (B-to-C) types of relations from their scope.<sup>47</sup> The ICAO Code in its successive versions does not contain a reference to travel agents. In 1991, it referred "to a computer system that provides information on air carrier schedules, space availability and tariffs and through which reservations on air transport services can be made". The 1996 version reads: "a computer system that provides displays of schedules, space availability and tariffs of air carriers and through which reservations on air transport services can be made".

144. From this, ICAO infers that Internet providers are potentially covered by the ICAO Codes. It consid-

ers that the definition of the Code is "an accurate description of websites on the internet, which sell air transport services". ICAO adds that "from a definitional standpoint, therefore, the ICAO CRS Code applies to the Internet marketing of air transport."<sup>48</sup>

145. The GATS definition does not contain a reference to travel agents either. Its wording is virtually identical to that of the first ICAO code. The question therefore arises whether it is applicable to Internet providers, with the possible exception of airline websites that could be covered by "selling and marketing".

146. The following sections will therefore describe economic and regulatory developments affecting Internet travel providers, as was done during the last review (compilation, pages 18-25).

### (a) Economic developments

147. There is an abundance of statistics and forecasts available for B-to-C travel providers, notably from consulting companies. However, the methodology and exact coverage are often unclear, and they are not always consistent. Figures evolve very quickly and vary considerably between world regions.

148. The total turnover of online travel agencies was estimated by Airline Business at US\$55 billion in 2004, up from US\$35 billion in 2002.

149. The report commissioned by the EU from the Brattle Group on the possible consequences of CRS deregulation in 2003 attributes only a very marginal share to online travel agents, as can be seen from Table 9. Unfortunately, these data have not been updated.

150. A more recent enquiry, dated July 2005, by Airline Business with a wider geographical coverage<sup>49</sup>, gives a higher, but still relatively modest share to online travel agencies (5 per cent worldwide in 2005).<sup>50</sup> Chart 4 indicates that the rate of growth is erratic, unlike for direct sales. In 2003, online travel agencies accounted for nearly half of the direct sales, whereas in 2005 their contribution was equivalent to only about one quarter.

<sup>47</sup> E.g. EC Regulation 2289/89, as amended by 3089/93 and by 323/99, in Article 1(f) and (l) states that "computerized reservation system (CRS) shall mean a computerized system containing information about, *inter alia*, air carriers' schedules, availability, fares, and related services with or without facilities through which reservations can be made or tickets may be issued to the extent that some or all of these services are made available to subscribers", with the subscriber being defined as "a person other than a consumer, or an undertaking other than a participating carrier using a CRS which is under contract or other financial arrangement with a system vendor". Alternatively, Canadian regulation P.C. 1995-887 of 6 June, 1995, states in Article 2 that "system means a computer reservation system that is offered by a system vendor to subscribers, that contains information about the schedules, fares, rules or availability of more than one carrier and that provides subscribers with the capability to make reservations or to issue tickets for air services", with the subscriber being defined as "a travel agent or other entity that holds itself out to the public as a source of information about the air service industry, that makes reservations or issues tickets for air services and that contracts with a system vendor to use a system".

<sup>48</sup> ICAO document ATConf/5-WP/14 paragraph 4.2.

<sup>49</sup> The representative sample covers 200 airlines. Some operate on markets that may be considered more mature than Europe, i.e. the United States and Canada. Some others operate on less mature markets, Asia and Africa, where nearly all bookings are still made by travel agents.

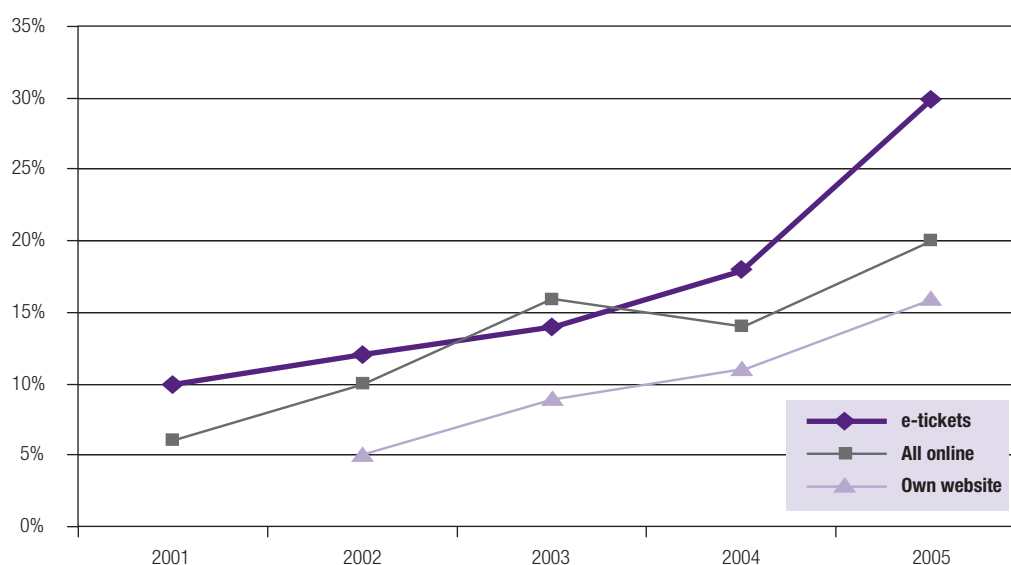
<sup>50</sup> As extrapolated from the difference between the "online sales" and the "own website sales".

**TABLE 9****Annual bookings in Europe through alternative distribution channels**

	2001	2002	2003 Projections	Average Annual Change
Brick-and-mortar travel agencies	60.7%	59.1%	57.6%	-1.0%
Online travel agents	2.3%	2.6%	3.9%	0.5%
Supplier direct*	37.0%	38.2%	38.3%	0.4%
<b>Total</b>	<b>100.0%</b>	<b>99.9%</b>	<b>99.8%</b>	

\* Includes bookings made through airline websites, call centres, and reservation offices.

Source: Sabre.

**CHART 4****Percentage of total seat sales by source – 2001-2005**

Source: Airline Business.

151. According to the consultant PhocusWright, in the United States, Internet sales represented 42 per cent of a US\$224 billion travel market in 2005 (including non-airline travel and airline direct sales). According to another consultant, Jupiter Research, the market for air, hotel, car rentals and other US travel will reach US\$104 billion by 2010, 56 per cent of which will be sold online.

152. In the first review, online travel providers were categorized by type of owner (collective airline portal, website of physical travel agencies, pure online players, etc., see compilation, pages 18-25), but market developments have made these distinctions largely irrelevant.

153. There has been considerable evolution in terms of ownership during the period under review. Many online travel agencies have merged or have been acquired by classical CRS (Orbitz by Cendant, Opodo by Amadeus, Zuji by Sabre via Travelocity) or even media companies such as Barry Diller's Interactive Corporation (Expedia). Other actors have simply disappeared, such as airlines acting collectively (Zuji, Opodo, Orbitz) or IT companies (Microsoft, former owner of Expedia).

154. A more relevant distinction may now need to be based on the type of services offered. Again, the borderlines appear somewhat blurred. There is a sort of continuum between travel websites. At one extreme

are "webcrawlers"<sup>51</sup> such as the very successful Kayak.com (also founded by Orbitz's veterans) or Mobissimo, which simply search for tickets, but do not allow for bookings and are paid by referral fees (i.e. a commission paid by the final provider to the travel website if the click transforms itself into a sale). At the other extreme are full-fledged online travel agencies such as Expedia or Travelocity. The travel sections of major generalist portals such as Yahoo ("farechase") or AOL contain features that belong to those two types. AOL is a good example in this respect as, in addition to travel search powered by Travelocity/Sabre, it has just added a new functionality "pinpoint by AOL" which works in conjunction with Kayak.com. The growth of online travel agencies is extremely rapid, as shown in Table 10, and they start targeting the corporate market. They are increasingly considered as full online travel providers by professionals, and have become an integral part of the "distribution mix" of airlines.

155. Most of these sites use a classical CRS as an "engine" to search and book fares. There is no publicly available documentation of the contractual relationship between CRS-GDS on the one hand and online travel agencies on the other, but it is clear that first-line online providers do not pay CRS the cost of a full booking like airlines (around US\$11 per ticket on average). Some of these B-to-C providers have also developed "direct connect access" (DCA) software, giving them a direct access to the inventories of the airlines. This is for instance the case for Orbitz, which has agreements with nearly all US major airlines for these DCA, in addition to its traditional use of the classical CRS Worldspan. Orbitz charges US\$3 per booking made through these DCA, and in 2004, it was already mak-

<sup>51</sup> Some of them are even nicknamed "screen scrapers" by the travel or airlines sites they search and by whom they are faulted of slowing down those sites by overloading them with requests. Some airlines and hotel chains have attempted to sue "screen scrapers", but, so far, in vain.

**TABLE 10**  
**Market share of US travel sites**

Site	December 2004	May 2005
<b>Expedia</b>	24.8%	21.7%
<b>Travelocity</b>	15.8%	16.2%
<b>Orbitz</b>	11.6%	8.4%
<b>SideStep</b>	0.0%	1.3%
<b>Mobissimo</b>	0.2%	0.1%
<b>Kayak</b>	0.1%	0.7%
<b>Yahoo/Farechase</b>	0.1%	0.3%
<b>Other</b>	47.5%	51.3%

*Note:* Based on monthly visits.

*Source:* Airline Business, June 2005.

ing 40 per cent of its transactions through these DCA with seven airlines, whereas its inventory offers 455 airlines.

156. Orbitz has been the target of several judicial or quasi-judicial complaints from its competitors. The case in point were contractual clauses that require airlines to give the best fares they are offering on their own website ("webfares") as a precondition to appear in Orbitz display. These claims have been dismissed, and the practice of giving access to the full inventory, including webfares, has become common among airlines in the United States, including in their relation with classical CRS, provided that airlines obtain in exchange a rebate on fees (see above the section on B-to-B CRS).

157. In terms of concentration, the online travel market appears as a mature market, which is somewhat paradoxical in a sector in constant evolution. In the United States, for instance, the top three groups (IAC/Expedia, Sabre/Travelocity and Cendant) represented no less than 93 per cent of the market in 2004, while in Europe the top five companies (Expedia, Last Minute, Ebookers, Opodo and Travelocity) accounted for 60 per cent.

158. Online agencies do not need to establish a commercial presence in order to be able to operate abroad. However, already established players are now seeking to expand geographically and acquire brands and expand in promising markets.

159. For instance, in 2004, Cendant acquired the UK company Ebookers and the Australian company Flairview Travel. In 2005, Travelocity/Sabre acquired Lastminute.com, the European market leader, for US\$994 million. It also took full control of Zuji, a travel portal formerly collectively owned by Asian airlines and whose activities extend to Australia, New Zealand, Singapore, Hong Kong and Korea. Not all of these acquisitions have been success stories, however, as cross-border synergies largely depend on the integration of the IT systems and on the capacity of these sites to absorb two-digit annual growth of traffic.

160. In China, only 5 per cent of tickets are sold online and there are 11,000 "brick and mortar" travel agencies. The perspectives are, however, extremely bright given rapid growth of domestic tourism. That explains why the two market-leaders of online travel, Ctrip (1.2 million users in 2004, double the previous year) and E-Long (0.5 million users in 2004), are both majority-owned by Expedia (itself controlled by the media conglomerate Interactive corporation, IAC). Cendant, for its part, has created a joint venture with the state-

owned China Youth Hostel Services. However, most of the revenues of these online travel agencies come from hotel bookings as air booking fees are capped.

161. In Japan, Rakuten and the biggest "brick and mortar" agency JTB have started online services, but mostly for domestic flights and hotels as the international segment is still dominated by group trips organized by physical travel agents. However, Tabini, an online travel agency, had to cease its activities at the end of 2005 due to lack of customers.

#### (b) Regulatory developments

162. There are virtually no developments to report in this regard. In the United States, the Internet travel providers had provisionally been exempt from regulation pending the final decision on CRS regulations. The final rule issued by the US Department of Transport (DOT) on 7 January 2004 (CFR part 255, Federal Register volume 69, n°4, pages 975-1033) definitively confirmed that Internet travel providers are not specifically regulated. They are not specifically regulated in Europe either, since they do not fall under the definition of the CRS regulation which implies the intervention of a travel agent.

#### Possible issues for discussion

*In view of the openness of the GATS definition of CRS (no reference to travel agents, no requirement of exhaustivity of the inventory) and of the emergence of Business-to-Consumer travel providers, Members may want to discuss the possibility of a collective interpretation which either:*

- *explicitly includes these new online providers in the CRS definition of the Annex or*
- *considers them as an electronic form of travel agencies (using the concept of "technological neutrality" and taking into account recent WTO jurisprudence). By the same token, this option could limit the scope of CRS to B-to-B providers by making a reference to their use by travel agents, as is the case in national codes or regulations on CRS.*

*These two interpretations would have different legal implications as commitments and MFN exemptions differ widely between sectors.*

*Members may therefore want to consider the possibility of technical rectifications, not involving compensation, to allow for the adjustment of schedules and MFN exemption lists to the newly*

*clarified legal situation. Otherwise, in view of the complex legal ramifications, a solution could be left to a possible future dispute settlement case.*

*In this context, Members may also want to discuss the status of direct online sales channels operated by the airlines, which could fall within the definition of CRS or of selling and marketing, and decide in favour of one of option, possibly by using the concept of technological neutrality.*

### 3. Possible implications for cargo traffic

163. The definition of CRS in the Air Transport Annex does not contain a reference to passengers ("services provided by computerised systems that contain information about air carriers schedule, availability, fares and fares rules, through which reservations can be made or tickets may be issued").

#### Possible issue for discussion

*Is a computerized system that contains relevant information (schedules, availability, fares) for cargo transport and that allows reservations to be made covered by the Annex definition and, hence, by commitments on CRS?*

164. This is not a moot point. Recent years have seen the development of providers offering cargo types of services, such as GF-X<sup>52</sup> and Cargo Portal Services.<sup>53</sup> For instance, GF-X is operational since October 2000 and has some major players of the air cargo and logistics industry among its members, such as American Airlines Cargo, Air France Cargo, British Airways World Cargo, Cargolux, Continental Airline Cargo, Delta Air Logistics, Emirates Sky Cargo, Cargo Iberia, KLM Cargo, Lan Cargo, Lufthansa Cargo, Swiss World Cargo, Bax Global, DHL, EGL, Exel, Kuehne and Naegel, Panalpina and Schenker. Cargo Portal Services, which has been created by the IT provider Unisys, offers similar services.

### 4. Other service providers linked to CRS activities

165. The CRS picture would not be complete without mentioning at least two other types of service providers that play a key role upstream in the provision of CRS services. The first type consists of companies that provide or publish airlines fares and rules, which are then fed into CRS. There are two major players in that field. ATPCO (Airline Tariff Publishing Company)

<sup>52</sup> <http://www.gf-x.com>

<sup>53</sup> [http://www.unisys.com/transportation/solutions/logistics/cargo\\_portal\\_services](http://www.unisys.com/transportation/solutions/logistics/cargo_portal_services)



is a company based in Washington and owned by 19 major US and non-US airlines which obtains fares and its associated purchasing rules and conditions from over 500 US and non-US airlines. This information is then provided to the four major GDS as well as to other airlines and agencies which subscribe to its services. ATPCO does not charge airlines for the provision of the fare information but the entities, including the GDS, that subscribe to its various data services. The second main player on this market is the information technology and telecommunication services provider SITA, which is collectively owned by air transport industry companies (mostly airlines).

166. The second category of providers is made up of companies that collect and publish schedules of airlines. The dominant player is OAG Worldwide, a company resulting from the merger in 1993 of the US based Official Airlines Guide Inc. and the UK-based ABC International. OAG has 400 employees and nine offices in North America, Europe and Asia.

#### Possible issue for discussion

*Members may want to consider if such data services are directly related to exercise of traffic rights. Otherwise, what would be the proper classification?*

## **B. SELLING AND MARKETING OF AIR TRANSPORT SERVICES**

### **1. Economic developments**

#### (a) General observations

167. The increasing share of direct sales by the airlines in their "distribution mix", a trend already identified during the first review, has been confirmed and amplified during the period under review. This makes commitments on selling and marketing even more valuable than they were during the Uruguay Round negotiations, where forms of direct sales were limited to airport counters, city offices and, marginally, call centres. The development of call centres and the advent of direct online sales, combined with the renewed attention paid by airlines to their distribution costs, are major new features.

168. There are, however, no global figures to assess the economic importance of direct sales as compared to other channels of distribution in global sales. However, specialized surveys as well as data from individual airlines concur in confirming this evolution, although ample variations can be observed by type of traffic, region and individual carriers.

169. As an example, the total sales of the US carrier Northwest Airlines in 2005 were through the following channels: 60 per cent sales through third parties; 22 per cent call centres; 16 per cent NWA's own website; 2 per cent airport ticket counters; and 0 per cent city offices.<sup>54</sup>

170. A July 2005 survey conducted by Airline Business asked airlines which distribution channels they were using and which they considered to be the most important in future. The replies of the survey are summarized in Chart 5.

171. Since the channels for direct sales are of a very different nature, they will be described separately.

#### (b) Airport counters and city offices

172. There are no comprehensive data for these outlets. However, anecdotal evidence suggests that this form of selling and marketing is diminishing in importance. For instance, in March 2005, British Airways closed down 17 city travel shops and one major in-house travel agency at Heathrow airport as these outlets were making losses compared to the much cheaper online channels whose relative share of total sales was growing in parallel (15 per cent in 2002, 32 per cent in 2006, 50 per cent in 2008).

173. A point worth noting is that airport counters, except at the carrier's hub, are frequently staffed by personnel from ground-handling companies or, in certain instances, alliance partners.

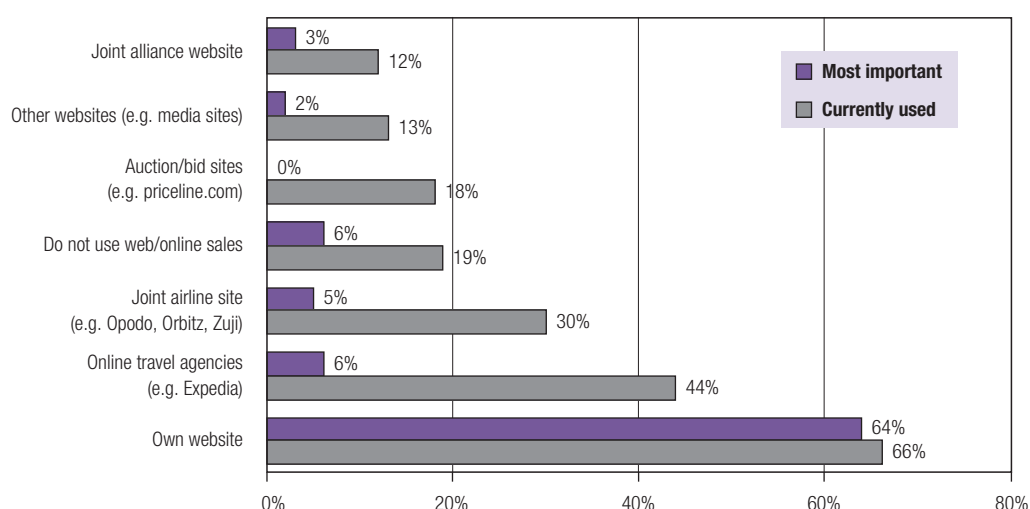
#### Possible issue for discussion

*Would an airport counter of a carrier staffed by third-party personnel still be considered as falling within the definition of selling and marketing in the sense of the GATS Air Transport Annex ("opportunities for the air carrier concerned...")?*

#### (c) In-house call centres

174. No comparable data exist for this form of selling and marketing either. The anecdotal elements available are inconclusive. For instance, in the last two years, British Airways has closed three of its five call centres located in the United Kingdom (whose traffic had gone down from 15 million phone calls to 6 million in four years) while keeping its eleven locations abroad. In the meantime, Southwest continues to rely for a notable proportion of its bookings (27 per cent) on in-house call centres. There is even a case in the United States

<sup>54</sup> Northwest closed all its city offices in 2004.

**CHART 5****Online channels used to sell seats – 2005**

Source: Airline Business, July 2005.

where a call centre has been repatriated in-house from overseas as the quality of service of the third party provider had not been deemed satisfactory.

(d) Direct online sales

175. Direct sales, like more generally online sales, are easier to handle in the case of point-to-point/domestic/leisure-low-cost segments. This explains why direct online sales are the quasi-exclusive selling channel of certain low-cost carriers such as easyJet and Ryanair. However, there are variations even among low-cost carriers. For example, online direct sales represent 75 per cent of Jet Blue sales and 60 per cent of Southwest sales. Twelve per cent of Southwest's bookings come from the CRS Sabre and the remainder from a more traditional form of direct sale i.e. call centres.

176. There are considerable variations between carriers and between regions in the use of on line direct sales. This is illustrated, for instance, by Table 11 drawn from a July 2005 survey conducted by Airline Business on a representative sample of over 200 airlines worldwide.

177. Even in the mature US market, a traditional network carrier such as Continental Airlines recorded only 25 per cent of its bookings through its own website in 2004, even though it aims to achieve a 50 per cent share. All major US carriers report double digit growth for their websites and have started segmenting them by types of market, targeting in particular the lucrative corporate segment. This evolution also affects low-cost

carriers (e.g. SWAbiz for Southwest, Company Blue for Jet Blue) alongside traditional carriers (American, Delta, Northwest). The same evolution can be observed outside the United States though with a time lag. However, in certain instances, the "direct" brand may be misleading. For instance, American's and United's corporate booking portals are in fact relying on Orbitz, a third-party online travel provider.

178. The IT/telecom company SITA has estimated that direct sales resulted in airlines saving up to US\$1.2 billion in 2005. In order to accelerate this trend, in August 2004, Northwest Airlines (NWA), another traditional network carrier, imposed an additional fee on bookings made elsewhere. This fee applied not only to external channels such as CRS, but also to Northwest's own channels other than its website (call centres, airport ticket counters and downtown offices) because these sales are more costly on a per-ticket

**TABLE 11**  
**Online sales and e-tickets in proportion of all tickets – 2002-2005**

	Own airline website	All online channels	E-tickets issued
<b>2002</b>	5.1%	10.1%	11.1%
<b>2003</b>	9.7%	15.8%	14.7%
<b>2004</b>	11.0%	14.5%	19.1%
<b>2005</b>	16.4%	20.1%	29.6%

Source: Airline Business, July 2005.



basis than the use of the airline's own website. GDS reacted to the surcharge by downgrading NWA in their displays, forcing the airline to abandon the practise. It has, however, been maintained for other modes of bookings and subsequently been followed by American, Continental, United and US Airways.

179. Other carriers have tried to attract customers on their own websites by offering a refund if the customer finds a lower fare on another site. Another new tendency is that of "dynamic packaging" through which airlines websites try to sell non-airline elements, such as car rentals, hotels and travel insurance provided either by their subsidiaries or by commercial partners. British Airways' website is a good example.

- (e) Selling and marketing activities undertaken by alliances, codesharing or simple commercial partnerships

180. As explained during the first review (compilation pages 23 and 26), alliances cooperate in the area of selling and marketing through joint marketing teams, common advertising campaigns, common frequent flyer programmes and cross-selling of tickets.

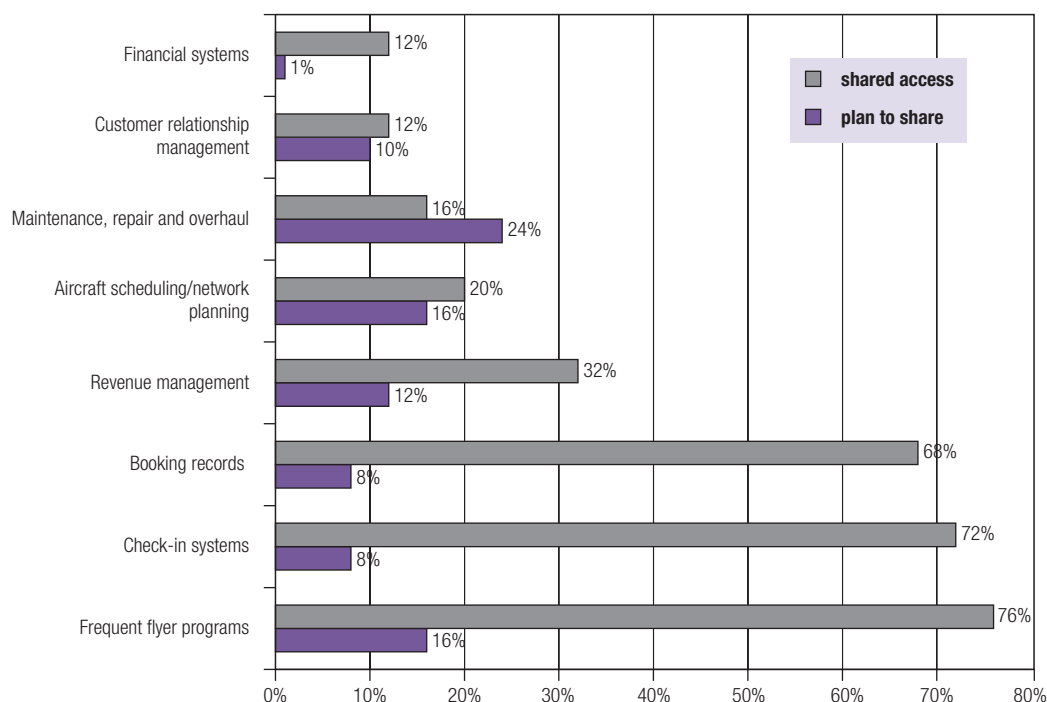
181. This point is well illustrated by the result of a July 2004 survey on IT by Airline Business, based on a representative sample of airlines members of alliances, which is summed up in Chart 6.

182. The fact that alliance members tend to cluster in the same terminals at major airports and share personnel and facilities will further contribute to these cross-selling activities.

183. At a more *ad hoc* level of cooperation, codesharing is to a very large extent a selling and marketing arrangement. The US Department of Transportation "Code-share safety program guidelines", dated 19 February 2000, define code-sharing as "a marketing arrangement in which an airline places its designation code on a flight operated by another airline and sells and issues tickets for that flight". Through the code-sharing arrangement, the flight becomes the flight of both the operating and the marketing carrier. Hence, the marketing carrier is selling what has effectively become its own flight; it could thus be considered as falling within the Annex definition of selling and marketing ("opportunities for the air carrier concerned to sell and market freely its air transport services").

## CHART 6

### Existing and planned shared functions within alliances



Source: Airline Business, July 2004.

184. Finally, at an even lower level of cooperation, there are cases of cross-selling that do not even entail a code share arrangement. This is the case, for instance, for the agreement concluded in December 2005 by two German airlines, DBA, a low-cost, mostly domestic carrier, and Air Berlin, a mostly leisure travel airline. The two companies are to link their websites and offer each other's flights on these websites.

#### Possible issue for discussion

*Members may wish to consider whether joint selling and marketing activities fall within the coverage of the GATS definition of selling and marketing, i.e. "opportunities for the air carrier concerned to sell and market freely its air transport services, including all aspects of marketing such as market research, advertising and distribution...", whether they are covered under other sectors, such as computer services or market research and advertising, or whether they are excluded in full or in part from the scope of the GATS.*

(f) General sales agents, third-party call centers and other outsourced sales and distribution functions

#### *(i) General observations*

185. Outsourcing of airline management functions is on an increasing trend. Chart 7 draws upon an enquiry made by Airline Business in July 2004, based on a representative sample of over 200 airlines world-wide. Selling and marketing is no exception in this context.

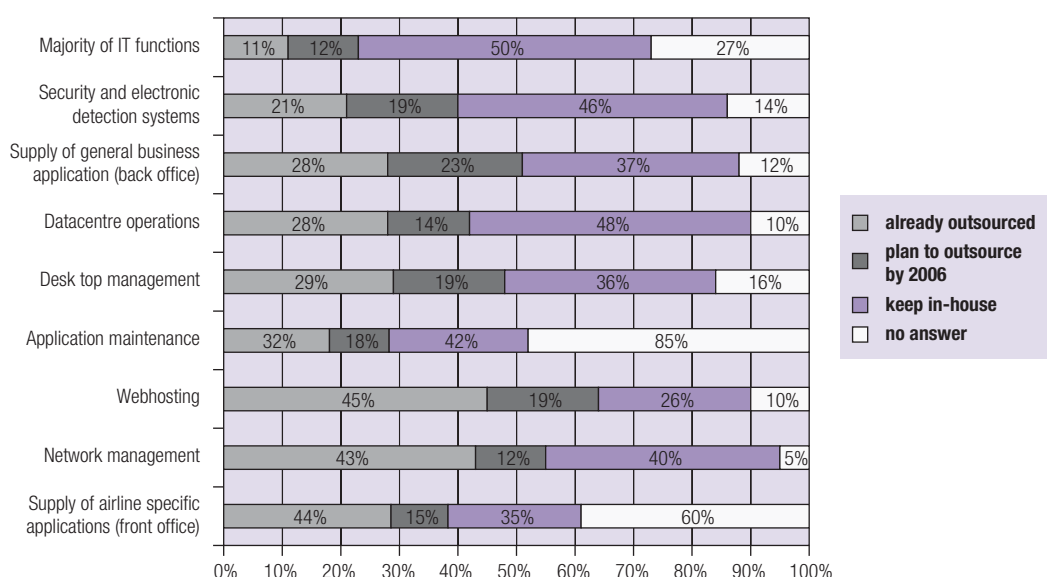
#### Possible issue for discussion

*Can "selling and marketing" activities that are outsourced by a carrier still be considered as falling within the selling and marketing definition of the Air Transport Annex ("opportunities for the carrier concerned"...)?*

#### *(ii) General sales agents*

186. Subcontracting for selling and marketing to third parties, so-called General Sales Agents (GSA), has expanded as well. Examples include the US company "Discover the World Marketing" (75 offices in 52 countries) and the German company Aviareps (40 offices). Some of the airlines that responded to the IATA WTO enquiry on legal regimes covering selling and marketing (see the regulatory section below) were present in some

**CHART 7**  
**Outsourced airline functions**



Source: Airline Business, July 2004.



countries/territories through GSA. This is generally the case when the low frequency of flights does not justify the setting up of a wholly-owned structure.

*(iii) Third-party call centres*

187. This form of selling and marketing is likely to follow the general trend towards business process outsourcing. Its possible classification has been discussed at length in the context of the discussion on e-trade and on cross-border supply.

*(iv) Other outsourced sales and distribution functions*

188. Air France has engaged in outsourced selling and marketing by utilising the Czech company Teamtrackers, itself owned by the insurance company Europe Assistance, to process overloads of post-purchase claims and of luggage claims.

*(g) Aspects related to cargo traffic*

189. Nothing in the definition of selling and marketing contained in the Annex excludes cargo. However, information is scarcer in this area and there is very little to report except for the increasing importance of online direct sales/booking channels, where the classical cargo industry (be it combi-carriers carrying cargo in the belly of a passenger plane, or all-cargo) is trying to catch up with the technological advances that express carriers have introduced over the years. However, mode 3 commitments for the selling and marketing of air cargo services may prove commercially relevant. Like for freight-forwarding or liner maritime transport, a physical presence is key for attracting potential customers and for subsequently collecting the freight. This explains why express carriers have very extensive physical networks and why selling and marketing commitments may prove more valuable for cargo than for passengers, where the situation is to a large extent already very liberal.

## **2. Regulatory developments**

190. Although, generally speaking, selling and marketing activities are not regulated as such, at least at a national level, some aspects are affected by the air service agreements. It is somewhat difficult to gather data and to give a complete picture of the regulatory evolution for this sector.

*(a) ICAO Developments*

191. The ICAO TASA contains a specific Article (Article 21) dealing with selling and marketing. It is common

to all three alternative approaches suggested by the TASA (i.e. traditional, transitional and full liberalization) and includes sales through intermediaries, except for CRS. The Article reads:

"1. Each Party shall accord airlines of the other Party the right to sell and market international air services and related products in its territory (directly or through agents or other intermediaries of the airline's choice), including the right to establish offices, both on-line and off-line."

192. ICAO considers that this clause provides a simple, but fair standard for authorizing airlines to sell and market their services. The clause does not apply to the sale and marketing of air service products through computer reservation systems (CRS), which is dealt with by a separate provision. The term "on-line office" describes a situation where an office is located in a city or country directly served by the airline; an "off-line office" is located in a city/country not served by the airline.

193. The same Article stipulates the right to sell in freely convertible currencies of other countries:

"2. Each airline shall have the right to sell transportation in the currency of that territory or, at its discretion, in freely convertible currencies of other countries, and any person shall be free to purchase such transportation in currencies accepted by that airline."

194. The ICAO TASA contains also a draft Article on currency conversion, remittances, and earnings. Again, this Article is common to all three alternative approaches suggested by the TASA. It reads:

"Each Party shall permit airlines(s) of the other Party to convert and transmit abroad to the airline(s) choice of State, on demand, all local revenues from the sale of air transport services and associated activities directly linked to air transport in excess of sums locally disbursed, with conversion and remittance permitted promptly without restrictions, discrimination or taxation in respect thereof at the rate of exchange applicable as of the date of the request for conversion and remittance."

195. This provision is a more comprehensive version of a provision found in almost all bilateral air service agreements. ICAO also specifies that the term "associated activities directly linked to air transport" would normally include activities closely related to the provision of air services, such as a bus service between the

airport and hotels and, where permitted, the provision of ground-handling services to other airlines. The term would not include activities such as revenue from hotels, car rentals, investments in local real estate, or stocks and bonds, which would presumably be subject to a different conversion and remittance regime. The term "without taxation" refers to taxation on conversion and remittances, not to national income tax, which is dealt with by the Article on "taxation".

196. Finally, the ICAO TASA contains a provision on "non-national personnel and access to local services". This provision seems to correspond to a large extent to mode 4 for selling and marketing in the GATS sense, although with a wider scope, as it concerns not only commercial staff but also operational and technical staff. The provisions of this Article differ depending on the liberalization approach chosen.

197. For "traditional and transitional" approaches, it reads as follows:

"1. The designated airline or airlines of one Party shall be allowed, on the basis of reciprocity, to bring into and to maintain in the territory of the other Party their representatives and commercial, operational and technical staff as required in connection with the operation of the agreed services.

2. These staff requirements may, at the option of the designated airline or airlines of one Party, be satisfied by its own personnel or by using the services of any other organization, company or airline operating in the territory of the other Party and authorized to perform such services for other airlines.

3. The representatives and staff shall be subject to the laws and regulations in force of the other Party, and consistent with such laws and regulations:

a) each Party shall, on the basis of reciprocity and with the minimum of delay, grant the necessary employment authorizations, visitor visas or other similar documents to the representatives and staff referred to in paragraph 1 of this Article; and

b) both Parties shall facilitate and expedite the requirement of employment authorizations for personnel performing certain temporary duties not exceeding ninety (90) days."

198. It may be noted that the traditional and transitional approaches rely on reciprocity, which - if interpreted in a quantitative manner - would result in a numerical limitation on the number of airline employees that could be posted in the other Party's territory.<sup>55</sup>

199. For the "full liberalization" approach, the Article provides that:

"Each Party shall permit designated airlines of the other Party to:

a) bring in to its territory and maintain non-national employees who perform managerial, commercial, technical, operational and other specialist duties which are required for the provision of air transport services, consistent with the laws and regulations of the receiving State concerning entry, residence and employment; and

b) use the services and personnel of any other organization, company or airline operating in its territory and authorized to provide such services."

200. Paragraph b) responds to the need to accommodate the increasingly frequent use of personnel from third countries by air carriers as a result of the growing number of alliances and the globalization of airline commercial activities. Consequently, it provides for the possibility to use personnel and services of an airline, which is a partner in an alliance or codeshare arrangement, as well as any local company or organization authorized to provide such services.

(b) WTO developments

201. Of the twelve countries or territories that have acceded to the WTO since August 2000, seven have undertaken commitments on selling and marketing<sup>56</sup>, and two have listed relevant MFN exemptions.<sup>57</sup>

202. MFN exemptions covering selling and marketing were discussed during the second review of MFN exemptions held on 30 November 2004 and 23 February 2005.<sup>58</sup>

<sup>55</sup> This might also raise MFN compatibility issues.

<sup>56</sup> Armenia, Cambodia, Chinese Taipei, Croatia, FYROM, Moldova and Oman.

<sup>57</sup> Albania and Moldova.

<sup>58</sup> See documents S/C/M/76, dated 4 February 2005, and S/C/M/78, dated 17 May 2005.



(c) Bilateral regulatory aspects

203. One of the obligations conditional on the scheduling of commitments is the prohibition on operating restrictions on international transfers and payments for current transactions.

204. Since such transfer restrictions have been a long-standing problem for airlines, numerous bilateral air service agreements since World War II contain clauses guaranteeing the free remittance of earnings. For reasons explained above in relation to CRS provisions in bilateral agreements, in the absence of MFN exemptions listed under the GATS by Members concerned to cover such situations, it could be argued that such provisions may need to be extended in accordance with Article II of the GATS (MFN). Otherwise, an MFN exemption should have been listed by the Member concerned.

205. The 2004 edition of the WASA ICAO database lists 329 agreements containing currency conversion/remittance clauses concluded after 1 January 1995, which involve at least one WTO Member. ICAO defines currency conversion/remittance clauses as "provisions aimed at facilitating or ensuring currency conversion and/or remittance of funds by the designated airlines, usually without restrictions. Alternatively, it may refer to separate arrangements in place between the parties and will be coded as existing so long as the objective of the transfer of funds can be construed from the text." The agreements concern 94 WTO Members, of which 25 filed an MFN exemption covering selling and marketing (out of a total of 32 MFN exemptions listed for selling and marketing).<sup>59</sup> The complete list of these agreements and MFN exemptions can be found in the Annex (Table A4 and Table A7).

206. A second feature of bilateral agreements, which has an impact on selling and marketing is the granting to the designated airline(s) of the other party the right to sell air services in the currency of that other party or in a freely convertible currency ("local and convertible currency" clause). The 2004 edition of the ICAO WASA database lists 351 agreements concluded with such a clause since 1 January 1995 and involving at least one WTO Member. In total, 93 WTO Members are concerned, of which 26 have filed an MFN exemption covering selling and marketing (Table A5 and Table A7).

207. A third element of bilateral agreements relevant to selling and marketing is, as defined by the ICAO WASA database, "the right to establish offices and or commercial technical and operational personnel in

the territory of the other party". In GATS terms, this would involve mode 3 and mode 4. The database indicates further that "the right of establishment may be implicit, for example where a designated airline is granted the right to sell air transportation directly in the territory of the other party." The 2004 edition lists 331 agreements containing an "office clause" concluded after 1 January 1995 and involving at least one WTO Member. 93 WTO Members concerned, 25 have filed a relevant MFN exemption<sup>60</sup> (Table A6 and Table A7).

(d) National developments

208. For the purpose of gathering data for the review, the Secretariat established a questionnaire, IATA then helped to distribute it to its member airlines through its local offices and contacts with the Board of Airlines Representatives (BAR).<sup>61</sup> The questions were largely inspired by the structure of Articles XVI and XVII of the GATS, but adjusted to an audience unfamiliar with GATS. IATA received answers from 26 countries, approximately one sixth of the sample. This constitutes a reasonable rate of return for this type of enquiry, and covers a fairly representative geographic sample of WTO Members (Austria, Bahrain, Chile, Czech Republic, Dominican Republic, Egypt, Germany, Italy, Jordan, Kuwait, Mali, Portugal, Qatar, Saudi Arabia, Senegal, Slovak Republic, Slovenia, Spain, Switzerland, Trinidad and Tobago, Tunisia, Turkey, United Arab Emirates, and United Kingdom) and non-Members (Lebanon and Yemen).

209. The regulatory landscape which emerges from this enquiry is surprisingly liberal (Table 12).

210. As a complement to this *ad hoc* enquiry, IATA regularly collects information on the countries where its member airlines face repatriation problems. This may result in collective initiatives aimed at obtaining the relaxation of such restrictions. The last version of the relevant survey, dated January 2006, contains 17 countries, eight of which are not WTO Members. None of the nine WTO Members concerned has commitments on selling and marketing (pursuant to Article XI of the GATS, payment restrictions would be inconsistent with such commitments).

211. The number of countries restricting payments and transfers could be higher, however, as some airlines may have preferred not to report such practices for fear of retaliation. The difficulties reported by

<sup>59</sup> Counting EC-12 as 13 entities.

<sup>60</sup> *Idem*.

<sup>61</sup> BAR is the collective body representing the airlines serving a given country.

**TABLE 12**  
**Restrictions on selling and marketing – 2006**

Questions	No restrictions	Restrictions
Are your outlets (e.g. city offices, airports counters) limited in number or size (e.g. number of employees)?	26 <sup>a</sup>	0
Are you subject to mandatory requirements (e.g. local employment, joint venture, prohibition to sell directly, obligation to sell through an intermediary)?	23	3 local employment requirements <sup>b</sup>
Are your market research and advertising activities limited in any manner?	26	0
Are you subject to land ownership restrictions (e.g. relating to whether you can own or rent your premises, relating to the land supporting your premises or obliging you to go through an intermediary)?	25	1
Are you (a) prohibited from using or (b) forced to use certain legal forms when establishing a presence (e.g. branches, subsidiaries, representative offices)?	24	2
Are you forced to have a certain number of nationals on the managing board of companies, regardless of their legal form ?	26	0

<sup>a</sup> In one instance, limitations linked to physical capacity within the airport have been mentioned.

<sup>b</sup> Of these, two apply on a *de facto* basis

Source: WTO/ IATA Inquiry.

operators in this respect include: long and cumbersome approval processes by Central Banks and/or Civil Aviation Authorities, lack of foreign currencies, and obligations to pay certain expenses (such as air navigation charges, costs of ground handling and fuel) in hard currencies while being forced to receive payments in local currencies at administered exchange rates.

## C. TICKET EMISSION SERVICES

### 1. Passenger aspects

- (a) A major technological evolution: electronic ticketing

212. Electronic ticketing, which was mentioned in the first review as an emerging feature of certain carriers (see compilation, page 26), has during the period under review become a collective priority of airlines. At their Annual General Meeting, held in Singapore in 2004, IATA Members set the objective of 100 per cent e-ticketing by the end of 2007. This objective is inspired by the considerable savings involved. They are conservatively estimated at US\$3 billion annually or US\$9 per ticket, some estimates go as far as US\$15-24 per ticket.

213. E-ticketing was adopted first in the leisure travel market as it is easier to use for point-to-point traffic, which constitutes the bulk of leisure travel. It is now becoming universal in view of its advantages for corporate travel in allowing better tracking and easier refunds. Growth rates are impressive. For instance,

American Airlines' rate of e-ticketing rose from 55 per cent in April 2001 to 91 per cent in April 2004.

214. Problems have remained in the case of inter-lining between airlines, particularly between airlines which are not members of the same alliance. However, the industry and various IT companies such as Amadeus, Sabre, SITA and IBM are working on solutions. One of the main obstacles faced by developing and least-developed countries' carriers is the cost of the hardware and the associated training. Small carriers draw up to 20 to 40 per cent of their revenues from inter-lining; they risk losing these revenues if they do not switch to electronic ticketing as adopted by their partners from developed countries. This is a powerful incentive for the adoption of the new system. Another advantage of early adoption is the possibility to link e-ticketing systems to market research and marketing tools, such as customer relation management (CRM) software and frequent flyer programmes, thereby optimizing yields. Nevertheless, rather than technology *per se*, it is traditional business practices and powercuts that have hampered the adoption of e-ticketing in least-developed countries.

- (b) Self emission of tickets by airlines

215. In the case of direct sale, the ticket is emitted by the airline itself. Initially, airlines emitted paper tickets in IATA format. They are now switching to e-tickets in accordance with the IATA plan to generalise e-ticketing by 2007. This has already been accomplished for tickets booked online, whereby the customer only receives a printable receipt which is then exchanged at the

airport counter for a boarding pass. The same applies to call-centre bookings; in this case, the customer only receives a booking reference over the telephone. The switch to e-ticketing is not yet fully achieved for tickets sold at city offices, in particular in developing and least-developed countries.

*Possible issue for consideration*

*Is the activity of ticket emission simply part of the supply of selling and marketing services as GATS Article XXVIII(b) stipulates that "the supply of a service includes the production, distribution, marketing, sale and delivery of a service" ?*

*Or, alternatively, is it a service in itself? If so, which service? And what are the implications in terms of commitments and MFN exemptions?*

*Members may also wish to consider a similar question for Billing Settlement Plans (see below).*

(c) Billing Settlement Plans (BSPs)

216. A Billing Settlement Plan acts as sort of a clearing house between travel agents and airlines. It apportion the tickets emitted by each travel agent to the various airlines concerned, collects the corresponding payment from the travel agent (after a variable period of credit) and dispatches it to the relevant airline. It also transmits any reimbursement from airlines to travel agents, notably in the case of cancelled tickets.

217. In practice, there are at least three types of BSPs in operation, with the IATA BSP being by far the most common type. Theoretically, there could be more players, as for instance, any bank, financial intermediary or information technology company could set up similar services.

(i) IATA Billing Settlement Plans

218. IATA runs 76 BSPs covering 130 countries.<sup>62</sup> These plans are based on relatively light structures (employing between 1 to 20 persons), self-funded, and managed on a not-for-profit basis.

219. To benefit from the clearing services of the BSP, travel agents have to be accredited IATA agents. The accreditation procedure run by IATA involves criteria such as financial soundness and security (to avoid the smuggling of blank tickets) and includes train-

ing programmes. Agencies pay a fee to obtain and maintain their accreditation status with IATA. Some non-IATA airlines may become members of the BSP on an *ad hoc* basis.

220. The duration of the credit granted to travel agencies by BSPs varies from one week to two months depending on local economic conditions and on the financial soundness of the agent concerned. There is no global estimate available of the value of this credit, but its granting is certainly significant for travel agents, as is their ability to emit tickets, which, from an airlines' viewpoint, represents a financial asset likened to a "blank cheque".

221. Originally planned for paper procedures, the BSP system is quickly turning to electronic processing: by end 2005, 40 per cent of the transactions were carried out electronically, and forecasts are for 70 per cent in 2006 and 100 per cent in 2007 - in line with the general e-ticketing objectives of IATA.

222. The tendency towards the multiplication of booking channels has not yet been matched on the emission/distribution side. New online booking channels also have recourse to BSPs: for instance, Expedia and Opodo have accredited one of their physical locations in order to be able to issue tickets and benefit from the clearing system (the position of GNEs with regard to BSP is, however, still unclear). In China, where an IATA BSP operates, CRS must obtain an approval from the Civil Aviation Authority of China (CAAC) for BSP certification in order to be able to issue tickets through a travel agency. So far, only the local CRS, Travelsky, has obtained this approval, a situation which constrains local travel agencies to book either with Travelsky or with a foreign CRS with the tickets being issued manually, in turn resulting in increased costs.

223. IATA BSPs processed US\$158 billion worth of tickets in 2004, and figures are rising year-on-year. The evolution of the number of IATA accredited agents (58,000 in 2004) depends on exogenous factors such as the ongoing consolidation of physical travel agencies, itself linked to the emergence of online providers, and the ongoing suppression of booking commissions by airlines.

(ii) Airline Reporting Corporation (ARC) – United States

224. The United States was initially covered by classical IATA BSPs. However, in 1976, antitrust considerations led to the creation of a different organization, the Airline Reporting Corporation. The four main differences from classical IATA BSPs are: first, IATA does not manage

<sup>62</sup> For instance, one office serves the Nordic countries and another one North Africa. Details on the geographic coverage of IATA BSPs can be found at: <http://www.iata.org/worldwide/index>.

the structure; second, airlines and agents are both represented on the board of ARC; third, membership of ARC is not compulsory for travel agents; and fourth, the corporation is run as a for-profit business. Otherwise, ARC functions exactly like IATA BSPs; it still processes 76 per cent of tickets in the United States, the rest being emitted by the carriers themselves.

(iii) *Local providers*

225. In certain countries, local providers perform the same clearing functions as BSPs. The privileges enjoyed *de jure* or *de facto* by these providers in certain non-WTO Member countries (Russia and Ukraine) have been raised by some WTO Members during accession negotiations.

(iv) *Project of alternative BSPs*

226. In Europe, travel agents had been complaining for some time of anti-competitive practices on the part of IATA, notably about accreditation mechanisms, and lodged a formal complaint in 2002. The complaint was amicably settled at the end of 2005. During the dispute, two associations of travel agents, ECTAA (European Community Travel Agents Association) and GEBTA (Guild of European Business Travel Agents), representing respectively small and medium sized agencies and large ones, seriously envisaged creating an alternative clearing structure to IATA BSPs. This project now seems to have been abandoned.

## 2. Cargo aspects

227. To a large extent, the structures and evolutions described for passenger ticket emission services are echoed in the cargo sector. Here too, IATA and its members have plans for a general switch to online trade and documentation (the "e-freight" initiative), and IATA runs a clearing house structure named Cargo Accounts Settlements Systems (CASS), which operates between the various stakeholders: carriers, forwarders, and shippers.

(a) *E-freight*

228. With regard to the application of e-ticketing, IATA has similar plans for cargo as for the passenger sector, though with a different timeframe. When fully implemented, IATA e-freight will save the industry an estimated US\$1.2 billion annually (based on current cargo volumes), and reduce shipping times by up to 25 per cent. The goal is to reduce the number of documents, with which every cargo shipment travels from 38 to 19, and to increase the number of air waybills for which the data is transmitted electronically. Currently,

electronic airway bill information is only transmitted 15 per cent of the cases. The main reason for this is that the messaging system developed by the airlines in conjunction with IATA "cargo imp" computer standard has to be converted in the computer languages used by freight forwarders XML or EDIFACT. This is done in practice through a "Cargo Community System"(CCS). Traxon in Northern Europe, managed by Lufthansa Systems, and Descartes in Canada and Asia are examples of such CCS, but there are also local CCS such as the three operating in Spain.

229. The main idea of IATA e-freight is to make use of the "single window" concept developed by the World Customs Organization (WCO) and also discussed in the trade facilitation negotiations of the WTO. IATA e-freight will also incorporate the "authorized economic operator" concept set forth in the World Customs Organization Framework of Standards to Secure and Facilitate Global Trade. Similar "known shipper" concepts have emerged in the post 9/11 context both in national legislations (e.g. US, EU) and in other international organizations dealing with transport (IMO, ICAO). IATA has therefore created a steering committee comprising representatives of the WCO, one of the professional associations of freight forwarders (Freight Forward International) and IATA Members with a view to encouraging commercial vendors to develop common technical solutions for users (harmonize data and data compilation to reduce errors and facilitate clearing etc.), to ensure the compatibility of the project with the timeframe set and to preserve the multimodal character of the system. Based on these requirements, IATA will work with several vendors on a preferred partner basis.

(b) *Cargo Account Settlement Systems*

230. The market position of the IATA Cargo Accounts Settlement System (CASS) is comparable to IATA's BSPs. However, there is some marginal competition, which has the potential to intensify. Furthermore, the IATA system is not universal.

(i) *The IATA CASS*

231. The IATA CASS is based on the same principle as the BSP system; it is run on a not-for-profit basis with light structures. IATA airlines are *de jure* members of it, other airlines may participate on an *ad hoc* basis. Freight forwarders wishing to participate must undergo a procedure of accreditation based on qualifications and financial soundness to benefit from the credit facilities given by the settlement system. Other actors (shippers, manufacturers, governmental bodies, charities, express carriers when acting as freight forwarders) may use





the CASS system on an *ad hoc* basis, but without the advantage of credit.

232. There are 40 CASS offices covering 47 countries, and 22 more offices are planned to open in the near future. In 2004, settlement amounted to US\$16.8 billion, and the amount of computerized transactions was US\$14.8 million. The CASS office centralizes the airway bills, which are the cargo equivalent of passenger tickets emitted by the freight forwarders on the various airlines, and dispatches the payments and possible reimbursements between airlines and freight forwarders. The system only covers part of the cargo traffic; express carriers do not use it when they are in direct contact with the client. Big shipments involving the wet lease of a complete aircraft do not travel under an air waybill either, and the geographical coverage of the IATA CASS offices is not universal. However, the market share of IATA's CASS offices in the countries they cover varies between 55 per cent in Singapore (see (ii) below) and 95 per cent. The system may be extended in the future to other modes of transport.

(ii) *Alternative cargo settlement systems*

233. The IATA CASS system currently faces one serious competitor, EPIC, a company located in Singapore. There is scope for more competition given that any company managing an invoicing system (banks, factoring companies, IT companies) could technically provide the same service. Yet, the costs of market entry are relatively high. A market entrant would have to compete with a not-for-profit organization which already has a critical mass of transactions, and would have to match at least the credit facilities offered by the IATA system.

Possible issues for consideration regarding ticket emission services

*Members may want to give some thought to Charts A9 and A10 contained in the Annex (possible legal status of BSPs/CASS under the GATS), which try to identify various scenarios for the coverage and classification of ticket/airway bill emission services.*

## ANNEX TO CHAPTER II

**TABLE A1**  
**Booking channels**

	Form	Sub-form (if any)	Examples	Possible classification under the GATS
Sales by the airline itself	City offices		Air France office in downtown Geneva	Selling and marketing
	Airports counters		Lufthansa counter in Los Angeles airport	Selling and marketing
	Own call centres		BA call centre in India	Selling and marketing ? / telephone answering services (CPC87903)?
	Own website		United.com	CRS ? / selling and marketing ?/ other e-trade related sectors ?
Sales by the alliance	Alliance website		www.staralliance.com	CRS ? / selling and marketing ?/ other e-trade related sectors
	Alliance city office			selling and marketing ? / none ?
	Alliance airport counter		One world counter in Geneva airport	Selling and marketing /none ?
	Alliance call centre			Selling and marketing ? / telephone answering services (CPC87903)?/ none ?
Cross sales by an alliance or code share airline partner	City offices			Selling and marketing ? / none ?
	Airports counters			Selling and marketing ? / none ?
	Call centres			Selling and marketing ? / telephone answering services (CPC87903)?/ none ?
	Website		United.com selling Lufthansa tickets, Air Berlin selling DBA tickets even without a code share	CRS ? / selling and marketing ?/ other e-trade related sectors
Sales by non- airlines third parties	Outsourced call centres			
	General sales agent			
	Physical travel agencies	Using classical CRS	Carlson booking through Galileo	Travel agencies
		Using the web	Carlson booking through easyJet.com	Travel agencies
		Using other online providers		Travel agencies
		Using CRS bypass	Carlson using Navitaire	Travel agencies
	Webcrawlers		Kayak.com, yahoo.travel	?
	Online travel agencies	Using CRS as an engine		CRS ? / travel agencies ?
		Using direct connect links		CRS ?/ travel agencies ?
	Auction/bid sites		Priceline.com	CRS ?/ travel agencies?
	Global New Entrants	Using CRS		CRS ?/ travel agencies?
		Using the web		CRS ?/ travel agencies?
		Using direct connect access		CRS ?/ travel agencies?

Source: Compiled by the WTO Secretariat.



**TABLE A2**  
**Clearing channels**

	Channels	Examples
	Passenger	
	Self emission of tickets	A ticket booked on the easyJet site
	IATA billing settlement plan	BSP office in London
	Airline Reporting Corporation	
	Local BSP providers	Russian and Ukrainian BSPs
	Potential alternative BSP set up by travel agents	
	Cargo	
	IATA CASS	
	Self emission of load/shipping manifest	<ul style="list-style-type: none"> <li>- Shipments on a plane wet leased for that purpose</li> <li>- Shipments directly booked by the shipper with an express carrier (e.g. Fedex or an airline (e.g. Cargolux))</li> </ul>
	EPIC (Singapore) <sup>a</sup>	
	Potential alternative cargo settlement systems set up by banks, factoring companies, IT companies etc	

<sup>a</sup> See: [www.dbgcm.db.com/pdf/EBPP%20for%20the%20Air%20Cargo%20Community%20in%20Singapore.pdf](http://www.dbgcm.db.com/pdf/EBPP%20for%20the%20Air%20Cargo%20Community%20in%20Singapore.pdf)

Source: Compiled by the WTO Secretariat.

**TABLE A3**  
**Bilateral agreements posterior to 1 January 1995 containing a clause dealing with computer reservation systems (as registered and numbered by ICAO)**

Clause as defined by ICAO	Bilateral agreements concerned
A <b>computer reservation systems</b> clause may concern access, availability and requirements of computer reservation systems.	Jamaica-Netherlands (n°4056), Singapore-Brunei Darussalam (n°4101), Lao Democratic Republic-Singapore (n°4104), United States-Singapore (n°4111), Switzerland-Czech Republic (n°4116), United States-Czech Republic (n°4117), Costa-Rica-United States (n°4162), Iceland-United States (n°4369), United States-Brunei Darussalam (n°4371), United States-China Macau SAR (n°4388), Jamaica-Panama (n°4390), Uzbekistan-Indonesia (n°4427), United States-Uzbekistan (n°4433), FYROM-Netherlands (n°4456), Bahrain-India (n°4477), Bahrain-Lebanon (n°4478), Kyrgyzstan-Indonesia (n°4511), Kyrgyzstan-China (n°4518), Costa Rica-Paraguay (n°4573) and Syrian Arab Republic-Netherlands (n°4646).

Source: ICAO WASA database.

**TABLE A4**

**Bilateral agreements posterior to 1 January 1995 containing a clause dealing with currency conversion and remittance (as registered and numbered by ICAO)**

Clause as defined by ICAO	Bilateral agreements concerned
A <b>currency conversion and remittance</b> clause aims at facilitating or ensuring currency conversion and/or remittance or funds by the designated airlines, usually without restrictions. Alternatively, it may refer to separate arrangements in place between the parties and will be coded as existing so long as the objective of facilitating the transfer of funds can be construed from the text.	Croatia-Austria (n°3948), Austria-Viet Nam (n°3949), Indonesia-Singapore (n°3950), South Africa-Austria (n°3954), South Africa-Australia (n°3955), Rep. of Korea-South Africa (n°3956), India-Brunei Darussalam (n°3957), Iran (Islamic Rep. of)-Oman (n°3962), Rep. of Moldova-Turkey (n°3964), Poland-Rep. of Moldova (n°3965), Croatia-TFYR Macedonia (n°3970), Croatia-Slovenia (n°3971), Austria-Brazil (n°3973), Bahrain-Australia (n°3978), China, Hong Kong SAR-Germany (n°3981), Singapore-China, Macao SAR (n°3985), China, Macao SAR-Austria (n°3986), Bahrain-Seychelles (n°3987), India-Norway (n°3988), India-Sweden (n°3989), India-Denmark (n°3990), Myanmar-Brunei Darussalam (n°3991), India-Finland (n°3992), Austria-Mexico (n°3993), Fiji-Papua New Guinea (n°3994), United Kingdom-Slovenia (n°3995), Bahrain-Malta (n°3998), Turkey-Czechoslovakia (n°3999), Myanmar-Singapore (n°4006), Suriname-Grenada (n°4007), Kenya-India (n°4008), Turkey-Cuba (n°4010), Oman-Philippines (n°4011), Ukraine-Finland (n°4012), Barbados-Suriname (n°4013), Myanmar-Viet Nam (n°4014), China, Hong Kong SAR-Rep of Korea (n°4015), Uzbekistan-Viet Nam (n°4016), Uzbekistan-Netherlands (n°4017), Georgia-Uzbekistan (n°4018), Germany-Uzbekistan (n°4019), Maldives-United Kingdom (n°4060), China, Hong Kong SAR-Singapore (n°4061), Finland-China, Macao SAR (n°4062), South Africa-Senegal (n°4063), Philippines-Jordan (n°4065), Cambodia-Viet Nam (n°4067), Cambodia-Myanmar (n°4068), Cambodia-Singapore (n°4069), China, Hong Kong SAR-India (n°4070), South Africa-Brazil (n°4071), Rep. of Korea-Finland (n°4073), Latvia-Lithuania (n°4076), India-Egypt (n°4077), Japan-China, Hong Kong SAR (n°4079), China, Hong Kong SAR-Myanmar (n°4080), China, Hong Kong SAR-Thailand (n°4081), China, Hong Kong SAR-Philippines (n°4082), China, Hong Kong SAR-Indonesia (n°4083), Denmark-Belarus (n°4084), Denmark-Croatia (n°4085), Austria-Lithuania (n°4089), Myanmar-Nepal (n°4090), Malta-Australia (n°4091), Switzerland-Latvia (n°4093), South Africa-Portugal (n°4096), Brunei Darussalam-Austria (n°4097), Finland-Israel (n°4098), Singapore-Brunei Darussalam (n°4101), Lao P. Democratic Rep.-Singapore (n°4104), United States-Singapore (n°4111), United Kingdom-Romania (n°4113), South Africa-Ethiopia (n°4114), Tunisia-South Africa (n°4115), Switzerland-Czech Rep. (n°4116), United States-Czech Rep. (n°4117), South Africa-New Zealand (n°4120), South Africa-Egypt (n°4121), Austria-TFYR Macedonia (n°4122), Brunei Darussalam-Netherlands (n°4123), New Zealand-India (n°4126), United Kingdom-Latvia (n°4127), Bahrain-Uzbekistan (n°4128), India-Czech Rep. (n°4129), Spain-Ukraine (n°4131), India-Belarus (n°4133), Latvia-India (n°4134), China, Macao SAR-Philippines (n°4135), New Zealand-Singapore (n°4136), Uzbekistan-Finland (n°4137), Syrian Arab Rep.-Belarus (n°4138), Uzbekistan-Belgium (n°4139), Uzbekistan-Latvia (n°4140), Uzbekistan-Lithuania (n°4141), Uzbekistan-Slovakia (n°4142), Bahrain-Sri Lanka (n°4143), United Kingdom-Bahrain (n°4144), China, Hong Kong SAR-Bahrain (n°4145), Russian Federation-Mongolia (n°4146), Italy-United Arab Emirates (n°4147), China, Hong Kong SAR-Italy (n°4148), South Africa-Germany (n°4149), Costa Rica-Netherlands (n°4161), Costa Rica-United States (n°4162), Spain-El Salvador (n°4164), Cyprus-Israel (n°4173), Cyprus-Kenya (n°4174), Slovenia-Ukraine (n°4176), Slovakia-Poland (n°4177), Slovakia-Israel (n°4178), Trinidad and Tobago-Belgium (n°4179), Bahrain-Romania (n°4180), Bahrain-Bulgaria (n°4181), Philippines-Bangladesh (n°4182), India-Portugal (n°4184), South Africa-China, Macao SAR (n°4185), Bahrain-China (n°4186), Uruguay-Romania (n°4188), New Zealand-United Arab Emirates (n°4189), Syrian Arab Rep-Armenia (n°4190), Argentina-Singapore (n°4193), Belgium-Comoros (n°4195), Germany-Malta (n°4196), Germany-United Arab Emirates (n°4197), Spain-TFYR Macedonia (n°4233), United Kingdom-Czech Rep. (n°4235), United Kingdom-China, Hong Kong SAR (n°4241), United Kingdom-Sri Lanka (n°4242), United Kingdom-Qatar (n°4243), Spain-Slovenia (n°4246), India-Malta (n°4247), India-Russian Federation (n°4248), South Africa-India (n°4250), United Kingdom-Croatia (n°4251), Bolivia-Costa Rica (n°4263), Switzerland-Bolivia (n°4264), New Zealand-Brunei Darussalam (n°4265), Czech Rep.-Sweden (n°4266), Kazakhstan-Finland (n°4278), Denmark-Czech Rep. (n°4281), Belarus-Sweden (n°4288), Sweden-Croatia (n°4289), Sweden-Mongolia (n°4290), China-South Africa (n°4291), China, Hong Kong SAR-Austria (n°4292), China, Hong Kong SAR-Israel (n°4294), China, Hong Kong SAR-Oman (n°4296), China, Hong Kong SAR-United Arab Emirates (n°4297), Spain-Iran (Islamic Rep. of) (n°4298), Turkmenistan-Iran (Islamic Rep. of) (n°4303), Belgium-New Zealand (n°4304), Rep. of Moldova-Hungary (n°4305), Rep. of Moldova-Lithuania (n°4306), Bulgaria-Rep. of Moldova (n°4307), Rep. of Moldova-Israel (n°4308), South Africa-India (n°4250), United Kingdom-Croatia (n°4251), Bolivia-Costa Rica (n°4263), Switzerland-Bolivia (n°4264), New Zealand-Brunei Darussalam (n°4265), Czech Rep.-Sweden (n°4266), Kazakhstan-Finland (n°4278), Denmark-Czech Rep. (n°4281), Belarus-Sweden (n°4288), Sweden-Croatia (n°4289), Sweden-Mongolia (n°4290), China-South Africa (n°4291), China, Hong Kong SAR-Austria (n°4292), China, Hong Kong SAR-Israel (n°4294), China, Hong Kong SAR-Oman (n°4296), China, Hong Kong SAR-United Arab

Clause as defined by ICAO	Bilateral agreements concerned
	<p>Emirates (n°4297), Spain-Iran (Islamic Rep. of ) (n°4298), Turkmenistan-Iran (Islamic Rep. of ) (n°4303), Belgium-New Zealand (n°4304), Rep. of Moldova-Hungary (n°4305), Rep. of Moldova-Lithuania (n°4306), Bulgaria-Rep. of Moldova (n°4307), Rep. of Moldova-Israel (n°4308), Rep. of Moldova-Italy (n°4309), Georgia-Rep. of Moldova (n°4310), Germany-Rep. of Moldova (n°4311), Cyprus-Georgia (n°4312), Cyprus-Belarus (n°4313), Japan-Ethiopia (n°4333), Japan-Hungary (n°4338), Japan-Papua New Guinea (n°4347), Japan-Poland (n°4348), India-Yemen (n°4364), Lebanon-Australia (n°4365), Germany-Georgia (n°4366), Nepal-Austria (n°4367), Spain-Croatia (n°4368), Iceland-United States (n°4369), Russian Federation-Iceland (n°4370), United States-Brunei Darussalam (n°4371), China, Macao SAR-Belgium (n°4372), China, Macao SAR-Brazil (n°4373), China, Macao SAR-Brunei Darussalam (n°4374), China, Macao SAR-Democratic P. Rep. of Korea (n°4375), Denmark-China, Macao SAR (n°4376), Germany-China, Macao SAR (n°4377), China, Macao SAR-Luxembourg (n°4378), China, Macao SAR-Myanmar (n°4379), China, Macao SAR-Nepal (n°4380), Netherlands-China, Macao SAR (n°4381), China, Macao SAR-New Zealand (n°4382), Norway-China, Macao SAR (n°4383), China, Macao SAR-Rep. of Korea (n°4384), Sweden-China, Macao SAR (n°4385), China, Macao SAR-Switzerland (n°4386), China, Macao SAR-Thailand (n°4387), United States-China, Macao SAR (n°4388), Viet Nam-China, Macao SAR (n°4389), Jamaica-Panama (n°4390), Brunei Darussalam-Lao P. Democratic Rep. (n°4391), Bahrain-Viet Nam (n°4392), Cyprus-Estonia (n°4393), Cyprus-Slovakia (n°4394), Georgia-Kyrgyzstan (n°4395), New Zealand-Switzerland (n°4398), China, Hong Kong SAR-Mauritius (n°4399), China, Hong Kong SAR-Nepal (n°4400), United Kingdom-TFYR Macedonia (n°4405), Cyprus-United Arab Emirates (n°4408), United Kingdom-Netherlands (n°4411), China, Hong Kong SAR-Mongolia (n°4412), China, Hong Kong SAR-South Africa (n°4413), China, Hong Kong SAR-Finland (n°4414), Iran (Islamic Rep. of )-Saudi Arabia (n°4417), China, Hong Kong SAR-Viet Nam (n°4419), China, Hong Kong SAR-Cambodia (n°4420), China, Hong Kong SAR-Denmark (n°4421), China, Hong Kong SAR-Sweden (n°4422), China, Hong Kong SAR-Norway (n°4423), Pakistan-Uzbekistan (n°4424), Switzerland-Uzbekistan (n°4425), Poland-Uzbekistan (n°4426), Uzbekistan-Indonesia (n°4427), Romania-Uzbekistan (n°4429), Uzbekistan-Kyrgyzstan (n°4430), Uzbekistan-Maldives (n°4431), Uzbekistan-Jordan (n°4432), United States-Uzbekistan (n°4433), Bulgaria-Uzbekistan (n°4434), Croatia-India (n°4435), India-Lithuania (n°4436), India-Armenia (n°4437), India-Cyprus (n°4438), India-Luxembourg (n°4439), India-Switzerland (n°4440), India-Uganda (n°4442), United Kingdom-Mongolia (n°4443), United Kingdom-Fiji (n°4444), Finland-Mongolia (n°4450), Qatar-Finland (n°4451), Malaysia-China, Macao SAR (n°4452), China, Macao SAR-Portugal (n°4453), TFYR Macedonia-Bulgaria (n°4454), TFYR Macedonia-Italy (n°4455), TFYR Macedonia-Netherlands (n°4456), TFYR Macedonia-Switzerland (n°4457), TFYR Macedonia-Turkey (n°4458), TFYR Macedonia-Ukraine (n°4459), TFYR Macedonia-Yugoslavia (n°4460), Luxembourg-Slovenia (n°4461), Slovenia-Poland (n°4462), Israel-Slovenia (n°4463), Switzerland-Slovenia (n°4464), Slovenia-Italy (n°4465), Slovenia-Netherlands (n°4466), Slovenia-Malta (n°4467), Slovenia-Slovakia (n°4468), Cyprus-Latvia (n°4469), Cyprus-Lithuania (n°4470), South Africa-Greece (n°4472), South Africa-Yemen (n°4473), South Africa-Belgium (n°4474), Austria-Uzbekistan (n°4475), Italy-Malaysia (n°4476), Bahrain-India (n°4477), Bahrain-Lebanon (n°4478), South Africa-Saudi Arabia (n°4479), Cyprus-Thailand (n°4480), China, Hong Kong SAR-Bangladesh (n°4485), China, Hong Kong SAR-Turkey (n°4486), South Africa-Iran (Islamic Rep. of ) (n°4487), United Kingdom-Barbados (n°4491), United Kingdom-Panama (n°4492), South Africa-United Arab Emirates (n°4493), South Africa-Cuba (n°4494), Russian Federation-Slovakia (n°4495), Slovakia-Bulgaria (n°4496), Slovakia-Croatia (n°4497), Slovakia-Switzerland (n°4498), Bahrain-Jordan (n°4499), Thailand-Cambodia (n°4502), Germany-Viet Nam (n°4503), Germany-Czech Rep. (n°4505), Austria-Azerbaijan (n°4506), Germany-Zimbabwe (n°4507), Austria-Kyrgyzstan (n°4508), Kyrgyzstan-Germany (n°4510), Kyrgyzstan-Indonesia (n°4511), Kyrgyzstan-China (n°4518), Kyrgyzstan-Malaysia (n°4519), Mexico-New Zealand (n°4525), Belgium-Mexico (n°4526), Germany-Mongolia (n°4532), South Africa-Norway (n°4541), South Africa-Sweden (n°4542), South Africa-Denmark (n°4543), Ecuador-Paraguay (n°4546), Costa Rica-Chile (n°4548), Uzbekistan-Greece (n°4566), Germany-Bosnia &amp; Herzegovina (n°4567), United Kingdom-Pakistan (n°4569), Syrian Arab Rep.-Bahrain (n°4570), Germany-Armenia (n°4571), Costa Rica-Paraguay (n°4573), Germany-Estonia (n°4579), Spain-Panama (n°4603), China, Hong Kong SAR-Hungary (n°4606), Iran (Islamic Rep. of)-Uganda (n°4609), South Africa-Mozambique (n°4610), Germany-Lithuania (n°4611), Germany-Ukraine (n°4613), Ukraine-Iran (Islamic Rep. of ) (n°4614), Iran (Islamic Rep. of)-Bulgaria (n°4615), Iran (Islamic Rep. of)-Yemen (n°4616), Iran (Islamic Rep. of)-Viet Nam (n°4617), China, Hong Kong SAR-Czech Rep. (n°4618), Latvia-China (n°4620), Latvia-Bulgaria (n°4622), Latvia-Slovakia (n°4623), Latvia-Croatia (n°4624), Latvia-Turkey (n°4625), Latvia-Singapore (n°4626), Latvia-Ukraine (n°4627), South Africa-Mali (n°4628), Cyprus-Iran (Islamic Rep. of ) (n°4630), Cambodia-China, Macao SAR (n°4632), Cambodia-Brunei Darussalam (n°4634), Cambodia-Rep of Korea (n°4635), Cambodia-India (n°4636), United Kingdom-Syrian Arab Rep. (n°4643), Iran (Islamic Rep. of)-Syrian Arab Rep. (n°4645), Syrian Arab Rep.-Netherlands (n°4646), Syrian Arab Rep.-Slovakia (n°4647),</p>

Clause as defined by ICAO	Bilateral agreements concerned
	Czech Rep.-Ukraine (n°4655), United Kingdom-Grenada (n°4656), Iran (Islamic Rep. of)-Croatia (n°4686), Iran (Islamic Rep. of)-Bosnia & Herzegovina (n°4687), Iran (Islamic Rep. of)-Uzbekistan (n°4688), Iran (Islamic Rep. of)-Belarus (n°4689), Iran (Islamic Rep. of)-Jordan (n°4690), Iran (Islamic Rep. of)-Lebanon (n°4692), Czech Rep.-Lithuania (n°4694), Czech Rep.-Slovenia (n° 4695).

Source: ICAO WASA database.

**TABLE A5**

**Bilateral agreements posterior to 1 January 1995 containing a clause dealing with local and convertible currency (as registered and numbered by ICAO)**

Clause as defined by ICAO	Bilateral agreements concerned
<b>A local and convertible currency</b> clause involves a granting to the designated airline of the other party of the right to sell air services in the currency of that other party or in a freely convertible currency.	South Africa-Austria (n°3954), South Africa-Australia (n°3955), Rep. of Korea-South Africa (n°3956), India-Brunei Darussalam (n°3957), Rep. of Moldova-Turkey (n°3964), Poland-Rep. of Moldova (n°3965), Rep. of Moldova-Uzbekistan (n°3966), Croatia-Tfyr Macedonia (n°3970), Croatia-Slovenia (n°3971), Austria-Brazil (n°3973), Bahrain-Australia (n°3978), China, Hong Kong SAR-Germany (n°3981), Singapore-China, Macao SAR (n°3985), China, Macao SAR-Austria (n°3986), Bahrain-Seychelles (n°3987), Myanmar-Brunei Darussalam (n°3991), India-Finland (n°3992), Austria-Mexico (n°3993), Fiji-Papua New Guinea (n°3994), United Kingdom-Slovenia (n°3995), Turkey-Czechoslovakia (n°3999), Turkey-Cuba (n°4010), Ukraine-Finland (n°4012), Barbados-Suriname (n°4013), Myanmar-Viet Nam (n°4014), China, Hong Kong SAR-Rep of Korea (n°4015), Uzbekistan-Viet Nam (n°4016), Uzbekistan-Netherlands (n°4017), Georgia-Uzbekistan (n°4018), Germany-Uzbekistan (n°4019), Azerbaijan-Uzbekistan (n°4020), Mauritius-Australia (n°4040), United Kingdom-Turkmenistan (n°4059), Maldives-United Kingdom (n°4060), China, Hong Kong SAR-Singapore (n°4061), Finland-China, Macao SAR (n°4062), Cambodia-Viet Nam (n°4067), Cambodia-Myanmar (n°4068), Cambodia-Singapore (n°4069), China, Hong Kong SAR-India (n°4070), South Africa-Brazil (n°4071), Rep. of Korea-Finland (n°4073), Latvia-Lithuania (n°4076), Japan- China, Hong Kong SAR (n°4079), China, Hong Kong SAR-Myanmar (n°4080), China, Hong Kong SAR-Thailand (n°4081), China, Hong Kong SAR-Philippines (n°4082), China, Hong Kong SAR-Indonesia (n°4083), Denmark-Belarus (n°4084), Denmark-Croatia (n°4085), Austria-Lithuania (n°4089), Myanmar-Nepal (n°4090), Malta-Australia (n°4091), Switzerland-Latvia (n°4093), South Africa-Portugal (n°4096), Brunei Darussalam-Austria (n°4097), Finland-Israel (n°4098), Singapore-Brunei Darussalam (n°4101), Lao P. Democratic Rep.-Singapore (n°4104), United States-Singapore (n°4111), United Kingdom-Romania (n°4113), South Africa-Ethiopia (n°4114), Tunisia-South Africa (n°4115), Switzerland-Czech Rep. (n°4116), United States-Czech Rep. (n°4117), South Africa-New Zealand (n°4120), South Africa-Egypt (n°4121), Brunei Darussalam-Netherlands (n°4123), New Zealand-India (n°4126), United Kingdom-Latvia (n°4127), Bahrain-Uzbekistan (n°4128), India-Czech Rep. (n°4129), Spain-Ukraine (n°4131), India-Belarus (n°4133), Latvia-India (n°4134), New Zealand-Singapore (n°4136), Uzbekistan-Finland (n°4137), Uzbekistan-Belgium (n°4139), Uzbekistan-Lithuania (n°4141), Uzbekistan-Slovakia (n°4142), United Kingdom-Bahrain (n°4144), China, Hong Kong SAR-Bahrain (n°4145), Italy-United Arab Emirates (n°4147), China, Hong Kong SAR-Italy (n°4148), South Africa-Germany (n°4149), Costa Rica-United States (n°4162), Spain-El Salvador (n°4164), Cyprus-Israel (n°4173), Cyprus-Kenya (n°4174), Slovenia-Ukraine (n°4176), Slovakia-Poland (n°4177), Bahrain-Bulgaria (n°4181), India-Portugal (n°4184), South Africa-China, Macao SAR (n°4185), Uruguay-Romania (n°4188), New Zealand-United Arab Emirates (n°4189), Syrian Arab Rep-Armenia (n°4190), Argentina-Singapore (n°4193), Germany-United Arab Emirates (n°4197), Spain-TFYR Macedonia (n°4233), United Kingdom-Lithuania (n°4234), United Kingdom-Czech Rep. (n°4235), United Kingdom-China, Hong Kong SAR (n°4241), United Kingdom-Sri Lanka (n°4242), United Kingdom-Qatar (n°4243), United Kingdom-Uganda (n°4244), India-Malta (n°4247), India-Russian Federation (n°4248), South Africa-India (n°4250), United Kingdom-Croatia (n°4251), Switzerland-Bolivia (n°4264), New Zealand-Brunei Darussalam (n°4265), Czech Rep.-Sweden (n°4266), Kazakhstan-Finland (n°4278), Denmark-Czech Rep. (n°4281), Belarus-Sweden (n°4288), Sweden-Croatia (n°4289), Sweden-Mongolia (n°4290), China-South Africa (n°4291), China, Hong Kong SAR-Austria (n°4292), China, Hong Kong SAR-Pakistan (n°4293), China, Hong Kong SAR-Israel (n°4294), China, Hong Kong SAR-Oman (n°4296), China, Hong Kong SAR-United Arab Emirates (n°4297), Spain-Iran (Islamic Rep. of) (n°4298), Turkmenistan-Iran (Islamic Rep. of) (n°4303), Belgium-New Zealand (n°4304), Rep. of Moldova-Hungary (n°4305), Rep. of Moldova-Lithuania (n°4306), Bulgaria-Rep. of Moldova (n°4307), Rep. of Moldova-Israel (n°4308), Rep. of Moldova-Italy (n°4309), Georgia-Rep. of Moldova (n°4310), Germany- Rep. of Moldova (n°4311),

Clause as defined by ICAO	Bilateral agreements concerned
	<p>Cyprus-Georgia (n°4312), Cyprus-Belarus (n°4313), Japan-Papua New Guinea (n°4347), Lebanon-Australia (n°4365), Nepal-Austria (n°4367), Spain-Croatia (n°4368), Iceland-United States (n°4369), Russian Federation-Iceland (n°4370), United States-Brunei Darussalam (n°4371), China, Macao SAR-Belgium (n°4372), China, Macao SAR-Brazil (n°4373), China, Macao SAR-Brunei Darussalam (n°4374), China, Macao SAR-Democratic P. Rep. of Korea (n°4375), Denmark- China, Macao SAR (n°4376), Germany-China, Macao SAR (n°4377), China, Macao SAR-Luxembourg (n°4378), China, Macao SAR-Myanmar (n°4379), China, Macao SAR-Nepal (n°4380), Netherlands-China, Macao SAR (n°4381), China, Macao SAR-New Zealand (n°4382), Norway-China, Macao SAR (n°4383), China, Macao SAR-Rep. of Korea (n°4384), Sweden-China, Macao SAR (n°4385), China, Macao SAR-Switzerland (n°4386), China, Macao SAR-Thailand (n°4387), United States-China, Macao SAR (n°4388), Viet Nam-China, Macao SAR (n°4389), Brunei Darussalam-Lao P. Democratic Rep. (n°4391), Bahrain-Viet Nam (n°4392), Cyprus-Estonia (n°4393), Cyprus-Slovakia (n°4394), Georgia-Kyrgyzstan (n°4395), New Zealand-Switzerland (n°4398), China, Hong Kong SAR-Mauritius (n°4399), China, Hong Kong SAR-Nepal (n°4400), United Kingdom-TFYR Macedonia (n°4405), United Kingdom-Netherlands (n°4411), China, Hong Kong SAR-Mongolia (n°4412), China, Hong Kong SAR-South Africa (n°4413), China, Hong Kong SAR-Finland (n°4414), Iran (Islamic Rep. of )-Saudi Arabia (n°4417), China, Hong Kong SAR-Viet Nam (n°4419), China, Hong Kong SAR-Cambodia (n°4420), China, Hong Kong SAR-Denmark (n°4421), China, Hong Kong SAR-Sweden (n°4422), China, Hong Kong SAR-Norway (n°4423), Switzerland-Uzbekistan (n°4425), Poland-Uzbekistan (n°4426), Uzbekistan-Indonesia (n°4427), Romania-Uzbekistan (n°4429), Uzbekistan-Kyrgyzstan (n°4430), Uzbekistan-Maldives (n°4431), Uzbekistan-Jordan (n°4432), United States-Uzbekistan (n°4433), Bulgaria-Uzbekistan (n°4434), Croatia-India (n°4435), India-Lithuania (n°4436), India-Armenia (n°4437), India-Cyprus (n°4438), India-Luxembourg (n°4439), India-Switzerland (n°4440), India-Uganda (n°4442), United Kingdom-Mongolia (n°4443), United Kingdom-Fiji (n°4444), Finland-Mongolia (n°4450), Qatar-Finland (n°4451), Malaysia-China, Macao SAR (n°4452), China, Macao SAR-Portugal (n°4453), TFYR Macedonia-Bulgaria (n°4454), TFYR Macedonia-Italy (n°4455), TFYR Macedonia- Netherlands (n°4456), TFYR Macedonia-Switzerland (n°4457), TFYR Macedonia-Turkey (n°4458), TFYR Macedonia-Ukraine (n°4459), TFYR Macedonia-Yugoslavia (n°4460), Luxembourg-Slovenia (n°4461), Slovenia-Poland (n°4462), Israel-Slovenia (n°4463), Switzerland-Slovenia (n°4464), Slovenia-Italy (n°4465), Slovenia-Netherlands (n°4466), Slovenia-Slovakia (n°4468), Cyprus-Latvia (n°4469), Cyprus-Lithuania (n°4470), South Africa-Greece (n°4472), South Africa-Yemen (n°4473), South Africa-Belgium (n°4474), Italy-Malaysia (n°4476), Bahrain-India (n°4477), Bahrain-Lebanon (n°4478), South Africa-Saudi Arabia (n°4479), Cyprus-Thailand (n°4480), China, Hong Kong SAR-Bangladesh (n°4485), China, Hong Kong SAR-Turkey (n°4486), South Africa-Iran (Islamic Rep. of) (n°4487), United Kingdom-Barbados (n°4491), United Kingdom-Panama (n°4492), South Africa-United Arab Emirates (n°4493), South Africa-Cuba (n°4494), Slovakia-Bulgaria (n°4496), Slovakia-Croatia (n°4497), Slovakia-Switzerland (n°4498), Thailand-Cambodia (n°4502), Germany-Viet Nam (n°4503), Germany-Czech Rep. (n°4505), Austria-Azerbaijan (n°4506), Germany-Zimbabwe (n°4507), Kyrgyzstan-Germany (n°4510), Kyrgyzstan-Indonesia (n°4511), Kyrgyzstan-Malaysia (n°4519), Mexico-New Zealand (n°4525), Belgium-Mexico (n°4526), Germany-Mongolia (n°4532), South Africa-Norway (n°4541), South Africa-Sweden (n°4542), South Africa-Denmark (n°4543), Ecuador-Paraguay (n°4546), Costa Rica-Chile (n°4548), Uzbekistan-Greece (n°4566), Germany-Bosnia &amp; Herzegovina (n°4567), United Kingdom-Pakistan (n°4569), Germany-Armenia (n°4571), Costa Rica-Paraguay (n°4573), Rep. of Moldova-China (n°4578), Germany-Estonia (n°4579), United States-Ukraine (n°4592), Spain-Panama (n°4603), China, Hong Kong SAR-Hungary (n°4606), Germany-Lithuania (n°4611), Germany-Ukraine (n°4613), Ukraine-Iran (Islamic Rep. of) (n°4614), Iran (Islamic Rep. of)-Bulgaria (n°4615), China, Hong Kong SAR-Czech Rep. (n°4618), Latvia-Bulgaria (n°4622), Latvia-Slovakia (n°4623), Latvia-Croatia (n°4624), Latvia-Turkey (n°4625), Latvia-Singapore (n°4626), Latvia-Ukraine (n°4627), Cambodia-China, Macao SAR (n°4632), Cambodia-Brunei Darussalam (n°4634), Cambodia-India (n°4636), United Kingdom-Syrian Arab Rep. (n°4643), Syrian Arab Rep.-Netherlands (n°4646), Syrian Arab Rep.-Slovakia (n°4647), Czech Rep.-Ukraine (n°4655), United Kingdom-Grenada (n°4656), Iran (Islamic Rep. of)-Croatia (n°4686), Czech Rep.-Lithuania (n°4694), Czech Rep.-Slovenia (n°4695).</p>

Source: ICAO WASA database.



TABLE A6

**Bilateral agreements posterior to 1 January 1995 containing a clause dealing with offices and/or personnel (as registered and numbered by ICAO)**

Clause as defined by ICAO	Bilateral agreements concerned
An <b>establishment of offices and airline representation</b> clause concerns the right of a designated airline to establish offices and/or commercial, technical or operational personnel in the territory of the other party. The right of establishment may be implicit, for example where a designated airline is granted the right to sell air transportation directly in the territory of the other party.	Croatia-Austria (n°3948), Austria-Viet Nam (n°3949), Indonesia-Singapore (n°3950), South Africa-Austria (n°3954), South Africa-Australia (n°3955), Rep. of Korea-South Africa (n°3956), India-Brunei Darussalam (n°3957), Iran (Islamic Rep. of)-Oman (n°3962), Rep. of Moldova-Turkey (n°3964), Poland-Rep. of Moldova (n°3965), Rep. of Moldova-Uzbekistan (n°3966), Belarus-Rep. of Moldova (n°3967), Croatia-TFYR Macedonia (n°3970), Croatia-Slovenia (n°3971), Austria-Brazil (n°3973), Bahrain-Australia (n°3978), China, Hong Kong SAR-Germany (n°3981), China, Macao SAR-Austria (n°3986), Bahrain-Seychelles (n°3987), India-Norway (n°3988), India-Sweden (n°3989), India-Denmark (n°3990), Myanmar-Brunei Darussalam (n°3991), India-Finland (n°3992), Austria-Mexico (n°3993), Fiji-Papua New Guinea (n°3994), United Kingdom-Slovenia (n°3995), Bahrain-Malta (n°3998), Turkey-Czechoslovakia (n°3999), Turkey-Cuba (n°4010), Oman-Philippines (n°4011), Ukraine-Finland (n°4012), Barbados-Suriname (n°4013), Myanmar-Viet Nam (n°4014), China, Hong Kong SAR-Rep. of Korea (n°4015), Uzbekistan-Viet Nam (n°4016), Uzbekistan-Netherlands (n°4017), Georgia-Uzbekistan (n°4018), Azerbaijan-Uzbekistan (n°4020), Latvia-Estonia (n°4023), Mauritius-Australia (n°4040), Russian Fed.-Australia (n°4047), Jamaica-Netherlands (n°4056), United Kingdom-Turkmenistan (n°4059), Maldives-United Kingdom (n°4060), China, Hong Kong SAR-Singapore (n°4061), Finland-China, Macao SAR (n°4062), South Africa-Senegal (n°4063), Philippines-Jordan (n°4065), Cambodia-Viet Nam (n°4067), Cambodia-Myanmar (n°4068), China, Hong Kong SAR-India (n°4070), South Africa-Brazil (n°4071), Rep. of Korea-Finland (n°4073), Latvia-Lithuania (n°4076), Japan-China, Hong Kong SAR (n°4079), China, Hong Kong SAR-Myanmar (n°4080), China, Hong Kong SAR-Thailand (n°4081), China, Hong Kong SAR-Indonesia (n°4083), Denmark-Belarus (n°4084), Denmark-Croatia (n°4085), Austria-Lithuania (n°4089), Myanmar-Nepal (n°4090), Malta-Australia (n°4091), Switzerland-Latvia (n°4093), South Africa-Portugal (n°4096), Brunei Darussalam-Austria (n°4097), Finland-Israel (n°4098), Singapore-Brunei Darussalam (n°4101), United States-Singapore (n°4111), United Kingdom-Romania (n°4113), South Africa-Ethiopia (n°4114), Tunisia-South Africa (n°4115), Switzerland-Czech Rep. (n°4116), United States-Czech Rep. (n°4117), South Africa-New Zealand (n°4120), South Africa-Egypt (n°4121), Austria-TFYR Macedonia (n°4122), Brunei Darussalam-Netherlands (n°4123), New Zealand-India (n°4126), United Kingdom-Latvia (n°4127), Bahrain-Uzbekistan (n°4128), India-Czech Rep. (n°4129), Spain-Ukraine (n°4131), India-Belarus (n°4133), Latvia-India (n°4134), China, Macao SAR-Philippines (n°4135), New Zealand-Singapore (n°4136), Uzbekistan-Finland (n°4137), Syrian Arab Rep.-Belarus (n°4138), Uzbekistan-Belgium (n°4139), Uzbekistan-Latvia (n°4140), Uzbekistan-Slovakia (n°4142), United Kingdom-Bahrain (n°4144), China, Hong Kong SAR-Bahrain (n°4145), Russian Federation-Mongolia (n°4146), Italy-United Arab Emirates (n°4147), China, Hong Kong SAR-Italy (n°4148), South Africa-Germany (n°4149), Costa Rica-United States (n°4162), Spain-El Salvador (n°4164), Cyprus-Israel (n°4173), Cyprus-Kenya (n°4174), Slovenia-Ukraine (n°4176), Slovakia-Poland (n°4177), Slovakia-Israel (n°4178), Bahrain-Romania (n°4180), Bahrain-Bulgaria (n°4181), Philippines-Bangladesh (n°4182), India-Portugal (n°4184), South Africa-China, Macao SAR (n°4185), Bahrain-China (n°4186), Uruguay-Romania (n°4188), New Zealand-United Arab Emirates (n°4189), Syrian Arab Rep.-Armenia (n°4190), Argentina-Singapore (n°4193), Germany-Malta (n°4196), Germany-United Arab Emirates (n°4197), Spain-TFYR Macedonia (n°4233), United Kingdom-Czech Rep. (n°4235), United Kingdom-China, Hong Kong SAR (n°4241), United Kingdom-Sri Lanka (n°4242), United Kingdom-Qatar (n°4243), Spain-Slovenia (n°4246), India-Malta (n°4247), India-Russian Federation (n°4248), South Africa-India (n°4250), United Kingdom-Croatia (n°4251), Bolivia-Mexico (n°4260), Bolivia-Chile (n°4261), Bolivia-Cuba (n°4262), Bolivia-Costa Rica (n°4263), Switzerland-Bolivia (n°4264), New Zealand-Brunei Darussalam (n°4265), Czech Rep.-Sweden (n°4266), Kazakhstan-Finland (n°4278), Cuba-Germany (n°4279), Denmark-Czech Rep. (n°4281), Sweden-Lithuania (n°4287), Belarus-Sweden (n°4288), Sweden-Croatia (n°4289), Sweden-Mongolia (n°4290), China-South Africa (n°4291), China, Hong Kong SAR-Austria (n°4292), China, Hong Kong SAR-Pakistan (n°4293), China, Hong Kong SAR-Israel (n°4294), China, Hong Kong SAR-Oman (n°4296), China, Hong Kong SAR-United Arab Emirates (n°4297), Spain-Iran (Islamic Rep. of) (n°4298), Turkmenistan-Iran (Islamic Rep. of) (n°4303), Belgium-New Zealand (n°4304), Rep. of Moldova-Hungary (n°4305), Rep. of Moldova-Lithuania (n°4306), Bulgaria-Rep. of Moldova (n°4307), Rep. of Moldova-Israel (n°4308), Rep. of Moldova-Italy (n°4309), Georgia-Rep. of Moldova (n°4310), Germany-Rep. of Moldova (n°4311), Cyprus-Georgia (n°4312), Cyprus-Belarus (n°4313), Japan-Ethiopia (n°4333), Japan-Hungary (n°4338), Japan-Papua New Guinea (n°4347), Japan-Poland (n°4348), India-Yemen (n°4364), Lebanon-Australia (n°4365), Nepal-Austria (n°4367), Spain-Croatia (n°4368), Iceland-United States (n°4369), Russian Federation-Iceland (n°4370), United States-Brunei Darussalam (n°4371), China, Macao SAR-Belgium (n°4372),

Clause as defined by ICAO	Bilateral agreements concerned
	<p>China, Macao SAR-Brazil (n°4373), China, Macao SAR-Democratic P. Rep. of Korea (n°4375), Denmark-China, Macao SAR (n°4376), Germany-China, Macao SAR (n°4377), China, Macao SAR-Luxembourg (n°4378), China, Macao SAR-Myanmar (n°4379), China, Macao SAR-Nepal (n°4380), Netherlands-China, Macao SAR (n°4381), China, Macao SAR-New Zealand (n°4382), Norway-China, Macao SAR (n°4383), China, Macao SAR-Rep. of Korea (n°4384), Sweden-China, Macao SAR (n°4385), China, Macao SAR-Switzerland (n°4386), China, Macao SAR-Thailand (n°4387), United States-China, Macao SAR (n°4388), Viet Nam-China, Macao SAR (n°4389), Brunei Darussalam-Lao P. Democratic Rep. (n°4391), Bahrain-Viet Nam (n°4392), Cyprus-Estonia (n°4393), Cyprus-Slovakia (n°4394), Georgia-Kyrgyzstan (n°4395), New Zealand-Switzerland (n°4398), China, Hong Kong SAR-Mauritius (n°4399), China, Hong Kong SAR-Nepal (n°4400), United Kingdom-TFYR Macedonia (n°4405), United Kingdom-Netherlands (n°4411), China, Hong Kong SAR-Mongolia (n°4412), China, Hong Kong SAR-South Africa (n°4413), China, Hong Kong SAR-Finland (n°4414), Iran (Islamic Rep. of)-Saudi Arabia (n°4417), China, Hong Kong SAR-Viet Nam (n°4419), China, Hong Kong SAR-Cambodia (n°4420), China, Hong Kong SAR-Denmark (n°4421), China, Hong Kong SAR-Sweden (n°4422), China, Hong Kong SAR-Norway (n°4423), Poland-Uzbekistan (n°4426), Uzbekistan-Indonesia (n°4427), Uzbekistan-Turkmenistan (n°4428), Romania-Uzbekistan (n°4429), Uzbekistan-Kyrgyzstan (n°4430), Uzbekistan-Maldives (n°4431), Uzbekistan-Jordan (n°4432), United States-Uzbekistan (n°4433), Bulgaria-Uzbekistan (n°4434), Croatia-India (n°4435), India-Lithuania (n°4436), India-Armenia (n°4437), India-Cyprus (n°4438), India-Luxembourg (n°4439), India-Switzerland (n°4440), India-Uganda (n°4442), United Kingdom-Mongolia (n°4443), United Kingdom-Fiji (n°4444), Finland-Mongolia (n°4450), Qatar-Finland (n°4451), Malaysia-China, Macao SAR (n°4452), China, Macao SAR-Portugal (n°4453), TFYR Macedonia-Bulgaria (n°4454), TFYR Macedonia-Italy (n°4455), TFYR Macedonia-Netherlands (n°4456), TFYR Macedonia-Switzerland (n°4457), TFYR Macedonia-Turkey (n°4458), TFYR Macedonia-Ukraine (n°4459), TFYR Macedonia-Yugoslavia (n°4460), Luxembourg-Slovenia (n°4461), Slovenia-Poland (n°4462), Israel-Slovenia (n°4463), Switzerland-Slovenia (n°4464), Slovenia-Italy (n°4465), Slovenia-Malta (n°4467), Slovenia-Slovakia (n°4468), Cyprus-Latvia (n°4469), Cyprus-Lithuania (n°4470), South Africa-Greece (n°4472), South Africa-Yemen (n°4473), South Africa-Belgium (n°4474), Austria-Uzbekistan (n°4475), Italy-Malaysia (n°4476), Bahrain-India (n°4477), Bahrain-Lebanon (n°4478), South Africa-Saudi Arabia (n°4479), Cyprus-Thailand (n°4480), China, Hong Kong SAR-Bangladesh (n°4485), China, Hong Kong SAR-Turkey (n°4486), South Africa-Iran (Islamic Rep. of) (n°4487), United Kingdom-Barbados (n°4491), United Kingdom-Panama (n°4492), South Africa-United Arab Emirates (n°4493), South Africa-Cuba (n°4494), Russian Federation-Slovakia (n°4495), Slovakia-Bulgaria (n°4496), Slovakia-Croatia (n°4497), Slovakia-Switzerland (n°4498), Thailand-Cambodia (n°4502), Germany-Viet Nam (n°4503), Germany-Czech Rep. (n°4505), Austria-Azerbaijan (n°4506), Germany-Zimbabwe (n°4507), Austria-Kyrgyzstan (n°4508), Kyrgyzstan-Germany (n°4510), Kyrgyzstan-Indonesia (n°4511), United Kingdom-Kyrgyzstan (n°4517), Kyrgyzstan-China (n°4518), Kyrgyzstan-Malaysia (n°4519), Mexico-New Zealand (n°4525), Belgium-Mexico (n°4526), Germany-Mongolia (n°4532), South Africa-Norway (n°4541), South Africa-Sweden (n°4542), South Africa-Denmark (n°4543), Ecuador-Paraguay (n°4546), Costa Rica-Chile (n°4548), Uzbekistan-Greece (n°4566), Germany-Bosnia &amp; Herzegovina (n°4567), United Kingdom-Pakistan (n°4569), Germany-Armenia (n°4571), Costa Rica-Paraguay (n°4573), Rep. of Moldova-Romania (n°4577), Rep. of Moldova-China (n°4578), Germany-Estonia (n°4579), United States-Ukraine (n°4592), Spain-Panama (n°4603), China, Hong Kong SAR-Hungary (n°4606), Iran (Islamic Rep. of)-Uganda (n°4609), South Africa-Mozambique (n°4610), Germany-Lithuania (n°4611), Germany-Ukraine (n°4613), Ukraine-Iran (Islamic Rep. of) (n°4614), Iran (Islamic Rep. of)-Bulgaria (n°4615), Iran (Islamic Rep. of)-Yemen (n°4616), Iran (Islamic Rep. of)-Viet Nam (n°4617), China, Hong Kong SAR-Czech Rep. (n°4618), Latvia-China (n°4620), Latvia-Bulgaria (n°4622), Latvia-Slovakia (n°4623), Latvia-Croatia (n°4624), Latvia-Turkey (n°4625), Latvia-Singapore (n°4626), Latvia-Ukraine (n°4627), South Africa-Mali (n°4628), Cyprus-Iran (Islamic Rep. of) (n°4630), Cambodia-China, Macao SAR (n°4632), Cambodia-Brunei Darussalam (n°4634), Cambodia-Rep of Korea (n°4635), Cambodia-India (n°4636), United Kingdom-Syrian Arab Rep. (n°4643), Iran (Islamic Rep. of)-Syrian Arab Rep. (n°4645), Syrian Arab Rep.-Netherlands (n°4646), Syrian Arab Rep.-Slovakia (n°4647), Czech Rep.-Ukraine (n°4655), United Kingdom-Grenada (n°4656), Iran (Islamic Rep. of)-Croatia (n°4686), Iran (Islamic Rep. of)-Bosnia &amp; Herzegovina (n°4687), Iran (Islamic Rep. of)-Uzbekistan (n°4688), Iran (Islamic Rep. of)-Belarus (n°4689), Iran (Islamic Rep. of)-Jordan (n°4690), Iran (Islamic Rep. of)-Lebanon (n°4692), Czech Rep.-Lithuania (n°4694), Czech Rep.-Slovenia (n°4695).</p>

Source: ICAO WASA database.

**TABLE A7**

**Distribution clauses in bilateral agreements signed by WTO Members since 1995 and related MFN exemptions**

Members	Computer reservation systems (CRS)	CRS MFN exemption	Currency conversion	Office	Local convertible currency	Selling and marketing MFN exemption
Albania		X				X
Angola						
Antigua and Barbuda						
Argentina			X	X	X	
Armenia			X	X	X	
Australia			X	X	X	
Austria		X	X	X	X	X
Bahrain, Kingdom of	X		X	X	X	
Bangladesh			X	X	X	
Barbados			X	X	X	
Belgium		X	X	X	X	X
Belize						
Benin						
Bolivia			X	X	X	
Botswana						
Brazil			X	X	X	
Brunei Darussalam	X		X	X	X	
Bulgaria		X	X	X	X	X
Burkina Faso						
Burundi						
Cambodia			X	X	X	
Cameroon						
Canada					X	X
Central African Republic						
Chad						
Chile			X	X	X	
China	X		X	X	X	
Colombia						
Congo						
Costa Rica	X		X	X	X	
Côte d'Ivoire						
Croatia			X	X	X	
Cuba			X	X	X	
Cyprus			X	X	X	
Czech Republic	X		X	X	X	
Dem. Republic of the Congo						
Denmark		X	X	X	X	X
Djibouti						
Dominica						





Members	Computer reservation systems (CRS)	CRS MFN exemption	Currency conversion	Office	Local convertible currency	Selling and marketing MFN exemption
Dominican Republic						
Ecuador			X	X		
Egypt			X	X	X	
El Salvador			X	X	X	
Estonia			X	X	X	
European Communities		X				X
Fiji			X	X	X	
Finland		X	X	X	X	X
Former Yugoslav Rep. of Macedonia (FYROM)	X		X	X	X	
France		X				X
Gabon						
The Gambia						
Georgia			X	X	X	
Germany		X	X	X	X	X
Ghana						
Greece		X	X	X	X	X
Grenada			X	X	X	
Guatemala						
Guinea						
Guinea Bissau						
Guyana						
Haiti						
Honduras						
Hong Kong, China			X	X	X	
Hungary			X	X	X	
Iceland	X	X	X	X	X	X
India	X		X	X	X	
Indonesia	X		X	X	X	
Ireland		X				X
Israel			X	X	X	
Italy		X	X	X	X	X
Jamaica	X		X	X	X	
Japan			X	X	X	
Jordan			X	X	X	
Kenya			X	X	X	
Korea, Republic of		X	X	X	X	
Kuwait		X				X
Kyrgyz Republic	X		X	X	X	
Latvia		X	X	X	X	X
Lesotho						
Liechtenstein		X				X
Lithuania		X	X	X	X	X

Members	Computer reservation systems (CRS)	CRS MFN exemption	Currency conversion	Office	Local convertible currency	Selling and marketing MFN exemption
Luxembourg		X	X	X	X	X
Macao, China	X		X	X	X	
Madagascar						
Malawi						
Malaysia			X	X	X	
Maldives			X	X	X	
Mali			X	X		
Malta			X	X	X	
Mauritania						
Mauritius			X	X	X	
Mexico			X	X	X	
Moldova			X	X	X	X
Mongolia			X	X	X	
Morocco					X	
Mozambique			X	X		
Myanmar			X	X	X	
Namibia						
Nepal			X	X	X	
Netherlands	X	X	X	X	X	X
New Zealand			X	X	X	
Nicaragua						
Niger						
Nigeria					X	
Norway		X	X	X	X	
Oman			X	X	X	X
Pakistan			X	X	X	
Panama	X		X	X	X	
Papua New Guinea			X	X	X	
Paraguay	X		X	X	X	
Peru						
Philippines			X	X	X	
Poland		X	X	X	X	X
Portugal		X	X	X	X	X
Qatar			X	X	X	
Romania			X	X	X	X
Rwanda						
Saint Kitts and Nevis						
Saint Lucia						
Saint Vincent & the Grenadines						
Saudi Arabia			X	X	X	
Senegal			X	X		
Sierra Leone						



Members	Computer reservation systems (CRS)	CRS MFN exemption	Currency conversion	Office	Local convertible currency	Selling and marketing MFN exemption
Singapore	X	X	X	X	X	
Slovak Republic			X	X	X	
Slovenia		X	X	X	X	X
Solomon Islands						
South Africa			X	X	X	
Spain		X	X	X	X	X
Sri Lanka			X	X	X	
Suriname			X	X	X	
Swaziland						
Sweden		X	X	X	X	X
Switzerland	X	X	X	X	X	X
Chinese Taipei						
Tanzania						
Thailand		X	X	X	X	X
Togo						
Trinidad and Tobago			X			
Tunisia			X	X	X	
Turkey			X	X	X	
Uganda			X	X	X	
United Arab Emirates			X	X	X	
United Kingdom		X	X	X	X	X
United States of America	X	X	X	X	X	X
Uruguay			X	X	X	
Venezuela (Bolivarian Republic of)						
Zambia						
Zimbabwe			X	X	X	
<b>Total</b>	<b>18</b>	<b>31</b>	<b>94</b>	<b>93</b>	<b>92</b>	<b>32</b>

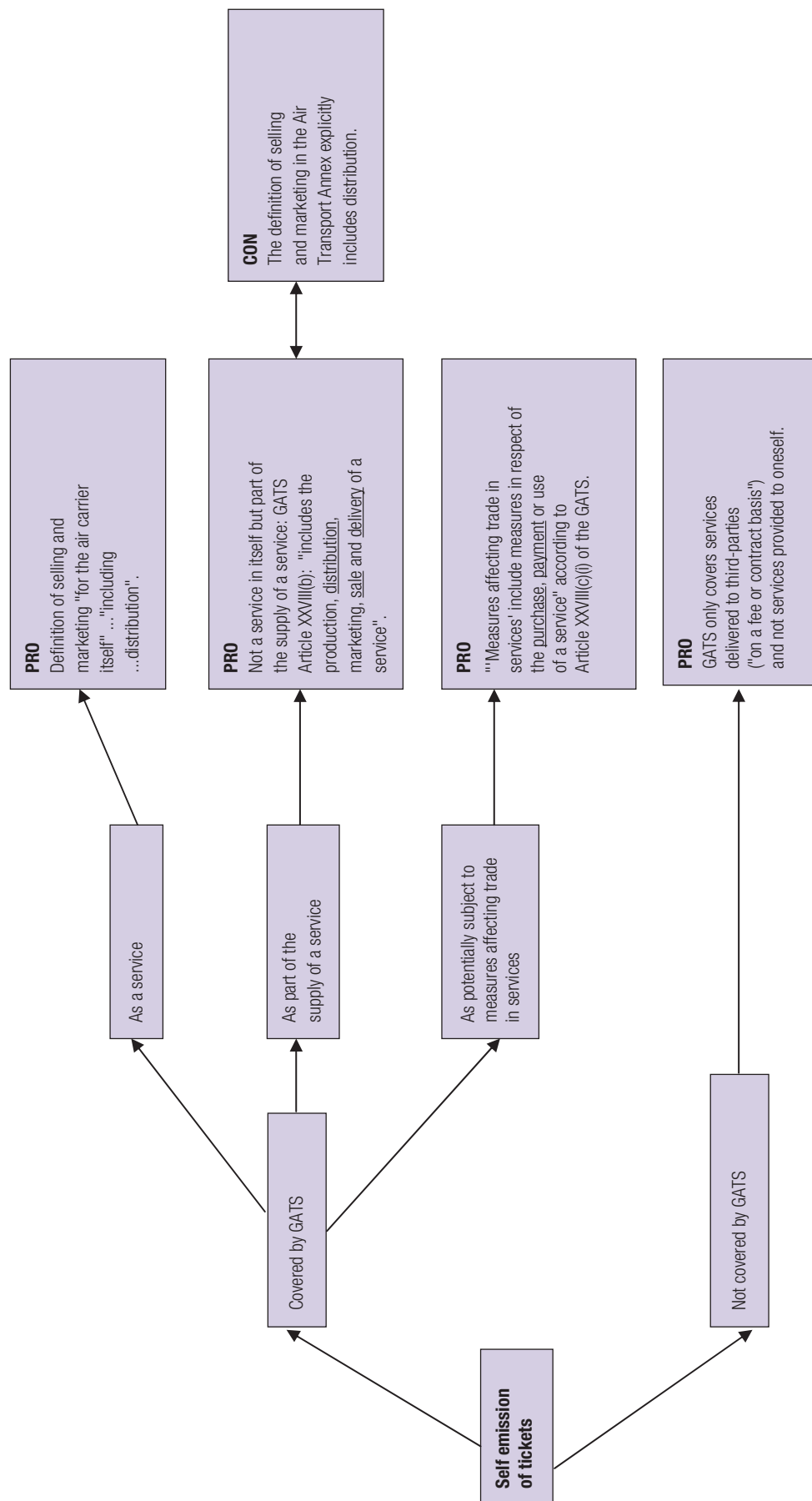
Source: Compiled by WTO Secretariat from ICAO WASA database and from WTO GATS/EL/ document series.

**TABLE A8****Distribution clauses in bilateral agreements signed since 1995 by non-WTO Members**

Non-Members	Computer reservation systems (CRS)	Currency conversion	Office	Local convertible currency
Azerbaijan		X	X	X
Belarus		X	X	X
Bosnia & Herzegovina		X	X	X
Comoros		X		
Demo. P. Rep. of Korea			X	
Ethiopia		X	X	X
Iran (Rep. Islamic of)		X	X	X
Kazakhstan			X	X
Lao Rep. Dem.	X	X	X	X
Lebanon	X	X	X	X
Russia Fed.		X	X	
Seychelles		X	X	X
Syrian Arab Rep.	X	X	X	X
Turkmenistan		X	X	X
Ukraine		X	X	X
Uzbekistan	X	X	X	X
Viet Nam		X	X	X
Yemen		X	X	X
Yugoslavia		X	X	X
<b>Total</b>	<b>4</b>	<b>17</b>	<b>18</b>	<b>16</b>

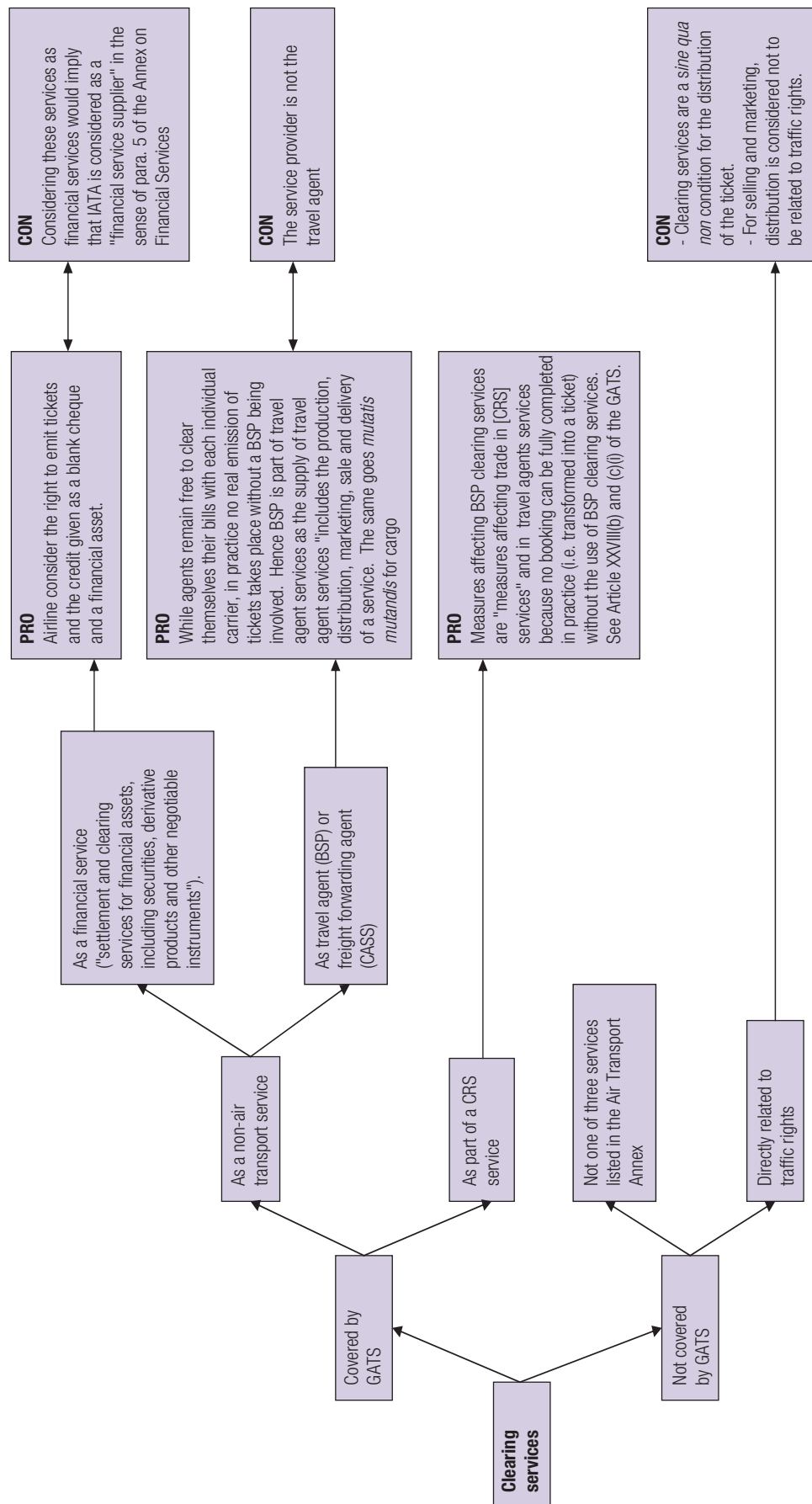
Source: Compiled by WTO Secretariat from ICAO WASA database.



**CHART A9****Possible legal status of tickets/load-shipping manifests under the GATS**

Source: WTO Secretariat.

**CHART A10**  
Possible legal status of clearing services under the GATS



Source: WTO Secretariat.



### III. FRANCHISING

234. There is no internationally agreed definition of franchising. The definition given by a report mandated by the European Civil Aviation Commission (ECAC) in 1999 (Report on Airline Franchising, see compilation, pages 27 and 28) is considered by professionals as an acceptable proxy of the commercial reality of the sector. It reads:

"Airline franchising is a commercial practice under which one airline (the "franchisee") purchases the right to assume the public face or brand of another ("the franchisor") together with the brand's associated services, intellectual property and know how. Elements of the brand include aircraft livery and interior, crew uniforms and flight designator code. Services include the sales and reservation operations of the franchisor, access to its frequent flyer programme and revenue accounting. The franchisee airline abandons its own public identity for all services operated under the franchise but continues to operate under its own AOC (Aircraft Operating Certificate) and to maintain its operational identity and independence. In most cases the franchisee continues to make its own decisions on routes, schedules and pricing although there is normally an agreement not to compete head-to-head on the same routes as the franchisors."

235. As explained in the documentation of the first review, franchised airlines can be found so far only among regional airlines. Franchised airlines or affiliates constitute one of three segments of regional airlines together with wholly or substantially owned foreign subsidiaries (or captive) and fully independent regional airlines.

236. In turn, there is no internationally agreed definition of regional airlines although these are a clearly identifiable segment of the market with, for instance, own professional associations. As indicated in the documentation of the first review (compilation page 27, paragraph 125) definitions generally refer to the capacity of the aircrafts used (between 19 and 100-150 places) and the types of airports served (between a secondary airport and a hub or between two secondary airports). A more detailed analysis of regional airlines will be provided in the second part of the documentation related to hard rights.

237. Table 13 provides an overview of affiliate/franchised airlines, fully independent airlines and airlines

substantially or majority owned by a major carrier for the year 2005.

238. Unfortunately, comparable data do not exist for the beginning of the period under review. However, a comparison of Table 13 with the Chart on page 31 of the compilation (global alliances and regional franchised airlines) and Table 12, page 30 of the compilation (franchised airlines in the top 100 regional airline count), suggests a considerable expansion of the franchise concept both in term of airlines concerned and traffic covered: 20 franchised airlines, mostly from the United States and Europe, in the top 100 regional airlines in 2005 versus only nine, all European, in 1999. However, this comparison must be read with some caution as it may be affected by insufficient information on the US situation back in 1999.

239. Even before 9/11, in the United States, one of reasons for the development of franchised airlines were the difficulties met by major carriers to develop wholly-owned activities on the booming regional segment. "Scope clauses" in airlines' pilot contracts, intended to prevent competition from lower paid pilots (on average US\$100 versus US\$175 per hour in 2000), regulated and limited the size and capacity of the wholly-owned regional fleet. In certain instances, scope clauses even specified the type of routes on which regional jets may be used and included complex formulae linking regional jet growth to the size of the mainline fleet. For example, Delta faced this type of difficulty when it bought its two main feeders in 1999, Atlantic South East and Comair.

240. The post 9/11 crisis and the resulting massive capacity reductions of the main fleets rendered these clauses even more constraining at a time when the majors tried to have recourse to smaller planes in order to improve their load factor.<sup>63</sup> That is why the scope clause has been a key element of the Chapter 11 negotiations with pilot unions. By contrast, recourse to an affiliate/franchisee entailed much more flexibility and lower overhead costs. This has triggered a movement by the major US carriers to spin off their regional subsidiaries (e.g. Northwest with Pinnacle, Continental with Express Jet through an IPO, Delta with Atlantic South East).

241. Major airlines have tended to spread their business on several feeders as illustrated by Table 13 so as

<sup>63</sup> E.g., in the fourth quarter of 2001, US regional jet flights increased by more than 36 per cent while flights of narrow bodies were down by 21 per cent and wide body flights by more than 10 per cent. This trend continued in 2002: +34 per cent for regional jets; -3 per cent for narrow bodies; +3 per cent for wide bodies; and +22 per cent for turboprops.

**TABLE 13****Traffic and traffic ranking of affiliate/franchised airlines – 2005**

Major carrier	Affiliate/franchised partners	Traffic ranking within regional airlines	Traffic (thousand passengers)
<b>Delta Connection (US)</b>	Atlantic Southeast	5	12,031
	SkyWest	2	16,600
	Chautauqua	8	7,800
	American Eagle	1	17,534
	Shuttle America	47	1,250
	Freedom Air	-	-
<b>United Express (US)</b>	SkyWest (US)	2	16,600
	Mesa Airlines (US)	4	13,088
	Shuttle America (US)	47	1,250
	Trans States Airlines (US)	16	4,159
	Chautauqua (US)	8	7,800
	GoJet (US)	-	-
	Colgan Air (US)	53	1,024
	Air Wisconsin	9	6,859
<b>America Eagle/ AmericanConnection (US)</b>	Trans States Airlines (US)	16	4,159
	Chautauqua (US)	8	7,800
	RegionsAir (US)	-	-
<b>US Airways Express (US)</b>	Colgan Air (US)	53	1,024
	Mesa Airlines (US)	4	13,088
	Chautauqua (US)	8	7800
	Air Wisconsin (US)	9	6,859
	Air Midwest (US)	90	340
	Tran States Airlines (US)	16	4,159
<b>Continental Airlines (US)</b>	ExpressJet (US)	3	15,987
<b>Northwest AirlinK (US)</b>	Mesaba Airlines (US)	13	5,047
	Pinnacle (US)	7	8,107
<b>Lufthansa (GER)</b>	Augsburg Airways (GER)	63	776
	Contact Air (GER)	83	429
<b>Air France (F)</b>	CCM Airlines (F)	41	1,551
<b>Alaska Airline (US)</b>	Horizon Air (US)	10	6,481
<b>America West Express (US)</b>	Mesa Airlines (US)	4	13,088
<b>SAS (DK, SW, NOR)</b>	Skyways (SW)	58	904
<b>Iberia (SP)</b>	Air Nostrum (SP)	14	4,689
<b>Japan Airlines (JPN)</b>	Japan Air Commuter (JPN)	-	-

Source: Airline Business, May 2006, recompiled by the WTO Secretariat.



to avoid excessive dependence. In certain instances, majors have even privileged franchised/affiliate airlines against their own subsidiaries, as Delta did in 2003 when it selected Chautauqua Airlines to set up a regional hub in Columbus rather than its then subsidiaries, Comair and Atlantic Southeast.

242. Chapter 11 negotiations have had an impact not only on the relaxation of the scope clauses, but also put into question in certain instances (United) the typical fee per departure contract. Under such contracts, the major pays a flat fee (typically US\$3500 per departure in 2003 according to Airline Business) regardless of how full the flight is or what fares are paid.

243. At least one regional carrier, Atlantic Coast Airlines, which was then the principal affiliate of United (with 7.1 million passengers carried), decided in 2004 to transform itself into a low-cost carrier and severed its links with United. United stuck to its model of having recourse only to affiliates and switched to Shuttle America, Chautauqua Republic Airlines, Air Wisconsin, TransStates, Mesa and SkyWest Airlines. Renamed Independence Air and based in Washington Dulles, Atlantic Coast Airlines never managed to break even and went bankrupt in early 2006. Northwest then bought the air operator certificate of Independence to create a new regional subsidiary, Compass, after renegotiating its scope clause under Chapter 11. Northwest used the new acquisition to force its franchised airlines, Pinnacle and Mesaba Airlines, to re-bid for their businesses.<sup>64</sup>

244. The "multibrands approach", whereby a franchisee has several franchisors in order to spread risks, seems to be an emerging trend. Mesa Air Group, Republic Air Holdings and SkyWest are examples of companies having adopted this strategy which is also well illustrated in Table 13.

245. The European situation looked somewhat different during the period under review. In Europe, scope clauses have not been a problem. With regard to the relationship between franchised and major airlines, the trend is to a large extent the opposite of the US one. Instead of spinning off their subsidiaries, some European airlines have taken majority interests in or full control of their regional affiliates in order to optimize their feeder networks.

246. This is the case of Lufthansa, which in 2002 raised its stake in Eurowings to 49 per cent. Lufthansa also took full control of Air Dolomiti in 2004, and has grouped its captives under the generic name of Lufthansa Regional in 2005. Similarly, Air France took over, and then merged into one single entity its affiliates Regional Airlines, Flandre Air and Proteus Airlines in 2000, in addition to taking control of BritAir and Ireland's Cityjet. Air France sees this movement as "the sixth arm" of a strategy in reaction to the European deregulation process, after direct distribution, frequent flyer programmes, yield control, hub development, and alliances. The move is intended to develop connecting traffic, use regional airlines to replace Air France aircraft on routes with little traffic and react quickly to changing market conditions. British Airways had developed earlier, before the period under review, a similar strategy.<sup>65</sup> As a consequence of these developments, captive airlines now hold 60 per cent of the European market, leaving the remainder to fully independent and franchised airlines, as compared to a 50:50 ratio in the United States.

247. The major difficulty faced by franchised and, more generally, regional airlines in Europe seems to be the competition from low-cost carriers. Certain regional airlines have reinvented themselves as low-cost carriers, e.g. Norwegian Air Shuttle into Norwegian and British European into Flybe. While new generation turboprops have a cost advantage over the 737s or A320s operated by low-cost carriers, regional airlines cannot get apparently the same conditions for airport charges as low-cost carriers.

<sup>64</sup> Airline Business, Annual Regional Airlines Outlook, July 2005.

<sup>65</sup> There are some exceptions, however. For instance, Iberia has sold its two regional subsidiaries, Binter Malaga and Binter Mediterraneo, to the independent regional group Air Nostrum.

#### IV. SERVICES AUXILIARY TO ALL MODES WHEN DELIVERED IN AN AIR TRANSPORT CONTEXT (FREIGHT FORWARDING AND WAREHOUSING)

248. The legal and economic situation described by the documentation for the first review has not substantially changed since. Freight forwarding and warehousing have remained activities that are not specifically linked to a mode of transport. To the contrary, recent years have seen widespread outsourcing of logistics functions to third party firms, where the supply chain is seen as an integrated process that is coordinated by one actor. Covered are not only transport and storage, but value-added services such as tracking, inventory management, and in certain instances, packing, insurance, bill collection, trade financing, etc. The underlying vision is that of "one stop shopping" for door-to-door logistics services that are provided either by postal carriers (e.g. Deutsche Post owning the express carrier DHL, the freight forwarder Danzas and the air carrier Airborne International), express carriers (UPS taking over the freight forwarders Menlo and Sinotrans), freight forwarders, rail carriers (Deutsche Bahn owning the freight forwarder Schenker, SNCB owning ABX, SNCF owning until recently Geodis, Indian Railways revamping their freight depot through PPP) or ship-owners (Maersk, OOCL, APL logistics). By the same token, the traditional borderlines between transport, postal, express and freight forwarding services have largely vanished.

249. There are, therefore, no data available for these activities delivered only in an air transport context. For instance, the most extensive recent study of the subject, by the US International Trade Commission (USITC) is based on a global definition of the logistics sector. The global outsourced market for logistics was estimated at US\$130 billion in 2002. Unfortunately, no geographic breakdown is provided. Other sources indicate that the US third party (3PL) market in 2003 amounted to US\$77 billion. The value of outsourced European logistics in 2004 was estimated at €36.5 billion, which is said to be less than 10 per cent of the total market. For the United States, the share of outsourced logistics reportedly exceeds 40 per cent. The discrepancies may be attributable in part, however, to data problems and definitional uncertainties.<sup>66</sup> Data for other regions are scarcely available, except for China. However, there are wide differences between sources; one study values the market at US\$3.8 billion in 2003 and another at US\$8.5 billion. Predicted annual growth exceeds 10 per cent, possibly in expectation of

a deliberate policy to reduce logistics costs to US or European levels (transport, inventory and administrative costs add up to some 10 per cent of GDP in the United States, 12-13 per cent in Europe, and over 20 per cent in China).

250. The total international market for freight forwarding was estimated by the magazine Containerization International at US\$165 billion in 2002, with the share of the top 20 providers amounting to about 20 per cent. Among them are nine European firms (DHL-Danzas, Kühne & Nagel, Panalpina, Exel, Schenker, etc.), four are based in Asia, and seven in the United States. A USITC report for 2003 provides a similar picture. The seven leading companies are of EC origin or ownership, except for one Swiss firm (Panalpina), the first US company ranks eighth (UPS), and the first Japanese firm ninth (Nippon Express). The top 25 firms are estimated to account for US\$80 billion in revenue.

251. It is obvious that the sector represents a large workforce. For instance, the nine largest European freight forwarding companies, grouped in the association Freight Forwarding International, claim to employ over 445,000 persons (possibly counting all employees of DHL, including those working in express activities). In most instances, the jobs are qualified since IT systems are key to modern logistics (e.g. Fedex reportedly has 2.5 computers per employee). What these data do not cover is the web of small local companies, generally family businesses, around airports and ports, which deal with customs clearance, freight forwarding and agency activities.

252. Of the 12 countries or territories that have acceded to the WTO since August 2000, ten have undertaken commitments on freight forwarding<sup>67</sup> and nine on storage and warehousing.<sup>68</sup> None of these Members has listed an MFN exemption covering those two sectors.

253. MFN exemptions covering freight forwarding, and storage and warehousing have been discussed during the second review of MFN exemptions held on 30 November 2004 and 23 February 2005.<sup>69</sup>

254. The coverage by the GATS of freight forwarding services in an air transport context was discussed at the occasion of the Transitional Review Mechanism of China.<sup>70</sup>

<sup>67</sup> Albania, Armenia, China, Chinese Taipei, Croatia, Former Yugoslav Republic of Macedonia, Kyrgyz Republic, Moldova, Nepal and Oman.

<sup>68</sup> Albania, Armenia, China, Chinese Taipei, Croatia, Former Yugoslav Republic of Macedonia, Kyrgyz Republic, Moldova and Oman.

<sup>69</sup> See documents S/C/M/76, dated 4 February 2005, and S/C/M/78, dated 17 May 2005.

<sup>70</sup> See document S/C/W/261, paragraphs 9 and 10 and S/C/M/80 paragraph 32.

<sup>66</sup> Some sources include express delivery services in logistics, others limit it to freight forwarding in the traditional sense, or use some half-way, but unsubstantiated definitions.



TABLE 14

## Top 10 global logistics providers' business focus – 2004

	Year	Forwarding		Logistics services <sup>a</sup>	Logistics services' figures as percentage of:
		Seafreight	Airfreight		
<b>Nippon Express</b>	2004	10.3%; 628 000TEU <sup>d</sup>	15.7%; 660 000 tonnes	Warehousing 4.8%; in-factory work and other 15.2%; rail forwarding 7.7%; motor transportation 43.3% = 71%	Non-consolidated revenue: US\$11 690.6 million
	2003	10.1%	15.4%	Warehousing 4.9%; in-factory work and other 14.9%; rail forwarding 7.5%; motor transportation 43.9% = 71.2%	Non-consolidated revenue: US\$11 461.7 million
<b>Exel Group</b>	2004	Freight management 38.3%; 515 000TEU <sup>d</sup>	-	Contract logistics 59.6%	Turnover from continuing operations and acquisitions: US\$11 425.6 million
	2003	Freight management 44.1%	-	53.7%	Turnover: US\$9 211.5 million
<b>Schenkerb</b>	2004	810 000TEU (estimated)	525 000 tonnes (estimated)	61.1% <sup>c</sup>	-
	2003	Unavailable	Unavailable	60.5% <sup>c</sup>	-
<b>Deutsche Post Logistics</b>	2004	DHL Danzas Air & Ocean 73.5%; 1.2 million TEU	2 200 000 tonnes	DHL Solutions 26.5%	Revenue: US\$8 168.2 million
	2003	DHL Danzas Air & Ocean 72.2%	-	DHL Solutions 27.9%	Revenue: US\$7 118.2 million
<b>Kuehne + Nagel</b>	2004	52.9%; 1.6 million TEU	22.5%; 600 000 tonnes	Rail and road logistics 13.7%; contract logistics 10.1%	Invoiced (gross) turnover: US\$9 049.2 million
	2003	54.1%; 1.25 million TEU	21.9%; 500 000 tonnes	Rail and road logistics 10.8%; contract logistics 12.2%	Invoiced (gross) turnover: US\$7 674 million
<b>UPS SCS</b>		343 000TEU <sup>d</sup>	9 000 000 tonnes <sup>d</sup>	unavailable	unavailable
<b>TNT Logistics</b>	2004	Wilson Logistics; 154 000TEU <sup>d</sup>	-	100% of revenue without Wilson Logistics <sup>c</sup>	-
<b>Panalpinac</b>	2004	40.5%; 824 200TEU	59.5%; 750 000 tonnes	15.2% <sup>c</sup>	unavailable
	2003	680 000TEU	620 000 tonnes	14.1% <sup>c</sup>	unavailable
<b>CH Robinson</b>	2004	3.6%	1.5%	Truck 75.9%; intermodal 4.5%	Transportation gross profits: US\$575.7 million
	2003	4.1%	1.1%	Truck 86.4%; intermodal 6.0%	Transportation gross profits: US\$464.7 million
<b>Geodis</b>		Figures by mode unavailable	-	Primary business area	-

<sup>a</sup> Including supply chain management, contracts logistics (including warehousing and distribution) and value-added services.

<sup>b</sup> Business areas vary by subsidiary - Geodis reports on four operating divisions: Geodis France, Geodis Europe, Geodis FarEast/Latin America and Geodis BM.

<sup>c</sup> Information from Analytica.

<sup>d</sup> MergeGlobal estimates and company reports.

Source: Annual reports and company information except where stated; Containerisation International, September 2005.

## V. LEASING

### A. ECONOMIC DEVELOPMENTS

255. The material gathered for the first review was largely based on a May 1999 ICAO study. This study has not been updated, and recent data are therefore scarcer than they were for the first review, in particular regarding leasing between carriers (dry and wet leasing).

256. During the fifth Worldwide Air Transport Conference, held in Montreal from 24 to 29 March 2003, the ICAO Secretariat submitted a document on "Aircraft leasing in international transport".<sup>71</sup> It states that during the preceding five years, the number of international scheduled airlines using leased aircraft had increased by 20 per cent. In 2001, 84 per cent of the 532 international scheduled airlines in operation worldwide used leased aircraft, and over 45 per cent of all aircraft in service with such airlines were leased. The number of aircraft leased from other airlines increased by 33 per cent between 1996 and 2001, the aircraft leased from leasing companies by 43 per cent and the aircraft leased from other sources (including, in particular, banks) by 44 per cent. The relative importance of inter-carrier leasing has therefore decreased, while the global share of leasing as compared to direct ownership of planes has clearly increased.

257. The main rationale for the increasing use of leasing is its economic flexibility as compared with purchasing. Furthermore, leasing is often used by new entrants lacking the economic strength necessary to purchase an aircraft. Hence, liberalization and the advent of low-cost carriers tended to increase the use of leasing.

258. The relative advantages of leasing, as compared to purchasing, depend on the prevailing economic conditions (inflation, interest rates, tax treatment of the leasing regimes) as well as the cycle of the air transport industry (over- or under-capacity in the market, residual value of the various types of planes, leasing rates, etc.). This is evidenced by the recent evolution of the operating lease sector (i.e. lease by specialized leasing companies excluding carriers, and by non-specialized entities such as banks and export credit agencies, see Tables 15 and 16).

259. There are virtually no data available on the inter-carrier market since 2001, but it is likely to have been less affected by the trends noted above than the operat-

ing lease sector. It is a niche market essentially used by carriers in response to exceptional circumstances (non-availability of a plane for technical reason, strikes, etc.). Still, the inter-carrier market has seen at least one major bankruptcy, Atlas Air, a cargo company operating wet leases under an Aircraft Crew Maintenance and Insurance (ACMI) regime. However, other companies based on the same business model, such as Iceland's Air Atlanta, have since emerged as major players in this market.

260. Tables 15 and 16 list the 39 leading leasing companies, and the value of their fleet in 2001 and 2005.

261. Several observations can be made from these Tables. In both 2001 and 2005, GECAS and ILFC accounted for half of the market. While most of the lessors are either US or EC-based, operators from Oceania, Africa, the Middle East, Russia, and the Far East are also present. This geographical dispersion is even more pronounced if one looks at the shareholders, in particular of smaller companies. It is also interesting to note the presence of different types of actors: pure leasing companies (ILFC, Bouilloun); leasing companies linked to an engine manufacturer (GECAS) or to aircraft manufacturing companies (BCC and Boeing Aircraft Holding for Boeing, Airbus Asset Management for Airbus); and regional aircraft manufacturers such as ATR and BAE.

262. There has been a notable evolution, both in terms of ranking and of the companies listed, over just four years. This can be explained by mergers and acquisitions, but also by the fact that certain actors have deliberately chosen to support the sector counter-cyclically in view of their wider interests (Boeing, GECAS), while others have adopted a more cautious approach (e.g. Airbus) or a purely financial strategy of limiting risks (ILFC). For instance, certain banks have sold off their leasing arms (e.g. Abbey National with IEM).

263. Table 15 also shows that immediately after 9/11, lessors' fleets immediately lost on average around 20 per cent of their value. They lost a further 8.2 per cent in 2003 against a "normal" average rate of 4.6 per cent. This is further illustrated by the evolution of the monthly lease rate of a Boeing 767: US\$400,000 in 2000, US\$200,000 in 2001 (post 9/11), US\$300,000 in 2005. After a deep crisis, the leasing sector, boosted by the rebound of the air transport industry and a frenzy of orders, has regained its attractiveness. The prices obtained for the recent sales of two mid-sized aircraft leasing companies, Bouilloun and Debis Air Finance, is testament to this.

<sup>71</sup> ATConf/5-WP/9, dated 27 September 2002.



TABLE 15

Leading lessors by fleet size and value pre and post 11 September 2001

Rank Company		Total fleet value (US\$ million)	Fleet size	Average aircraft value (US\$ million)	
		September 2001		September 2001	January 2002
1	<b>GECAS</b> (United States)	28,094	1,232	22.8	18.9
2	<b>ILFC</b> (United States)	20,854	507	41.1	34.2
3	<b>Ansett Worldwide</b> (Australia)	4,161	171	24.3	19.4
4	<b>Debis AirFinance</b> (Netherlands)	3,704	184	20.1	16.8
5	<b>Flightlease/GATX Flightlease</b> (Switzerland)	3,493	79	44.2	37.1
6	<b>Babcock &amp; Brown</b> (United States)	2,935	108	27.2	22.1
7	<b>GATX Air</b> (United States)	2,826	109	25.9	21.4
8	<b>Pegasus Capital</b> (United States)	2,659	221	12.0	9.4
9	<b>Tyco Capital Aerospace</b> (United States)	2,618	129	20.3	16.2
10	<b>Boullioun Aviation</b> (United States)	1,632	63	25.9	21.8
11	<b>SALE [Singapore Aircraft Leasing]</b> (Singapore)	1,596	37	43.1	37.5
12	<b>BAE Systems Regional</b> (United Kingdom)	1,561	357	4.4	3.5
13	<b>Pembroke Group/Air Finance</b> (Ireland)	1,390	98	14.2	11.4
14	<b>Airbus Asset Management</b> (France)	1,357	40	33.9	29.9
15	<b>ORIX Aviation Systems</b> (Ireland)	1,327	52	25.5	20.6
16	<b>Aviation Capital Group</b> (United States)	1,036	68	15.2	12.0
17	<b>Tombo Aviation Inc</b> (United States)	1,025	36	28.5	24.2
18	<b>SAAB Aircraft Leasing</b> (United States)	998	285	3.5	3.1
19	<b>Finova Capital</b> (United States)	917	103	8.9	6.9
20	<b>Sunrock Aircraft</b> (Ireland)	686	24	28.6	23.5
21	<b>Bavaria Int'l Aircraft Leasing</b> (Germany)	553	28	19.8	17.0
22	<b>Deutsche Structured Finance</b> (Germany)	545	26	21.0	17.8
23	<b>IEM Airfinance</b> (Netherlands)	498	20	24.9	20.9
24	<b>Dornier Aviation</b> (United States)	494	69	7.2	6.3
25	<b>Triton Aviation</b> (United States)	448	49	9.1	7.0
26	<b>Oasis International Leasing</b> (UAE)	404	12	33.6	28.7
27	<b>C-S Aviation Services</b> (United States)	354	26	13.6	11.4
28	<b>ITOCHU AirLease Corp</b> (Japan)	335	10	33.5	25.6
29	<b>ATR Leasing</b> (France)	318	62	5.1	4.4
30	<b>Raytheon Aircraft</b> (United States)	275	170	1.6	1.5
31	<b>International Aircraft Investors</b> (United States)	208	12	17.3	14.2
32	<b>Fleet Capital Leasing</b> (United States)	112	11	10.2	7.3
33	<b>Potomac Capital</b> (United States)	108	11	9.8	7.3
34	<b>Arkia Leasing</b> (Israel)	106	18	5.9	4.7
35	<b>US Airways Leasing</b> (United States)	105	30	3.5	2.6
36	<b>International Air Leases</b> (United States)	42	22	1.9	1.6
37	<b>AeroCentury</b> (United States)	37	16	2.3	2.1
38	<b>Lynrise</b> (United States)	29	24	1.2	1.2
39	<b>MCC Financial Corp</b> (United States)	24	16	1.5	1.3
<b>Total survey</b>		<b>89,864</b>	<b>4,535</b>	<b>17.8</b>	<b>14.7</b>

Source: Airline Business.

**TABLE 16**  
**Leading lessors by fleet size and value – 2005**

Rank	Company	Total fleet value (US\$ million)	Fleet size	Average aircraft value (US\$ million)
1	<b>ILFC</b> (United States)	28,395	824	34.5
2	<b>GECAS</b> (United States)	23,617	1,276	18.5
3	<b>CIT Group</b> (United States)	5,145	297	17.3
4	<b>Boeing Capital Corp</b> (United States)	4,836	358	13.5
5	<b>RBS Aviation Capital</b> (Ireland)	3,681	117	31.5
6	<b>Debis AirFinance</b> (Netherlands)	3,392	267	12.7
7	<b>Boulioun Aviation</b> (United States)	3,139	123	25.5
8	<b>GATX Capital Corp</b> (United States)	3,101	146	21.2
9	<b>AWAS</b> (United States)	2,675	170	15.7
10	<b>SALE</b> (Singapore)	2,594	64	40.5
11	<b>Babcock &amp; Brown</b> (United States)	2,237	128	17.5
12	<b>ORIX Aviation Systems</b> (Ireland)	1,646	70	23.5
13	<b>Pegasus Aviation</b> (United States)	1,336	230	5.8
14	<b>Aviation Capital Group</b> (United States)	1,283	87	14.7
15	<b>Airbus Asset Mgt</b> (France)	1,087	99	11.0
16	<b>Boeing Aircraft Holding</b> (United States)	1,062	31	34.3
17	<b>Pembroke Group</b> (Ireland)	943	80	11.8
18	<b>Tombo Aviation</b> (United States)	934	27	34.6
19	<b>BAE Systems Asset Mgt</b> (United Kingdom)	777	292	2.7
20	<b>ITOCHU Airlease</b> (United States)	744	25	29.8
21	<b>Finova Capital</b> (United States)	717	122	5.9
22	<b>Bombardier Capital</b> (United States)	600	100	6.0
23	<b>ATR Asset Mangement</b> (France)	519	120	4.3
24	<b>Oasis Int'l Leasing</b> (UAE)	416	17	24.4
25	<b>Raytheon Aircraft Credit</b> (United States)	398	207	1.9
26	<b>Bavaria Int'l A/c Leasing</b> (Germany)	391	26	15.0
27	<b>Triton Aviation Services</b> (United States)	379	89	4.3
28	<b>Jetscape</b> (United States)	336	25	13.5
29	<b>GOAL</b> (Germany)	334	22	15.2
30	<b>Deutsche Structured Finance</b> (Germany)	321	22	14.6
31	<b>Sunrock Aircraft</b> (Ireland)	315	16	19.7
32	<b>BCI Aircraft Leasing</b> (United States)	279	35	8.0
33	<b>Saab Aircraft Leasing</b> (Sweden)	277	149	1.9
34	<b>Aircorp</b> (United States)	239	25	9.6
35	<b>Safair Lease Finance</b> (South Africa)	234	9	26.0
36	<b>Guggenheim Aviation</b> (United States)	219	6	36.5
37	<b>ALAFCO</b> (Kuwait)	199	9	22.1
38	<b>Center-Capital</b> (Russia)	163	12	13.6
39	<b>Central Air Leasing</b> (United Kingdom)	153	4	38.4
<b>Total Survey</b>		<b>99,113</b>	<b>5,726</b>	<b>17.9</b>

Source: Airline Business.



264. US legacy carriers, which pre 9/11 preferred to finance their acquisitions through cheap debt, may have increasing recourse to leasing. The same goes for low-cost carriers both in the United States and elsewhere, which cannot finance their massive orders, or at least not all of them, through traditional financing channels (equity, capital market, export credit agency). Export credit agencies, for instance, have recently become more cautious since they now face private clients instead of publicly-owned airlines with a State guarantee. Banks too are lending less and less to the airline industry, especially in the United States, and this affects not only Chapter 11 airlines, but also some low-cost carriers whose debts have grown considerably. "Sale and lease-back" schemes, against a discount from the aircraft manufacturer, are an increasingly popular formula used to finance massive orders (e.g. Ryanair and easyJet). It is interesting to note that SALE, a Singapore-based company, has specialised in the low-cost sector and in only a few years has built a portfolio of customers comprising AirAsia, easyJet, Frontier Airlines, Jet Blue, Valuair, and Jetstar.<sup>72</sup>

265. Some major airlines, such as Air France, are also increasingly using leasing as a way to adjust and renew their fleet. Others, such as Lufthansa and BA, are more cautious and consider that flexibility comes at too high a price. An interesting, though marginal option is the development of intra-alliance leases, occurring usually during times of dramatic capacity changes and for short periods until the market corrects. For example, leasing occurred within Oneworld airlines following both the terrorists attacks of 11 September 2001 and the collapse of the Ansett Group in Australia on 12 September 2001. These events led to temporary over-capacity in the United States and under-capacity in Australia. The leasing of aircraft within alliances allowed airlines to address these temporary capacity issues without entering into long-term leases or purchasing additional aircraft. However, such arrangements are hampered by lack of standardization among planes, an issue that alliances are starting to tackle. It is also worth noting that the leasing of engines has grown as a market of its own.

## B. REGULATORY DEVELOPMENTS

### 1. Multilateral developments

#### (a) ICAO

266. ICAO-related developments have been centred on safety and security aspects, rather than on market access issues strictly speaking.

267. Article 83*bis* of the Chicago Convention, which provides for certain responsibilities of the State of registry to be transferred to the State of the operator for leased aircraft, has been covered by the documentation of the first review (see compilation, page 41). As of March 2006, 148 States had ratified it and 37 States had concluded 38 agreements under this Article.<sup>73</sup> These agreements were predominantly for dry leases of aircraft, involving leasing companies or financial entities as lessors. ICAO revised its guidance material for the implementation of Article 83*bis* in early 2003.<sup>74</sup>

268. Based on a study on leasing produced by ICAO in 1999 (see compilation, page 36), the fifth ICAO Worldwide Air Transport Conference addressed the issue of leasing in March 2003. It concluded, *inter alia*, that, while leasing offers considerable benefits, it also raises economic and safety regulatory issues that must be addressed. In particular, States should ensure clear responsibility for safety oversight and compliance with minimum safety standards.

269. The ICAO TASA contains a specific provision on leasing which is common to all three approaches of liberalization offered by the TASA (traditional, transitional and full liberalization). It reads as follow:

"1. Either Party may prevent the use of leased aircraft for services under this agreement which does not comply with Articles..... (Safety) and .....(Security).

2a. Subject to paragraph 1 above, the designated airlines of each Party may use aircraft leased from other airlines, provided all participants in such arrangements hold the appropriate authority and meet the requirements applied to such arrangements.

2b. Subject to paragraph 1 above, the designated airlines of each Party may use aircraft (or aircraft and crew) leased from any company, including other airlines, provided that this would not result in a lessor airline exercising traffic rights it does not have."

270. Paragraph 2 provides a choice between two options for dealing with a primary economic concern, i.e. that a lessor airline might seek to exercise traffic rights to which it is not entitled. Both options also recognize (by

<sup>73</sup> The complete list of ratifications is available at: [http://www.icao.int/cgi/goto\\_m\\_leb.pl?icao/en/leb/treaty.htm](http://www.icao.int/cgi/goto_m_leb.pl?icao/en/leb/treaty.htm)

<sup>74</sup> Circular 295 "Guidance on the implementation of article 83*bis* of the Convention on International Civil Aviation".

<sup>72</sup> Airline Business, Annual Leasing Review.

omission or explicitly) that from an economic perspective, States generally permit, or do not regulate, the leasing of aircraft leased from non-airline entities.

271. The fifth ICAO Worldwide Air Transport Conference also requested that ICAO produce a study on the safety and security aspects of economic liberalisation. This study, issued on 1 June 2005<sup>75</sup>, covers aircraft leasing and notably operations of foreign registered aircraft and foreign flight crews where the aircraft might be leased and operated outside the State of registry. The study concluded that such situations may raise potential problems for identifying the State responsible for safety oversight. As a result, ICAO has taken action to improve its guidance material. On 17 January 2006, the ICAO Air Navigation Commission recognized the difficulties for States to identify which State has responsibility for regulatory oversight under the various commercial arrangements or practices. The Commission proposed to the Council the adoption of an amendment to Annex 6 of the Chicago Convention parts I and II relating to the carriage of documents in the aircraft. This amendment, which requires the carriage of a certified true copy of the Airline Operating Certificate (AOC), and specific related authorizations, conditions, and limitations, will enable each State to determine which State has the responsibility for regulatory oversight of the operation of the aircraft. This amendment was adopted by the Council and became effective on 17 July 2006.<sup>76</sup>

#### (b) Cape Town Treaty

272. The Cape Town Treaty, which dates from 1994, was ultimately signed in 2001. It establishes an international legal framework designed to ensure the rights of creditors in the event of default, including recovery of assets. Transactions will be recorded in Dublin at the International Registry of Mobile Assets, a depositary set up by Aviareto, a joint venture between the company SITA and the Irish government. ICAO will act as the supervisory authority. It is hoped that the additional legal certainty, that an asset can be repossessed without encountering local obstacles, will be beneficial not only to creditors, but also to airlines, notably from developing countries, in the form of better access to capital markets and lower rates. The US Exim Bank, for instance, offers to signatory nations

a one-third reduction on fees related to loan guarantees. By November 2005, the Treaty had been ratified by eight countries (United States, Ethiopia, Nigeria, Oman, Pakistan, Panama, Ireland and Malaysia). Due to these ratifications, it became fully operational on 1 March 2006.

## 2. Bilateral and national developments

273. The material prepared for the first review, quoting the 1999 ICAO study on leasing, mentioned that 41 bilateral air service agreements, involving 38 States, contained an aircraft leasing clause. It also comprised a specific document, requested by Members, listing these agreements and their content (S/C/W/182, dated 30 November 2000). The 2005 ICAO WASA database of air service agreements records 42 agreements that have been concluded since 1 January 1995 containing a leasing clause. The complete list of these agreements can be found in the Annex.

274. The first leasing provision, other than in bilateral agreements, was found in the Multilateral Agreement on the Liberalization of International Air Transport (MALIAT), in fact, a plurilateral agreement, which was signed by several APEC members: Brunei Darussalam, Chile, New Zealand, Singapore, Samoa, Tonga, and the United States (see compilation, page 180). The leasing provision of this agreement broadens the potential number of States whose airlines could provide leased aircraft to airlines of any other signatory States, including other APEC members not parties to the MALIAT.

275. The WTO Secretariat has not been made aware of any significant change in national regulations regarding leasing as compared to what was described in the material for the first review (compilation, pages 40-41). The general situation has remained as described by ICAO in its WP 9 paper. From an economic perspective, States either approve, or do not regulate, leases where the lessor neither is an air carrier nor is it controlled by an air carrier. In other words, financial and long-term operating leases, where the lessor is a leasing company, bank or entity, are generally permitted in international air transport. From a bilateral perspective, States generally permit aircraft leases between airlines of the two parties concerned, while restricting or not allowing leases, especially wet leases, from airlines of third countries. For leases involving airlines of States not party to a relevant agreement or arrangement, States either require that such airlines have the necessary traffic rights or otherwise prohibit such leases. Again, only a detailed questionnaire addressed to WTO Members could provide more detailed information for future reviews.

<sup>75</sup> Available at: [www.icao.int/icao/en/atb/ecp/SafetySecurity.htm](http://www.icao.int/icao/en/atb/ecp/SafetySecurity.htm)

<sup>76</sup> The full text of the amendment reads: "An aeroplane shall carry a certified true copy of the air operator certificate and a copy of the authorizations, conditions and limitations relevant to the aeroplane type, issued in conjunction with the certificate. When the certificate and the associated authorizations, conditions and limitations are issued by the State of the Operator in a language other than English, an English translation shall be included".





## ANNEX TO CHAPTER V

**TABLE A1**

**Bilateral agreements posterior to 1 January 1995 containing a clause dealing with leasing (as registered and numbered by ICAO)**

Clause as defined by ICAO	Bilateral agreements concerned
This clause indicates a reference to <b>leasing</b> , such as a notification provision for a designated airline using a leased aircraft on the agreed services other than one owned by it and/or sets out conditions to ensure that such arrangements shall not allow airlines of a third party to have access to the traffic rights.	Indonesia-Singapore (n°3950), China, Hong Kong SAR-Germany (n°3981), Myanmar-Viet Nam (n°4014), Uzbekistan-Viet Nam (n°4016), Cambodia-Viet Nam (n°4067), Cambodia-Myanmar (n°4068), Cambodia-Singapore (n°4069), South Africa-Brazil (n°4071), Singapore-Brunei Darussalam (n°4101), Lao P. Democratic Rep.-Singapore (n°4104), United States-Singapore (n°4111), United States-Czech Rep. (n°4117), New Zealand-Singapore (n°4136), Bahrain-China (n°4186), New Zealand-Brunei Darussalam (n°4265), Iceland-United States (n°4369), United States-Brunei Darussalam (n°4371), United States-China, Macao SAR (n°4388), Viet Nam-China, Macao SAR (n°4389), Bahrain-Viet Nam (n°4392), New Zealand-Switzerland (n°4398), China, Hong Kong SAR-Viet Nam (n°4419), China, Hong Kong SAR-Norway (n°4423), United States-Uzbekistan (n°4433), TFYR Macedonia-Netherlands (n°4456), South Africa-Greece (n°4472), South Africa-Yemen (n°4473), South Africa-Belgium (n°4474), Italy-Malaysia (n°4476), South Africa-Saudi Arabia (n°4479), South Africa-Iran (Islamic Rep. of) (n°4487), South Africa-United Arab Emirates (n°4493), Germany-Viet Nam (n°4503), South Africa-Norway (n°4541), South Africa-Sweden (n°4542), South Africa-Denmark (n°4543), Spain-Panama (n°4603), China, Hong Kong SAR-Ukraine (n°4605), Latvia-China (n°4620), Latvia-Singapore (n°4626), South Africa-Mali (n°4628), Cambodia-China, Macao SAR (n°4632), Syrian Arab Rep.-Netherlands (n°4646).

Source: ICAO WASA database.

## VI. GROUND HANDLING, CATERING AND REFUELLING

276. Ground handling and two of its sub-sectors, fuelling and catering, have been extensively described in the documentation prepared by the Secretariat for the first review (compilation, pages 50-73, 49, 44-45). The sector has also been discussed by Members since the first review, and a report of these discussions, in particular on classification questions, can be found in document Job (05)/300, dated 18 November 2005.

277. The following observations are largely based on a contribution by the International Aviation Handlers Association prepared especially for the second air transport review.<sup>77</sup> Traditional sources of information available to the Secretariat (ICAO, IATA, Airlines Business, Aviation Week and Interavia) have also been used.

278. As ground handling progressively evolves from a monopoly market to a competitive one, economic developments in the sector and regulatory developments are closely linked, and are therefore considered together. Regulatory developments linked purely to safety considerations, which have little impact on market access, will be dealt with separately.

### A. DEFINITION

279. From an operational point of view, ground handling can be described as the services provided to aircraft, passengers and cargo at an airport. It is an essential service, without which aircraft could not depart, and includes all the activities that take place around the aircraft and in the terminal building and/or cargo warehouse with regard to the load being carried on the aircraft (for the various regulatory definitions and the possible GATS classifications, see the compilation, pages 53-54, and Job (05)/300, pages 4-6).

280. IATA produced a Standard Ground Handling Agreement (SGHA), which is widely used. The SGHA lists the key elements of ground handling. It originally contained 14 types of activities (see compilation, pages 53-54), but was amended in 2003 in order to re-group and re-allocate them into 8 types of activities, as listed in Table 17.<sup>78</sup>

<sup>77</sup> www.iaha.info

<sup>78</sup> Tables of correspondence between the two classifications are available from the WTO Secretariat.

281. Although fuelling, catering, loading, security and maintenance are included in the list of services in the SGHA, it is quite common for these services to be provided by specialist companies, i.e. fuel companies providing fuelling, catering companies providing catering loading, etc. They are, therefore, not regarded as core ground handling services as they are not necessarily provided by a ground handling agent. More details on the operations abroad of foreign providers of fuelling, catering and loading are contained in the IATA Interactive Ground Handling Council (IGHC) Directory database: [www.iata.org/ighcpublic/search.aspx](http://www.iata.org/ighcpublic/search.aspx).<sup>79</sup> It is interesting to note that, while most of the specialized operators are not global and have limited international activities, this is not true for all segments or for all companies. Examples of global operators include the leading catering providers (LSG SkyChefs which is present in 45 countries, Gate Gourmet which operates in 31 countries, and Servair which has a presence in 18 countries)<sup>80</sup>, and the trolley operator Smarte Carte, which was recently acquired by the Australian investment bank Macquarie, and is present in 175 airports.

### B. MAIN TYPES OF PROVIDERS

282. The majority of other ground handling services are provided by the airline itself, the airport operator, or a specialist ground handling organisation. These services are sometimes split between more than one supplier, e.g. an airline may handle its own passengers, but contract a ground handling company to undertake required ramp services.

<sup>79</sup> Both the consumers of ground handling services (IATA members), and providers of such services (IAHA members) have advised the Secretariat not to update Table 8 of the compilation (pages 62-68) on the types of providers present at main airports, because specialised providers might give a misleading picture of liberalization, while core services may still be severely restricted.

<sup>80</sup> Airline Business, January 2003.

**TABLE 17**  
**IATA (SGHA) classification of ground handling activities – 2003**

Section	1	Representation, Administration & Supervision
	2	Passenger Services
	3	Ramp Services
	4	Load Control, Communication & Flight Operations
	5	Cargo & Mail Services
	6	Support Services
	7	Security
	8	Aircraft Maintenance

Source: IATA.

## 1. Airlines

283. Historically, airlines handled themselves - particularly in the United States - and catered to other airlines' needs on a reciprocal basis. Alternatively, airports handled all aircraft, usually on a monopoly basis. This was a common scenario in Europe.

284. Airlines continue to be the largest provider of ground handling services, usually self-handling in their own country, and particularly at their home base. In addition, they continue to handle for other carriers, i.e. mutual handling. This was generally delivered on a reciprocal basis amongst IATA Members as many of the routes were pooled and revenue-shared. The progressive disappearance of this pool and the emergence of competition among airlines serving the same city-pairs have gradually changed this situation, and airlines now tend to handle other airlines in the same alliance, primarily to bring the passenger services together, but also to defray costs.

285. Another recent trend has been for airlines to either separate their self-handling in their home country into stand-alone businesses, sometimes with an external partner, either as a prelude to the selling off of the activity or to establishing a separate ground handling company within their overall group.

286. Passenger service is often seen as part of an airline's core services. However, this can vary both geographically and by airline. In North America, most airlines handle their own passengers domestically, whereas in Europe most low-cost airlines contract an independent ground handler even at their hub; legacy carriers also tend to do this outside of their home country.

287. In instances where conditions of operations are difficult, and where services delivered by local monopoly providers are of poor quality, airlines prefer to self-handle in spite of the higher costs involved. This ensures compliance with the safety rules imposed by the US Federal Aviation Administration or the European Joint Aviation Authorities. However, the possibility of self-handling (or, for that matter, mutual-handling) is not always granted. This explains why airlines often request their originating States to negotiate clauses in their bilateral air service agreements which allow self and mutual-handling. Airlines generally consider that self-handling should be a right globally; however, they have not found a multilateral legal vehicle to codify such a right.

288. Work around the aircraft is increasingly viewed by airlines as a commodity service they do not have

to provide themselves. Few airlines perform ground handling, other than passenger services, outside their home countries. Such relatively rare examples include Air Canada, Alitalia, American Airlines, KLM and United Airlines at London Heathrow for historical reasons, and Finnair in Stockholm. However, a few 'independent' handlers do have a consortium of airlines as shareholders, e.g. EAS in Egypt and NAHCO in Nigeria.

## 2. Airports

289. Airports are still significant providers of ground handling services in certain parts of the world, for example China, Germany and Italy. However, under pressure from airlines to open up the ground handling market, many airports have chosen to divest the relevant activities rather than to operate in a competitive market. This may create a difficult scenario for ground handling providers when one of the competitors, i.e. the airport, controls all of the infrastructure.

## 3. Independent ground handling companies

290. Over the past five decades, independent ground handling companies have emerged, i.e., companies not owned or controlled by either an airline or an airport. All major international and larger national independent ground-handling companies are members of the International Aviation Handlers Association (IAHA). There is at least one such company operating in most airports in North America and Europe.

291. Tables 18 and 19 list the leading seven companies in 2000 and the leading eight in 2004/2005, respectively.

292. Hidden behind these global figures are three main types of independent actors, which will be discussed below.

(a) "Global" actors

293. Of the independent handlers, none are fully global, while five do operate worldwide (Table 20).

294. Minor, but interesting discrepancies can be noted between Table 19 and Table 20, with regard to the number of stations and also to the rankings. ASIG does not appear among the top eight companies according to Airline Business.

295. The consolidation within the industry has continued unabatedly during the period under review: Servisair/Globe Ground/Penauille bought the US company Hudson General, Swissport absorbed KLM's Cargo Service

**TABLE 18**  
**Major players in ground handling – 2000**

Rank	Supplier	Revenues (US\$ million)	Parent group	Stations	Countries	Main regions served
1	<b>GlobeGround-Servisair</b>	830	Penauille Polyservices	199	39	Worldwide
2	<b>Swissport</b>	600	Candover	130	24	Worldwide
3	<b>Frankfurt AGS</b>	538	Fraport	25	9	Europe, Africa
4	<b>Worldwide Flight Services</b>	353	Vinci	100	20	Euro, Am, Asia
5	<b>SATS</b>	232	Singapore Airlines	6	6	Asia
6	<b>Menzies</b>	226	John Menzies plc	72	22	Euro, Am, Asia
7	<b>AviaPartner</b>	190	Verougstraete family (75%)	32	7	Europe
<b>Total</b>		<b>2969</b>				

Notes: UK venture capitalist Candover was finalising the purchase of Swissport. GlobeGround and Servisair are combined even though they were still operating as separate brands.

Source: Airline Business.

**TABLE 19**  
**Major players in ground handling – 2004/2005**

Rank	Supplier	Revenues (US\$ million)	Parent group	Stations	Countries	Base
1	<b>Swissport</b>	1,045.4	Ferrovial	170	39	Switzerland
2	<b>Servisair/GlobeGround</b>	976.7	Penauille Polyservices	175	31	France
3	<b>Fraport Ground Services</b>	785.7	Fraport	25	9	Germany
4	<b>Worldwide Flight Services</b>	582.1	Vinci	100	20	France
5	<b>Menzies</b>	475.7	John Menzies	92	23	United Kingdom
6	<b>Aviance UK</b>	438.3	Go Ahead Group	17	2	United Kingdom
7	<b>AviaPartner</b>	333.0	Verougstraete family (75%)	32	6	Belgium
8	<b>SATS</b>	261.9	Singapore Airlines	7	5	Singapore
<b>Total</b>		<b>4 898.8</b>				

Note: Revenues for 2004 are calculated using average exchange rates. Servisair and Globe Ground are combined in the airport services division of Penauille Polyservices although they operate as separate market brands. SATS financial year ending in March 2005. Aviance UK year ending in July 2005.

Source: Airline Business.

**TABLE 20**  
**Global players in ground handling – 2005**

	Ownership	Headquarters	Turnover 2005	No. of Stations
<b>Swissport</b>	Ferrovial (Spain)	Zurich	€970m	175
<b>Penauille Servisair</b>	Penauille (France)	Manchester	€843m	143
<b>Worldwide Flight Services</b>	Vinci (France)	Paris	€550m	98
<b>Menzies Aviation</b>	John Menzies (United Kingdom)	London	GPB286m	93
<b>ASIG</b>	BBA Group (United Kingdom)	Orlando	US\$350m	70

Source: IAHA.

Center; Worldwide Flight Services took over France Handling and AMR services (the former ground handling arm of American Airlines); and Menzies bought a major US operator, Ogden and Jardine Airport Services, and entered into a joint venture with China's Great Wall.

296. It should be noted that, particularly in the case of worldwide handlers, 'core' ground handling is not undertaken at all the locations. For example, Penauille, Servisair and ASIG have a significant number of stations where they undertake inter-plane fuelling but not core handling. Neither of the two largest independent providers offers both passenger and aircraft ramp handling at more than 70 locations worldwide. Part of the international expansion was fuelled by the expectation that the contracts for ground handling would become global, i.e., that one airline would select one single provider for all of its operations worldwide. This expectation has not yet materialised. Apart from two examples (KLM–Swissport with 60 stations and Swiss–Swissport worldwide), only regional multi-country deals, covering on average three to six countries, have been concluded. The density of stations belonging to one provider in a given region seems to be a key parameter to reap synergies in joint-marketing and training. There have even been some withdrawals

from international expansion in 2005: minority holdings and loss-making operations or subsidiaries have been sold or closed.

297. Another interesting trend is the preference of alliances to select one ground handler at each airport for all their members. This is linked to the "move under one roof" concept that can also be observed with regard to the allocation of terminals (see airports section).

(b) "Global" actors with a regional focus

298. A further three companies, while operating on a stand-alone basis, are owned by airports or airlines.

299. Interestingly, two of the above ground handlers, Frankfurt AGS and DNATA, are wholly owned by the parent company. SATS is a listed company, but has Singapore Airlines as a major shareholder.

(c) Major regional actors

300. A number of significant regional companies, selected on the basis of turnover, are listed in Table 22.

**TABLE 21**  
**Global ground handling actors with regional focus – 2005**

	Ownership	Headquarters	Turnover 2005 (US\$ million)	No. of Stations
<b>Frankfurt AGS</b>	Fraport (Germany)	Frankfurt	786	9
<b>SATS</b>	Singapore Airlines (Singapore)	Singapore	932	20
<b>DNATA</b>	Emirates Group (Dubai)	Dubai	320	9

Source: IAHA.

**TABLE 22**  
**Major ground handling regional actors – 2005**

	Ownership	Headquarters	Turnover 2005	No. of Stations
<b>Acciona Airport Services</b>	Acciona (Spain)	Madrid	€150 m	12
<b>Airport Terminal Services</b>	Private (United States)	Saint Louis	N/A	35
<b>Aviance</b>	The Go Ahead Group (United Kingdom)	London	GPB160m	17
<b>Aviapartner</b>	3i (United Kingdom)	Brussels	€300m	32
<b>Celebi</b>	N/A	Istanbul	YTL215m	18
<b>Equity Aviation</b>	JV (South Africa)	Johannesburg	N/A	7
<b>Flightcare</b>	FCC/ Globalia (Spain)	Madrid	€200m	9
<b>Jardine Aviation Services</b>	JM/CNAC (China)	Hong Kong	N/A	1

Source: IAHA internal inquiry.

301. An interesting development is the emergence of alliances of local providers promoting a common brand and common standards as a way to undertake international activities and become global (e.g. "the other" Aviance, a brand distinct from Aviance UK listed in Table 19, or Pantares, a brand which is common to Fraport and Schipol Airport).

### C. SIZE AND TYPES OF MARKETS

302. The ground handling market is generally estimated at between US\$30 billion and US\$40 billion in annual turnover, depending on whether inter-plane fuelling, catering loading, security, and line (ramp) maintenance are included.

303. The market in Europe alone is estimated to be worth approximately US\$10 billion. Given Europe's higher handling rates compared to North America, this would suggest that the global figure is closer to US\$30 billion than US\$40 billion.

304. Based on an estimate of US\$30 billion, the shares of various providers have evolved as described in Table 23.

305. "Available" or contestable markets are open to competition, i.e., they are not self-handled, or handled by another alliance partner or by the airport under a long-term contract. Although this segment has doubled, over the past 5 years, from US\$6 billion to US\$12 billion, it still represents only 40 per cent of the overall market. However there are significant sub-sectoral variations:

- Passenger handling is open to competition, with the service providers being the airlines themselves or independent ground handling companies. Given the low capital investment and customer interface, airlines tend to provide this service or have handling agents do so in airline uniform and/or with dedicated staff.

- Cargo handling is often restricted by the availability of cargo warehouses rather than by governmental restrictions. Even at airports where front-line warehouses (i.e. with direct airside access) are limited, quite often second-level facilities (i.e. with indirect access) are available. Given that much of the air cargo travels in part by lorry, these second-line facilities offer a degree of competition.

- Aircraft handling on the ramp tends to be the most restrictive, and often non-competitive, segment.

### D. BRIEF DESCRIPTION OF THE MAIN MARKETS AND THEIR REGULATORY REGIMES

#### 1. General features of ground handling liberalization

306. The sector has evolved differently in different parts of the world. North American markets and, subsequently, European markets were the first to be liberalised. Generally speaking, over the last ten years, liberalisation has also taken hold in other parts of the world but with significant variations.

307. Frequently, the initial step is the passage from one ground handler to a duopoly, as can be observed, for instance, in Asia and, residually, in the European Communities. The problem with such regimes is that, if an airline and, particularly, if an alliance member is involved, any airline in competition has effectively no choice but to use the other ground handler. Duopolies therefore tend to have only a limited impact on prices. Still, customers prefer them to a monopoly situation, in particular for reasons of liability. Monopoly suppliers do not generally assume any legal responsibility in case of damage to the planes; the initial working assumption linked to mutual handling was that possible damages would, ultimately, compensate each other. The introduction of a second handler allowed for the

**TABLE 23**  
**Market shares of airlines, airports and independent ground handling providers**

	2000		2005	
	(billion US\$)	%	(billion US\$)	%
<b>Airline</b>	14.8	58.9	15.0	50
<b>Airport</b>	4.3	17.2	3.0	10
<b>"Available"</b>	6.0	23.9	12.0	40
<b>Total</b>	<b>25.1</b>		<b>30</b>	

Source: IAH estimates.

implementation of a liability regime and of Services Level Agreements (SLA).

308. According to users and independent ground handlers, there is no optimal number of providers for a given airport, even in proportion to the traffic. The historical maximum was reached at Heathrow airport, where, at one stage, 11 providers were operating on the tarmac. This may have had repercussions on safety and quality. It is commonly admitted that 2 or 3 million passengers are required for two providers to operate profitably, but beyond this threshold the number of possible competitors varies depending on the type of traffic (wide-bodied versus regional aircrafts), its seasonal character, distribution during the day, the number of flights, and the number of airlines serving the airport, etc. In practice, however, the number of competitors is determined by the number of licences granted and, therefore, on the policy regime.

309. As detailed below, in the case of the European Communities, liberalisation has had a clear impact on the price of ground handling services. The exact amount of the savings achieved varies according to circumstances (pre-existence of a monopoly, size of the contestable market, number and specialisation of the providers). However, the gains from liberalisation are valued by users at between 10 and 20 per cent on average.

## 2. North America

310. The US and Canadian markets differ, even if in both countries no significant airport acts as a handling agent. In virtually all major US airports, US airlines completely self-handle, and handle other carriers, including foreign alliance partners, with independent suppliers providing services to other foreign airlines. US carriers have started outsourcing their small outstations, but few carriers outsource major stations. Many new low-cost airlines purely self-handle, although some have outsourced ramp handling.

311. The US regulatory regime has been described extensively in the documentation prepared for the first review (see compilation, page 56) and has not undergone any significant changes since. Most airports in the United States are open to new entrants, with just a few major airports restricting the number of handling agents. Airports that have permit restrictions are Boston, Las Vegas, Los Angeles, Miami, New York (JFK) and San Francisco. These represent 6 of the top 22 airports that have over 25 million passengers per annum (mppa). However, the major airports can have very high rates of self-handling due to being the home-bases or hubs of major airlines. The top three

airports in the United States are: Atlanta (overall total 85.9 mppa) where Delta and Air Tran operate 86% of the total passenger scheduled flights; Chicago (76.8 mppa) with American and United operating 64% of flights; and Dallas Fort Worth (59.1 mppa) with American operating 85% of flights. Thus, the available market share for independent providers can be relatively small. The restricted airports in North America are listed in Table 24.

312. In Canada, airports are open, and independent ground handlers have a greater presence. The Canadian market is similar to Europe, primarily because of its traffic mix – scheduled and charter (the United States has little regional charter traffic) with the main airline (Air Canada) and independent agents operating at most airports.

313. In total, North America has 26 airports with over 20 mppa whereas there are 14 in Europe (including Turkey), 14 in Asia Pacific, and only 2 in other regions of the world (Dubai and Mexico City).

## 3. European Communities

314. EC Directive 96/07, effective from January 1997, sought to open up the ground handling market in Europe. The Directive imposes a minimum of two ground handlers able to provide ramp handling if certain criteria are met, such as the availability of facilities, etc. Chart 8 sums up the main provisions of this Directive.

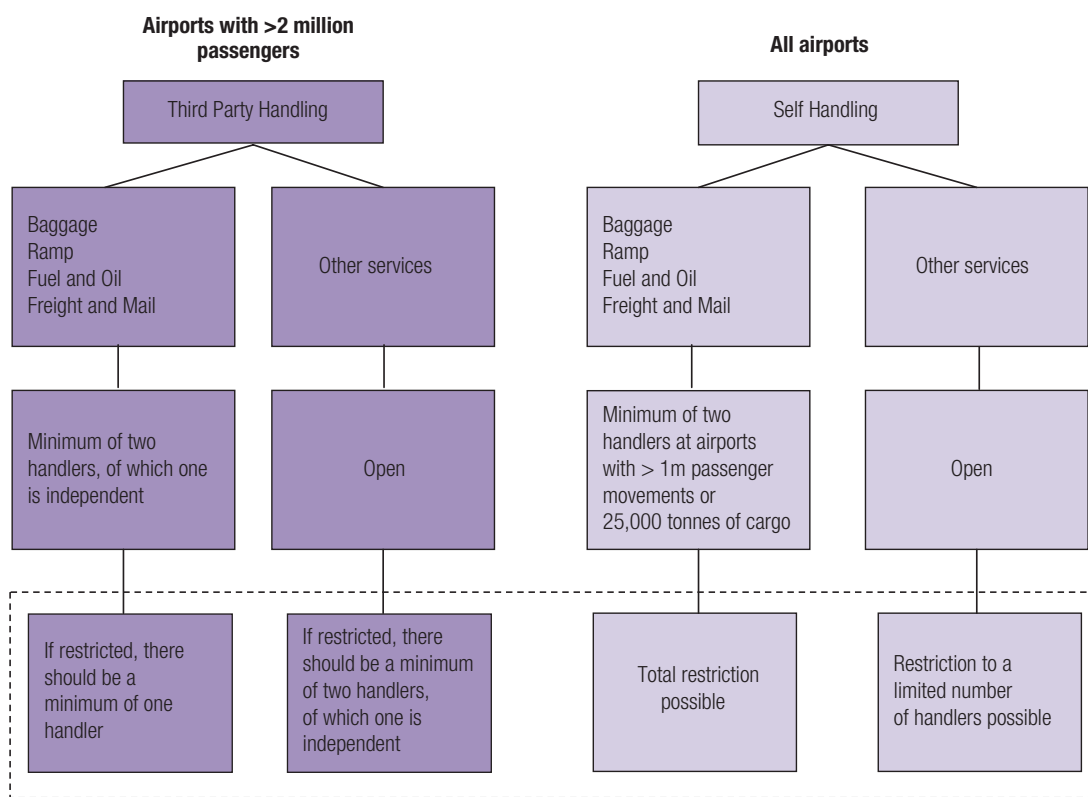
315. A more extensive description of the provisions of the Directive can be found in the compilation (pages 56-58 and 73). A detailed assessment was commissioned by the Commission Directorate of Transport and Energy in December 2001, and issued in

**TABLE 24**  
**US airports with restrictions on number of ground handlers**

Airport	Million passengers per annum
Los Angeles	61.5
Las Vegas	44.3
New York (JFK)	40.6
San Francisco	33.6
Miami	31.0
Boston	27.1

Source: IAHA.



**CHART 8****Freedoms and possible restrictions under Council Directive 96/07/EC**

Source: Study on the quality and efficiency of ground handling services at EU airports as a result of the implementation of Council Directive 96/07/EC prepared by SH and E Ltd, October 2002.

October 2002.<sup>81</sup> It is based on an extensive enquiry among interested parties at EC airports. External aspects of the Directive, including its reciprocity provisions, are barely mentioned and do not seem to have raised particular problems for users.<sup>82</sup> The report is therefore centred on questions of balance between different interests and implementation issues.

316. There seems to be consensus on the positive impact of the Directive on prices, notably in Members States that were formerly under a monopoly regime (e.g. Greece and Italy), although the extent of the price decrease is subject to considerable variations of

opinion.<sup>83</sup> Similarly, a detailed assessment shows an increase of competition in virtually all airports, where the contestable market was big enough to accommodate several suppliers for all segments, but particularly for ramp handling.<sup>84</sup> Views remain divided on the effects of the Directive on the quality of service.<sup>85</sup>

317. The main remaining issues identified by the report relate to market opening, the tender process and selection criteria, the involvement of the airport operator in ground handling, the insufficient role of Airport Users' Committees, and the degree of competition.

318. More specifically, there have been general concerns, expressed by users and independent handlers, about the market opening process, and the different

<sup>81</sup> "Study on the quality and efficiency of ground handling services at EU airports as a result of the implementation of Council Directive 96/07/EC prepared by SH and E Ltd", or "SH and E report" available at [http://www.europa.eu.int/comm/transport/air/index\\_en.htm](http://www.europa.eu.int/comm/transport/air/index_en.htm)

<sup>82</sup> The only reference is contained in paragraph 6.29, on page 110: "None of the respondents encountered any problems with Article 20 of the Directive with regard to access to the handling market and the principle of reciprocity for non-Community countries".

<sup>83</sup> See SH and E report, paragraph 3.13 and table 3.1, pages 21-22.

<sup>84</sup> See SH and E report, paragraph 3.1 to 3.12 pages 14-20.

<sup>85</sup> See SH and E report, paragraph 3.14 and table 3.2, pages 23-24.



rates of adoption of legislation by Member States. National administrations have been criticised for not being sufficiently diligent and active in implementing the Directive. Opposing views have been expressed on the thresholds and the minimum or maximum number of handlers; while airport operators feel that they have lost control of quality levels, airlines believe that market forces should determine these issues.

319. There are weaknesses in the tender process and selection criteria, particularly where conflicts of interest between selecting bodies arise. In two Member States, only one of several required tender processes has taken place. In general, when tenders have been held, there have been difficulties in the selection phase.

320. Handlers have had problems with the relative shortness of licence period. Airport operators expressed concerns about the possible lack of continuity and insurance coverage; bundling and cherry-picking of handling services have also been raised.

321. Independent handlers believe that the involvement of the airport operator in ground handling has given rise to various forms of abuse of dominant position. Reportedly, the airport combines ground handling services with products a third party handler cannot offer or charges non-transparent and excessive access fees for the core infrastructure.

322. On the other hand, airports consider that independent handlers have an advantage because of their multi-airport presence, providing them with the ability either to cross-subsidise operations between different countries or to offer a wider geographic and, hence, more attractive service to international airlines.

323. Airport Users' Committees appear to have varying degrees of involvement in the selection process, and even where their views are sought, they are not always respected.

324. The size of the available market, and the degree of competition are of concern to the independent ground handlers. The definition of self-handling is relevant here, with airlines and independent handlers taking opposing views on whether it should be widened to include franchise operations, alliance partners and wet-lease operations. The integrated cargo carriers also consider that their efficiency is greatly hampered by the inability to handle what they consider to be their own operations at their overnight hubs.

325. The European Commission is currently considering an amendment to the Directive to force more competition on major airports, i.e., those handling

over 10 million passengers per annum which are still restricted (see Table 25).

326. Rome and Athens are restricted to three agents, while all other restricted airports are effectively limited to just two agents, although Madrid, Barcelona and Malaga are currently tendering for a third agent. Both Paris airports are unusual in so far as although each airport has several ground handling agents, the airport operator company, Aéroport de Paris, restricts each terminal to just two. Brussels and Berlin are restricted to two agents by national law.

327. It is a matter of debate within the industry whether all airports should be totally open, with market forces determining the number of competitors providing ground handling services. The issue is complex since the size of the available market may be limited if an airport is used by carriers as a primary hub. An example is Madrid, where Iberia, together with its Oneworld partners, has its primary hub and where Air Europa and Spanair self-handle; this leaves an available market of less than 9 mppa. By comparison, Palma de Mallorca airport, in spite of Air Europa and Spanair self-handling, has an available market of over 15 mppa, i.e., 66 per cent more than Madrid despite having just over half of its total traffic volume.

328. Similarly it is interesting to note that London Heathrow, the busiest airport in Europe, has a relatively limited available market. The same goes for Oslo at the lower end of the scale of airports exceeding 10

**TABLE 25**  
**Restricted airports in the EU with over**  
**10 million passengers per annum**

Airport	Million passengers per annum
Paris (CDG)	51.3
Frankfurt	51.1
Madrid	38.7
Rome (FCO)	28.1
Barcelona	24.6
Paris Orly	24.1
Palma	20.4
Brussels	15.6
Düsseldorf	15.3
Vienna	14.7
Athens	13.6
Malaga	12.0
Berlin (TXL)	11.0

Source: IAHA

mppa. There are many airports in Northern Europe with much smaller volumes, e.g. Cork with 2.3 mppa, which are also completely open.

#### 4. Asia and Pacific

329. The Asia/Pacific market has been experiencing significant growth, with Japan being the major market, and China and India growing rapidly (see Table 26).

**TABLE 26**  
**Asia Pacific airports with over 10 million passengers per annum**

Airport	Million passengers per annum
Tokyo (HND)	63.3
Beijing (PEK)	41.0
Hong Kong	40.3
Bangkok	39.0
Singapore	32.4
Tokyo (NRT)	31.5
Sydney	29.0
Jakarta	27.9
Seoul (ICN)	26.2
Shanghai (PVG)	23.7
Guangzhou	23.6
Kuala Lumpur	23.2
Taipei	21.7
Melbourne	21.2
Osaka (ITM)	18.9
Fukuoka	18.7
Sapporo	17.8
Shanghai (SHA)	17.8
Mumbai	17.4
Brisbane	16.2
Manila	16.2
Osaka (KIX)	16.2
Shenzen	15.8
New Delhi	15.1
Chengdu	13.9
Naha	13.5
Seoul (GMP)	13.4
Jeju	11.4

Source: IAH

330. Of the above airports with over 20 mppa, Japan has five representing a total of 144.8 mppa. The ground handling market is dominated by the major airlines (JAL and ANA) handling themselves and other airlines, either on a reciprocal basis or commercially. There is only one small independent handling agent known to be in Japan, which is considered by the industry to be a very difficult market for a foreign company to enter.

331. China has five airports with over 20 mppa, totalling 94.8 mppa. Handling in China is primarily provided by the airport operator at all airports with the network carrier also providing self and third-party handling at its hub. There is a trend for airport operators to form joint-ventures with external providers, e.g., Beijing with Singapore Airport Terminal Services (SATS), which is majority-owned by Singapore Airlines, and Guangzhou with CIAS, which is owned by DNATA, a subsidiary of the Emirates Group of Dubai. Air China has recently announced the transfer of its handling business in Beijing into a joint-venture with Jardines (Hong Kong, China). A similar situation exists at second-tier airports, with all others being airport monopolies.

332. Hong Kong has three handling agents, including one partly-owned by Cathay Pacific and an independent provider, Jardine.

333. In Thailand, Bangkok has two agents: Thai Airways and TAGS, with the latter due to become an independent joint-venture between World Flight Services and Bangkok Airways in the new airport. Singapore has three agents, including an independent which has just been appointed (Swissport). Australian airports are primarily airline-handled, but with one network provider (Menzies) and some small independent providers. Dedicated terminals can, however, be a restriction. The Republic of Korea has its two airlines (Korean and Asiana) providing the majority of the handling service, with an independent competitor at Seoul (ICN). Chinese Taipei's airports are dominated by the two home carriers (China Airlines and Eva Airways), with independent handlers only operating in the small secondary airports.

334. India has two main providers which are subsidiaries of its public airlines, Air India and Indian Airlines, and a certain number of minor actors such as the independent company Cambatta. New low-cost carriers do not feel comfortable with this situation, which forces them to contract with subsidiaries of competitors, and are militating in favour of more third-party competition.<sup>86</sup>

<sup>86</sup> Source: IAH.



## 5. Other regions

335. The remaining regions represent just 11.2 per cent of world passengers. Key airports with over 10 mppa are listed in Table 27.

**TABLE 27**

**Other main airports with over 10 million passengers per annum**

Airport	Million passengers per annum
Dubai	24.8
Mexico City	24.1
Sao Paulo (CGH)	17.2
Sao Paulo (GRU)	16.8
Johannesburg	15.8
Moscow (DME)	14.0
Jeddah	13.3
Moscow (SVO)	12.2

Source: IATA

336. In the United Arab Emirates, Dubai is similar to other Gulf States in that each operator is a State monopoly. Ownership may be in the hands of the government, the airport, or the national airline or, as is the case in Dubai, an associate of an airline. Due to the proliferation of airports in the region, there is some competition between the airports themselves, which forces them to price competitively.

337. In Mexico, Mexico City follows the open US pattern, with airlines self-handling or handling with a dedicated handler, plus third-party independent handlers.

338. The market in Brazil is open. The main handler is the local provider SATA, which is owned by the same foundation as Varig. Other handlers are present, including Swissport.

339. In South Africa, Johannesburg has two independent handling providers.

340. The market in Russia is very restricted. At all main airports, ground handling is performed by the airport operator as a monopoly provider.

## E. WTO DEVELOPMENTS

341. Since the date of the first review (document S/C/W/163/Add.1, dated 25 October 2000), one new WTO Member, Chinese Taipei, took two MFN exemptions regarding ground handling.<sup>87</sup>

<sup>87</sup> See document GATS/EL/136, page 2.

## F. BILATERAL DEVELOPMENTS

342. The 2005 ICAO WASA database of bilateral air service agreements records 310 agreements containing a ground handling clause, of which 54 have been concluded since 1 January 1995 (Annex).<sup>88</sup>

343. The inclusion of ground handling in bilateral agreements has helped to advance the liberalization of ground handling and, notably, self-handling. However, the negotiation of traffic rights has also been used with an opposite aim; there are instances where ground handling is provided by the national airline, which seeks to control the market by linking ground handling with traffic rights. This practice is particularly prevalent in Africa and with airlines that are based in holiday destinations, where governments intend to cross-subsidise the national airline with third-party handling revenues.

344. These variations of possible ground handling policies are reflected in various clauses of the ICAO Template Air Services Agreement (TASA). Article 24 of the TASA offers three different options for inclusion in air service agreements corresponding to the three alternative approaches suggested for liberalisation (traditional, transitional, full liberalisation). The text for the traditional approach reads:

"Subject to applicable safety provisions, including ICAO Standards and Recommended Practices (SARPs) contained in Annex 6, the designated airline may, on the basis of reciprocity, use the services of a designated airline of the other Party for ground handling services in that Party's territory."

345. With regard to this provision, ICAO notes that, "the reciprocal nature of the traditional approach generally results in satisfactory ground handling services being provided where designated airlines of both Parties serve the same airports in both Parties. However, where there is no reciprocity (for example, if no designated airline of the other Party serves an airport where the designated airlines of the first Party have ground handling services) airlines sometimes find the services unsatisfactory and prices non-competitive".

<sup>88</sup> ICAO defines a ground handling clause as "an element allowing a designated airline to perform its own ground handling or, at its option, to select its own ground handling agent in the territory of the other Party. Alternatively, the provision might anticipate an agreement on ground handling between the airlines or the parties themselves".

346. The text for the transitional approach offers two options. The first option reads:

"Subject to applicable safety provisions, including ICAO Standards and Recommended Practices (SARPs) contained in Annex 6, the designated airline may choose from among competing providers of ground handling services".

347. This approach allows a designated airline to choose from competing providers of ground handling services. Depending on the degree of competition among the providers, this can provide some improvement in services and cost. This approach is commonly found at airports with a large number of airlines and physical limitations on the number of ground handlers that can be accommodated. The second option reads:

"1. Subject to applicable safety provisions, including ICAO Standards and Recommended Practices (SARPs) contained in Annex 6, the designated airline or airlines of one Party shall be permitted, on the basis of reciprocity, to perform its own ground handling in the territory of the other Party and at its option to have ground handling services provided in whole or in part by any agent authorized by the competent authorities of the other party to provide such services.

2. The designated airline or airlines of one Party shall also have the right to provide ground handling services for other airlines operating at the same airport in the territory of the other Party.

3. The exercise of the rights set forth in paragraphs 1 and 2 of this Article shall be subject only to physical or operational constraints resulting from considerations of airport safety or security. Any constraints shall be applied uniformly and on terms no less favourable than the most favourable terms available to any airline engaged in similar international air services at the time the constraints are imposed."

348. On the basis of reciprocity, an airline is thus allowed to perform its own ground handling, or choose to have these services provided by any agent authorized by the competent authority of the other Party to provide ground handling services. ICAO notes that "paragraph 3 recognizes that ground handling rights may have to be constrained but only due to airport safety or security considerations. It also accords most favoured nation and national treatment to the application of any such constraints." (emphasis added)

349. Finally, the text for the full liberalization approach reads:

"1. Subject to applicable safety provisions, including ICAO Standards and Recommended Practices (SARPs) contained in Annex 6, each Party shall authorize airline(s) of the other Party, at each airline's choice, to:

- a) perform its own ground handling services;
- b) handle another or other air carrier(s);
- c) join with others in forming a service-providing entity; and/or
- d) select among competing service providers.

2. An air carrier is permitted to choose freely from among the alternatives available and to combine or change its option, except where this is demonstrably impractical and also where constrained by relevant safety and security considerations, and (with the exception of self-handling in a) above) by the scale of airport operations being too small to sustain competitive providers.

3. Parties would always be required to take the necessary measures to ensure reasonable cost-based pricing and fair and equal treatment for air carrier(s) of the other Party/Parties."

350. Under the full liberalization approach developed by ICAO, the designated airline has a wider choice: it can perform its own ground handling, use services offered by another airline, provide the services to other airlines, join with other airlines in providing the services collectively, or choose from among competing providers. ICAO considers that "depending on their particular circumstances, States should consider the gradual, phased introduction of self-handling and multiple suppliers based, where appropriate, on the size of the airport." It also notes that at certain airports the number of air carriers and limited physical facilities may not permit all carriers to perform their own airside ground handling; in such cases, carriers allowed to do so should be selected by objective, transparent and non-discriminatory procedures and competitive, alternative suppliers should be available.

## G. REGIONAL / PLURILATERAL DEVELOPMENTS

351. The MALIAT (Multilateral Agreement on the Liberalization of International Air Transport) or "Kone agreement" to which the United States, New Zealand,



Chile, Brunei Darussalam, Singapore, Samoa and Tonga are signatories, contains the first plurilateral clause on ground handling. It reads:

"The designated airlines of each Party shall have the right ... to perform their own ground handling in the territory of the other Parties ("self-handling") or at their option, select among competing agents for such services in whole or in part. The rights shall be subject only to physical constraints resulting from considerations of airport safety. Where such considerations preclude self-handling, ground services shall be available on an equal basis to all airlines; charges shall be based on the costs of services provided; and such services shall be comparable to the kind and quality of services as if self-handling was possible."

352. Strong similarities can be noted between the provisions of the last sentence and the access to use of port services provisions of the GATS Maritime Model Schedule.

## **H. REGULATORY DEVELOPMENTS NOT RELATED TO MARKET ACCESS**

### **1. Safety**

353. In September 1998, the 32<sup>nd</sup> Session of the ICAO Assembly requested that a study be conducted on the safety aspects of ground handling arrangements. This request was based on the premise that liberalising these arrangements could result in the entry of new operators lacking experience.

354. The results of the study and of a questionnaire, focussed on the practice and procedures of States, were presented to the ICAO Air Navigation Commission and the ICAO Council in November and December 2000. Pursuant to a request by the Air Navigation Commission, an additional study was undertaken in order to provide further information on the scope, cost and nature of ground handling-related accidents and incidents. This additional study was carried out on the basis of data obtained from the ICAO Accident/Incident Data Reporting System, the annual surveys conducted by Airports Council International (ACI) and other material contained in industry reports and documents. It was presented to both the Air Navigation Commission and the ICAO Council in November and December 2001.

355. The study could not confirm the premise upon which it was based, i.e., that the liberalisation of ground handling arrangements would result in an influx of new companies with little or no knowledge of the aviation safety culture. However, the levels of injury to personnel and damage to aircraft caused by

ground-handling occurrences revealed by the study have been sufficiently high so as to attract continued attention.

356. The findings of the study indicate that the working environment of ground-handling personnel can be particularly hazardous, with the potential of serious injury. In addition, surveys have shown that ground handling-related accidents can result in substantial and costly damage to aircraft. Outstanding problems that continue to contribute to unsafe ground-handling operations include a lack of statutory and regulatory safety requirements, inadequate surveillance regimes and inadequate reporting and investigation of ground handling-related accidents and incidents.

357. A review of existing Standards And Recommended Practices (SARPs) has led to amendments to Annex 6, to ensure that States give adequate consideration to the safety aspects of ground-handling arrangements in the certification and surveillance of aircraft and aerodrome operators and ground handling companies.

358. Existing guidance material, as contained in the ICAO *Manual of Procedures for Operations Inspection, Certification and Continued Surveillance* (Doc 8335) and *Manual on Certification of Aerodromes* (Doc 9774) is to be reviewed and, wherever necessary, further developed with the aim of clarifying the functions that may be delegated by States to aircraft and aerodrome operators. Prior to publication, the draft *Manual on Certification of Aerodromes* was amended in order to make more explicit reference to aerodrome operators' responsibilities for the oversight of ground handling operations.

359. When reviewing the results of the 2002 study, the Air Navigation Commission encouraged Contracting States to report and investigate occurrences related to ground handling activities and to ensure participation by aerodrome and aircraft operators in worldwide reporting programmes such as the one conducted by Airport Council International. In addition, the Commission reminded Contracting States of their responsibilities, as stated under Chapter 8 of Annex 13, on the reporting of accidents and incidents irrespective of where they occur.

### **2. Security**

360. The accreditation procedures and security checks on ground handling personnel with access to the tarmac are part of the various new regulations and audits on airport security instituted post 9/11 notably by ICAO, the United States and the European Communities. They are dealt with in section VII.6 below.

## ANNEX TO CHAPTER VI

TABLE A1

**Bilateral agreements posterior to 1 January 1995 containing a clause dealing with ground handling (as registered and numbered by ICAO)**

Clause as defined by ICAO	Bilateral agreements concerned
A <b>ground handling</b> clause allows a designated airline to perform its own ground handling or, at its option, to select its own ground handling agent in the territory of the other party. Alternatively, the provision might anticipate an agreement on ground handling between the airlines or the parties themselves. The ground handling provision may sometimes be found in the context of a provision on technical maintenance, although a clause on technical maintenance, <i>per se</i> , does not necessarily cover ground handling.	Bahrain-Australia (n°3978), Myanmar-Brunei Darussalam (n°3991), Fiji-Papua New Guinea (n°3994), Mauritius-Australia (n°4040), Finland-China, Macao SAR (n°4062), Singapore-Brunei Darussalam (n°4101), United States-Singapore (n°4111), South Africa-Ethiopia (n°4114), Switzerland-Czech Rep. (n°4116), United States-Czech Rep. (n°4117), New Zealand-Singapore (n°4136), Uzbekistan-Finland (n°4137), South Africa-Germany (n°4149), Costa Rica-United States (n°4162), Cyprus-Israel (n°4173), Germany-United Arab Emirates (n°4197), Spain-TFYR Macedonia (n°4233), India-Russian Federation (n°4248), Bolivia-Costa Rica (n°4263), New Zealand-Brunei Darussalam (n°4265), China-South Africa (n°4291), Germany-Rep. of Moldova (n°4311), Cyprus-Georgia (n°4312), Japan-Ethiopia (n°4333), Japan-Papua New Guinea (n°4347), Lebanon-Australia (n°4365), Iceland-United States (n°4369), United States-Brunei Darussalam (n°4371), Germany-China, Macao SAR (n°4377), United States-China, Macao SAR (n°4388), New Zealand-Switzerland (n°4398), Iran (Islamic Rep. of)-Saudi Arabia (n°4417), United States-Uzbekistan (n°4433), Cyprus-Lithuania (n°4470), South Africa-Belgium (n°4474), Germany-Viet Nam (n°4503), Germany-Czech Rep. (n°4505), Germany-Zimbabwe (n°4507), Kyrgyzstan-Germany (n°4510), Kyrgyzstan-China (n°4518), Mexico-New Zealand (n°4525), Germany-Mongolia (n°4532), Costa Rica-Chile (n°4548), Germany-Bosnia & Herzegovina (n°4567), Germany-Armenia (n°4571), Germany-Estonia (n°4579), Spain-Panama (n°4603), Germany-Lithuania (n°4611), Germany-Ukraine (n°4613), Latvia-Slovakia (n°4623), Latvia-Croatia (n°4624), Latvia-Ukraine (n°4627), Syrian Arab Rep.-Netherlands (n°4646), Czech Rep.-Ukraine (n°4655).

Source: ICAO WASA database.





## VII. AIRPORT MANAGEMENT SERVICES, INCLUDING CHARGING SYSTEMS

361. Issues regarding definition and classification of airport services are addressed in the compilation (see pages 74-82).

### A. ECONOMIC AND REGULATORY DEVELOPMENTS

362. Economic and regulatory developments in airport services are closely related and, hence, will not be dealt with separately. This sub-section will deal with the following areas: traffic, employment, financial situation, capital expenditure, ownership and management, security, competition policy, low-cost terminals, environmental considerations, and airport design. A following sub-section will address developments in the area of charging.

363. As far as the GATS is concerned, a notable development to report in the period under review has been the undertaking of commitments by the Kyrgyz Republic, in its accession schedule, on "Supporting services for air transport" (CPC 746), which includes "Airport operation services" in sub-section CPC 7461.<sup>89</sup>

<sup>89</sup> For a list of all other Members having undertaken commitments in this sub-sector, please refer to the Secretariat Note contained in document S/C/W/59, dated 5 November 1998, and in particular to Table 6 on pages 48-49.

### 1. Traffic

364. The number of international airports has been quite stable over the period under review, as has the share of airport charges in total airline operating expenses. Traffic flows have continued to be heavily concentrated. Around 2 per cent of airports handle between 30 and 32 per cent of total passengers and between 48 and 52 per cent of international traffic. However, the level of concentration, particularly with regard to international traffic, has decreased slightly during the period under review. This is a reflection of the increasing use of point-to-point connections, which often involve secondary airports, particularly in the case of low-cost carriers, even if the hub-and-spoke model remains highly relevant.

365. With regard to aggregate traffic at the top 25 airports, a decline in total passenger numbers in 2001 and stagnation in 2002 is notable (especially if compared with Table 16 in the compilation, page 84) and can be accounted for by the events of 11 September 2001 and, in particular, by the dramatic fall in domestic traffic in the United States (Table 28). International passenger traffic held up comparatively well in 2001, with a 0.7 per cent decline. On the other hand, the sharper fall in international traffic, as compared with total traffic in 2003 reflects the impact of the Severe Acute Respiratory Syndrome (SARS) epidemic in Asia and the wars in Afghanistan and Iraq which had a more severe bearing on international traffic than on domestic traffic. 2004 recorded high growth rates, with passenger traffic growing faster than GDP for the first time since 11 September 2001.

**TABLE 28**  
**Evolution of air traffic, selected indicators – 2000-2004**

	2000	2001	2002	2003	2004
<b>Number of international airports</b>	1195	1195	1195	1195	1196
<b>Landing and associated airport charges (US\$ million)</b>	13 490	12 660	12 440	12 930	14 830
<b>Share of airport charges in airline operating expenses (%)</b>	4.2	4.0	4.0	4.0	4.0
<b>Scheduled and non-scheduled traffic at the top 25 airports ranked by total passengers</b>					
millions of passengers	1 079	1 022	1 021	1 023	1 124
growth rate	3.8	-5.3	-0.1	0.2	9.9
percentage of world total passengers	32	31	31	30	30
<b>Scheduled and non-scheduled traffic at the top 25 airports ranked by international passengers</b>					
millions of passengers	559	555	560	549	618
growth rate	5.5	-0.7	0.9	-2.0	12.6
percentage of world total passengers	52	52	51	49	48

Source: ICAO Secretariat.

366. In 2005, in the midst of the oil price crisis, traffic growth is reported to have slowed from the high point of 2004, but nevertheless remained solid.<sup>90</sup> The overall volume remained significantly above the levels of five years earlier (Table 29).

367. Africa and the Middle East experienced a substantial increase in traffic, with their share of total traffic almost doubling between 2000 and 2005, although from low levels. The market share of the Asia/Pacific and Latin America/Caribbean regions also improved over the same period. This came mainly at the expense of North America, whose share in total traffic declined from 44.2 to 36.9 per cent between 2000 and 2005.

368. Table 30 offers details of traffic at the world's top 25 airports, ranked by total traffic. The spectacular growth recorded by Beijing Capital, which has jumped 15 places in only one year, is noteworthy.

369. Table 31 provides the individual traffic at the world's top 25 airports, this time ranked by international traffic. The high growth rate of Dubai, which registered a 14,6 per cent increase between 2004 and 2005, is testimony to Emirates' success at transporting sixth freedom traffic<sup>91</sup>.

## 2. Employment

370. Employment at airports has grown substantially over the 2000-2005 period (Table 32). For every person

employed directly by an airport on average, another 13 were working on the airport site (2004). This ratio varies considerably, however, as direct employment by airports differs depending on the share of functions that are outsourced or subcontracted by airport authorities. This is evidenced, at one extreme, by Frankfurt Airport, which is the airport with the highest number of employees (over 15,000) and Chicago Midway, which has the lowest number (about 200 in 2005). Indeed, in North America, there is one direct employee for every 50 total workers on the airport site as many airport activities are outsourced, whereas in Europe there is a one-in-eight ratio. In Africa/Middle East and Latin America, the ratio of direct employees is even higher, one in every five workers. This is partly due to the fact that many airport systems are publicly operated, with limited outsourcing of services.

371. Airports also tend to create jobs in their vicinity, including freight-forwarders and other complementary businesses.

## 3. Overall financial situation

372. The trend for the proportion of non-aeronautical revenues to rise worldwide has continued during the period under review. According to Airports Council International (ACI) figures, non-aeronautical charges, which in the early 1990s represented less than 30 per cent of total revenues, have steadily grown to about 50 per cent.<sup>92</sup> In 2004, they were slightly lower than aeronautical revenues (49 and 51 per cent, respec-

<sup>90</sup> Airline Business, June 2006.

<sup>91</sup> So-called "sixth freedom" traffic is traffic carried between two countries by an airline of a third country on two routes connecting in its home country. For a fuller description, see compilation, pages 184 and 195-6.

<sup>92</sup> The data have been provided by Paul Behnke, Director, Economics, ACI. It is important to note that in these figures ground handling is considered to be part of the non-aeronautical business.

**TABLE 29**  
**Passenger traffic by region – 2000/2005**

Region	2000		2005		2000-2005 Percentage change
	Passengers (millions)	Relative share	Passengers (millions)	Relative share	
Africa/Middle East	94	2.9%	201	5.0%	113.8%
Asia/Pacific	580	17.9%	845	21.1%	45.7%
Europe	997	30.7%	1,232	30.7%	23.6%
Latin America/ Caribbean	140	4.3%	252	6.3%	80%
North America	1,435	44.2%	1,478	36.9%	3.0%
<b>Total</b>	<b>3,246</b>	<b>100%</b>	<b>4,009</b>	<b>100%</b>	<b>23.5%</b>

*Note:* ACI counts passengers once on arrival, once on departure and once in direct transit; 2005 data are provisional.

*Source:* Adapted from ACI Airport Economics Survey, 2000 and Airline Business, June 2006.



**TABLE 30****Top 25 airports ranked by total passengers – 2005**

Rank	Airport	Passengers embarked and disembarked		
		2005 (thousands)	2004 (thousands)	Change 2004/2005 (%)
1	Atlanta - Hartsfield (1)	85,508	83,189	2.8
2	Chicago - O'Hare Intl. (2)	76,581	75,507	1.4
3	London - Heathrow (16)	67,683	67,109	0.9
4	Tokyo - Haneda (33)	63,271	62,109	1.9
5	Los Angeles Intl. (4)	61,489	60,698	1.3
6	Dallas - Ft. Worth Intl. (3)	59,176	59,412	-0.4
7	Paris - Charles de Gaulle (8)	53,447	50,965	4.9
8	Frankfurt Intl. (15)	51,861	50,768	2.2
9	Las Vegas - McCarran Intl. (7)	44,267	41,442	6.8
10	Amsterdam - Schiphol (20)	44,078	42,425	3.9
11	Denver Intl. (5)	43,307	42,394	2.2
12	New York - John F. Kennedy Intl. (28)	41,885	38,469	8.9
13	Madrid - Barajas (19)	41,561	38,121	9.0
14	Phoenix - Sky Harbor Intl. (11)	41,204	39,505	4.3
15	Beijing - Capital (30)	41,004	32,987	24.3
16	Hong Kong Intl. (43)	39,821	36,287	9.7
17	Houston - George Bush Intercontl. (6)	39,703	36,506	8.8
18	Minneapolis (12)	37,604	36,698	2.5
19	Bangkok Intl. (41)	37,162	36,222	2.6
20	Detroit - Wayne County (9)	36,375	35,188	3.4
21	Orlando Intl. (32)	34,128	31,147	9.6
22	New York - Newark Intl. (18)	34,000	32,925	3.3
23	San Francisco Intl. (31)	32,794	32,248	1.7
24	London - Gatwick (44)	32,693	31,378	4.2
25	Philadelphia Intl. (10)	31,503	28,565	10.3
<b>Total</b>		<b>1,172,105</b>	<b>1,122,264</b>	<b>4.4</b>

Note: The 2004 ranking is indicated in parenthesis. Passenger movement data for 2005 are estimated for Tokyo-Haneda and Paris-Charles De Gaulle.

Source: ICAO Secretariat.

**TABLE 31****Top 25 airports ranked by international passengers – 2005**

Rank	Airport	Passengers embarked and disembarked		
		2005 (thousands)	2004 (thousands)	Change 2005/2004 (%)
1	London - Heathrow (2)	61,010	60,184	1.4
2	Paris - Charles de Gaulle (1)	48,828	46,300	5.5
3	Frankfurt Intl. (3)	44,837	43,478	3.1
4	Amsterdam - Schiphol (4)	43,999	42,321	4.0
5	Hong Kong Intl. (6)	39,821	36,287	9.7

Rank	Airport	Passengers embarked and disembarked		
		2005 (thousands)	2004 (thousands)	Change 2005/2004 (%)
6	Singapore - Changi (14)	30,291	28,606	5.9
7	London - Gatwick (13)	28,752	27,460	4.7
8	Tokyo - Narita (18)	26,969	26,514	1.7
9	Bangkok Intl. (17)	26,821	25,825	3.9
10	Seoul - Incheon Intl. (21)	25,591	23,621	8.3
11	Dubai (15)	23,922	20,869	14.6
12	Madrid - Barajas (12)	21,993	19,953	10.2
13	Munich - Franz Josef Strauss (5)	19,525	17,880	9.2
14	London - Stansted (27)	19,326	18,173	6.3
15	Taipei (25)	19,213	17,722	8.4
16	New York - John F. Kennedy Intl. (33)	18,789	17,429	7.8
17	Manchester Intl. (26)	18,695	17,700	5.6
18	Copenhagen - Kastrup (9)	18,259	17,371	5.1
19	Dublin (24)	17,697	16,372	8.1
20	Los Angeles Intl. (37)	17,486	16,473	6.1
21	Zurich (10)	17,084	16,550	3.2
22	Toronto - Lester B. Pearson (7)	17,008	15,979	6.4
23	Milan - Malpensa (16)	16,368	14,984	9.2
24	Rome - Fiumicino (22)	16,128	15,501	4.0
25	Brussels - National (8)	16,061	15,578	3.1
<b>Total</b>		<b>654,473</b>	<b>619,130</b>	<b>5.7</b>

Note: The 2004 ranking is indicated in parenthesis. Passenger movement data for 2005 are estimated for Paris-Charles De Gaulle.

Source: ICAO Secretariat.

**TABLE 32**  
**Employment on airport sites – 2000/2004**

Region	2000		2004	
	Employed directly by airport operator	Total employees on airport sites	Employed directly by airport operator	Total employees on airport sites
Africa/Middle East	24,000	140,000	50,000	250,000
Asia/Pacific	108,000	911,000	100,000	950,000
Europe	128,000	1,171,000	135,000	1,100,000
Latin America/ Caribbean	16,000	150,000	25,000	200,000
North America	43,000	1,106,000	40,000	2,000,000
<b>Total</b>	<b>319,000</b>	<b>3,478,000</b>	<b>350,000</b>	<b>4,500,000</b>

Note: ACI information is based on data collected from a sample of member airports. For instance, the Airport Economics Survey 2005 relies on 2004 information collected from some 600 airports.

Source: ACI Airport Economics Survey, 2000 and 2005.

**TABLE 33**  
**Revenue by source – 2000/2004**  
**(US\$ billion and percentage)**

Region	2000				2004			
	Aeronautical revenue		Non-aeronautical revenue		Aeronautical revenue		Non-aeronautical revenue	
<b>Africa/Middle East</b>	0.61	69.31%	0.27	30.68%	3.56	56.96%	2.69	43.04%
<b>Asia/Pacific</b>	4.78	47.09%	5.37	52.90%	6.16	48.27%	6.60	51.72%
<b>Europe</b>	9.56	54.25%	8.06	45.74%	14.56	52.05%	13.41	47.94%
<b>Latin America/ Caribbean</b>	0.98	66.21%	0.50	33.78%	1.26	65.28%	0.67	34.71%
<b>North America</b>	4.43	40.49%	6.51	59.50%	7.71	49.74%	7.79	50.25%
<b>Total</b>	<b>20.36</b>	<b>49.6%</b>	<b>20.71</b>	<b>50.4%</b>	<b>32.71</b>	<b>51.2%</b>	<b>31.16</b>	<b>48.8%</b>

Source: ACI Airport Economics Survey, 2000 and 2005.

tively), but ACI considers this to reflect a temporary decline (Table 33). It can be explained by airports and concessionaires having to cope with security-driven design modifications and their impact on retail space or sales. No global data are available for the breakdown of non-aeronautical revenue. Available information suggests that retail concessions represented the single largest source of income in Europe, whereas in the United States these were parking concessions, accounting for about 25 per cent of revenue, followed by car rentals.

373. Table 33 also shows that aeronautical revenue has continued to exceed non-aeronautical revenue in Latin America/Caribbean and Africa/Middle East, where the smaller size of airports tends to reduce the potential for lucrative landside activities, such as retail and parking concessions. A 2002/2003 Airport Retail Study published by URS Corp provides performance indicators on an airport size basis.<sup>93</sup> The study found that larger airports (i.e., those with more than

20 million passengers) achieved more than twice the retail income per passenger airports with less than ten million passengers.

374. Airport operating margins during the period under review are described in Table 34.

375. Airports have obviously suffered from the downturn that has affected the air transport industry over the 2001-2003 period, but have nevertheless managed to remain profitable. With traffic picking up again in 2004, both operating margins and profits have improved, although they did not quite reach the pre-2001 levels (see compilation, page 89). A necessary qualification to the net profit data is that US airports, which make up a large share of the top 100 airports, are not-for-profit entities. Any surplus is re-invested in the airport operation or used to maintain reserves.<sup>94</sup>

<sup>93</sup> As reported in the ACI Airport Economics Survey, 2002/2003.

<sup>94</sup> ACI Airport Economics Survey, 2005.

**TABLE 34**  
**Financial performance of the largest airport groups\***

	2000/1	2001/2	2002/3	2003/4	2004/5
<b>Operating margin</b>	27.9%	22.8%	19.2%	19.3%	20.9%
<b>Net margin</b>	14.5%	11.0%	9.5%	8.6%	10.4%

\* Top 100 for 2004/5 and 2003/4, top 50 for the years before. The composition may change in individual years. The margin figures are based on the airports for which data were available.

Source: Airline Business, December 2005.

#### 4. Capital expenditure

376. According to the ACI surveys, overall capital expenditure has risen sharply over the 2000 to 2005 period. This is particularly striking when given that expenditure on new airports is not included in the figures reported in Table 35. However, aggregate figures hide significant variations, with falls in capital expenditure registered in the Asia/Pacific and Latin America/Caribbean regions and dramatic increases in Africa/Middle East, driven, in particular, by heavy investment in the Middle East.

377. On aggregate, airports are spending heavily on infrastructure to meet current needs and the anticipated doubling of passenger traffic over the 2004-2020 period, from 3.9 billion passengers in 2004 to 7.4 billion in 2020.<sup>95</sup> ACI estimates that domestic air passenger

traffic will increase by an average of 3.7 per cent per year over the next 15 years, while international traffic is expected to grow even faster, by 4.7 per cent.

378. As Table 36 shows, the lowest expected growth rates are in North America and Europe, which have the highest traffic base and are mature aviation markets, in which growth may be expected to diminish over time. International air passenger traffic is forecast to increase more rapidly than domestic traffic in all regions, except in Asia/Pacific, where the large domestic markets and increasing GDP and personal disposable income in both China and India point to strong growth potential in domestic traffic. The marked difference between the expected growth rates for domestic and international traffic in the Middle East reflects the region's limited domestic market, but also the importance of 6<sup>th</sup> freedom traffic for its carriers.

379. In anticipation of the strong growth of air passenger traffic, and in particular of domestic traffic,

<sup>95</sup> See ACI Worldwide and Regional Forecasts, Airport Traffic 2005-2020, August 2005.

**TABLE 35**  
**Capital expenditure\* by region**  
**(US\$ million)**

Region	2000	2005	% change
Africa/Middle East	473	3,500	640%
Asia/Pacific	4,485	3,700	-17.5%
Europe	7,026	12,800	82.2%
Latin America/Caribbean	1,848	900	-51.3%
North America	10,247	15,100	47.4%
<b>Total</b>	<b>24,079</b>	<b>36,000</b>	<b>49.5%</b>

\* Excludes expenditure on new airports.

Source: ACI Airport Economics Survey, 2000 & 2005.

**TABLE 36**  
**Forecasted domestic and international passenger traffic growth by region – 2004/2020**

Region	Domestic		International	
	Annual increase	Increase by 2020	Annual increase	Increase by 2020
Africa	3.5%	73%	4.8%	112%
Asia/Pacific	6.4%	170%	5.7%	143%
Europe	3.1%	63%	4.2%	93%
Latin America/Caribbean	3.7%	79%	4.9%	115%
Middle East	1.0%	17%	9.3%	315%
North America	2.7%	53%	3.1%	63%
<b>Total</b>	<b>3.7%</b>	<b>79%</b>	<b>4.7%</b>	<b>109%</b>

Source: ACI Worldwide and Regional Forecasts, Airport Traffic 2005-2020, August 2005.

the Indian government has decided on the creation of green field airports at Bangalore and Hyderabad, to be financed through a public-private partnership.<sup>96</sup> The country suffers from severe congestion at its main hubs at Mumbai and New Delhi, as well as at Chennai, Kolkatta and Bangalore.<sup>97</sup>

380. In a similar situation with regard to passenger growth, China's airport infrastructure is also under strain. In 2004, passenger traffic grew by 38 per cent to around 120 million, of which 100 million were domestic passengers, and estimates are that domestic traffic could reach 950 million by 2020. This would make China the world's second largest national air market after the United States. To meet anticipated demand, new airports are being built around the country: over the past 25 years, the number of airports in China has doubled to reach 133, of which a third currently handle more than 1 million passengers per year. The Civil Aviation Administration of China (CAAC) expects that, on average, three airports will be built each year through to 2020. Although attention has tended to focus on China's densely populated and prosperous eastern provinces, the government is reportedly keen to develop infrastructure also in the more remote and relatively poorer areas to the west.

381. Plans apparently exist to develop a new airport for Beijing by 2015, in spite of the expansion currently underway at Beijing's existing airport, Beijing Capital International Airport, which is scheduled to be completed in time for the 2008 Olympics. Shanghai Airport Authority is also planning a massive expansion of the city's Pudong International, which only opened in 2000 and is currently the second largest hub in China, with the construction of a second passenger terminal and a second cargo area. Guangzhou, China's third largest city and home to the country's largest carrier, China Southern Airlines, saw the opening of a major new hub in August 2004. There is plenty of other airport development activity also planned for the south of the country, with the approval of a project for the development of the country's sixth largest airport, Chengdu Shuangliu International.<sup>98</sup>

<sup>96</sup> India's domestic traffic rose by over 20 per cent in 2004 and passenger numbers are forecast to nearly double to 100 million by the end of the decade (Airline Business, December 2005).

<sup>97</sup> Infrastructure constraints at Mumbai airport are reportedly the most serious. The airport only manages modest runway usage, with air traffic control only handling 27-28 flights an hour when it operates on single-runway operations; by way of comparison, London Gatwick's sole runway can handle on average 45 hourly movements during the busy morning period (Airline Business, December 2005).

<sup>98</sup> Airline Business, June 2005.

382. In order to accommodate increased demand for air travel, massive new investments in capacity must take place also in more mature markets to avert congestion. In a 2004 study, the European Civil Aviation Conference (ECAC) and EUROCONTROL estimates that traffic without congestion will grow by an average 4.6 per cent. By the year 2025, it will imply in turn that 17.6 per cent of demand (i.e. 37 million flights per year) will not be accommodated, despite an expected 60 per cent increase in capacity in the airport network. This will result in more than 60 airports, out of the 133 sampled in the study, being congested, and the top-20 airports being saturated for at least 8-10 hours per day.<sup>99</sup>

383. Capacity constraints are expected to change the pattern of traffic distribution, with extra flights possible only at secondary airports and/or at less favourable times. There will also be pressure to accelerate the switchover to larger aircraft, in order to accommodate more passengers while keeping the number of flights constant. In Japan's severely congested airports, for example, Boeing 747s are used even on short-haul routes. Both Boeing and Airbus have developed larger aircraft, the former with the stretched version of the 747 and the latter with the introduction of the world's largest aircraft, the A380.

384. The entry into service of the A380, expected in late 2007/early 2008, has been one of the two new factors that have contributed to the increase in airports' capital expenditure during the period under review, the other being the additional security investment necessary in the wake of the 11 September 2001 attacks (see discussion below). The airports to which the A380 will fly are required to invest heavily in terminal facilities. For example, at London Heathrow, which is expected to receive its first A380 services in December 2007, airport operator BAA has spent US\$845 million to accommodate the new aircraft. However, it will only be able to operate on the airport's southern runway due to potential taxiway issues, and additional modification works will be needed to enable the aircraft to use the northern runway. Other examples include Auckland International Airport, which is spending US\$16.7 million on airside improvements that will include widening the runway by 7.5 meters on each side, as well as filleting taxiways and aprons, and ADP, which is investing €740 million at Paris Charles de Gaulle airport.<sup>100</sup>

<sup>99</sup> ECAC-EUROCONTROL, (2004), "Challenges to Growth 2004 Report (CTG04)", Airline Business, June 2005. The above estimate is based on the most optimistic scenario in terms of economic growth and, hence, passenger traffic growth in Europe.

<sup>100</sup> Airline Business, June 2006.

385. Given that all of these modifications imply significant costs for airports, airlines not operating the A380 have expressed concern about the prospect of having to pay for A380-related work through increased airport charges applicable to all carriers.

## 5. Ownership and management

386. The first review documented how many countries had sought to open up airport services to private involvement as a way of financing airports' growing capital needs through airport sales, taxes and concession fees (see compilation, pages 90-91). Unfortunately, the information contained in Tables 22 and 23 of the compilation (see pages 91 and 92) has not been updated by ICAO, which makes it difficult to identify precise trends over the current review period.

387. According to a report produced for ACI by the Centre for Asia Pacific Aviation<sup>101</sup>, the intensity of privatisation and acquisitions in the 1995-2000 period seemed to have ended with the terrorist attacks of 11 September 2001, and the other external shocks that followed. Although airports were better placed than airlines to face these crises because of their diversified income base and more readily definable costs, investors have been reluctant to invest while the airports' major clients, the airlines, were fighting for survival. Only since the signs of a full-scale industry recovery became apparent in 2004 have investors looked at airports with renewed interest. It has been the steady performance of airports throughout the years (none of the airports rated by Standard & Poor's has ever defaulted on its bonds or loans over the past 15 years) that has helped to attract investors from a variety of sectors (construction companies, financial services providers, property investment groups, airlines, etc.).<sup>102</sup>

388. The experience with airport privatisation throughout the world has been mixed. While some observers stress the achievements of the privatised airports, such as BAA in the United Kingdom, others point out that the transfer of responsibility from the public to the private sector has not always enhanced performance.<sup>103</sup> It would seem that the key issue is how the privatization process has been carried out and whether and how the new, private airport operator is regulated.

389. Some of the most interesting investment opportunities are currently in Europe, with the privatisation

process of Aéroports de Paris (ADP), one of the world's five largest airport groups which operates the two main Paris airports, due to begin by mid-2006 and Amsterdam Schiphol also moving towards privatisation. Macquarie Airports of Australia has bought Denmark's primary hub, Copenhagen Airport, and Brussels Zaventem, but has pulled out of the race for Budapest, which is finally being acquired by a group led by BAA.<sup>104</sup> The UK airports' operator, the largest in the world, had itself become the object of a fierce takeover battle, which was finally resolved in June 2006 in favour of Spanish group Ferrovial, which will buy BAA for the equivalent of US\$19 billion.<sup>105</sup>

390. Asia has witnessed significant privatisation moves as well. In China, the transfer of ownership and control of some 90 airports from central government to local and provincial government control was completed in 2004, and was followed by widespread moves towards privatisation. Ownership caps were reduced and aggregate foreign ownership of Chinese airports by different companies is now allowed to exceed 50 per cent, as long as the largest single shareholder is a Chinese national. Amongst the foreign investors in the country's airports are: Aéroports de Paris (ADP), which has a 6.6 per cent stake in Beijing Capital; Copenhagen Airport, with a 20 per cent stake in Hainan Meilan International; Hong Kong's Airport Authority, which is to buy a 35 per cent stake in Hangzhou's Xiaoshan International.<sup>106</sup> In turn, in Hong Kong, China, the government is preparing an initial public offering for Hong Kong International Airport in the course of 2006.

391. In India, the government is planning to privatise both Delhi and Mumbai airports in the form of a public-private partnership (PPP). Each airport would be sold to a private joint venture company holding a 74 per cent stake, with the Indian government and Airports Authority of India retaining each 13 per cent of the shares. Foreign companies are allowed to take up 49 per cent in the venture. Several consortia, each featuring an Indian firm and an international airport group, submitted bids for the Delhi and Mumbai PPPs.<sup>107</sup> In February 2006, a consortium led by the Indian construction company GMR and Fraport was awarded the Delhi contract, and a group led by Hyderabad-based construction company GVK and Airports Company South Africa the Mumbai project.<sup>108</sup>

<sup>101</sup> See ACI Airport Economics Survey 2004.

<sup>102</sup> Airline Business, June 2004.

<sup>103</sup> This appears to have been the case, e.g., in parts of the Caribbean and Latin America. See Centre for Asia Pacific Aviation summary report, in ACI Airport Economics Survey 2004.

<sup>104</sup> Airline Business, December 2005; Centre for Asia Pacific Aviation, Airport Investor Monthly, January 2006.

<sup>105</sup> Financial Times, 7 June 2006; La Tribune, 8 June 2006.

<sup>106</sup> Airline Business, June 2005; Centre for Asia Pacific Aviation, Monthly Essential China, December 2005.

<sup>107</sup> Airline Business, December 2005.

<sup>108</sup> Financial Times, 9 February, 2006.



392. The United States may also offer growth opportunities for airport groups keen to expand. Although US airport ownership has remained firmly in the hands of local authorities, management contracts may appear as an interesting option as airports seek to capitalize on the yet relatively underdeveloped retail side of their business.<sup>109</sup> The City of Chicago, for instance, is reportedly interested in exploring the leasing of Midway Airport to a private entity for revenue development, while BAA operates Indianapolis International Airport under an agreement with local authorities. Such forms of commercialisation, which are commonplace in other parts of the world, are not yet particularly widespread in the United States, where airports are funded by a mix of revenue and municipal bonds, in addition to state and federal funds.<sup>110</sup>

393. At any rate, the airport sector is experiencing significant commercialisation and cross-border activi-

ties, both in terms of operations and ownership. This is illustrated in Tables A1, A2 and A3 in the Annex. Table 37 provides a synthetic picture of cross-border activities in the airport services sector.

## 6. Security

394. The events of 11 September 2001 have provoked a re-assessment of security measures. At the multilateral level, they prompted ICAO to convene a High-level Ministerial Conference on Aviation Security in February 2002, with the goal of endorsing a global strategy for strengthening aviation security. A key element of this strategy is the ICAO Aviation Security (AVSEC) plan of action.

395. The centrepiece of AVSEC is the Universal Security Audit Program (USAP), which was launched in June 2002. USAP provides for the conduct of universal, mandatory and regular audits of the aviation security systems in all ICAO Contracting States. It is intended to help States to identify and correct deficiencies in

<sup>109</sup> Airline Business, December 2003.

<sup>110</sup> Aviation Week & Space Technology, 13 March 2006.

**TABLE 37**

### Overview of cross-border activities in the airport services sector

Between developing /transition economies ("South-South")
Argentina-Uruguay; Argentina-Armenia; Chile-Jamaica; Hong Kong ,China-China; India-Mauritania; India-Togo; Malaysia-Cambodia; Malaysia-South Africa; Mexico-Chile; Mexico-Dominican Republic; Singapore-China; Singapore-Costa Rica; Singapore-Hong Kong, China; Singapore-Vietnam; Turkey-Egypt
From a developing /transition to a developed economy ("South-North")
Hong Kong, China-United States; Singapore-New Zealand; Singapore-Netherlands
Between developed economies ("North-North")
Australia-New Zealand; Australia-Belgium; Australia-Czech Republic; Australia-Denmark; Australia-Germany; Australia-United Kingdom; Austria-Hungary; Austria-Malta; Austria-Spain; Canada-Australia; Canada-France; Canada-Malta; Canada-New Zealand; Denmark-Norway; Denmark-United Kingdom; France-Belgium; Germany-Australia; Germany-Greece; Germany-Latvia; Germany-United States; Germany-Spain; Ireland-Canada; Ireland-Germany; Ireland-Greece; Ireland-Hungary; Israel-Jamaica; Luxemburg-Switzerland; Luxemburg-United Kingdom; New Zealand-Australia; New Zealand-United Kingdom; Spain-Australia; Spain-Belgium; Spain-Canada; Spain-Ireland; Spain-United Kingdom; Spain-United States; Netherlands-Australia; Netherlands-Austria; Netherlands-Hungary; Netherlands-Malta; Netherlands-Switzerland; Netherlands-United States; United Kingdom-Australia; United Kingdom-Germany; United Kingdom-Italy; United Kingdom-Norway; United Kingdom-Sweden; United Kingdom-United States; United States-Canada; United States-Czech Republic; United States-Italy; United States-Spain; United States-Netherlands; United States-United Kingdom
From a developed to a developing /transition economy ("North-South")
Austria-Turkey; Austria-Ukraine; Canada-Bermuda; Canada-Chile; Canada-China; Canada-Dominican Republic; Canada-Ecuador; Canada-Honduras; Canada-Jamaica; Canada-Oman; Canada-Romania; Canada-Russia; Canada-Thailand; Canada-Turk and Caycos; Canada-Uruguay; Denmark-China; Denmark-Mexico; France-Cambodia; France-Cameroon; France-China; France-Egypt; France-Gabon; France-Guinea; France-Indonesia; France-Ivory Coast; France-Madagascar; France-Mexico; Germany-China; Germany-Kenya; Germany-Peru; Germany-Turkey; Germany-United Arab Emirates; Ireland-Bahrain; Ireland-Kuwait; Ireland-Lebanon; Ireland-Russia; Ireland-Syria; Ireland-Ukraine; Italy-Argentina; Italy-Dominican Republic; Italy-South Africa; Spain-Bolivia; Spain-Chile; Spain-Cuba; Spain-Jamaica; Spain-Mexico; Switzerland-Chile; Switzerland-Egypt; Switzerland-Oman; Switzerland-South Africa; Netherlands-Indonesia; United Kingdom-Argentina; United Kingdom-Bolivia; United Kingdom-China; United Kingdom-Colombia; United Kingdom-Costa Rica; United Kingdom-Dominican Republic; United Kingdom-Macau, China; United Kingdom-Peru; United Kingdom-Panama; United Kingdom-Tanzania; United States-Costa Rica; United States-Ecuador; United States-Peru; United States-Uruguay

**Source:** Compiled by the WTO Secretariat on the basis of the information contained in the report Momberger Airport Information, which is reproduced in ACI Airport Economics Survey 2005.



the implementation of ICAO security-related agendas. Implementation commenced with the first ICAO AVSEC audit in November 2002. Such audits are designed to determine the degree of a Contracting State's compliance with the standards contained in the revised Annex 17 to the Chicago Convention. The changes to Annex 17, which became applicable on 1 July 2002, include provisions of particular relevance for airport operators. These relate, *inter alia*, to the selection, background checks, training and review of competencies of staff; certification of airport security screeners; measures regarding passengers and cabin baggage as well as checked baggage; measures relating to access control, with the establishment of specific security-restricted areas and the security control of all persons accessing these areas; and access control for air crew and airport personnel. Moreover, a new standard has been introduced covering domestic operations, even though the Annexes to the Chicago Convention are, by nature, internationally oriented.<sup>111</sup>

396. The new security measures adopted all over the world after 9/11 have had a significant economic impact on airports and airlines. By way of example, in 2004 Iberia decided to abandon Miami as its secondary hub for flights to Central America because the new US security rules, and in particular visa requirements for transit passengers, had resulted in major delays and affected profitability of its operations at the airport.<sup>112</sup> In addition, there has been a direct commercial impact in so far as airlines and airports have to fund a large part of the costs of the new security measures.

397. Aviation security in the United States has undergone dramatic changes, with the federal government assuming direct responsibility from the carriers and airports for actual provision and funding. With the enactment of the Air Transportation Security Act (ATSA) in November 2001, a single body, the Transportation Security Administration (TSA), assumed overall responsibility for aviation security in the United States. Key security activities are paid for primarily by the TSA out of federal funds.

398. The TSA was mandated by Congress to ensure that, by 19 November 2002, screening of individuals and property in the United States be conducted by TSA employees and companies under contract with

TSA.<sup>113</sup> Individuals who perform screening must be tested and have enhanced qualifications and training, and federal law enforcement officers must be present at screening locations. Furthermore, the TSA had to ensure that, by 31 December 2002, full, unified and consistent baggage screening was in place. The TSA has since turned its attention to cargo operations, with the aim of ultimately screening 100 per cent of at-risk cargo. For this purpose, it invested US\$55 million in research and development for cargo security in fiscal year 2004 and requested another US\$55 million for fiscal year 2005 to develop and deploy new cargo screening technologies.<sup>114</sup> For aviation security in total, the TSA's spending amounted to US\$4.5 billion for the fiscal year to September 2002 and US\$6.1 billion for the fiscal year to September 2003.<sup>115</sup>

399. It has been estimated that the new US security measure for airports and airlines will cost the country's airport system US\$9 billion. Moreover, there are some revenue effects as airports reconfigure. Spending on small retail items and food services is likely to increase because of longer waiting times, while purchases of bigger items, such as luggage, are expected to suffer because of security limits on bags and bag size. As for airlines, the Chairman of American Airlines had estimated the direct cost to the US industry to be over US\$3.5 billion in 2002, split between US\$1.6 billion in the security segment tax, US\$900 million in increased cost of insurance, nearly US\$300 million in lost revenue due to government restrictions limiting the mail airlines could carry, US\$200 million in foregone revenue for providing seats for federal air marshals, and nearly US\$200 million for the fortification of cockpit doors. These figures include about US\$400 million for services such as screening catering supplies and materials, for which the airlines are reimbursed by the TSA.<sup>116</sup>

400. The European Communities adopted Regulation 2320/2002 (16 December 2002), which establishes common rules in the field of civil aviation security. The Regulation is based on the standards contained in Annex 17 of the Chicago Convention and the various

<sup>111</sup> See ICAO Journal, Number 5, 2002, and Number 7, 2003.

<sup>112</sup> According to Iberia, connecting times have nearly doubled as a result of the new security procedures. Miami airport officials have conceded that security is understaffed for the airport's number of foreign transit passengers (see *Airline Business*, April 2004).

<sup>113</sup> Congress ordered the TSA to drop private screeners and replace them with federal employees; this required the US subsidiary of UK-based Securicor to give up its airport security operations (*Aviation Week & Space Technology*, 22-29 August 2005, and *WTO Reporter*, 9 March 2006).

<sup>114</sup> See speech by Ray Montgomery, US Transportation Security Administration, at the International Chamber of Commerce, Commission on Transport and Logistics, Committee on Air Transport, Air Transport Security, 3 November 2004.

<sup>115</sup> See TSA's website at <http://www.tsa.gov/public/display?content=09000519800502ce>.

<sup>116</sup> *Airline Business*, December 2002.





recommendations developed by ECAC since 1989.<sup>117</sup> The Regulation and its implementing legislation apply in full to all civil aviation airports in the EC<sup>118</sup>, to service providers, catering, cleaning and cargo operators as well as to EC and foreign airlines departing from or transiting any EC airport. For the smaller airports, each Member State may adopt, on the basis of local risk assessment, levels of security different from those laid down in Community legislation. Moreover, the Regulation allows individual Member States or airports to set higher safety standards whenever objective risk assessments suggest that such action is necessary, either on a temporary or permanent basis.

401. Security activities in the EC are paid for by a combination of stakeholders, including airports, air carriers, passengers and the Member States themselves. A 2004 Study on Civil Aviation Security Financing estimates that total security-related expenditure in 2002 in the then 15 EC Member States plus Iceland, Norway and Switzerland was between €2.5 billion and €3.6 billion, depending on whether cockpit door modifications and insurance were included.<sup>119</sup> The expenditure was shared as follows: State expenditure, €0.65 billion; airport expenditure, €1.32 billion; and carrier expenditure, between €0.52 billion and €1.66 billion. The report also estimates that the total security-related funding in 2002 for the 18 States was around €2.0 billion, made up of State taxes, €0.59 billion; airport charges, €0.60 billion; carrier surcharges, €0.63 billion; and State grants, €0.13 billion.

402. Airports were left with an estimated shortfall of €717 million. As many airports do not levy specific charges, the costs of security activities are recovered, to some extent, through other airport charges. This is the case, for instance, of UK operator BAA and Copenhagen airport, which are subject to regulation of airport charges.

## 7. Competition policy<sup>120</sup>

403. The Secretariat has not been made aware of major developments in the area of competition except for the new EC guidelines on State aid to airports.

<sup>117</sup> The European Civil Aviation Conference sets voluntary standards, including security standards, in aviation.

<sup>118</sup> Smaller airports are defined in the Regulation as those with a yearly average of 2 commercial flights per day, or only general aviation flights or commercial activities limited to aircraft with less than 10 tonnes of Maximum Take Off Weight or less than 20 seats.

<sup>119</sup> The study was commissioned by the EC. See the website: [http://ec.europa.eu/transport/air/safety/doc/studies/2004\\_aviation\\_security\\_s\\_0.pdf](http://ec.europa.eu/transport/air/safety/doc/studies/2004_aviation_security_s_0.pdf)

<sup>120</sup> Issues related to charging are dealt with below, while slot allocation is covered by the second part of the documentation for the review.

404. In February 2004, the Commission ruled that a deal on charges reached between Belgium's Charleroi airport and low-cost carrier Ryanair breached Community State aid rules. Soon thereafter, the Commission decided to issue guidelines setting out a legal framework for the financing of airports and for State start-up aid used by regional airports for the benefit of airlines.<sup>121</sup> The Guidelines reiterate that the financing of airports by public authorities must comply with the Community rules on State aid. Aid may be justified and declared compatible, provided that it meets an objective of general interest, such as regional development or accessibility. Also, the aid must be in proportion to the objective set and must not adversely affect the development of trade within the EC.

405. Concerning subsidies for the operation of airport infrastructure, the Commission makes a distinction according to airport size. An operating subsidy for an airport with more than one million passengers per year may constitute State aid and must therefore be notified to the Commission, which will examine its impact and compatibility. State aid granted to smaller airports that are in the general economic interest is deemed unlikely to distort competition or affect trade; is exempted from the notification obligation and declared compatible.

406. Start-up aid is viewed as an instrument to attract airlines to new destinations. Hence, such aid is justifiable temporarily, but only in the case of small airports (i.e., with fewer than 5 million passengers annually) that do not yet have the critical mass needed to break-even.<sup>122</sup> In addition, the aid must provide airlines with the necessary incentive to create new routes or new schedules operated from the airport in question. Subsidies must be linked to the number of passengers transported, and must not lead to relocation of traffic. They will not be allowed if a high-speed rail link is in place.

407. Concerns about possible distortions of competition have also been raised in connection with the allocation of airport terminals. They focus in particular on the allocation of new terminals to the national carrier and

<sup>121</sup> Commission Communication of 9 December 2005 "Community guidelines on financing of airports and start-up aid to airlines departing from regional airports", Official Journal C 312.

<sup>122</sup> The Commission considers that start-up aid should be allowed for a maximum of three years (five years in the case of the outermost regions), and must not exceed an average of 30 per cent of total route costs per year over that period, with the maximum in any one year set at 50 per cent. Subsidies must be limited to the start-up costs that the operator will not have to bear once the service is up and running, such as marketing and advertising services, or installation costs at the airports. The Commission also requires that more transparency be introduced into the proceedings for the granting of such aid.

its allies at the expense of members of other alliances. The economic stakes are high<sup>123</sup>, and a number of disputes have arisen where airlines felt discriminated by the terminal allocation.<sup>124</sup>

## 8. Low-cost terminals

408. One notable development in the period under review was the creation of low-cost terminals at a number of airports, notably in Asia. The emergence of low-cost carriers (LCCs) will be described in the second part of the documentation.

409. Low-cost airlines have created both challenges and opportunities for airports. Built and used typically for traditional network airline operations, airports often offer "bundled" services which LCCs do not require, such as lounges or high-tech gate facilities, yet must pay for. Moreover, the design of "traditional" airport infrastructures conflicts with the need for rapid turnaround that LCCs have to meet in order to operate profitably. At the same time, airports are under pressure to reduce aeronautical charges as network carriers adjust to compete with low-cost airlines, sometimes by establishing their own low-cost subsidiaries.

410. In response to the forceful emergence of LCCs, airports have started building new, dedicated low-cost terminal facilities, especially in South-East Asia, given the region's general lack of secondary airports. Singapore was the first airport to embark on such a project, and the Changi Budget Terminal opened on 26 March 2006. Kuala Lumpur International Airport (KLIA) opened its Low Cost Carrier Terminal three days earlier. Both terminals have basic amenities, but no airbridges, as well as an open lounge where passengers can board the aircraft very quickly. Landing and navigation charges at Changi's Budget Terminal will not be lower than at the main terminal, but passenger

taxes have been reduced from S\$21 to S\$13, reflecting the fact that amenities are much more basic.<sup>125</sup> Table 38 illustrates the main features that are generally associated with a low-cost terminal or airport.

411. Other cities with low-cost terminals or whole low-cost airports are located mainly in Europe. These include Marseilles, Berlin, Budapest, Warsaw and Geneva. Some airport operators have been criticised by the incumbent mainline carriers for allegedly cross-subsidising the development of these new terminals with revenue from the existing ones. For instance, in 2004 Air France took Geneva airport to court over the airport's plans to convert a freight terminal for low-cost airline use by arguing that all carriers would have to pay for the Sfr20 million (US\$16.9 million) cost of the new second terminal. In October 2004, the Swiss Competition Commission ruled that the airport's plans were compatible with State aid rules.

412. As London Gatwick airport demonstrates, it is possible to house all types of airlines, both traditional and low-cost ones, in a single terminal. BAA has chosen not to develop terminals specifically for LCCs, but has increased flexibility to meet the new market situation; at Stanstead, for example, it has configured a satellite without airbridges and with convenient taxiways to help speed up turnaround times for its most important customer, low-cost airline Ryanair. BAA has also begun to plan another terminal at the airport, with LCCs specifically in mind.<sup>126</sup>

413. Although US airports are mostly publicly-owned, it is quite common for airlines to operate terminals and control gates, even if they do not use them for their own operations. Increasingly, LCCs are following the same pattern. For example, at Baltimore-Washington International Airport, low-cost airline Southwest is expanding its already dominant base by building a new terminal. Similarly, LCC JetBlue invested in a tailored low-cost terminal at its main hub, New York's JFK airport. Other LCCs have remained hesitant, however, as they lack the market power, profitability base or motivation to invest heavily in terminals.<sup>127</sup>

## 9. Environment-related considerations

414. Environmental concerns have continued to play an important role in influencing policy decisions in the air transport sector, although the sector's total emissions are comparatively modest. Air transport is estimated to contribute 2 per cent to global greenhouse

<sup>123</sup> The advantages of being located at the same terminal at major hubs: airlines can share check-in facilities; lounges can be operated and branded under the alliance banner; airport ticket offices, support desks and back-office facilities can be pooled; and can assist passengers with tight connections between the alliance carriers.

<sup>124</sup> One such dispute materialized at Madrid Barajas airport, where the airport operator Aena reversed a decision taken in June 2003 to install Spanair, Spain's second largest carrier and a member of Star Alliance, in the new Terminal 4. The terminal was allocated to legacy carrier Iberia and its oneworld partners, and Spanair and other Star Alliance carriers moved instead to Terminal 1 and parts of Terminal 2. A similar dispute had arisen with regard to Heathrow's new Terminal 5, which will house British Airways and its oneworld partner Qantas when it opens in 2008. Star Alliance had complained to the airport operator, BAA, that British Airways would be given a competitive advantage. Reportedly, BAA agreed that all Star carriers will be housed in Terminal 1 which would be upgraded to the quality standards of Terminal 5 in time for the transfer in 2008. Airline Business, December 2004.

<sup>125</sup> Airline Business, June 2006.

<sup>126</sup> Airline Business, December 2004.

<sup>127</sup> ACI Airport Economics Survey 2005.



**TABLE 38****Main features of a low-cost airport**

- **Small ticketing area.** This reflects the high percentage of sales conducted via the Internet (and in the future by 3G mobile telephone technology) and paperless travel. Although promoted for universal adoption by 2007 by IATA, the fastest strides in this direction – e-ticketing and boarding documents – have hitherto been made by LCCs.
- **High-speed electronic check-in, including self-service kiosks** (or conversely, low speed check-in where electronic facilities are not available and checked baggage is required). The ability to route incoming and outgoing passenger separately and to check-in passengers manually for flights at any open station (off airport advance check-in is not yet a typical feature of LCCs, but may proliferate subject to security and similar constraints).
- Facilities tailored to **point-to-point operations.** This implies, for example, specialist retail shops targeting short-haul passengers, notably food and beverage outlets; and, as noted below, operational processes and designs that facilitate fast turnaround.
- **Lounges**, if provided, are economy-only and compact.
- **Minimal passenger facilities airside** with a focus on retail and catering outlets, and any form of “last minute requirements”.
- **Provision for market evolution, especially connectivity.** Terminal requirements – notably terminal space, retail configuration and lounge facilities – will change as LCCs build alliances with other LCCs and with network carriers, leading to “interlining” and even mergers.
- **Simplified, functional office accommodation** as the public is encouraged to deal with the airline via the Internet. Similar standards for public offices, e.g. baggage queries.
- **Low key design and decor** throughout the terminal area.
- **Efficient systems** for the rapid loading and unloading of passengers, baggage and freight to ensure fast turnaround (typically 20 minutes).
- **Low-tech gate facilities**, including the use of steps in lieu of air bridges, thus permitting aircraft to power in and out and access/egress through front and rear doors simultaneously. Also greater use of bus surface transfer.
- **Limited seating and crowded gate areas.**
- **Extended operating hours at full capacity**, typically from 0600 to 2400.
- **No standby aircraft parking** during daytime operations.
- **Overnight** maintenance and cleaning facilities.
- **Financial support packages** demanded by LCC users, including discounted and/or performance-based changes and rentals.

*Source:* Centre for Asia Pacific Aviation, in ACI Airport Economics Survey 2005.

gas emissions.<sup>128</sup> Carbon dioxide (CO<sub>2</sub>) emissions are forecast to grow at a rate of 3 per cent annually until 2015; any progress on environmental protection is outpaced by the average annual traffic growth rate of 5 per cent that the industry is expected to register over the same period.<sup>129</sup>

415. Within ICAO, the Committee on Aviation Environmental Protection (CAEP) is a forum for discussion, information gathering and the formulation of recommendations for consideration by the ICAO

Council and adoption by the ICAO Assembly.<sup>130</sup> The most recent formal CAEP meeting took place in 2004 (CAEP/6) and its recommendations were adopted by Assembly Resolution A35-5. Three major environmental goals were established for ICAO and the world of aviation. They concern the limitation or reduction of: the number of people affected by significant aircraft noise; the impact of aviation emissions on local air quality; and the impact of aviation greenhouse gas (GHG) emissions on the global climate. Also in 2004, the ICAO Council adopted six strategic objectives, with high priority being given to environmental protection. Furthermore, the Kyoto Protocol, adopted in February

<sup>128</sup> Airline Business, June 2006.

<sup>129</sup> See the Intergovernmental Panel on Climate Change (IPCC) special report “Aviation and the Global Atmosphere” (1999).

<sup>130</sup> See Report of the International Civil Aviation Organization, Note by the Secretariat, at the Ninth Special Session of the Governing Council/Global Ministerial Environment Forum, Dubai, 7-9 February 2006; and Statement from the International Civil Aviation Organization (ICAO) to the first Conference of the Parties serving as the meeting of the Parties to the Kyoto Protocol (COP/MOP1), 28 November to 9 December 2005.

2005, calls on industrialised countries to work through ICAO to pursue the limitation of emission of GHG from international civil aviation.

416. As far as actions to mitigate aircraft engine emissions are concerned, ICAO measures follow three principal approaches, namely: taking action at source, through technology and standards; through operational measures reducing fuel burnt; and through market-based measures.

- As for reduction of emissions at the source, aircraft engines must meet the standards laid out in Annex 16 to the Chicago Convention, which are periodically revised and upgraded by ICAO. In June 2001, the ICAO Council adopted a new noise certification standard to become Chapter 4 of Annex 16. With regard to NO<sub>x</sub>, ICAO increased the stringency limits by 12 per cent in 2005. The new standards are applicable to new engines from 2008, and CAEP will review them again in 2010. In terms of limiting GHG emissions, the focus is on optimising fuel consumption as alternative fuels are unlikely to emerge in the near future.
- The most significant fuel saving opportunities are thought to come from operational moves, including more direct routings, the continuous descent approach and more efficient air traffic control systems and procedures.<sup>131</sup>
- ICAO is also exploring the use of market-based mechanisms to reduce emissions and has prepared a template agreement and associated guidance for voluntary measures.

417. National policy approaches place different emphasis on the main contributors to pollution. According to the FAA director of the Office of Environment and Energy, noise is the key issue in the United States, whereas global emissions are the main focus in the EC. The European Commission is expected to propose to include aviation in its emission trading scheme in the course of 2006.

418. In March 2002, the Commission adopted a new Directive concerning the introduction of noise-related operating restrictions at Community airports, Directive 2002/30. It implements the "balanced approach" to

noise management around airports contained in ICAO Resolution A33-7. The four principal elements are: reduction of aeroplane noise at source, land-use planning and management measures, noise abatement operational procedures, and operating restrictions. The Directive contains principles and rules on how to carry out a noise assessment, which are mandatory prior to the introduction of noise-related operating restrictions.

## 10. Airport design

419. One of the main recent evolutions in airport design is the spread of self-service check-in kiosks. These kiosks were present in about one-third of all airports worldwide in 2004, but are expected to be deployed in 70 per cent by the end of 2006. While initially devised as airline dedicated kiosks (see compilation, pages 97-98), the tendency is now towards installing common user self-service check-in kiosks (CUSS), paid for and maintained by airports. In a recent survey half of airports responded that they expected all or the majority of kiosks to be common-use, with two-thirds of airports planning to deploy such kiosks in the 2005-2007 period.<sup>132</sup> CUSS are expected to save US\$3.5 per passenger. As part of its "Simplifying the Business" initiative, IATA has developed a CUSS standard that will allow airlines to share kiosks which will be as convenient to use as Automatic Teller Machines, and is working with airlines and suppliers on a common interface for CUSS.<sup>133</sup>

420. A less visible technological evolution concerns the handling and sorting of baggage, away from a manual or basic bar-code treatment towards the use of Radio Frequency Identification (RFID) baggage tags. These are expected to improve baggage handling efficiency and generate yearly savings of around US\$350 million by reducing the number of mishandled baggage. IATA is working on a non-proprietary standard for the use of the technology and on the harmonization of the multiple bar-code standards that coexist at present as well as on a series of pilot tests using standardised methodology.<sup>134</sup>

## B. CHARGING

421. A controversy over airport charges between airlines and airports during the Montreal ANS/Conf

<sup>131</sup> Inefficient air traffic control systems and procedures have been identified as the single largest cause of fuel wastage by Cathay Pacific, which believes that 10-12 per cent savings would be possible in this area (see Airline Business, June 2006).

<sup>132</sup> Airline Business, December 2005.

<sup>133</sup> Airline Business, May 2005.

<sup>134</sup> Airline Business, July 2004 and May 2005.



Conference 2000 was explained in detail during the first review (see compilation, pages 102-3).<sup>135</sup>

422. The air transport sector has since been shaken by the events of 11 September 2001, the outbreak of SARS and the wars in Afghanistan and Iraq. The resulting economic downturn has led to concerns that ICAO's policies on charges might lack the necessary flexibility to deal with difficult economic situations. Because of the strict application of cost-recovery principles, some providers tended to compensate for reduced revenues through increased charges rather than strive for greater efficiency and cost-effectiveness. As a result, ICAO's policies in this area have been subjected to another revision, contained in Document 9082/7, which was published in September 2004.<sup>136</sup> In addition, guidance material on the practical implementation is contained in the revised Airport Economics Manual, which has just been published.<sup>137</sup>

423. The basic principles underlying the ICAO charging system have remained unchanged since the first review (see compilation, pages 99-101). However, the recent revision introduced several business-oriented principles that go beyond the scope of the traditional cost-recovery principles. Particular emphasis has been placed on the recovery of costs related to heightened security measures and on the collection of charges. Any charges or transfers of security costs should be directly related to and not exceed the costs of providing the security services concerned. Moreover, civil aviation should not be charged for more general security functions performed by States, such as general policing, intelligence gathering and national security. Annex I to Document 9082/7 contains a detailed list of the security measures, equipment and facilities that could be taken into account in determining airport costs. On the collection of charges, it is considered essential that a collection policy be established by an airport or air navigation services entity or, where applicable, by the State.<sup>138</sup>

424. The charging policies laid down by ICAO are generally considered as fair, based on principles

such as non-discrimination, transparency and consultation. However, they are not binding and, as the responses to an ICAO questionnaire demonstrate, they are not universally applied among Contracting States. Supplement 1 to Document 9082, published in 2004, contains the responses.

- Accordingly, the following Contracting States and territories comply with ICAO's policies: Angola, Argentina, Australia, Austria, Bahrain, Belgium, Botswana, Brazil, Bulgaria, Burundi, Canada, Chile<sup>139</sup>, China, Colombia, Costa Rica, Cuba, Cyprus, Czech Republic, Denmark, Ecuador, Egypt, Estonia, Ethiopia, Finland, France, Germany, Greece, Hungary, India, Ireland, Israel, Italy, Kuwait, Lithuania, Madagascar, Malawi, Maldives, Malaysia, Mexico, Monaco, Netherlands, New Zealand, Norway, Panama, Papua New Guinea, Philippines, Portugal, Republic of Korea, Republic of Moldova, Romania, Russian Federation, Saudi Arabia, Seychelles, Singapore, Slovakia, Spain, Sri Lanka, Suriname, Sweden, Switzerland, Thailand, The Former Yugoslav Republic of Macedonia, Turkey, Uganda<sup>140</sup>, Ukraine, United Kingdom, United Republic of Tanzania, United States, Uzbekistan, Vanuatu.
- The following States have responded that their national regulations and practices are not (or not fully) in compliance with the principles in paragraph 22 and 23 of Document 9082/6<sup>141</sup>: in respect to both paragraphs, Pakistan; in respect to paragraph 22 only, Malta, Paraguay, Peru, Poland, Syrian Arab Republic and the United Arab Emirates.
- The following Contracting States have responded, but not given a clear indication whether they comply with ICAO's policies on airport charges: Cameroon, Guyana and Uruguay.
- Over one hundred Contracting States have not responded at all.

425. Such observations help to understand the tensions between IATA and ACI over airport charges. The dif-

<sup>135</sup> The outcome of the discussions at ANS/Conf was reflected in the revised, Sixth Edition of ICAO's Policies on Charges for Airports and Air Navigation Services, contained in Document 9082/6, which had been circulated to WTO Members during the first review through document S/C/W/188, dated 7 February 2001.

<sup>136</sup> ICAO Journal, Number 2, 2005.

<sup>137</sup> ICAO Document 9562, Second Edition, 2006.

<sup>138</sup> ICAO Document 9082/7, paragraph 18. The document places particular emphasis on up-to-date national legislation; accurate invoicing; comprehensive and updated databases on airlines; a transparent cost recovery system with a fair and equal treatment of all users; precise and correct accounting; credit control; and enforced recovery procedures.

<sup>139</sup> Chile has provided no indication with regard to paragraph 22 of Document 9082/6.

<sup>140</sup> Uganda has provided no indication with regard to paragraph 22 of Document 9082/6.

<sup>141</sup> The text of paragraphs 22 and 23 can be found in the corresponding paragraphs in document S/C/W/188, dated 7 February 2001.

**TABLE 39**  
**Profitability gap between airport and airline groups – 2000-2004**  
**(percentage points)**

	2000/1	2001/2	2002/3	2003/4	2004/5
<b>Operating margin</b>	23.7	24.8	19.2	18.4	18.3
<b>Net margin</b>	13.4	15.2	12.4	10.8	11.7

*Note:* The figures correspond to the margins of top 100 airport groups less the margins of the top 150 airline groups.

*Source:* ATI/Airline Business Surveys, in Airline Business, December 2005.

difficult economic circumstances during the period under review have heightened such tensions. In 2001, for example, the world's top 50 airline groups registered a negative net operating margin below -4 per cent, while the world's top 50 airports, despite one of the worst years on record, managed to record a net margin of 11 per cent. Table 39 illustrates the profitability gap between airports and airline groups over the period under review.

426. Such perceived economic imbalances have fuelled long-running airline complaints about excessive airport user charges. In February 2006, Virgin Blue won a lawsuit it had filed against Sydney airport for abuse of monopoly power. In its ruling, Australia's Competition and Consumer Commission (ACCC) stressed that any future such dispute may be referred by either party to arbitration which revived the possibility of reintroducing oversight of airports fees by the ACCC.<sup>142</sup> Star Alliance members reportedly considered co-ordinated action to persuade airports to moderate their spending and the concurrent increase in airline fees.<sup>143</sup> IATA also launched a particularly strong campaign against airport charging practices and their lack of financial transparency.

427. In 2006, IATA took the unprecedented step of taking the French government to court over the increase in charges at ADP. The operator of the Paris airport system had increased charges by 26.5 per cent over the five-year period from 2000 to 2005, and the French government had approved a 5 per cent annual increase for the subsequent five years. As the price rises are taking place against the backdrop of the proposed privatisation of ADP, IATA alleges that they are intended to maximise the profits from privatisation. In its judicial challenge, IATA argues that the Transport Minister had not fulfilled his responsibilities in approving these

increases, and that there are deficiencies in the contract between the French State and ADP in particular with regard to the charges review procedure.<sup>144</sup>

428. Faced with a continuous trend towards privatization of airports, which IATA considers to be natural monopolies, and the possible implications for airport charges, IATA has set out a number of elements that it believes should be part of a successful privatization process. These include: the engagement of airlines as key stakeholders from the outset; the setting up of an independent regulator, overseen by an independent Competition Commission; the introduction of economic regulation to ensure cost efficiency and continuous improvements, including "CPI minus x" price caps<sup>145</sup>; the put in place of service level agreements to ensure that service quality standards are maintained or even improved.<sup>146</sup>

429. For its part, ACI stresses that competition does exist between airports at two levels. First, airports compete for connecting traffic (see for instance, Singapore, Bangkok and Kuala Lumpur on routes from Europe to Australia and New Zealand); second, with the emergence of point-to-point connections championed by LCCs, secondary airports increasingly compete for these carriers. In defence of airports' charging policies, ACI notes the need to finance the massive investments to cope with traffic growth (see Tables 35 and 36). Moreover, ACI holds the view that the charges currently paid do not reflect the full cost of airport investment or even of the infrastructure and services they use, obliging airports to cross-subsidise from non-aeronautical revenue.<sup>147</sup> In addition, as illustrated by Table 40, airport and air navigation charges have represented a stable, if not declining, share in airlines' operating

<sup>142</sup> Airline Business, February 2006.

<sup>143</sup> Such action might include agreeing not to fly to certain destinations. Some lawyers have noted, however, that a possible boycott at airports could contravene competition laws, particularly in the EC (see Airline Business, January 2006).

<sup>144</sup> Airline Business, June 2006.

<sup>145</sup> CPI stands for Consumer Price Index, and CPI-x regulation is a way of capping price increases by the regulated entity at a less than the general rate of consumer price inflation, with the factor "x" standing for expected increases in efficiency.

<sup>146</sup> IATA Economics Briefings, Airport Privatisation, July 2005.

<sup>147</sup> Airline Business, December 2002, 2003 and 2004.



**TABLE 40****Airport and air navigation charges as a share of airlines' operating costs – 1998-2004**

Item	1998	1999	2000	2001	2002	2003 and 2004*
<b>Landing and associated airport charges</b>	4.4%	4.4%	4.2%	4.0%	4.0%	4.0%
<b>Air navigation services charges</b>	3.0%	2.9%	2.8%	2.5%	2.4%	2.4%
<b>Total airport and air navigation charges</b>	<b>7.5%</b>	<b>7.3%</b>	<b>7.0%</b>	<b>6.5%</b>	<b>6.4%</b>	<b>6.4%</b>

\* 2004 data are provisional.

**Note:** The above data do not include passenger-related and other charges collected by the airlines from the passengers and paid to the airports since they do not appear as an expenditure item for the airlines and is not shown in their profitability statement.

**Source:** ICAO Secretariat.

costs. ACI further notes that landing and associated airport charges have remained stable in percentage of airline's operating costs. This is the case even if the costs of fuel and insurance are removed from overall expenses.<sup>148</sup>

430. In 2005, ACI responded to IATA's criticism of excessive airport charges by recommending to its members to avoid dealing with IATA on business issues and to give priority instead to direct local negotiations with the main airline customers and boards of airline representatives.<sup>149</sup>

431. The renewed controversy between IATA and ACI has led the European Commission to hold a colloquium on airport capacity and charges in April 2006. Views were being sought from across the airline and airport divide, and with the aim of considering the feasibility of a European-wide framework for airport charges. The Association of European Airlines (AEA) has supported the move and argued in favour of economic regulation of fees. In contrast, the European Low Fare Airlines Association has called for regulatory restraint, as it considers that the situation with respect to charging varies considerably between airports. ACI has welcomed the colloquium as an "enlightened move" and stressed the financial burden of the unavoidable investment expenditure airports have to incur. Most parties now expect the Commission to take some action, probably by the end of 2006.<sup>150</sup>

148 ACI Airport Economics Survey 2005.

149 Airline Business, December 2005.

150 Airline Business, May 2006.

## ANNEX TO CHAPTER VII

**TABLE A1**

**Commercialization and cross-border activities in the airport sector<sup>1</sup>**

Origin of airport investor/manager	Country of operation	Activities
<b>ARGENTINA</b>		
	Argentina	London Supply owns and operates Ushuaia Airport/Tierra del Fuego and five airports in Neuquén province in Argentina (including Trelew, Rio Grande, El Calafate and Valle del Conlara-Merlo).  Aeropuertos Argentina 2000 S.A. (AA2000) operates 32 airports in Argentina since 1999.  London Supply builds and manages a new duty-free zone at Puerto Iguazú on the border with Brazil.
	Armenia	Aeropuertos Argentina 2000 S.A. (AA2000) won a 30-year concession to run Yerevan-Zwartnots Airport in Armenia.
	Uruguay	Aeropuertos Argentina 2000 S.A. (AA2000) won the 30-year concession to manage and develop Montevideo's Carrasco International Airport; (Uruguay).
<b>AUSTRALIA</b>		
	Australia	Australian Infrastructure Fund Pty Ltd: holds stakes in seven Australian airports (Melbourne, Perth, Gold Coast, Launceston, Darwin, Alice Springs, and Tenant Creek) through Australia Pacific Airports Corp.; bought a 49.1% stake in Townsville and Mount Isa airports in the Australian state of Queensland; already owns a 15% stake in Gold Coast Airport.  APAC (Australia Pacific Airports Consortium) owns and operates Melbourne-Tullamarine International Airport as well as 90% of Launceston Airport).  Ambidji operates Lismore Airport in Australia together with ATCO Airports Ltd.  Capital Airport Group owns and operates Canberra International Airport in Australia.  Ferrovial Aeropuertos provided 19.6% of the equity of the Southern Cross consortium (Southern Cross Airports Corporation Holdings Limited - SCACH), led by Australia's investment bank Macquarie Bank Ltd, which acquired Sydney Airport Corporation in 2002; the stake has been increased to 20.68% in the meantime.  Westralia Airports Corp operates Perth International Airport; manages Christmas Island International Airport and Cocos (Keeling) Island Airport.  National Australia Asset Management holds 14.55% in Northern Territories Airports by acquiring the 29.1% TBI plc (ex-AGI) holding in Darwin, Alice Springs and Tennant Creek together with Laing Investments Ltd.  Macquarie Airports (MAp) has a total beneficial interest of 55.5% in Sydney Airport.  Macquarie Airports Group Ltd (MAG) acquired 11.7% of the Southern Cross consortium (Southern Cross Airports Corporation Holdings Limited - SCACH) which acquired Sydney Airport Corporation in 2002.  Linfox Transport Group operates the Melbourne-Essendon and Avalon general aviation airports.
	Belgium	Macquarie Airports (MAp) acquired a 52.5% interest in Brussels International Airport Corporation (BIAC) in 2004. Biac operates the Brussels Airport terminals; won a contract from the regional Flemish Government to temporarily manage Ostend Airport.
	Czech Republic	Babcock & Brown acquired Plzen-Lin Airport from PlaneStation, which went into voluntary administration on 26 July 2005.

<sup>1</sup> The existence of airports that are privately-owned or managed by nationals is indicated by shading.



Origin of airport investor/manager	Country of operation	Activities
	Denmark	Macquarie Airports (MAp) acquired an 11.3% stake in Copenhagen Airports International A/S in 2005.
	Germany	Babcock & Brown acquired Black Forest Airport, Lahr.
	Italy	Macquarie Airports (MAp) holds a total beneficial interest of 33.6% in Aeroporti di Roma.
	New Zealand	Australian Infrastructure Fund Pty Ltd holds stakes in Auckland International Airport in New Zealand through Westralia Airports Corporation.
	United Kingdom	Ferrovial Aeropuertos acquired a 51% stake in Bristol International Airport from FirstGroup together with Macquarie.
<b>AUSTRIA</b>		
	Austria	Vienna International Airport manages Vöslau.
	Hungary	Vienna International Airport part-owns Budaörs.
	Malta	Vienna International Airport owns 57.1% of Malta Mediterranean Link Consortium Ltd (MML), which holds 40% of Malta International Airport plc. and manages the airport. The stake gives VIE a 22.8% share in Malta International Airport plc.
	Spain	Vienna International Airport plc acquired an 18.7% stake in the consortium that will build and operate Ciudad Real Airport in Spain.
	Turkey	Airport Consulting GmbH provides consultancies services to the International passenger terminal project of Atatürk Airport, Istanbul.  Vienna International Airport was a joint-venture partner in the BOT contract for the new international terminal at Istanbul's Atatürk International Airport, holding a 5% stake in TEPE-Akfen-VIE Investment, Construction & Operation Inc.
	Ukraine	Airport Consulting GmbH provides consultancies services in Ukraine (Kiev-Boryspil Airport).
<b>BELGIUM</b>		
	Belgium	Brussels International Airport Company (BIAC) operates the Brussels Airport terminals; won a contract from the regional Flemish Government to temporarily manage Ostend Airport.
<b>CANADA</b>		
	Australia	ATCO Airports Ltd operates Lismore Airport in Australia together with Ambidji.
	Canada	TradePort International Corp. manages the John C. Munro Hamilton International Airport /Mount Hope Airport in Ontario/Canada under a 40-year concession with the City of Hamilton.  YVR Airport Services Ltd - YVRAS manages six local Canadian airports (Cranbrook, BC; Fort St. John, BC; Hamilton, ON; Grande Prairie, AL; Kamloops, BC; Moncton, NB) via incentive contracts and a management fee.  ATCO Airports Ltd operates Edmonton City Center Airport (since January 2000) and the airports at Castlegar, B.C.; North Bay, Ont.; Iqaluit; Moose Jaw, Sas.; and St. Andrews, Man., all in Canada. Also provides security services at Winnipeg Int. Airport.  ADM Capital Inc. manages and develops its two international airports in Montreal, Dorval and Mirabel.
	Chile	YVR Airport Services Ltd - YVRAS won the 15-year Santiago/Chile passenger terminal concession as member of the SCL Terminal Aéreo Santiago consortium, formed together with Agencias Universales S.A. (AGUNSA: 47%) and Sabco Administrador de Fondos de Inversión S.A. of Chile (13%), contractors FCC and Grupo Dragados of Spain (30%), with YVRAS holding 10%.
	China	YVR Airport Services Ltd is providing consultancy in China.

Origin of airport investor/manager	Country of operation	Activities
	Dominican Republic	YVR Airport Services Ltd is a partner in the "Aeropuertos Dominicanos Siglo XXI, S.A." consortium that manages four airports in the Dominican Republic: Santo Domingo ('Las Americas'), Puerto Plata ('Gregorio Luperón'), Samaná ('Arroyo Barril'), and Barahona ('María Montez').
	Ecuador	ADC (Airport Development Corporation) together with Houston Airport System's HAS Development Corporation has an operating contract for Quito Airport, Ecuador.
	France	ADM Capital Inc. and SNC-Lavalin of Canada won the concession for a Vatry cargo airport in France as a member of SEVE. SEVE is formed with Keolis, Sogaris, Pingat, Iénair, and the CCIs of Reims/Eprenay, Chalons-en-Champagne and Troyes of France.
	Honduras	YVR Airport Services Ltd - in 2004, acquired the 10% stake of San Francisco International Airport in the InterAirports consortium which manages four airports in Honduras.
	Jamaica	YVR Airport Services Ltd won a 30-year contract to develop, manage and operate Sangster International Airport, Montego Bay/Jamaica together with Agunsa, Dragados and Ashtrom (an Israel-based construction company that has been working in Jamaica for over 30 years).
	Malta	SNC-Lavalin Investment owns 38.75% of Malta Mediterranean Link Consortium Ltd (MML), which manages Malta International Airport plc.
	New Zealand	YVR Airport Services Ltd won a management and development contract for Rarotonga International Airport in the Cook Islands.
	Oman	YVR Airport Services Ltd is providing consultancy in Oman.
	Romania	Intelcan Technosystems Inc. will build a US\$100 million international airport in Ghimbav, Brasov County in Romania, under a public-private partnership with Romanian authorities.
	Russia	YVR Airport Services Ltd is providing consultancy in Russia.
	Thailand	YVR Airport Services Ltd is providing consultancy in Thailand.
	Turks & Caicos Islands	YVR Airport Services Ltd won a 15-year contract to manage the new terminal and carpark of Providenciales International Airport in the Turks & Caicos Islands.
	United Kingdom	YVR Airport Services Ltd manages Bermuda International Airport.
	Uruguay	The CAISA Consortium has a 20-year concession agreement with the Government of Uruguay to develop, manage, and operate the Punta del Este International Airport. Partners in CAISA are: Compañía Oriental de Transporte S.A. of Uruguay; London Supply S.A.C.I.F.I. of Argentina; Norlit S.A. of Uruguay; International Finance Corporation of the World Bank; and PAXPORT Laguna Inc. of Canada.
<b>CHILE</b>		
	Chile	Agencias Universales S.A (AGUNSA) Partner in the SCL Terminal Aéreo Santiago consortium, formed together with Sabco Administrador de Fondos de Inversión S.A. of Chile (13%), Grupo Dragados of Spain (30% with FCC), and YVRAS holding 10%. AGUNSA holds a 47% stake.
	Jamaica	AGUNSA holds 35% of the MBJ Airports consortium which has won a 30-year concession to develop Sangster International Airport, Montego Bay/Jamaica. The consortium also includes YVR Airport Services Ltd (15%), Ashtrom Group Ltd (15%), and Dragados Concesiones de Infraestructuras S.A. (35%).
<b>CHINA</b>		
	China	Hainan Airlines owns 68% of Haikou-Meilan International Airport Company which it manages.  Hainan Airlines signed a contract for the development and operation of the airport of Kalamayi City/Xinjiang.



Origin of airport investor/manager	Country of operation	Activities
<b>DENMARK</b>		
	China	Copenhagen Airports International A/S signed an agreement with Hainan Meilan Airport Company Ltd in China to buy 20% of that company's shares.
	Denmark	Copenhagen Airports International A/S operates the Copenhagen-Kastrup and Roskilde airports.
	Mexico	Copenhagen Airports International A/S is a partner in the Tribasa consortium (which won the 50-year concession contract for nine airports in Mexico's south-eastern, Yucatan region) through its 36.5% equity stake in ITA S.A. (Inversiones y Tecnicas Aeroportuarias S.A. de C.V. - ITA), which held 15% of Grupo Aeroportuario del Sureste S.A. (ASUR) and a 2.5% direct equity interest in ASUR.
	Norway	Copenhagen Airports International A/S temporarily bought a 36.7% share in Rygge Sivile Lufthavn A/S in Norway and plans to convert the Rygge military airfield 60 km south of Oslo into a civil airport together with the Norwegian conglomerate Orkla.
	United Kingdom	Copenhagen Airports International A/S in May 2001 acquired a 49% stake in Newcastle Airport in the U.K. (NIAL Holdings Plc) through CPH Newcastle Ltd (a wholly-owned holding company).
<b>DOMINICAN REPUBLIC</b>		
	Dominican Rep.	Corporación Aeroportuaria del Este operates Punta Cana International Airport (PUJ) in the Dominican Republic.
<b>EGYPT</b>		
	Egypt	Kato Investment Group is developing the new El Alamein Airport in Egypt on a BOT basis.  World Investment Group will develop the Farafira Oasis and Al Bahria Oasis airports in Egypt under BOT projects together with ABB.
<b>FRANCE</b>		
	Belgium	ADP Management acquired a 25% stake in SAB S.A., the operating company of Liège Airport in Belgium, specializing in air freight and charter flights.
	Cambodia	Aéroports de Paris Management operates Phnom Penh-Pochentong and Siem Reap in Cambodia under a 25-year contract as a majority partner (60%) of CAMS, which also provides ground-handling services at the airports.  In airport management, VINCI Airports holds a participation in concessions in Cambodian airports (SCA), via ADP Management and in the operation of the Phnom Penh and Siem Reap in Cambodia through CAMS.
	Cameroon	Aéroports de Paris Management has a 35% stake in Aéroports du Cameroun (ADC), which manages three international and four provincial airports in Cameroon.  In airport management, VINCI Airports holds a participation in concessions via ADP Management in airports in Cameroon.
	China	Aéroports de Paris Management owns 6.6% of the shares of Beijing Capital International Airport (BCIA).
	Egypt	Aéroports de Paris Management is manages and operates Mersa Alam Airport in Egypt since October 2001.  In airport management, VINCI Airports holds a participation in concessions in via ADP Management, in airports of Egypt Marsa Alam airport.
	Gabon	SEGAP holds a 34.7% stake in ADL (S.A. Aéroport de Libreville), which operates Libreville Airport.
	Guinea	Aéroports de Paris Management is a partner in SOGEAC (29% stake) which runs Conakry Airport in Guinea under a five-year concession and Kan Kan Airport.  VINCI Airports holds a participation in concessions via ADP Management in airports in Guinea.

Origin of airport investor/manager	Country of operation	Activities
	France	<p>Aéroports de Paris owns and operates 14 airports and airfields in the Paris region.</p> <p>Keolis manages the new Angers-Marcé Airport and the La Mole airfield near St. Tropez in France; provides ground transport services at a number of French airports; manages Grenoble Airport and Chambéry/Aix les Bains Airport in France in joint venture with Vinci Airports since 2004.</p> <p>Lyon CCI/Airport manages the two Lyon airports, Satolas/"Exupéry" (international) and Bron (general aviation).</p> <p>VINCI Airports manages Grenoble Airport and Chambéry/Aix les Bains Airport in France in joint venture with Keolis Group since 2004.</p> <p>VINCI Airports acquired SEN's ground handling activities at French airports in 2002.</p>
	Indonesia	Together with ADP, Groupe GTM, France (owned by VINCI since 2000) was a joint bidder for up to 49% of the shares of a yet-to-be privatized Sukarno-Hatta International Airport, Jakarta/Indonesia.
	Ivory Coast	SEGAP holds a 35% stake in AERIA (Aéroport International d'Abidjan S.A.), which operates Abidjan Airport.
	Madagascar	<p>Aéroports de Paris Management holds a 34% stake in Aéroports de Madagascar (ADEMA), which manages twelve airports in Madagascar.</p> <p>VINCI Airports holds a participation in concessions via ADP Management in airports in Madagascar.</p>
	Mexico	<p>In airport management, VINCI Airports holds a participation in concessions in Mexico Centro Norte (OMA) through SETA (Servicios de Tecnología Aeroportuaria).</p> <p>Aéroports de Paris Management is an operating partner with a 25.5% stake in Mexico's Grupo Centro Norte airport privatization through Operadora Mexicana de Aeropuertos (OMA), together with Constructoras ICA (37.25%) and investor VINCI SA (37.25%). ICA is reducing its stake by 11.5% to the benefit of ADP.</p>
<b>GERMANY</b>		
	Australia	<p>Fraport AG acquired a 1% stake in Brisbane Airport Corporation Ltd (BACL).</p> <p>Hochtief AirPort GmbH owns 10.5% of the Southern Cross consortium, led by Australia's investment bank Macquarie Bank Ltd, which acquired Sydney Airport Corporation via the Southern Cross Airports Corporation Holdings Limited - SCACH in 2002.</p>
	China	Lufthansa Cargo has a 29% stake in a consortium building and is operating a cargo terminal at Shanghai's new Pudong International Airport.
	Germany	<p>Fraport AG holding holds a 20% stake in Flughafen Hannover GmbH; a 74.9% of holding Unternehmen Hahn, the airport's holding company; a 51% stake in the Saarbrücken Airport operating company; a minority stake in the FAL cargo handling company at Leipzig/Halle Airport.</p> <p>GlobeGround Berlin GmbH provides ground handling services at the Berlin airports, at Munich and -temporarily - through a subsidiary, at Niederrhein Airport in Germany.</p> <p>Düsseldorf Airport is a majority-shareholder (70.03%) in Flughafen Mönchengladbach GmbH (Mönchengladbach Airport), which it runs as Düsseldorf Express Airport.</p> <p>Hochtief Airport AirPort GmbH purchased a 50% stake in the Düsseldorf Airport company FDG together with Aer Rianta of Ireland (their joint-venture company Airport Partners GmbH is owned 60% by Hochtief and 40% by Aer Rianta International plc), giving Hochtief a 30% stake. FDG in turn owns 70.03% of Flughafen Mönchengladbach GmbH; owns 49% of the privatized Hamburg Airport company together with Aer Rianta (the joint-venture Hamburg Airport Partners GmbH is owned 80% by Hochtief, 20% by Aer Rianta International plc), giving Hochtief a 39.2% stake.</p> <p>Baden Airpark GmbH owns Karlsruhe/Baden-Baden Airport, an ex-Canadian air base in the upper Rhine valley.</p>



Origin of airport investor/manager	Country of operation	Activities
	Greece	Fraport AGs holds a stake in Goldair Aviation Handling in Athens/Greece Provides advisory services for Athens International Airport S.A. at the new Athens airport (through FASP - Flughafen Athen-Spata Projektgesellschaft mbH which holds a 0.125% stake in AIA S.A).  Hochtief AirPort GmbH owns 39.94% of Athens International Airport S.A., the operator of the new Athens International Airport at Spata.
	Kenya	Fraport AG holds a 10% stake in African Cargo Handling Ltd of Nairobi.
	Latvia	GlobeGround Berlin GmbH built, operates and owns a cargo terminal at Riga International Airport in Latvia.
	Peru	Fraport AG holds 42.75% in a consortium that was awarded a 30-year concession to develop and operate Lima's Jorge Chavez International Airport in Peru along with consortium partner Bechtel Enterprises International Ltd (57.25%).
	Spain	Hochtief AirPort GmbH leads the Airport Partners Tirana consortium in Albania which has won a 20-year concession to develop and operate Tirana-Rina 'Mother Teresa' International Airport.  Fraport AG is handling contracts at seven Spanish airports through Ineuropa Handling U.T.E. in which Fraport has a 20% stake.
	Turkey	Fraport AG operates the new terminal at Antalya Airport/Turkey under an 8-year concession agreement in joint venture (50:50) with Bayindir Holding.
	United Arab Emirates	Fraport AG has been providing management assistance at Sharjah International Airport since the 1970s.
	United States	Hochtief AirPort GmbH is a partner in the South Suburban Airport Coalition with LCOR Holdings that is planning a Chicago-area airport. Fraport AG is a partner in the Aguadilla Consortium for Transportation (ACT), which has won the operating and development contract for Aguadilla 'Rafael Hernandez' International Airport.
<b>HONG KONG, CHINA</b>		
	Bahamas	Hutchison Port Holdings owns Grand Bahama Airport jointly with the Grand Bahama Airport Authority and has management control.
	China	Airport Authority of Hong Kong To take a 35% share in China's tenth largest airport of Hangzhou Xiaoshan International Airport, for CNY 1.99 billion (US\$240 million).
<b>HUNGARY</b>		
	Hungary	Budapest Ferihegy International Airport Operating Plc. manages Siófok-Kiliti-Ságvár Airport, a general aviation airfield 120 km from Budapest.  Cape Clear Aviation rents Balaton Airport - Sármellék for 99 years since 2003. Fly Balaton is co-owned by the municipalities of Sármellék and neighbouring town Zalavár.
<b>INDIA</b>		
	India	Air-India holds a 5% stake in Cochin International Airport Ltd in India. Bharat Petroleum holds a minority stake in Cochin International Airport Ltd in India.
	Mauritania	Bharat Petroleum partner in SAM (Société des Aéroports de Mauritanie), holding 5%; other shareholders are Air Mauritanie, ASECNA, Air Afrique, and the Government of Mauritania, each holding 10%.
	Togo	Bharat Petroleum Partner in SALT (Société Aéroportuaire de Lomé-Tokoin), the operator of Lomé-Tokoin Airport in Togo.

Origin of airport investor/manager	Country of operation	Activities
<b>IRELAND</b>		
	Bahrain	Aer Rianta International (ARI) has duty-free operating and management contracts at airports in Bahrain.
	Canada	Aer Rianta International (ARI) has duty-free operating and management contracts at airports in Canada/Montreal-Dorval and Mirabel.
	Germany	Aer Rianta owns 49% of the privatized Hamburg Airport company together with Hochtief; 40% stake in the Airport Partners GmbH joint venture with Hochtief at Düsseldorf Airport.
	Greece	Aer Rianta International (ARI) has duty free operating and management contracts at airports in Larnaca and Paphos.
	Hungary	Cape Clear Aviation rents Balaton Airport - Sármellék for 99 years since 2003. Fly Balaton is co-owned by the municipalities of Sármellék and neighbouring town Zalavár.
	Ireland	Connaught Airport Development Co. Ltd operates Knock International Airport in Co. Mayo. Aer Rianta owns and operates three Irish airports (Dublin, Shannon, and Cork). AER Arann owns the Connemara-Inverin regional airport.
	Kuwait	Aer Rianta International (ARI) has duty-free operating and management contracts at airports in Kuwait.
	Lebanon	Aer Rianta International (ARI) has duty-free operating and management contracts at airports in Beirut.
	Russia	Aer Rianta International (ARI) has duty-free operating and management contracts at airports in Russia/Moscow and St Petersburg.
	Syria	Aer Rianta International (ARI) has duty-free operating and management contracts at airports in Damascus.
	Ukraine	Aer Rianta International (ARI) has duty-free operating and management contracts at airports in Ukraine/Kiev.
	United Kingdom	Aer Rianta holds a 48.25% stake in Birmingham International Airport. IIU Ltd owns and operates London City Airport, Ltd.
<b>ISRAEL</b>		
	Israel	Arkia Israeli Airlines owns and operates the civil part of Ovda Airport, 40 km north of Eilat.
	Jamaica	Dragados y Construcciones S.A., together with YVRAS, AGUNSA, and Ashtrom (an Israel-based construction company that has been working in Jamaica for over 30 years) won a 30-year contract to develop, manage and operate Sangster International Airport, Montego Bay.



Origin of airport investor/manager	Country of operation	Activities
<b>ITALY</b>		
	Argentina	SEA SpA - Milan Airports acquired 32 airports in Argentina as a member of the Aeropuertos Argentinos 2000 S.A. consortium (28% stake) in 1999.
	Dominican Republic	Impregilo SpA Partner in the 'Aeropuertos Dominicanos Siglo XXI, S.A.' consortium that manages four airports in the Dominican Republic.
	Italy	<p>Catullo SpA operates the Verona-Villafranca and Brescia-Montechiari airports in northern Italy.</p> <p>Piaggio Aero Industries owns 13% of Società Aeroporto Toscano (SAT), the operator of Pisa Airport in Italy.</p> <p>Aeroporti di Roma SpA owns and operates the Rome airports Fiumicino and Ciampino; acquired the Alitalia stake (15%) in Aeroporti di Genova SpA (Genoa Airport) and a 16.6% stake in SACAL SpA (Lamezia Terme Airport, Calabria).</p> <p>SEA SpA owns and operates the two Milan airports, Linate and Malpensa, as well as Bergamo-Orio Airport; owns 5% of GESAC, the operator of Naples Airport, and 0.96% of SAGAT, the operator of Turin Airport; acquired a 12.534% stake in Aeradria, the operating company of Rimini Airport, from Alitalia.</p> <p>Edizione Holding holds a 24% stake in SAGAT Turin Airport S.p.A. together with Nuova Holding Subalpina SpA, SAB SpA, and AviaPartner (combined stake of 41.33%), Municipality of Turin (38.0%), Piedmont Region (8.0%), Province of Turin (5.0%), Chamber of Commerce of Turin (4.71%), Sicind of the Fiat Group (2.0%), and SEA SpA - Milan Airports (0.96%); has a 29% holding in SAF SpA, the company which manages Florence airport.</p> <p>SAVE S.p.A., the operator of Venice Airport, owns 45% of the Treviso airport company and holds a stake in the Padua airport company.</p> <p>Bologna Airport (SAB) owns about 60% of SEAF, the operator of Forlì Airport.</p> <p>Aeroporti Holding S.r.l. holds a 29% stake in Aeroporto di Firenze (ADF).</p>
	South Africa	Aeroporti di Roma SpA won the tender for South African airports and owns 69% of ADR International Airports South Africa (Pty) Ltd, which in turn holds 20% of ACSA (Airports Company South Africa Ltd).
<b>LUXEMBOURG</b>		
	Switzerland	TAG Aviation SA operates the Prangins/VD general aviation airfield near Geneva.
	United Kingdom	TAG Aviation SA manages and develops the former Ministry of Defence aerodrome at Farnborough, Hampshire into a business aviation centre, 35 miles from Central London, under a conditional leasing agreement. The Farnborough airfield was officially handed over to TAG Aviation on 5 February 2003.
<b>MALAYSIA</b>		
	Cambodia	Malaysia Airports Bhd holds a 40% stake in CAMS which operates Phnom Penh-Pochentong Airport in Cambodia.
	Malaysia	Malaysia Airports Bhd operates 21 airports in Malaysia.
	South Africa	Penampang Group manages and develops Pietersburg's Gateway International Airport in Northern Province/South Africa, a former air force base, under a 50-year concession since 2002.
<b>MEXICO</b>		
	Chile	<p>AGUNSA - Agencias Universales S.A Partner in the SCL Terminal Aéreo Santiago consortium, formed together with Sabco Administrador de Fondos de Inversión S.A. of Chile (13%), Grupo Dragados of Spain (30% with FCC), and YVRAS holding 10%.</p> <p>Agunsa holds a 47% stake.</p>
	Dominican Rep.	Corporación Aeroportuaria del Este operates Punta Cana International Airport (PUJ) in the Dominican Republic.

Origin of airport investor/manager	Country of operation	Activities
	Mexico	<p>ICA (Ingenieros Civiles Asociados) partner (37.25%) in Operadora Mexicana de Aeropuertos (OMA), together with ADP 25.5% and investor VINCI SA (37.25%), both of France, which operates Mexico's privatized Grupo Centro Norte airports.</p> <p>Unión Fenosa is a Member of Grupo Aeroportuario del Pacífico (GAP) with operates the Pacific airports in Mexico, the other partners being AENA, Dragados, and the Angeles Group; the operating company is called 'Aeropuertos Mexicanos del Pacífico, S.A.'</p> <p>The Tribasa consortium had won the 50-year concession contract for nine airports in Mexico's south-eastern region.</p> <p>Aeropuertos Sureste (ASUR), together with three other partners: Copenhagen Airports A/S, Cintra of Spain, and GTM of France (now VINCI). The nine south-eastern airports are: Cancún, Cozumel, Huatulco, Mérida, Minatitlán, Oaxaca, Tapachula, Veracruz, and Villahermosa.</p> <p>In airport management, VINCI Airports holds a participation in concessions in Mexico Centro Norte (OMA) through SETA (Servicios de Tecnología Aeroportuaria) - 13 airports, Mexico South East (ASUR*).</p> <p>Ángeles Group is a leading partner of the consortium, which won a concession for the Grupo Aeroportuario del Pacífico (GAP) package of Pacific airports in Mexico, the other partners being AENA Internacional, Unión Fenosa, and Dragados; the operating company is called 'Aeropuertos Mexicanos del Pacífico, S.A.'</p>
<b>NEW ZEALAND</b>		
	Australia	Infratil NZ Ltd holds through Infratil Australia Ltd, a 49.5% stake in Airstria Development Group, which manages Perth Airport, and 51% in Airport Development Group (ADG), now Northern Territory Airports (NTA), which manages Alice Springs, Darwin and Tennant Creek in Australia; partnered with AGI (now TBI) in these projects.
	New Zealand	Infratil NZ Ltd holds a 66% stake in Wellington Int. Airport Ltd (WIAL) through NZ Airports, wholly owned by Infratil New Zealand Ltd.
	United Kingdom	IAEL acquired 90% of Glasgow Prestwick International Airport in Scotland as a member of a consortium also comprising Omniport, which remained a minority shareholder until December 2003, and Specialist Utilities Investment Trust, who between them own the remaining 10%.
<b>OMAN</b>		
	Oman	<p>Oman Aviation Services owns 5% of OAMC (Oman Airports Management Company), which manages the Seeb and Salalah airports.</p> <p>Bahwan Trading Co., owns 35% of OAMC (Oman Airports Management Company), which manages the Seeb and Salalah airports.</p>
<b>PERU</b>		
	Peru	Cosapi S.A. Ingeniería y Construcción is a local partner, which held 14.5% in a consortium that was awarded a 30-year concession to develop and operate Lima's Jorge Chavez International Airport in Peru along with consortium partner Alterra Partners/Bechtel Enterprises International Ltd (42.75%) and Fraport AG (42.75%); has sold its stake to Alterra.
<b>POLAND</b>		
	Poland	<p>Polish Airports State Enterprise (PPL) operates Mazury Airport at Szymany in Poland Poland through Port Lotniczy Mazury S.A.</p> <p>The Military Property Agency (AMW) and Polish Airports State Enterprise (PPL) jointly own the Modlin military airfield.</p>
<b>PORTUGAL</b>		
	Portugal	Aeroportos de Portugal owns and operates three mainland and four island airports (Lisbon, Porto, Faro, Ponta Delgada, Flores, Horta, and Santa Maria) in Portugal; owns 70% of the Madeira (Funchal) airport operator ANAM.





Origin of airport investor/manager	Country of operation	Activities
<b>SINGAPORE</b>		
	China	Singapore Airport Terminal Services (Pte) Ltd has a joint venture in Beijing/China since 1995, Beijing Aviation Ground Services (BGS).
	Costa Rica	Alterra Partners Costa Rica won a 20-year management and development concession for San José's Juan Santamaria International Airport in Costa Rica, together with a group of companies including Bechtel Enterprises, AGI, Cormar, Agencia Datsun, Singapore Changi Airport Enterprise, and Edica Ltda. Alterra holds 85% of the consortium; owned 50% each by Bechtel and SCAE/Singapore.
	Hong Kong, China	Singapore Airport Terminal Services (Pte) Ltd Has a 24.5% stake in Asia Airfreight Terminal Co Ltd (AAT), Hong Kong International Airport.
	New Zealand	SCAE, Singapore (Singapore Changi Airport Enterprise Pte Ltd) acquired a 7.14% stake in Auckland International Airport in New Zealand.
	Peru	Alterra Partners, UK (owned 50% each by Bechtel and SCAE/Singapore) holds a 57.25% interest in a 30-year concession to operate and develop Jorge Chavez International Airport, Lima/Peru with partner Fraport AG holding 42.75%; a local contractor Cosapi S.A. held 14.50% initially and sold out to Alterra.
	The Netherlands	Alterra Partners, UK (owned 50% each by Bechtel and SCAE/Singapore) signed a 30-year concession agreement in late 2002 to develop Hato International Airport in Curaçao/Netherlands Antilles together with consortium partners Trabajos Industriales y Mecanicos from Venezuela, and Janssen de Jong Caribbean from the Netherlands Antilles.
	Viet Nam	Singapore Airport Terminal Services (Pte) Ltd has a 30% stake in Tan Son Nhat Cargo Services Ltd (TCS), Ho Chi Minh City/Vietnam.
<b>SPAIN</b>		
	Australia	Aeropuertos provided 19.6% of the equity of the Southern Cross consortium (Southern Cross Airports Corporation Holdings Limited - SCACH), led by Australia's investment bank Macquarie Bank Ltd, which acquired Sydney Airport Corporation in 2002. The stake has been increased to 20.68% in the meantime.
	Belgium	FCC Agua y Entorno Urbano acquired the ground-handling activities of Sabena at Brussels Airport.
	Bolivia	Airport Concessions & Development Ltd acquired a 92.88% stake in TBI plc and its airport portfolio in 2004. TBI PLC owns and operates in Bolivia by acquiring AGI (La Paz, Santa Cruz Cochabamba) Airports.  Group International, Inc. (AGI) won a contract for three airports in Bolivia and formed SABSA (Servicios de Aeropuertos Bolivianos) to manage, operate, and maintain the La Paz-El Alto, Cochabamba and Santa Cruz airports for a period of 25 years.
	Canada	Airport Concessions & Development Ltd acquired a 92.88% stake in TBI plc and its airport portfolio in 2004. TBI PLC manages, either totally or partially for the account governments or local authorities airports in Toronto in Canada.
	Chile	Ferrovial Aeropuertos is the winner of the Antofagasta Airport/Chile concessions.  Dragados y Construcciones S.A. is a member of the consortium, which operates the international terminal at Santiago de Chile's Arturo Benitez International Airport.  FCC Agua y Entorno Urbano is a partner in the SCL Terminal Aéreo Santiago consortium, formed together with Agencias Universales S.A. (Agunsa: 47%) and Sabco Administrador de Fondos de Inversión S.A. of Chile (13%), Grupo Dragados of Spain (30% with FCC), with YVRAS holding 10%.
	Colombia	AENA Internacional (Aeropuertos EspaXoles y Navegación Aérea) was awarded a contract to manage Cali Airport in Colombia as partner of the Aerocali S.A. consortium in which it holds a 33.34% share; handles the former Schiphol involvement in Cartagena Airport/Colombia through Sociedad Aeroportuaria de la Costa, S.A. (SACSA), in which it has a 38.08% holding as an operating partner; owns 40% of Aeropuertos del Caribe S.A. (ACSA), which manages Barranquilla Airport in Colombia.  Dragados y Construcciones S.A. manages the second runway at Bogotá's Eldorado Airport in Colombia.

Origin of airport investor/manager	Country of operation	Activities
	Cuba	AENA Internacional (Aeropuertos EspaXoles y Navegación Aérea), manages the new international airport near Cayo Coco in Cuba under a five-year contract.
	Dominican Republic	AENA Internacional (Aeropuertos EspaXoles y Navegación Aérea) involved in building a new airport at Samaná.
	Jamaica	Dragados y Construcciones S.A., together with YVRAS, AGUNSA, and Ashtrom (an Israel-based construction company that has been working in Jamaica for over 30 years) won a 30-year contract to develop, manage and operate Sangster International Airport, Montego Bay.
	Mexico	<p>Dragados y Construcciones S.A. owns 29% of the Mexican-Spanish consortium which acquired a 15% stake in Grupo Aeroportuario del Pacifico (GAP) package of Pacific airports in Mexico. The other partners being AENA, Unión Fenosa, and the Angeles Group (Inversora del Noroeste and Holdinmex). The operating company is called 'Aeropuertos Mexicanos del Pacifico, S.A.'</p> <p>Ferrovial Aeropuertos owns 24.5% of the Tribasa consortium, which won the concession for Mexico's nine south-eastern airports - Aeropuertos SuresteASUR (Cancún, Cozumel, Huatulco, Mérida, Minatitlán, Oaxaca, Tapachula, Veracruz, and Villahermosa), the three other partners are Copenhagen Airports A/S, Grupo Tribasa (Mexican contractors), and GTM of France.</p> <p>AENA Internacional (Aeropuertos EspaXoles y Navegación Aérea) owns 25.5% of the Mexican-Spanish consortium, which acquired a 15% stake in Grupo Aeroportuario del Pacifico (GAP) package of 12 Pacific airports in Mexico (the operating company is called 'Aeropuertos Mexicanos del Pacifico, S.A. - AMP), the other partners being Unión Fenosa, Dragados Industrial, and Mexico's Angeles Group (Inversores del Noroeste and Holdinmex).</p>
	United Kingdom	<p>Airport Concessions &amp; Development Ltd acquired a 92.88% stake in TBI plc and its airport portfolio in 2004. TBI PLC owns and operates Cardiff-Wales and took control of London Luton and Cardiff-Wales (since 1995).</p> <p>Ferrovial Aeropuertos acquired the 51% stake in Bristol International Airport from FirstGroup together with Macquarie.</p> <p>Ferrovial Aeropuertos acquired all the shares of Belfast City Airport, Northern Ireland.</p>
	United States	<p>Ferrovial Aeropuertos is the winner of the Niagara Falls Airport/US concessions.</p> <p>Airport Concessions &amp; Development Ltd acquired a 92.88% stake in TBI plc and its airport portfolio in 2004. TBI PLC owns Central Florida Terminals and operates Orlando Sanford International airport.</p>
<b>SOUTH AFRICA</b>		
	South Africa	<p>Primkop Airport Management manages the new Kruger Mpumalanga International Airport in South Africa.</p> <p>ACSA manages Pilanesberg Airport (since 1998) and Sun City in addition to its own nine airports (including Johannesburg and Cape Town).</p>
<b>SWEDEN</b>		
	Sweden	Kallax Cargo AB acquired the Luleå-Kallax air base in northern Sweden for development into an international cargo centre. Kallax Cargo AB controls land and landing rights.



Origin of airport investor/manager	Country of operation	Activities
<b>SWITZERLAND</b>		
	Chile	IDC S.A. operates the Puerto Montt, Serena and Calama airports in Chile in joint venture with Unique Zurich Airport.
	Egypt	ABB Equity Ventures leads a team for the BOT project of a new passenger terminal at Sharm el-Sheikh Airport in Egypt.
	Oman	ABB Equity Ventures owns 15% of OAMC (Oman Airports Management Company), which manages the Seeb and Salalah airports.
	South Africa	ABB Equity Ventures led a consortium which built the Kruger Mpumalanga International Airport in South Africa, which is owned and operated by ABB through its specialist airport management company.
	Switzerland	Unique (Flughafen Zürich AG) operates Zürich Airport. Alpar AG owns and operates Bern Airport since 1985. The Dutch investor Rinse Strikwerda owns St. Gallen/Altenrhein Airport in Switzerland through Airport Altenrhein AG (100%).
<b>THAILAND</b>		
	Thailand	Bangkok Airways operates Samui International Airport, Sukhothai Airport, and Trat Airport under 20-year lease agreements.
<b>THE NETHERLANDS</b>		
	Australia	Deutsche Asset Management owns 25% of APAC. APAC (Australia Pacific Airports Consortium) owns and operates Melbourne-Tullamarine International Airport as well as 90% of Launceston Airport.  Through its Schiphol International division, Schiphol is a partner in the management companies of Brisbane Airport in Australia (15.62% stake in BACL, which has a 50-year lease).
	Austria	Schiphol Group holds a 1% stake in Vienna International Airport plc. Vienna International Airport manages Vöslau.
	Hungary	Schiphol Group holds a 1% stake in Vienna International Airport plc. Vienna International Airport part-owns Budaörs.
	Indonesia	Schiphol Group has a joint venture with Angkasa Pura II/Indonesia (nine airports) to introduce a passenger loyalty programme based on iris identification at Indonesian airports and seaports.
	Malta	Schiphol Group holds a 1% stake in Vienna International Airport plc. Vienna International Airport owns 57.1% of Malta Mediterranean Link Consortium Ltd (MML), which holds 40% of Malta International Airport plc and manages the airport. The stake gives VIE a 22.8% share in Malta International Airport plc.
	The Netherlands	Schiphol Group owns and operates the Amsterdam-Schiphol, Rotterdam and Lelystad airports, and acquired a 51% stake in Eindhoven Airport, all in the Netherlands. Since 2004, has a 7-year contract to assist the management of Aruba's Reina Beatrix Airport in the Netherlands Antilles.  Alterra Partners signed a 30-year concession agreement in late 2002 to develop Hato International Airport in Curaçao/Netherlands Antilles together with consortium partners Trabajos Industriales y Mecanicos from Venezuela, and Janssen de Jong Caribbean from the Netherlands Antilles.
	Switzerland	The Dutch investor Rinse Strikwerda owns St. Gallen/Altenrhein Airport in Switzerland through Airport Altenrhein AG (100%).
	United States	Schiphol Group manages the International Air Terminal at JFK International, New York through Schiphol USA LLC (40% stake in JFKIAT) with partners LCOR Inc. and Lehman Brothers.

Origin of airport investor/manager	Country of operation	Activities
<b>TURKEY</b>		
	Egypt	TAV - Tepe Akfen Ventures won the contract in late 2004 to build Cairo Airport's Terminal 3.  Kato Investment Group is developing the new El Alamein Airport in Egypt on a BOT basis.
	Turkey	Airport Management & Aeronautical Industries Inc. built and operates the new Sabiha Gökçen International Airport in Istanbul as part of the Advanced Technology Industrial Park (ATIP) project developed by the Ministry of Defence's Under Secretariat of Defence Industries.  Bayindir Holding operated the new terminal at Antalya Airport/Turkey under an 8-year concession agreement in joint venture with Fraport AG.  TAV - Tepe Akfen Ventures operates Istanbul Airport since January 2000, after having built the new passenger terminal and a parking garage; is building the new domestic and international terminal at Ankara-Esenboga Airport under a BOT project and operating it for 15 years and 8 months.
<b>UNITED KINGDOM</b>		
	Argentina	Ogden Aviation (taken over by Menzies in the U.K.) is a partner in the Aeropuertos Argentina 2000 S.A. consortium that purchased 32 Argentinean airports (28%).
	Australia	BAA owns 19.8%, of APAC (Australia Pacific Airports Consortium) owns and operates Melbourne-Tullamarine International Airport as well as 90% of Launceston Airport.  BAA owns a stake in Perth, Darwin, Alice Springs, Tennant Creek.  PlaneStation Group plc held an operating licence for the international terminal of Melbourne Airport.  Westralia Airports Corp. the owners of Westralia are Hasting.  Funds Management (85%) and BAA (15%) operates Perth International Airport manages Christmas Island International Airport and Cocos (Keeling) Island Airport.  The Manchester Airports Group (MAG) manages the Adelaide and Parafield airports in Australia owned by the Adelaide Airport Ltd consortium, together with Serco Asia Pacific, under a 50-year lease started in 1998.  Serco Aviation through Serco Asia Pacific partner in the Adelaide Airport Ltd consortium, together with Manchester Airport plc.  Macquarie Airports Group Ltd (MAG) acquired 11.7% of the Southern Cross consortium (Southern Cross Airports Corporation Holdings Limited - SCACH), which acquired Sydney Airport Corporation in 2002.  Laing Investments Ltd holds: equity (14.5%) in the Adelaide Airport Ltd consortium, which owns the Adelaide and Parafield airports in Australia 14.55% in Northern Territories Airports by acquiring the 29.1% TBI plc (ex-AGI) holding in Darwin, Alice Springs and Tennant Creek together with National Australia Asset Management.
	Bolivia	Airport Group International, Inc. (AGI) won a contract for three airports in Bolivia and formed SABSA (Servicios de Aeropuertos Bolivianos) to manage, operate, and maintain the La Paz-El Alto, Cochabamba and Santa Cruz airports for a period of 25 years.
	China	AGI owns a stake in Haikou-Meilan Int. Airport in Hainan.
	Colombia	Ogden Aviation BOT is a partner in runway consortium at Bogotá Airport.
	Costa Rica	AGI won a 20-year concession to manage San José International Airport in Costa Rica together with local partners.  Alterra Partners Costa Rica won a 20-year management and development concession for San José's Juan Santamaria International Airport in Costa Rica, together with a group of companies including Bechtel Enterprises, AGI, Cormar, Agencia Datsun, Singapore Changi Airport Enterprise, and Edica Ltda. Alterra holds 85% of the consortium (owned 50% each by Bechtel and SCAE/Singapore).



Origin of airport investor/manager	Country of operation	Activities
	Dominican Rep.	Ogden Aviation is a managing partner in the 'Aeropuertos Dominicanos Siglo XXI, S.A.' consortium that manages four airports in the Dominican Republic: Santo Domingo ('Las Americas'), Puerto Plata ('Gregorio Luperón'), Samaná ('Arroyo Barril'), and Barahona ('Maria Montez').
	Germany	PlaneStation Group plc had acquired Lahr 'Black Forest Airport' in Germany.
	Italy	BAA International holds a 65% stake in GESAC, the Naples/Italy airport company. City Hopper Airports Ltd operates Biella Airport in northern Italy since 1 September 2004 under a 25-year concession.
	Macao, China	Ogden Aviation Managing partner (29%) in the MASC-Ogden ground-handling joint venture at Macau International Airport.
	Norway	Omniport plc. has successfully completed an arrangement with Norfolk County Council and Norwich City Council to acquire Norwich International Airport.
	Peru	Alterra holds a 57.25% interest in a 30-year concession to operate and develop Jorge Chavez International Airport, Lima/Peru with partner Fraport AG holding 42.75%.
	Panama	Ogden Aviation manages the fuel facilities at Tocumen International/Panama.
	Sweden	TBI plc. owns and operates Stockholm Skavsta.
	Tanzania	Mott MacDonald Group is a majority stakeholder (75%) of Kilimanjaro Airports Development Company (KADCO), operated under a 25-year concession together with Inter-Consult of Tanzania and the Tanzania Government.
	United Kingdom	<p>TBI PLC owns and operates Cardiff-Wales and took control of London Luton and Cardiff-Wales (since 1995).</p> <p>PlaneStation Group plc was the owner of the Kent International (Manston) Airport and developed it as London-Manston Airport.</p> <p>Serco Aviation manages Newquay Cornwall International Airport under contract.</p> <p>Regional Airports Ltd owns and operates Southend Airport (London Express Airport) and London Biggin Hill Airport. RAL operates as a holding company for subsidiary airport operations. Regional Airports Ltd also operates Northolt Handling, the Premier Service passenger handling service for commercial flights at RAF Northolt.</p> <p>Air Wales acquired Swansea Airport in Wales from Martin &amp; Louisa Morgan. TBI Airport Holdings Ltd owned and operates Belfast International in Northern Ireland (since 1996).</p> <p>BAA International owns and operates seven UK airports.</p> <p>City Hopper Airports Ltd operates Wolverhampton Airport; acquired Blackpool Airport together with MAR Properties Ltd in 2004.</p> <p>BAE Systems plc owns the Filton company airfield near Bristol.</p> <p>IAEL acquired 90% of Glasgow Prestwick International Airport in Scotland; took over Kent International Airport.</p> <p>The Manchester Airports Group (MAG) acquired an 82.7% stake in the former municipally-owned Humberside Airport; acquired the East Midlands (now: Nottingham East Midlands) and Bournemouth airports; owns the operating companies Manchester Airport Plc., Manchester Airport Development Ltd, Manchester Airport Aviation Services, and Ringway Handling Services Ltd.</p> <p>Peel Airports Ltd owns 76% of Liverpool's 'John Lennon Airport' after having acquired British Aerospace (Liverpool Airport) Ltd in 1997; acquired the Doncaster-Finchingly RAF station in South Yorkshire, which has been transformed into the regional 'Robin Hood Airport' (Doncaster/Sheffield); owns 50% of Sheffield City Airport Ltd became a strategic partner of Teesside International Airport by acquiring a majority stake in 2003; now called 'Durham Tees Valley Airport'.</p> <p>Sutton Harbour Holdings plc purchased Plymouth City Airport Ltd. together with the management contract for Newquay Cornwall Airport from British Airways in April 2000.</p> <p>Macquarie Airports Group Ltd (MAG) acquired the 50% stake in Bristol International Airport from FirstGroup.</p>

Origin of airport investor/manager	Country of operation	Activities
		<p>Inverness Air Terminal Ltd has privately financed a GBP9 million terminal refurbishment project at Inverness Airport in Scotland under the Private Finance Initiative (PFI).</p> <p>Highlands &amp; Islands Airports Ltd (HIAL) manages and maintains the ten airports throughout the Highlands and Islands of Scotland. HIAL's Head Office is based at Inverness Airport but HIAL is responsible for the airports in Barra, Benbecula, Campbeltown, Inverness, Islay, Kirkwall, Stornoway, Sumburgh, Tiree, and Wick.</p>
	United States	<p>BBA group acquired AGI Airport Group International Inc. (AGI), which managed 29 airports, including Burbank-Glendale-Pasadena Airport, CA (since 1978), Albany County Airport, NY; Rickenbacher Int. Airport; Columbus/OH; Stewart International, Newburgh/NY; the International Terminal (Concourse E) at Atlanta-Hartsfield, GA.</p> <p>PlaneStation Group plc had acquired a 50-year lease of Smyrna Airport, Nashville, TN/USA, through its PlaneStation US subsidiary held an operating licence for Florida/USA for an initial period of 10 years with five consecutive five year extensions, subject to performance thresholds, up to a total of 35 years.</p> <p>BAA International through BAA US has managed the entire airport system at Indianapolis, IN/USA since 1995 (10-year contract) and the concessions at Pittsburgh Airport/US, in Terminals B, D/E at Boston-Logan and at Baltimore/Washington (10-year contract awarded in March 2004).</p> <p>Under a 99-year lease agreement by the New York State Department of Transportation, National Express Corporation (NEC) is the operator of the first privatized US airport, Stewart International Airport.</p>
<b>UNITED STATES</b>		
	Canada	<p>Aeroterm US Inc. acquires, owns and develops airport properties at airports in Canada.</p> <p>Airport Group International, Inc. (AGI) managed under a five-year contract the Trillium Terminal at Pearson International Airport, Toronto/Canada.</p>
	Costa Rica	<p>Alterra Partners Costa Rica won a 20-year management and development concession for San José's Juan Santamaria International Airport in Costa Rica, together with a group of companies including Bechtel Enterprises, AGI, Cormar, Agencia Datsun, Singapore Changi Airport Enterprise, and Edica Ltda. Alterra holds 85% of the consortium (owned 50% each by Bechtel and SCAE/Singapore).</p>
	Czech Republic	Ogden Aviation operates cargo terminals in Prague.
	Ecuador	The Houston Airport System (HAS) and ADC (Airport Development Corporation) have an operating contract for Mariscal Sucre International Airport, Quito/Ecuador.
	Italy	Ogden Aviation is a partner in ADR handling at the Rome airports.
	Peru	Bechtel Enterprises International Ltd & Bechtel Civil through Alterra holds a stake in a consortium that was awarded a 30-year concession to develop and operate Lima's Jorge Chavez International Airport in Peru along with consortium partner Fraport AG.
	Spain	Ogden Aviation operates cargo terminals in Barcelona and Madrid.
	The Netherlands	Ogden Aviation operates cargo terminals in Amsterdam.
	United Kingdom	<p>AFCO - Aviation Facilities Co. Inc has joint-ventured in the development of taxiway and apron facilities at London-Luton.</p> <p>The Lynx Group provides interactive, intermodal and international distribution facility solutions for emerging regions CargoPorts, e.g. London.</p>



Origin of airport investor/manager	Country of operation	Activities
	United States	<p>IAC (International Airport Centers) owns real estate at US airports.</p> <p>IAT (International Aviation Terminals Inc.) owns and leases real estate at North American airports.</p> <p>Diversified Asset Management Group will own and develop Brown Field near San Diego, California.</p> <p>FAA owns Atlantic City Airport, which is managed by AmPorts (ex-Johnson Controls).</p> <p>Comarco Services manages twelve small-carrier and general-aviation airports in the United States including five in Los Angeles County.</p> <p>Lehman Brothers Inc. is a Partner and financial advisor for the new Terminal 4 at New York-JFK.</p> <p>LCOR has been involved in the US\$3 billion JFK International Air Terminal (Terminal 4)/Delta expansion, the largest public/private airport project in US history, completed in 2001 and manages T4 together with Schiphol US LLC and Lehman Brothers.</p> <p>The Perot family owns Alliance Airport in Texas where American Airlines has built a US\$480 million maintenance base.</p> <p>The Lynxs Group provides interactive, intermodal and international distribution facility solutions for emerging regions CargoPorts, e.g. Anchorage, Austin, Chicago, Ft Lauderdale, Houston, Sacramento, San Antonio, Stewart, and Tulsa.</p> <p>Sverdrup Aviation operates the new MidAtlantic Airport, the second-largest privatized airport in the US.</p> <p>In the US, AMB has 22.9 million square feet of on-airport and near-airport distribution centre space owned, managed and under development at 15 big US airports, including Los Angeles, San Francisco, Seattle-Tacoma, Dallas/Ft. Worth, Chicago, JFK, Washington-Dulles, Miami and Atlanta-Hartsfield.</p> <p>Airis Corp. operates a US\$100 million two-building cargo facility at New York's JFK International Airport for the Port Authority of New York &amp; New Jersey, and a mixed-use facility (offices/cargo) for LanChile at Miami International Airport.</p> <p>The International Air Cargo Center (IACC) at Newark International Airport for six major airlines, and facilities at Los Angeles International Airport.</p> <p>Aeroterms US Inc. acquires, owns and develops airport properties at airports in the United States. The company recently added warehouses at nine US airports: Dallas/Fort Worth International and George Bush Intercontinental in Houston/TX; Kansas City, MO; General Mitchell International in Milwaukee; Louis Armstrong New Orleans International; Norfolk, VA; Pensacola, FL; Philadelphia International; and Hancock International in Syracuse, NY.</p> <p>AFCO - Aviation Facilities Co. Inc currently owns, or has leaseholds and is developing or operating facilities at 23 airports in North America; has developed and owns stakes in cargo buildings at Albany, Baltimore-Washington, Pittsburgh, Richmond, Jackson, Jacksonville, Kansas City and Washington-Dulles airports and truck parking facilities at Dallas/Fort Worth and shuttle parking facilities at Chicago-Midway; has acquired and renovated cargo facilities at Baltimore-Washington, Seattle-Tacoma, Pittsburgh, Hartford, Austin, Bakersfield, Louisville Orlando, Rickenbacker, Philadelphia, Dallas Fort/Worth, Kansas City, Los Angeles and Dayton airports.</p> <p>AvPORTS manages and develops Teterboro Airport (TEB) under contract to PANY&amp;NJ and manages Atlantic City International Airport (ACY) in New Jersey; Republic Airport (FRG); Tweed New Haven Regional Airport (HVN); White Plains/Westchester County Airport (HPN) in New York State, and the 34th Street Metroport heliport in New York City; the FBO AvCenter at the Greater Pittsburgh International Airport; Johnson Controls AvCenter at Sandiford Field, Louisville/Kentucky; and Albany International Airport (since mid-2005).</p> <p>Macquarie Infrastructure Company. Its businesses and investments consist of an airport services business (Atlantic and AvPorts), an airport parking business (PCAA and Avistar) and a district energy business (Thermal Chicago and Northwind Aladdin); acquired six off-airport parking facilities in Buffalo, Columbus, Houston, Oklahoma City, Philadelphia, and St. Louis in Oct. 2005.</p>



Origin of airport investor/manager	Country of operation	Activities
		Raytheon Infrastructure, Inc is a partner in the Aguadilla Consortium for Transportation (ACT), which has won the operating and development contract for Aguadilla 'Rafael Hernandez' International Airport, Puerto Rico.
	Uruguay	As a member of the Cerealsur (now 'Puerta del Sur') consortium (comprising Italy's SEA SpA, American International of the US, and Argentina's Corporación América Sudamericana, each holding 33%), Aeropuertos Argentina 2000 S.A. (AA2000) won the 30-year concession to manage and develop Montevideo's Carrasco International Airport.
<b>URUGUAY</b>		
	Uruguay	The CAISA Consortium has a 20-year concession agreement with the Government of Uruguay to develop, manage, and operate the Punta del Este International Airport. Partners in CAISA are: Compañía Oriental de Transporte S.A. of Uruguay; London Supply S.A.C.I.F.I. of Argentina; Norlit S.A. of Uruguay; International Finance Corporation of the World Bank; and PAXPORT Laguna Inc. of Canada.

Source: Momberger Airport Information, in ACI Airport Economics Survey 2005



**TABLE A2****Origins and destinations of airport investments and management contracts**

Origin of airport investor/manager	Countries or territories of operation
<b>Argentina</b>	Armenia, Uruguay
<b>Australia</b>	New-Zealand, Belgium, Czech Republic, Denmark, United Kingdom
<b>Austria</b>	Hungary, Malta, Spain, Turkey, Ukraine
<b>Canada</b>	Australia, Bermuda, Chile, China, Ecuador, France, Honduras, Jamaica, Malta, New Zealand, Oman, Russia, Thailand, Turks and Caycos Islands
<b>Chile</b>	Jamaica
<b>Denmark</b>	China, Mexico, Norway, United Kingdom
<b>France</b>	Belgium, Cambodia, Cameroon, China, Egypt, Gabon, Guinea, Indonesia (bid), Ivory Coast, Madagascar, Mexico
<b>Germany</b>	Australia, China, Greece, Kenya, Latvia, Peru, Spain, Turkey, US
<b>Hong Kong, China</b>	China, Bahamas
<b>India</b>	Mauritania, Togo
<b>Ireland</b>	Bahrain, Canada, Germany, Greece, Hungary, Kuwait, Lebanon, Russia, Syria, Ukraine, United Kingdom
<b>Israel</b>	Jamaica
<b>Italy</b>	Argentina, Dominican Republic, South Africa
<b>Luxembourg</b>	Switzerland, United Kingdom
<b>Malaysia</b>	Cambodia, South Africa
<b>Mexico</b>	Chile, Dominican Republic
<b>New Zealand</b>	Australia, United Kingdom
<b>Singapore</b>	China, Costa Rica, Hong Kong, China, New Zealand, Peru, Netherlands, Viet Nam
<b>Spain</b>	Australia, Belgium, Bolivia, Canada, Chile, Cuba, Dominican Republic, Jamaica, Mexico, United Kingdom, United States
<b>Switzerland</b>	Chile, Egypt , Oman, South Africa
<b>Netherlands</b>	Australia, Austria, Hungary, Indonesia, Malta, Switzerland, United States
<b>Turkey</b>	Egypt
<b>United Kingdom</b>	Argentina, Australia, Bolivia, China, Colombia, Costa Rica, Dominican Republic, Germany, Italy, Macau, China, Norway, Peru, Panama, Sweden, Tanzania, United States
<b>United States</b>	Canada, Costa Rica, Czech Republic, Ecuador, Italy, Peru, Spain, Netherlands, United Kingdom, Uruguay

Source: Compiled by the WTO Secretariat on the basis of the information contained in the report Momberger Airport Information, which is reproduced in ACI Airport Economics Survey 2005.

**TABLE A3****Destinations and origins of airport investments and management contracts**

Country or territory of operation	Origin of the investor/manager
Argentina	Italy, United Kingdom
Armenia	Argentina
Australia	Canada, Germany, New Zealand, Spain, Netherlands, United Kingdom
Austria	Netherlands
Bahamas	Hong Kong, China
Bahrain	Ireland
Belgium	Australia, France, Spain
Bermuda	Canada
Bolivia	Spain, United Kingdom
Cambodia	France, Malaysia
Cameroon	France
Canada	Ireland, Spain, United States
Chile	Canada, Mexico, Spain, Switzerland
China	Canada, Denmark, France, Germany, Hong Kong, China, Singapore, United Kingdom
Colombia	Spain, United Kingdom
Costa Rica	Singapore, United Kingdom, United States
Cuba	Spain
Czech Republic	Australia, United States
Denmark	Australia
Dominican Republic	Canada, Italy, Mexico, Spain, United Kingdom
Ecuador	Canada, United States
Egypt	France, Switzerland, Turkey
France	Canada
Gabon	France
Germany	Australia, Ireland, United Kingdom
Greece	Germany, Ireland
Honduras	Canada
Hong Kong, China	Singapore
Hungary	Austria, Ireland, Netherlands
Indonesia	France, Netherlands
Italy	Australia, United Kingdom, United States
Jamaica	Canada, Chile, Israel, Spain
Côte d'Ivoire	France
Kenya	Germany
Kuwait	Ireland
Latvia	Germany
Lebanon	Ireland
Macau, China	United Kingdom
Madagascar	France
Malta	Austria, Canada, Netherlands
Mauritania	India
Mexico	Denmark, France



Country or territory of operation	Origin of the investor/manager
<b>Netherlands</b>	Singapore, United States
<b>New Zealand</b>	Australia, Canada, Singapore
<b>Norway</b>	Denmark
<b>Oman</b>	Canada, Switzerland
<b>Panama</b>	United Kingdom
<b>Peru</b>	Germany, Singapore, United States
<b>Romania</b>	Canada
<b>Russia</b>	Canada, Ireland
<b>South Africa</b>	Italy, Malaysia, Switzerland
<b>Spain</b>	Austria, Germany, United States
<b>Sweden</b>	United Kingdom
<b>Switzerland</b>	Luxembourg, Netherlands
<b>Syria</b>	Ireland
<b>Tanzania</b>	United Kingdom
<b>Togo</b>	India
<b>Turkey</b>	Austria, Germany
<b>Turks and Caycos</b>	Canada
<b>Ukraine</b>	Austria, Ireland
<b>United Arab Emirates</b>	Germany
<b>United Kingdom</b>	Australia, Denmark, Ireland, Luxembourg, New Zealand, Spain, United States
<b>United States</b>	Germany, Hong Kong China, Spain, Netherlands, United Kingdom
<b>Uruguay</b>	Argentina, Canada, United States
<b>Viet Nam</b>	Singapore

Source: Compiled by the WTO Secretariat on the basis of the information contained in the report Mombberger Airport Information, which is reproduced in ACI Airport Economics Survey 2005.

## VIII. AIR TRAFFIC CONTROL SERVICES, INCLUDING CHARGING SYSTEMS

432. Since the air traffic control sector was extensively described during the first review (see compilation, pages 121-148), this section will focus on more recent developments. In particular, it will look at the corporatisation of service providers, at the tentative first steps towards internationalisation of the sector, and the Single European Sky and other bilateral or multilateral integration initiatives. Recent regulatory developments regarding the ICAO charging policy will be described. Consideration will also be given to technical and commercial changes including the entry of new players, such as the aviation manufacturers Boeing and Airbus. A review of the situation with regard to delays will be provided to update the data from the first review. Finally, there will be a round-up of the most interesting developments in each geographic region.

### A. CORPORATISATION<sup>151</sup>

433. Two aspects of corporatisation will be dealt with: first, changes in the structure of air navigation service providers and, second, their performance.

#### 1. The move towards commercialisation

434. Commercialisation refers to the creation of a degree of autonomy from the government, providing scope for business/commercial practices and, in certain instances, direct access to capital markets.

435. Air Navigation Service Providers (ANSPs) have historically operated as government departments, financed by taxes and charges. This structure reflected the role of ANSPs as a form of policing of the skies. However there are long-standing cases of commercialisation; AeroThai (Thailand) has been operating as a corporatised entity since 1948. In the late 1980s, under pressure from a radically expanding air transport industry, the Oceanic region started a more general trend in the sector with the commercialisation of ANSPs in New Zealand and Australia in 1987 and 1988, respectively.

436. Table 41, provided by the Civil Air Navigation Services Organisation (CANSO), lists all known corporatised ANSPs and their management structure. However the list may not be complete, as a recent study on commercialised ANSPs refers to over 40 corporat-

ised providers globally.<sup>152</sup> Furthermore, the list omits France, where, although the ANS provider operates as a governmental department, it is commercialised to the extent that it has a degree of financial autonomy. In spite of possible omissions, Table 41 contains close to 100 per cent more entities than the data set provided by CANSO for the first review (compilation, page 137).

437. Commercialisation has intensified in particular in Europe, where a large majority of States now operates air traffic control (ATC) in a business oriented way (Table 42). Scandinavian countries and other new Members of the EC represent the majority of new corporatised entities in Europe. Both Africa and Asia have witnessed a significant increase compared with 2001. In the Americas, apart from Canada, the traditional governmental model has continued to prevail. The countries newly listed by CANSO as operating corporatised entities since the last review are: Azerbaijan, Bulgaria, Denmark, Egypt, Georgia, Hungary, India, Kazakhstan, Lithuania, Malta, Moldova, Nigeria, Norway, Poland, Slovak Republic, Slovenia, Uganda and Ukraine.

438. Corporatisation has also taken on new forms. The German Parliament has announced plans to change the national ANSP from a government-owned commercial entity to a majority privately-owned entity, in which the government will retain a 25.1 per cent minority share with blocking power. This is the largest-scale privatization move in Europe, ahead of the 51 per cent privatisation of National Air Traffic Services Ltd. (NATS) in the United Kingdom.<sup>153</sup> Reportedly, there have been expressions of interest in buying up the German ANSP by either Lufthansa alone or a consortium of airlines and other companies led by Lufthansa. These steps, which follow a 13-year period of corporatization, will be closely watched as a potential template for change in Europe and a possible alternative to the concurrent corporatization and privatisation of NATS. ICAO has also encouraged national governments to consider commercialisation of ANSPs notably in view of the positive financial experience with recent cases.<sup>154</sup>

#### 2. Performance of commercialised ANS providers

439. Commercialisation initiatives have, on occasions, been strongly criticized in particular by trade unions. Strikes brought Paris Orly airport to a standstill in early

<sup>152</sup> Source: MBS Study, "Air traffic control commercialization strategy, has it been effective?", 2005.

<sup>153</sup> For further information on the structure of NATS, see the compilation, page 139.

<sup>154</sup> Source: "ICAO's updated policies on user charges address a new commercial environment", ICAO Journal No. 2, 2005.

<sup>151</sup> Note that commercialisation and corporatisation will be used interchangeably, as they are in the specialized press.



**TABLE 41**  
**Corporatised Air Navigation Services Providers (ANSP)**  
**(CANSO full members)**

Country	Air Navigation Service Providers	Privatised profit	Privatised non-profit	Corporatised profit	Corporatised non-profit	Not available
<b>Thailand</b>	Aeronautical Radio of Thailand (AEROTHAI)	X				
<b>Spain</b>	Aeropuertos Espaxoles y Navegación Aérea (AENA)				X	
<b>Czech Republic</b>	Air Navigation Services of the Czech Republic (ANS CR)				X	
<b>South Africa</b>	Air Traffic & Navigation Services South Africa (ATNS)				X	
<b>Bulgaria</b>	Air Traffic Services Authority (ATSA Bulgaria)				X	
<b>India</b>	Airports Authority of India (AAI)					X
<b>Australia</b>	Airservices Australia			X		
<b>New Zealand</b>	Airways Corporation of New Zealand			X		
<b>Austria</b>	AustroControl				X	
<b>Norway</b>	AVINOR				X	
<b>Azerbaijan</b>	Azerbaijan Air Navigation Services (AZANS)					X
<b>Belgium</b>	Belgocontrol				X	
<b>Uganda</b>	CAA Uganda					X
<b>Germany</b>	Deutsche Flugsicherung (DFS)				X	
<b>Italy</b>	Ente Nazionale di Assistenza al Volo (ENAV)				X	
<b>Estonia</b>	Estonian Air Navigation Services (EANS)			X		
<b>Hungary</b>	Hungarocontrol				X	
<b>Ireland</b>	Irish Aviation Authority (IAA)			X		
<b>Kazakhstan</b>	Kazaeronavigatsia					X
<b>Latvia</b>	Latvijas Gaisa Satiksme (LGS)			X		
<b>Slovak Republic</b>	Letové Prevádzkové Služby (LPS)				X	
<b>Sweden</b>	LFV Sweden				X	
<b>The Netherlands</b>	Luchtverkeersleiding Nederland (LVNL)				X	
<b>Malta</b>	Malta Air Traffic Services (MATS)				X	

Country	Air Navigation Service Providers	Privatised profit	Privatised non-profit	Corporatised profit	Corporatised non-profit	Not available
<b>Moldovia</b>	Moldovian Air Traffic Services Authority (MoldATSA)					X
<b>Egypt</b>	National Air Navigation Services Company (NANSC)				X	
<b>United Kingdom</b>	National Air Traffic Services (NATS)	X				
<b>Canada</b>	NAV Canada		X			
<b>Portugal</b>	NAV Portugal				X	
<b>Denmark</b>	Naviair				X	
<b>Nigeria</b>	Nigerian Airspace Management Agency (NAMA)					X
<b>Lithuania</b>	Oro Navigacija					X
<b>Poland</b>	Poland Air Traffic Agency (PATA)				X	
<b>Romania</b>	Romatsa				X	
<b>Georgia</b>	Sakaeronavigatsia					X
<b>Switzerland</b>	skyguide				X	
<b>Slovenia</b>	Slovenia Control				X	
<b>Ukraine</b>	Ukrainian State Air Traffic Service Enterprise (UKSATSE)				X	
<b>Total</b>		<b>2</b>	<b>1</b>	<b>5</b>	<b>22</b>	<b>8</b>

Source: CANSO website (<http://www.canso.org/Canso/Web/members/full+members/>).





**TABLE 42**  
**Corporatisation cases since 2001**

Region	Number of cases
Eastern Europe	8
Western Europe	3
Asia/Pacific	4
Africa	3
Americas	0

Source: CANSO.

2004 after reform proposals had been floated, which did not involve privatisation. UK unions, although opposed the Public-Private Partnership (PPP) of NATS, stated that they would prefer any private investment to come from airlines, which they consider least likely to compromise prevailing industry standards for profit.

440. Skyguide, the Swiss ANSP, has drawn some criticism after commercialisation with a marked rise in safety incidents and a major accident in Swiss-controlled airspace. Data in 2004 showed a reduction of Air Traffic Management (ATM) and non-ATM safety incidents in Swiss airspace.

441. The partial privatisation of NATS in the United Kingdom proved difficult initially, not least due to its timing in 2001 just before the devastating events that hit the airline industry. However, these difficulties, which brought NATS close to bankruptcy, may also be attributed to the financial structure adopted. The "Airline Group" which bought into NATS only paid around 6 per cent of the purchase price for its 46 per cent interest, the rest being added to the debt of NATS. Coupled with the industry downturn, this proved non-sustainable, and the project had to be fundamentally restructured. However the problems have since been solved, and NATS reports itself to be in a solid financial state; it registered a profit for the first time in 2004.

442. It has also been questioned in the MBS study whether NATS can operate effectively in view of the fact that its customers, the airlines, are also its owners. Governments had initially been cautious to avoid conflicts of interest either by preventing airlines from having an interest in a privatised ANSP as in Switzerland, or by limiting their influence on the board as in Canada. However, possibly inspired by the NATS structure, the leading candidate interested in purchasing the majority stake in the German ANSP is Lufthansa.

443. In spite of the problems identified above, the major recent study on the subject, from MBS, argues strongly in favour of commercialisation of ANSPs. The study looks at data on cost, safety, wages, etc., for

ten corporatised ATM units, and compares these with the traditional governmental-department format of the FAA. The countries reviewed are Australia, Canada, France, Germany, Ireland, the Netherlands, New Zealand, South Africa, Switzerland and the United Kingdom, and there may be doubts as to whether the results are equally applicable to less developed economies and/or countries with a less advanced air transport sector. Furthermore, the degree of commercialisation varies widely. While France has granted only financial autonomy subject to Ministerial approval, NAV Canada operates as an entirely private corporation.

### 3. Safety

444. Some of the ANSPs covered by the study reported that commercialisation had improved safety. NAV Canada even considers these effects to be the most remarkable consequence of privatisation.<sup>155</sup> The UK Civil Aviation Authority (CAA), which is the regulator of NATS, also reports improvement in safety.<sup>156</sup> All commercialised ANSPs included in the study have exhibited a reduced rate of serious safety incidents post corporatisation.<sup>157</sup> Some operators had difficulties early in their corporatised form, particularly in Canada and South Africa; however, the subsequent upturn has been remarkable in both countries.

### 4. Charges

445. The user fees charged under commercial operation have not increased, despite the reliance on direct user fees to fund the services. ICAO principles continue to require that pricing is based on weight and distance, even though weight is not a principal determinant in calculating the cost of service.

446. After serious incidents affecting traffic volume, such as 9/11 and SARS, prices of *en route* and terminal navigation services have increased in general. The fact that NATS defied this trend might be due to it being partly owned by a group of airlines. However, in almost all of the ANSPs examined by MBS, charges are now lower than they were in 1997. Air Services Australia managed to decrease *en route* costs by almost one-third by 2005, while the IAA (Ireland) had, at one point, cut the cost of terminal charges by more than 50% although they have risen since; in 2005, charges were around 25 per cent lower than in 1997. Figure 3 compares NAV Canada's rates with the consumer price index between 1999 and 2003, showing a significant

<sup>155</sup> Source: MBS Study.

<sup>156</sup> Source: UK Civil Aviation Authority.

<sup>157</sup> Switzerland proved an exception initially.

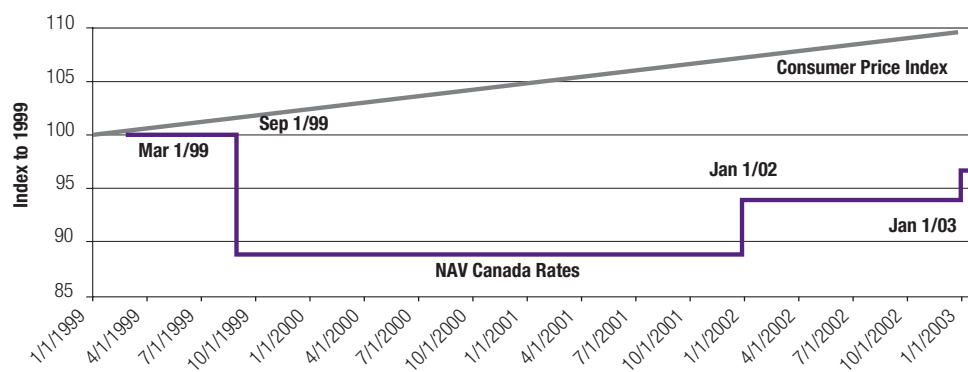
**TABLE 43**  
**Overview of corporatised ANSPs**

ANSP	Size of controlled airspace ('000 km <sup>2</sup> )	Area control centers/ terminal approach units	Towers	Air traffic control officers (number)	Total number of staff
<b>Airservices Australia</b>	11,830 Domestic 39,957 Oceanic	2/7	26	1,000	2,400
<b>NAV Canada</b>	15,602 Domestic 3070 Oceanic	7	42	2030	5,370
<b>DSNA France</b>	1160*	5/11	66	3,110	8,300
<b>DFS Germany</b>	390	4/17	17	2,010	5,370
<b>IAA Ireland</b>	453*	2/3	3	270	670
<b>LVNL Netherlands</b>	52	1/3	4	185	1,000
<b>Airways New Zealand</b>	844 Domestic 23,036 Oceanic	3	16	310	630
<b>ATNS South Africa</b>	2,100 Domestic 29,240 Oceanic	2/9	19	250	690
<b>Skyguide Switzerland</b>	69	2/2	4 plus 7 military towers	422	1336
<b>NATS United Kingdom</b>	878 Domestic 2,230 Oceanic	4/11	14	1,910	5,000
<b>FAA ATO United States</b>	8,516 Domestic 56,980 Oceanic	23/150	222 plus 226 contract towers	14,930	36,290

\* Includes oceanic airspace.

Source: MBS study.

**FIGURE 3**  
**NAV CANADA rate changes versus Consumer Price Index (CPI)**



Source: Nav Canada

reduction in the price of services, particularly when compared to the consumer price index.

## 5. Costs

447. Six out of the ten commercialised ANS providers cut costs per flight movement post corporatisation. Of the four other providers, exceptional circumstances occurred in South Africa and in Switzerland. In the former case, costs were increased to adapt to dramatic surges in traffic, while Switzerland took action in response to critical safety reports. Efficient business schemes appear to be the principal cause of improved cost efficiency; in Australia, for example, there has been a 60 per cent reduction in the number of facilities used for *en route* services. Further efficiency gains have been made via redundancies, especially amongst non-controller staff.

## 6. Delays

448. The situation with respect to delays will be discussed more generally below. The MBS study found that all corporatized ANSPs, for which data were available, showed a reduced average delay in minutes per flight where the delay is attributed to ATM, as opposed to other causes of delay. The information takes account of both frequency and duration of delays (Chart 9).

## B. INTERNATIONALISATION

449. There is a general consensus among economists that it is inefficient for small States to invest heavily in their own ATC systems. However, owing to the

historical links between air transport and sovereignty, and the protection of national interests, economic considerations have not been decisive for a long time. In turn, this has resulted in over-expenditure and excessive costs for air transport. However, the internationalisation of ANS has become inevitable. The principal example during the period under review has been the creation of the "Single European Sky" in the European Communities, although there have been many other cases of multilateral and bilateral cooperation throughout this period.

## 1. The Single European Sky initiative

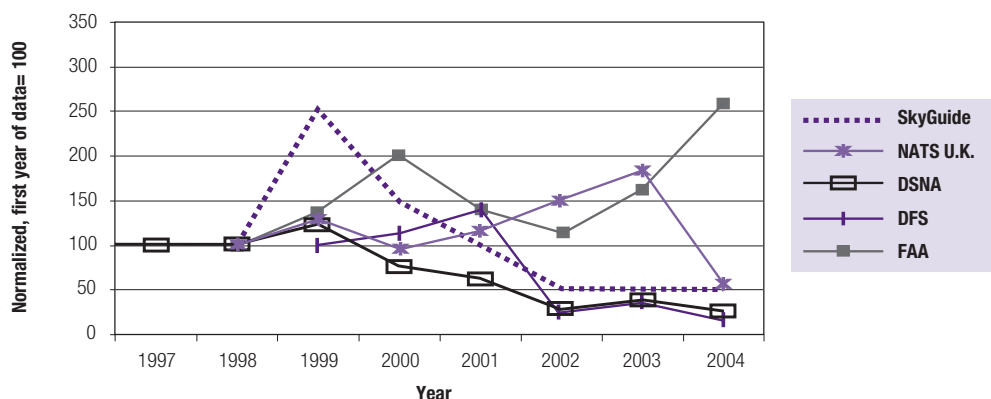
450. The Single European Sky initiative dates back to 1999. A high-level working group was set up in 2000; its report contains the following main elements:

- set up a strong independent Community regulator, with sufficient resources;
- consider airspace as a common resource that is to be organised as a continuum;
- develop relations between the European Union and Eurocontrol,<sup>158</sup>

<sup>158</sup> Eurocontrol is the European Organisation for the Safety of Air Navigation. The 36 current members are: Albania, Armenia, Austria, Belgium, Bosnia and Herzegovina, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Luxembourg, the former Yugoslav Republic of Macedonia, Malta, Moldova, Monaco, the Netherlands, Norway, Poland, Portugal, Romania, Republic of Serbia and Montenegro, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey, Ukraine, and the United Kingdom.

**CHART 9**

**ATC induced delays in minutes per flight**



Note: Skyguide, NATS, DSNA, DFS and FAA are the respective ANSP of Switzerland, United Kingdom, France, Germany and US.

Source: MBS study.

- facilitate the participation of military in the "redefinition" of the skies;
- promote new and interoperable technologies;
- increase professional and trade union participation in community dialogue; and
- ultimately introduce the concept of European training.

451. The initiative never sought to promote privatisation of air traffic control, nor to introduce competition in the sector. The working group considered ANS provision to be a natural monopoly.

(a) Legislation

452. The transposition of the working group's suggestions into EC legislation was a long process, which not all initial ambitions survived unscathed. The rules governing the Single Sky initiative are covered in four separate pieces of legislation, all passed on 10 March 2004.

453. First, Regulation 549/2004 lays down the framework for the creation of the Single Sky. It clearly states the objectives of Single Sky legislation, which is "to enhance current safety standards and overall efficiency for air traffic in Europe, to optimize capacity meeting the requirements of all airspace users and to minimise delays".<sup>159</sup> The Regulation explicitly stipulates that neither national sovereignty of airspace, nor obligations under the Chicago Convention are affected. It also sets out the framework for the associated organs such as National Supervisory Bodies (NSBs), which must be independent from the ANSP, the Single Sky Committee (SSC), on which every Member State will be represented and which is to be the vehicle for change under the Single Sky legislation, and an Industry Consultation Body.

454. Second, Regulation 550/2004 focuses on harmonizing the organisation of air navigation services in the Single Sky. It defines the principal responsibilities, which will be assumed by the NSBs in order to ensure that they are working on a similar basis whilst further providing the division of responsibilities in cases where airspace is not regulated by the body of the Member

State concerned. The Regulation contains a non-exhaustive list of areas in which common requirements must be established, including human resources, insurance, systems, and quality of service. Another major element is the introduction of common principles of certification for air traffic controllers, thus facilitating the obligation to recognise certificates originating from other Member States. Furthermore, the Regulation encourages cooperation between national ANSPs and provides the principles of a common charging system. These include a system of recuperation of fully allocated costs, including investments in equipment and the cost of the supervisory body; non-discriminatory pricing with an exception for cross-subsidisation where it is objectively justified and identified; and transparency of pricing.

455. Third, Regulation 551/2004 governs the organisation and use of airspace in the Single Sky. Its objective is "to support the concept of a progressively more integrated operating airspace within the context of the common transport policy and to establish common procedures for design, planning and management ensuring efficient and safe performance of air traffic management". The Regulation defines the upper airspace as being above Flight Level (FL) 285<sup>160</sup>, but Members may go below to reap operational benefits. The Regulation aims to develop a single European Upper Flight Information Region (EUFIR), to be recognised by ICAO. The key provision is found in Article 5 dealing with the reconfiguration of the European skies based on the establishment of Functional Airspace Blocks (FABs) to improve capacity, enhance security and lower costs of air traffic management services. These FABs should be based on operational requirements – in particular traffic flows – rather than existing national borders, to increase efficiency in the provision of air navigation services.<sup>161</sup>

456. Fourth, Regulation 552/2004 is intended to ensure the interoperability of the European air traffic management network and introduce common requirements for the use of the various air traffic management systems. Compatible systems are expected to facilitate extended cooperation in future. This might entail the simplification of transfers between operators in different countries, and the possibility for foreign bodies to provide air navigation services to a Member State. European standards are to be developed by standardisation bodies

<sup>160</sup> Flight Level is a standard nominal altitude of an aircraft, referenced to a world-wide fixed pressure datum.

<sup>161</sup> The principal efficiency objective has been investigated at length in a 2005 Eurocontrol report (<http://www.eurocontrol.int/prc/gallery/content/public/Docs/fragmentation.pdf>).

<sup>159</sup> Article 1.1.



assisted by EUROCAE<sup>162</sup> or by Eurocontrol, and Member States are required to create or nominate agencies to verify manufacturers' compliance with these norms. Products will have to carry a declaration of conformity which will be published in the EC Official Journal.

(b) Working relationships with interested parties

(i) Military

457. Airspace is not only divided by national frontiers, but within States into civilian and military space. Military aspects are, *a priori*, outside of the scope of competence of the European Communities; therefore the Single Sky initiative has sought the cooperation of military bodies. In formalizing the Single Sky legislation, Member States also issued a statement in which they undertook to ensure the cooperation of their military as far as possible, and to involve it in the decision making phases of the initiative. The 2006 Work Programme of the Single Sky Committee reported positive early contacts with military bodies, while noting the need for continued improvement. However, much seems to depend on whether Eurocontrol is able to meet its target to enhance interoperability between civil and military Communication, Navigation, Surveillance Air Traffic Management (CNS/ATM) by 2009.<sup>163</sup>

(ii) Eurocontrol

458. Eurocontrol, the European Organisation for the Safety of Air Navigation, continues to act both as a service provider and as a regulatory body. This generates some tension with the policies adopted by the European Communities regarding the separation of these functions. Eurocontrol has vast experience with safety-related aspects and, as such, been given a prominent role in the development of the Single European Sky. The EC has acknowledged the importance of Eurocontrol to ensure that the rules and strategies of both sides are consistent, and avoid duplication of efforts. A formal status was achieved by the signing of a Memorandum of Cooperation in late 2003.<sup>164</sup>

459. The strengthening of mutual ties is also reflected in the accession of the EC to Eurocontrol in 2002. In

turn, Eurocontrol will also be invited to the Single Sky Committee where appropriate, even if it was not granted full observer status. Eurocontrol is designated in the Single Sky legislation as the body responsible for research and the setting of common requirements in various fields.

(iii) Single European Sky ATM Research (SESAR)

460. SESAR (formerly SESAME<sup>165</sup>) is the name of the project which will ensure the technical implementation of the Single European Sky. The principal ambition of the project is to secure a coordinated and synchronised development and deployment of the new generation of ATM systems. A definition phase has already been launched by Eurocontrol and will last two years. This will be followed by a foundation phase during which the technology required for the new systems will be installed (by 2010). The deployment phase will then focus on research and refinement of technology in preparation for use by 2015. Finally, a collaborative high performance phase should achieve a complete change of ATM systems by 2020. SESAR brings together representatives from aircraft operators, ANSPs, airports, Eurocontrol, the European Commission, industry, research centres, and unions.

(iv) ICAO

461. In order to achieve the objectives of the Single European Sky initiative, the European Commission intends to intensify cooperation with ICAO. This should ensure that the new rules will be compatible with those in neighbouring regions, and integrate the Single European Sky into the worldwide aviation network. The European Communities will put forward relevant proposals at events like the Air Navigation Conference and the ICAO General Assembly. In this context both organisations will discuss the institution of a single European Upper Flight Information Region.<sup>166</sup>

(c) Recent developments

462. The investments planned for the Single European Sky project are not expected to be recouped before 2018. The Single Sky work programme of 2006 reports that the National Supervisory Bodies have been notified to the Commission by all but one Member State, and that an industry consultation body has been set up.<sup>167</sup> In addition, implementation rules have been adopted for common requirements for ANSPs and on

<sup>162</sup> The European Organisation for Civil Aviation Equipment (EUROCAE) was formed at Lucerne on 24th April 1963. At that time, there was no regular forum in Europe where administrations, airlines and industry could meet to discuss technical problems. EUROCAE was created to fill this gap. Today, the main European administrations, aircraft manufacturers, equipment manufacturers and service providers are members.

<sup>163</sup> Aviation Week & Space Technology 28 November 2005, quoting Bo Redeborn, director of ATM strategies at Eurocontrol.

<sup>164</sup> Text available at [http://ec.europa.eu/transport/air/single\\_sky/doc/eurocontrol/2003\\_12\\_22\\_memorandum\\_en.pdf](http://ec.europa.eu/transport/air/single_sky/doc/eurocontrol/2003_12_22_memorandum_en.pdf)

<sup>165</sup> The name SESAME (Single European Sky Master Plan) was abandoned due to copyright difficulties.

<sup>166</sup> As foreseen by Article 3 of Regulation 551/2004.

<sup>167</sup> EC Document SSC 15, dated 3 February 2006.

the flexible use of airspace. Concrete progress is less evident in some other key areas including economic aspects, airspace design and the European Upper Flight Information Region. Perhaps most worrying is the situation concerning the establishment of Functional Air Blocks (FAB); the Single Sky Committee is already considering taking further measures in 2008. However, Belgium, Germany, Luxembourg and the Netherlands are reported to be establishing FAB Central Europe, which could potentially be organised with one common service provider and one common regulator.

## 2. Other integration/cooperation initiatives

463. The Civil Air Navigation Services Organization (CANSO), which is the umbrella association of corporatised ANSPs, is a strong advocate of consolidation in the sector. The point is made that the airspace cannot be efficiently managed on a territorial basis. Cooperation can be pursued either at a governmental level, for example by establishing a common aviation space in the form of a functional air block, or between ANSPs, for example by establishing common projects and specifications to improve interoperability between systems. During the period under review, several plurilateral and bilateral agreements have been concluded between States and/or ANSPs foreseeing the integration of ANSPs.

### (a) Plurilateral agreements

464. The most significant example of ANSP integration is the establishment of the "RADA" group, which brings together Armenia, Azerbaijan, Georgia, Kazakhstan, Moldova and the Ukraine. The participants, many of which are now corporatised, intend to cooperate on service planning, the development of ATM concepts, and route development.

465. The Nordic countries have launched the "NUAC" project which aims to integrate the upper levels of Nordic skies which will be controlled from Sweden by 2007. Denmark, Sweden and Finland, together with Hungary, Ireland and Switzerland, also launched a Cooperative Air Navigation Services (COOPANS) initiative. All members of COOPANS utilise Thales ATM technology, and have undertaken a major harmonisation scheme, which is expected to allow savings of 10 per cent over 10 years. A further agreement has been concluded by the Irish, Danish and Swedish ANSPs to cooperate on system developments. On a smaller scale, but also reflecting common trends towards cooperation, the ANSPs of Germany, Austria and Switzerland have created a common international performance evaluation system which will see the

combination of auditing teams from each of the three States. Germany has separately concluded an agreement with Switzerland and the Netherlands for joint procurement of ANS equipment.

466. South Africa has launched an initiative to integrate its ATC systems with those of its neighbouring countries. In Eastern Europe, Estonia, Latvia and Lithuania have begun to discuss integrating more closely their ATM operations and, in May 2005, the Czech Republic, Slovenia and Austria created the "One ATMS" initiative to harmonise the replacement of current systems between 2007 and 2012.

467. CANSO attributes the coincidence of so many projects to the industry downturn post 9/11 and subsequent events.

### (b) Bilateral cooperation

468. Efficiency enhancing cooperation between ANSPs can also be achieved at bilateral level. In 2004 Airways New Zealand began to provide oceanic services for the United States.<sup>168</sup> In November 2002, a collaborative pact was signed by Nav Canada and NATS with the aim of developing advanced computer-pilot data-link communications across the Atlantic Ocean.

469. NATS has also been active in concluding an agreement with the Irish ANSP, IIA, to reorganise common airspace and to consider the possible establishment of a Functional Air Block. A joint company with the Spanish ANSP, AENA, has been set up with the aim of leveraging the Spanish ATM system into the United Kingdom. Austria and Switzerland implemented, a strategic alliance on pre-flight briefing, at the end of 2005. Further discussions have been held between Portugal and Spain, and France and Switzerland with a view to integrating their airspaces. France and Italy have commissioned the joint initiative of the companies Thales ATM and AMS to develop a common flight data processor system.

## C. ICAO CHARGING POLICY

470. Since the last review, ICAO has made some minor amendments to its charging system for the provision of air navigation services. The content of the initial regulation (document 9082, sixth revision) was notified to Members in WTO Document S/C/W/188.

<sup>168</sup> The latter consist of navigation and surveillance services of the airspace over the high seas, in this case over the Pacific Ocean.





471. The 2004 revision has seen the introduction of two new provisions, responding to recent developments. The changes are intended, first, to reign in the increase in security costs<sup>169</sup> and second, to prevent excessive segmentation of Flight Information Regions for revenue purposes.<sup>170</sup> The latter provision is a reminder of the ICAO policy that FIRs should be determined on technical and operational considerations that promote safety and operational efficiency.

472. Accompanying these changes, ICAO published Supplement No. 1 to Document 9082. This Supplement compiles data and laws gathered by way of an ICAO questionnaire enquiring whether national legislation is compatible with ICAO charging principles. Chart 10 provides an overview of the responses received. Since the majority of States (104 out of 185) chose not to respond, no firm conclusions can be drawn. Seventy-two States notified to ICAO that they were fully compliant

169 A new subsection (iv) to paragraph 38 reads "Costs for certain security measures of a preventive nature for the provision of air navigation services, which are specifically related to civil aviation and performed on a routine basis, may be included in the cost basis for air navigation services to the extent that they have not already been considered in the context of safety-related measures. Civil aviation should not be charged for any costs that would be incurred for more general security functions performed by States such as general policing, intelligence gathering and national security. Further, costs associated with airport security should not be combined with security costs incurred with regard to air navigation facilities or services".

170 Paragraph 41 was supplemented by a new subsection (ix): "States should refrain from segmenting Flight Information Regions (FIRs) solely for the purpose of generating revenue where this would not be related to the costs of service provision."

with ICAO policies.<sup>171</sup> The five States which notified that they did not fully comply are Pakistan, Paraguay, Peru, Poland and the Syrian Arab Republic.

## D. TECHNOLOGICAL DEVELOPMENTS

473. The introduction of new technologies has been a defining feature of the ATM market during the period under review. Interestingly, the process of financial innovation coincided with, and may have benefited from, the entry of new market participants.

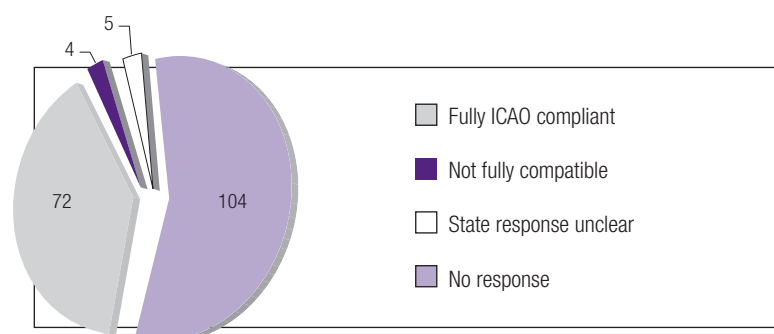
474. The two main manufacturers of large civil aircraft in the world, Airbus and Boeing, have started to play an important role in advancing ATM systems. In late 2001, Boeing presented development plans based on a Global Communications, Navigation, and Surveillance System (GCNSS), which it believes is equipped to deal with traffic passenger growth over the next 25 years. However, Boeing claims not to have a long-term interest in ATM, and as such does not wish to own or operate the systems it intends to build. They are rather viewed as part of a strategy to promote its core business.

475. In 2002, Airbus followed Boeing's initiative by forming the "Air Traffic Alliance" along with EADS

171 Angola, Argentina, Austria, Bahrain, Belgium, Botswana, Brazil, Bulgaria, Burundi, Canada, Chile, China, Columbia, Costa Rica, Cuba, Cyprus, Czech Republic, Denmark, Ecuador, Egypt, Estonia, Ethiopia, Finland, France, Germany, Greece, Hungary, India, Ireland, Israel, Italy, Kenya, Lithuania, Madagascar, Malawi, Maldives, Malaysia, Malta, Mexico, Netherlands, New Zealand, Norway, Panama, Papua New Guinea, Philippines, Portugal, Republic of Korea, Republic of Moldova, Romania, Russian Federation, Saudi Arabia, Seychelles, Singapore, Slovakia, Slovenia, Spain, Sri Lanka, Suriname, Sweden, Switzerland, Thailand, The former Yugoslav Republic of Macedonia, Turkey, Uganda, Ukraine, United Arab Emirates, United Kingdom, United Republic of Tanzania, United States, Uzbekistan, Vanuatu.

## CHART 10

### Government responses regarding the conformity of charging systems with ICAO principles



Source: Compiled by WTO Secretariat from ICAO Supplement No. 1 to Document 9082.

and Thales. The European project pursues shorter term targets and differs from Boeing in that it is less dependant on satellite-based support. The long-term aim is to achieve a fully integrated air-ground system by 2018. The "Air Traffic Alliance" is working in close association with the European Union's "Vision for 2020" programme, aiming to reduce noise and accidents, while tripling the capacity of the skies.

476. In 2003, Boeing and Airbus announced plans to collaborate to ensure harmonised development of systems, which can operate in planes coming from either manufacturer.

477. More advanced technology has allowed the reduction of the vertical separation between aircraft, without any negative impact on safety. Improved altimeters and autopilots rendered the 2000 feet separation between FL 290 and FL 410 unnecessary. As a result, ICAO recommended that the separation be reduced to 1000 feet, thereby creating six new flying levels and allowing an immediate 20 per cent capacity increase. Once all aircraft are approved for the new technology, capacity could double, and delays may be cut by at least 30 per cent.<sup>172</sup> In addition, there are positive effects on fuel costs and access to upper airspace. The new technology was first introduced in Europe in 2002, and has since been widely applied in North Africa, Southeast Asia, North America and over the North Atlantic and Pacific Oceans. Aircraft on certain oceanic routes have also seen their lateral and trail separation criteria reduced from 50 or 100 nautical miles (nm) to 30nm.

478. An increase in air traffic management operations that are carried out directly in the cockpit, might eventually result in the responsibility for collision-avoidance being shifted from controllers to pilots. The use onboard of Automatic Dependent Surveillance & Broadcast (ADB-S) provides pilots with detailed air displays. Such systems have already been introduced in parts of the United States and tested in Australia and Europe by the Swedish ANSP and by Eurocontrol. Another important change to promote greater awareness of safety within the cockpit is the use of data-link exchanges between pilots and control centres. Necessary equipment was first put into place at Miami airport and is expected to be introduced in Europe in 2006/2007. It will help to reduce loads on congested radio frequencies and generate further cost savings.

479. The future development of ATM is expected to be based on the global introduction of CNS/ATM, which combines new satellite technology and established

technology. However, given the costs involved, widespread application is still a distant prospect. CNS/ATM gives an accurate picture to pilots and controllers of all movement on the ground, in the air, and in some instances even of the future intended paths of aircraft. It could allow for "free flight" whereby pilots are able to choose the most efficient routing and modify it in real time in view of the exact traffic situation. The United States (Global Positioning System, GPS), Europe (Galileo) and the Russian Federation (Glonass) have all invested heavily into developing this system.

480. Other technological breakthroughs include the introduction of User Request Evaluation Tool (URET) technology in the United States, which provides images of traffic conflicts twenty minutes ahead of incident. This has allowed the addition of up to 2500 new direct routes saving US\$1.5 million per control centre and month. URET will form a key part of the future "free flight" concept. The FAA has also developed Required Navigational Procedures (RNP), which stipulate minimum requirements for aircraft; they will allow for decreased separation by virtue of the improved accuracy of aircraft placement. Eurocontrol, which initially introduced this procedure in 1998, has enhanced its requirements in certain areas with its Precision Rnav specifications in 2003. Precision Runway Monitors (PRM), also developed by the FAA, will allow landing on parallel runways even in inclement weather. The Standard Terminal Automation Replacement System (STARS), recently introduced in Philadelphia, provides controllers with advanced technology colour display screens, replacing older monochrome displays which are still in widespread usage. While the vast majority of these changes is introduced in Europe and North America, the most developed aviation markets, similar upgrading will subsequently be necessary elsewhere.

## E. DELAYS

481. Reduction of delays is a key objective for ANSPs. Punctuality of airlines is not only important for customer satisfaction, but also helps to ensure the smooth operation of global air traffic control. One five minute delay at a hub in the United States can have national repercussions throughout the day. Delays are expensive for airlines and harmful for the environment as they cause excessive fuel emissions. While ANSPs are frequently blamed for delays, 50 per cent of all flight delays are due to airline-internal causes; only 11 per cent are attributable to ATC under-capacity, and a marginal percentage by ATM failures in bad weather (Chart 11).

482. At the time of the first review, delays were of paramount importance, especially owing to the crip-

<sup>172</sup> Airline Business.





pling effects of the war in Kosovo (see compilation, page 131). The industry downturn following 9/11, SARS and the wars in Afghanistan and Iraq, coupled with technological advances such as the reduction of vertical separation, which have eased the burden of air traffic management, have brought a respite at least temporarily. However, with traffic now reaching record highs in Europe and forecast to double within the next 15 years, delays remain a key challenge for ANSPs. 2005 saw delay figures at their highest since 2000 in the United States. In Europe, the number of flights delayed by over 15 minutes increased by 18 per cent in 2005 compared to 2004, a rate which far exceeds traffic growth.

## F. ENVIRONMENTAL ASPECTS

483. ANSP operations can have an important impact on the environment. For instance, the use of direct optimised routes as well as the reduction of "circling" time at airport terminals help to reduce fuel emissions and noise pollution. In Europe, the situation has become a matter of urgency as the EC Environment Ministers have called on the Commission to table proposals for an aviation emissions-trading-scheme by the end of 2006. In response, CANSO members set up a task force to measure the environmental impact of ANSP operations and identify ways of mitigating it. An Environmental Forum has been mandated to facilitate the exchange of information and experience within the air navigation services industry.

## G. DEVELOPMENTS BY REGION

### 1. Europe

484. European ANSPs have sought to deepen their cooperation with airlines, with a view to achieving

greater flexibility in sequencing arrivals and departures, allocating gate resources and reducing expensive down time on the ground. The Dutch ANSP, LVNL, and the national airline, KLM, intend to cooperate with a view to being able even ten minutes before touch-downs to work together on sequencing and prioritising.

485. Modernisation elsewhere in Europe has been unequal. Many Eastern States have seen an explosion of traffic after the enlargement of the European Union. In response, Poland, Albania, Lithuania and (ex) Serbia and Montenegro have made major upgrades to their ATM systems during the period under review.

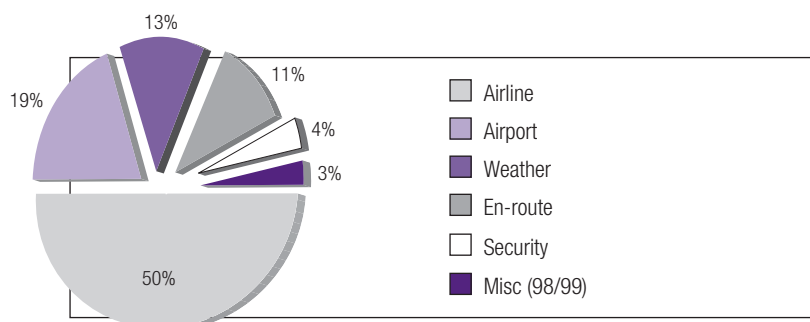
486. The Russian Federation has undertaken to modernize its ageing ATM systems. While remaining under government ownership, there have been indications that the authorities ponder the possibilities of corporatising and increasing exposure by exposing to market principles their ANS provider Rosaeronavigatsia. In 2003, Russia held discussions on the feasibility of reducing vertical separation and enhancing routing. The room for improvements in Russian airspace appears vast; early trials undertaken during the review period demonstrate that the introduction of a CNS/ATM system could save up to two hours of flying time compared with traditional routes.<sup>173</sup>

### 2. Africa

487. South Africa has made further significant progress over the past five years in the field of ATC. Air Traffic Navigation Services (ATNS), the ANSP of South Africa, scheduled the entry into force of a satellite navigation system for 2006, while maintaining and updating its conventional ground system. This is expected to

<sup>173</sup> CANSO Air Traffic Management Review 2006.

**CHART 11**  
**Primary departure delay causes – 2005**



Source: Association of European Airlines (AEA).

pave the way for a complete restructuring of South African airspace. ATNS has also recruited the help of Thales ATM to ensure the modernisation of three flight information regions.

488. South Africa cooperates with the Agency for the Safety of Aerial Navigation in Africa and Madagascar (ASECNA), a 14 member agency for air safety in the region, to promote the harmonisation of operations and communications. ASECNA has invested US\$264 million to upgrade services and equipment and reduce incidents. The agency has also entered into cooperation agreements with the French authorities, Eurocontrol, Algeria and several Indian Ocean States.

489. One of the most ambitious initiatives in Africa is the project by the East African Community States (Tanzania, Kenya and Uganda), to create a functional airspace block with centralised ANS provision. The feasibility of establishing a common Upper Flight Information Region is currently being studied.

490. Despite recent progress, accident rates in Africa have remained disproportionately high. According to IATA data, Africa represented 25 per cent of accidents in 2004 despite contributing only 4.5 per cent of world air traffic. IATA set the target of reducing accidents in the regions by 25 per cent over the 2004-2006 period.

491. Another particular concern in Africa relates to understaffing. For example, in Equatorial Guinea there are reportedly only four qualified controllers.<sup>174</sup> The situation has been aggravated by migration of staff towards the Middle East, which is experiencing fast growth in air transport. At least in South Africa, some support has been provided by Naviair, the Danish ANSP, which after streamlining post privatisation has sent controllers to make up for the shortfall.

### 3. Asia and Oceania

492. Asia has made significant progress in updating its ATM systems during the period under review. Change has been most dynamic in China, whose airspace has been reorganised. It will ultimately be reduced to five air control centres in 2010, as opposed to 27. These organisational changes have been accompanied by institutional reforms, including the transfer of airspace from military to civilian use.

493. Thailand has also fundamentally reorganised its ATM, an initiative made possible by the construction of a new Bangkok international airport at Suvarnabhumi. The Philippines has completed the basic design of their

future CNS/ATM system due to be operational by the first quarter of 2008.

494. Despite these strides, airlines in the region are seeking further improvements. The Association of Asia Pacific Airlines has called for increases in route efficiency, arguing that a one-minute reduction of flight time would result in savings of US\$2.7 billion per year.

495. New Zealand has undertaken the complete replacement of its ATC system under a ten year partnership contract with Lockheed Martin. The country has also begun to reorganise its airspace, in particular since it has taken control of airspace management over Tonga and Samoa.

### 4. North America

496. The changes that have occurred, in the United States, fall short of full corporatisation for the time being, and privatisation is not on the agenda. Executive Order 13180 was amended on 6 June 2002 to remove the "inherently governmental function" of air traffic management.<sup>175</sup> Both unions and the general public voiced concerns on this modification, seen as a step towards privatisation. Fears have been expressed that privatisation of ATC would be in sharp contrast with the nationalisation of airport security.

497. The Federal Aviation Authorities (FAA) has undergone major restructuring by creating a new division – the Air Traffic Organisation (ATO). One important initial change was the introduction of the institutional separation between service provision and the regulatory oversight. This separation is intended to bring a new element of accountability into the operations of the ATO and to speed up decision making.

498. The largest project undertaken to date by the ATO has been the restructuring of its service areas. Three service centres have been created to support the three ATO service areas, Eastern, Central and Western, and replace nine service area offices.

499. The ATO has consistently underlined that its first commitment is to promote the safety of air traffic management. It is not yet clear whether the ATO will aim to cut labour costs in the same way as many corporatised ANSPs have managed to do: currently 75 per cent of ATO's costs are staff-related.

<sup>174</sup> CANSO Air Traffic Management Review 2004.

<sup>175</sup> White House Press Release available at: <http://www.whitehouse.gov/news/releases/2002/06/20020606-5.html>



500. In 2007, the FAA will issue its plan for the future financing of ATM services. The current regime of taxes and fees, deposited into an Aviation Trust Fund, will expire on 30 September 2007. Discussions have already started as to whether user fees will be introduced and, if so, whether fees will be directly proportionate to the cost of service. The latter move could result in general aviation being confronted with an almost four-fold increase of fees. In turn, costs for commercial airlines would be reduced if the cross-subsidisation of general aviation were to be eliminated. A more traditional or intermediate solution would subject general and business aviation to a fuel tax. FAA analysts, however, predict that user fees will soon become operational in the United States.<sup>176</sup>

501. NAV Canada has continued to streamline during the period under review. Its fees in 2003 were still 28 per cent less than the tax they replaced. Amongst the new initiatives employed in Canada has been the leasing rather than purchasing of equipment, which is believed to have allowed savings of C\$56 million per year. Furthermore, NAV Canada undertook a major modernisation programme of its facilities in 2003.

## 5. Latin America

502. Despite the high increase in passenger volumes in the region, ATC progress has been reportedly slow and largely uncoordinated. This may lead to increased incompatibility of systems and further delay the establishment of an efficient regional system of air traffic management. IATA has underlined the need for modernisation in the region and further attention being given to safety, particularly in view of increasing traffic. The strong influence of the military in matters of ATC has hindered progress in the field of air traffic management, according to CANSO in a 2004 Report.

503. There have been calls in the region to develop satellite-based air navigation, but the response so far has been slow. Mexico and Brazil have made progress on this front. While Mexico has joined the North American CNS/ATM Implementation and Transition Plan, Brazil has conducted trials on a satellite-operated system and considers the reorganization of its airspace.

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<sup>176</sup> Airline Business, April 2006.



ISBN: 978-92-870-3384-0