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English only

REGULATORY AND INDUSTRY OVERVIEW

(ICAO Secretariat)

1. INTRODUCTION

1.1. This paper provides a global overview of regulatory and industry trends and developments of international air transport. It is divided in two parts:

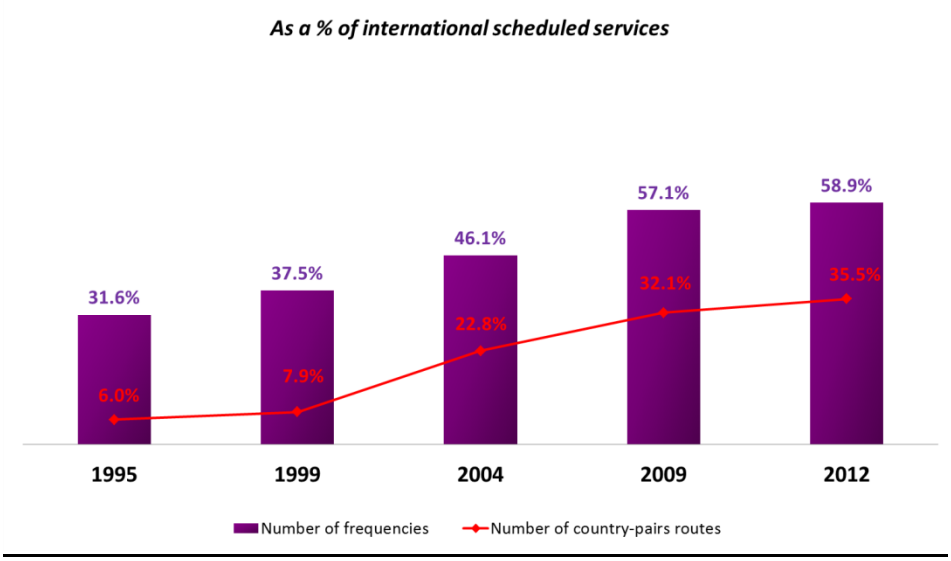
a) the first part looks at major regulatory movements towards the liberalization of international air transport, including bilateral and regional liberalization, air services negotiations involving a group of States, multilateral initiatives, national liberalization policies as well as competition and consumer protection policies; and

b) the second part reports on the air transport industry's responses to an ever changing and more competitive marketplace, including airline alliances, mergers and acquisitions, privatization, airline business models, product distribution and commercial space transportation developments.

2. REGULATORY DEVELOPMENTS

2.1. The liberalization of international air transport regulation continued to evolve at various levels since the 1980s. It is estimated that, in 2012, this involved about 35 per cent of country-pairs with non-stop scheduled passenger air services and about 58 per cent of the frequencies offered, through either bilateral "open skies" air services agreements (ASAs) or regional/plurilateral liberalized agreements and arrangements (compared with about 23 per cent and 46 per cent, respectively, eight years ago as shown in Figure 1 below). More detailed results on indicators evaluating the degree of liberalization are available in the Appendix.

Figure 1: Air transport services conducted under liberalized agreements or arrangements.



Source: ICAO

2.2. Liberalization results in enhanced connectivity, with corresponding benefits for economies and societies. For example:

a) the European Union (EU) saw a 310 per cent increase in intra-EU routes with more than two carriers between 1992, when the EU common aviation market went into effect, and 2009;

b) in 2005, 1.3 million passengers travelled between Thailand and Malaysia. Of this total, over 370 000 can be attributed to the combination of the liberalized regime and the entry of a new low cost carrier (LCC). This suggests that the direct and indirect effects of liberalization have caused a market expansion of over 37 per cent. Each State obtained more than 4 300 full-time equivalent jobs and a stimulus of over USD 114 million to their respective gross domestic products (GDPs);[1]

2.3 Bilateral liberalization

2.3.1 Bilateral ASAs remain the primary vehicles for liberalizing international air transport services for most States. During the past decade, about one thousand ASAs (including amendments and/or memoranda of understanding) were reportedly concluded. Over 70 per cent of these agreements and amendments contained some form of liberalized arrangements, such as expanded traffic rights (covering Third, Fourth and in some cases Fifth Freedom traffic rights), multiple designation with or without route limitations, free determination of capacity, a double disapproval tariff or free pricing regime, and broadened criteria of airline ownership and control.

2.3.2 One notable trend is the conclusion of bilateral "open skies" ASAs, which provide for full market access without restrictions on Third, Fourth and Fifth Freedom traffic rights, designation, capacity, frequencies, codesharing and tariffs. The first such agreement was concluded in 1992 between the Netherlands and the United States. As of March 2013, 440 Open Skies Agreements (OSAs) have been signed: 112 States signed OSAs with the United States, twenty-four with the EU, or any of its members, and nineteen States signed OSAs with both the EU (or any of its member States) and the United States. Over 60 per cent of the agreements also grant "Seventh Freedom" traffic rights for all-cargo services (twelve agreements granting this right for passenger services, and ten agreements granting "Eighth Freedom" traffic rights or consecutive cabotage rights for all services).

2.3.3 The first ICAO Air Services Negotiation (ICAN) event took place in Dubai, United Arab Emirates, in 2008 (106 participants, twenty seven participating States, 100 meetings held, twenty agreements signed); in 2009, ICAN was held in Istanbul, Turkey (200 participants, fifty-two participating States, 200 meetings held, sixty agreements signed); in 2010 the event was held in Montego Bay, Jamaica (160 participants, thirty-eight participating States, 200 meetings held, sixty agreements signed); in 2011, ICAN was held in Mumbai, India (350 participants, sixty-four participating States, 340 meetings held, over 120 agreements signed). In 2012 the event was held in Jeddah, Saudi Arabia (350 participants, sixty-two participating States, 350 meetings held, over 130 agreements signed). The next event will be held in Durban, South Africa, from 9 to 13 December 2013.

2.4 Regional and plurilateral liberalization

2.4.1 The adoption of group approaches to liberalization is used as an alternative means to regulatory change and adjustment for many States, as attested by the conclusion of a substantial number of agreements and arrangements on a regional basis or in a plurilateral form (i.e. an agreement amongst a few like-minded States but open for others to join). All are at different stages of development and implementation, but have the common objective of liberalizing the market amongst the States concerned. Some agreements also begin to build legal and institutional regulatory frameworks to govern the group market as a whole.

[1] http://www.intervistas.com/downloads/Economic_Impact_of_Air_Service_Liberalization_Final_Report.pdf.

2.4.2 At the regional level, the following agreements or arrangements for liberalization of intra-regional air transport services are currently in operation:

a) the Single Aviation Market within the European Union (EU, then European Community);[2]

b) the North American Free Trade Area (NAFTA), formed by United States, Canada and Mexico (1994);

c) the Decision on Integration of Air Transport of the Andean Community (CAN, then Andean Pact) (1991);

d) the Banjul Accord for an Accelerated Implementation of the Yamoussoukro Declaration (1997);

e) the Multilateral Air Services Agreement for the Banjul Accord Group (2004);

f) the Agreement on the Establishment of Sub-regional Air Transport Cooperation among Cambodia, Lao People's Democratic Republic, Myanmar and Viet Nam (CLMV) (1998; the Multilateral Agreement on Air Services was signed in 2003);

g) the Multilateral Air Services Agreement (MASA) of the Caribbean Community (CARICOM) (1998);

h) the Agreement on Sub-regional Air Services (Fortaleza Agreement) of the Southern Common Market (MERCOSUR) (1999);

i) the Agreement on Air Transport of the Economic and Monetary Community of Central Africa (CEMAC) (1999);

j) the Regulations for the implementation of Liberalization of Air Transport Services of the Common Market for Eastern and Southern Africa (COMESA) (1999);

k) the Decision relating to the implementation of the Yamoussoukro Declaration concerning the liberalization of access to air transport markets in Africa (Yamoussoukro II Ministerial Decision) of the African Union (AU) (2000);

l) the Agreement on the Liberalization of Air Transport of the Arab League States (2007). This agreement formalized the Intra-Arab Freedoms of the Air Programme devised in 2000 by the Arab Civil Aviation Commission (ACAC);

m) the Pacific Islands Air Services Agreement (PIASA) of the Pacific Island Forum (2007); and

n) the Air Transport Agreement of the Association of Caribbean States (ACS, 2008).

[2] The first liberalization package was started in 1987 within 12 member States, followed by the second package in 1990 and the third package in 1993 with a single market completed in 1997. The last step of liberalization is represented by the European Regulation 1008/2008, which consolidated in one text the three Regulations (2407, 2408 and 2409 of 1992) of the third package. The number of member States increased from 15 in 1995 to 28 in 2013 (Croatia joined EC on the 1st of July). The liberalization package has been applied also to the Member States of the European Free Trade Association (EFTA) belonging to the European Economic Area (EEA) since 1994 as well as Switzerland through a bilateral agreement on air transport since 2002. The Single Aviation Market was further developed to the European Common Aviation Area (ECAA) involving 38 States in 2006.

2.4.3 In addition, there are specific arrangements on expansion of air linkages, covering the Indonesia, Malaysia and Thailand-Growth Triangle - IMT-GT (1995) - and the Brunei, Indonesia, Malaysia and Philippines (BIMP) - East Association of Southeast Asian Nations (ASEAN) (1995). The ASEAN Single Aviation Market is expected to fully liberalize air travel between member states in the ASEAN region, allowing ASEAN countries and airlines operating in the region to directly benefit from the growth in air travel around the world, and also freeing up tourism, trade, investment and services flows between member states. Since 1 December 2008, restrictions on Third and Fourth Freedoms between capital cities of member states for air passengers services have been removed while full liberalization of air freight services in the region took effect from 1 January 2009. On 1 January 2011, full liberalization on Fifth Freedom traffic rights between all capital cities took effect.[3]

2.4.4 With respect to plurilateral agreements or arrangements, the Multilateral Agreement on the Liberalization of International Air Transportation (MALIAT), also known as the Kona "open skies" agreement, was concluded in 2000 by five like-minded members of the Asia Pacific Economic Cooperation (APEC): Brunei, Chile, New Zealand, Singapore and the United States. MALIAT entered into force in the following year, and subsequently joined by Peru (withdrew in 2005), Samoa, Tonga, Cook Islands, and Mongolia (cargo-only).

2.5 Air services negotiations involving a group of States

2.5.1 Along with the progress of intra-regional liberalization and economic integration, interaction between regions towards further liberalization has also been on the rise. Negotiations involving a group of States (for example, between one or more States on one hand and a group of States on the other; and between two groups of States) and the involvement of regional economic integration organizations in air service negotiations have introduced a new dimension in international air transport regulation.

2.5.2 In this respect, the EU has been the most active as a result of the judgement by the Court of Justice of the European Communities (ECJ). In 2002, ECJ ruled on a case brought in 1998 by the European Commission (EC) against eight member States which have concluded or amended bilateral ASAs (seven of them "open skies" agreements) with the United States. The ruling affirmed the ability of the member States to enter into bilateral ASAs with third countries to the extent that these do not affect Community rules on air transport.

2.5.3 As of mid-2012, nearly 1,000 bilateral ASAs include the EU designation clause, as well as revised provisions concerning the other areas where the EU has an exclusive competence. Altogether, 117 third countries have accepted the EU designation (fifty-five through EU horizontal agreements and sixty-two on a bilateral basis with individual Member States). However, some major partners have shown reluctance to recognise the principle of EU designation.

2.6 Multilateral initiatives

2.6.1 Although most international air services operate under bilateral or regional regimes, the International Air Services Transit Agreement (IASTA), which entered into force in 1945, provides for the multilateral exchange of rights of overflight and non-traffic stops for scheduled air services among its Contracting States. The Agreement is a cornerstone of multilateralism in air transport. The number of States which are parties to IASTA is 129 (as of May 2013), but about one third of ICAO Contracting States, including several with large land masses, remains outside the Agreement.

2.6.2 In Africa, the Yamoussoukro Decision (YD) deals with liberalization of air transport market access. Its main objectives are to facilitate inter-African connectivity and to develop an inter-African network, removing obstacles, such as restrictions on traffic and limitations on capacity and frequency between city pairs, as well as designation of competent airlines. Compared to the standard

[3] http://www.asean.org/archive/transport/Agreement-101112.pdf

bilateral ASA, the YD gives eligible airlines of all African States an aviation space, fair and equal opportunities to compete based on a common set of harmonized rules and eligibility criteria. The main thrust of the Decision is to gradually liberalize intra African air transport services in order to facilitate access to air transport markets in Africa. To grant authorization in practice based on provisions for bilateral exchange among African States as, an example, would require 1,431 ASAs to be signed between fifty-four states and 2,862 authorisations to be approved assuming each State designates one airline only. Whilst most States do apply YD, rights are granted on selective bases, influenced by the need for reciprocity and in some cases the request for royalties to be paid.

2.6.3 In 2009, seven States, through the platform of the International Air Transport Association (IATA) "Agenda for Freedom" initiative, took coordinated action by signing a "Statement of Policy Principles" in which the States undertook, as a political commitment, to liberalize key aspects of international air transport regulatory practice, including airline ownership and control by waiving the nationality clause "on the basis of reciprocity". This statement, endorsed by the European Commission, has since been signed by five additional States, and remains open for endorsement by any interested State.

2.7 National liberalization policies

2.7.1 In addition to the progress of liberalization at the bilateral, regional and multilateral levels, there has been a shift of regulatory approach taken at the national level, from detailed regulation of airline operations to relying more on market forces. Liberalization policies and measures adopted by States vary widely in terms of their coverage and application. Recent examples include:

a) Chile's commercial air policy, which aims at ensuring that the country has the best air connectivity, irrespective of the nationality of the air carrier operating these flights. This policy was established in law in 1979 which promotes a minimum amount of intervention from the authority in commercial matters, while proposing full opening of the skies to all States on a reciprocal basis, including cabotage. As a result of this policy, Chile currently has open skies agreements with more than forty States. Another result of this policy has been the positive development of the air transport industry in Chile on an entirely private basis, without State support.

b) Turkey has been using a Step-By-Step Liberalization Approach (SBSLA) over the last decade. In the past, there was one State-owned air carrier. Within the last decade, the market and the sector were restructured and reorganized. As a first step, the internal market was opened to competition for all domestic airlines. The second step was the privatization of the State-owned air carrier. As a third step, international flights were opened to competition for all domestic carriers. With the fourth step, additional traffic rights were granted to international carriers and more liberal ASAs were concluded. The on-going final step is the regional/multi-regional liberalization which is expected to be achieved through a case-by-case approach with the consent of all stakeholders. All these steps were accompanied by the adoption of new national regulations and infrastructure investments.

c) Singapore has adopted a liberal aviation services policy and has concluded over 120 ASAs. It is also member in multilateral agreements such as the Multilateral Agreement on the Liberalisation of International Air Transportation (MALIAT) and ASEAN Single Aviation Market-related ASAs. It participates actively in the ICAN, and has concluded and/or expanded over twenty bilateral ASAs at these Conferences since the first ICAN in 2008.

d) China has, in the past decade, pursued a "proactive, progressive, orderly and safeguarded" approach in opening up its market access for international air transport. In the 113 bilateral air transport agreements it has concluded, various liberalized

arrangements were introduced. In 2011, China concluded a regional air transport agreement with ASEAN.

2.8 Regional liberalization policies

2.8.1 The EU single market for air transport, which embraces not only the EU Member States, but also a number of other European Civil Aviation Conference (ECAC) Member States, has fuelled significant growth in air transport within Europe, arguably creating new jobs and delivering more choice and better value for consumers. EU/ECAC Member States continue to explore means of further improving efficiency, competition and quality within the single market, for example, through their work to develop a Single European Sky. The EU has pioneered a multilateral approach to liberalization through "Horizontal" air transport agreements, designed to align Member States' various bilateral ASAs with EU law and to extend access to the traffic rights available in those ASAs to all EU air carriers ("EU designation"). It has also created "Comprehensive" air transport agreements which replace individual ASAs with a single, all-embracing, liberal, agreement between the EU as a whole and the partner country in question (such as the agreements with key aviation partners as the US and Canada). Comprehensive agreements with neighbouring countries have the long-term objective to establish a wider "Common Aviation Area".

2.8.2 The EU single market is underpinned by a common regulatory regime designed, amongst other things, to deliver market access and ensure that air carriers can compete on an open, non-discriminatory and fair basis. Against this background, when negotiating comprehensive agreements with partner countries including other ECAC Member States, the EU and its Member States seek also regulatory convergence and insist on safeguards for open and fair competition as a condition for agreeing additional traffic rights.

2.9 Competition policies

2.9.1 As liberalization spreads, the question of how to maintain and promote fair competition in air transport is increasingly becoming an issue. About ninety States have competition laws of some sort with a number of bilateral antitrust enforcement cooperation agreements particularly between developed countries. The use of competition laws for the air transport sector has occurred not only with more frequency but also has encompassed a variety of issues, ranging from abuse of dominant position such as capacity dumping and predatory pricing, collusive behaviours including price-fixing, inter-airline coordination and alliances, consolidation through mergers and acquisitions, vertical business relationships in product distribution to State aid. One of the fundamental problems is how to distinguish between unfair and normal competitive behaviours, and reliance has been placed on analyses and development of standards through a case by case approach.

2.9.2 Unlike most competition laws which are for general application, aviation-specific rules were also developed by some regional groups. In 2004, the European Commission was granted additional authority by two regulations: a regulation to extend the Commission's competition law authority to agreements between Community airlines and third country airlines[4], and a regulation on the protection of Community airlines against subsidization and predatory pricing practices of third country airlines.[5]

2.9.3 Several regional bodies, such as the African Union (AU), ASEAN, the Arab Civil Aviation Commission (ACAC) and the Latin American Civil Aviation Commission (LACAC), have been developing provisions on fair competition using, in some cases, ICAO guidance.

[4] EC Regulation 847/2004.
[5] EC Regulation 868/2004.

2.10 Consumer protection policies

2.10.1 Protection of consumer interests covers many elements, including air passenger rights and the contractual relationship between airlines and their users. There may exist some instances where competition does not necessarily guarantee a minimum level of service levels that customers can expect, mainly because of the lack of information available to them and their weak negotiating position. Certain elements might not even be a matter of competition between airlines. Concerns about the limits of competitive response have induced a number of States to ask the industry to develop voluntary commitments (non-legally binding self-regulation) and/or to take some direct regulatory measures that address consumer interest issues such as denied boarding compensation, flight cancellations and access for incapacitated passengers.

2.10.2 The Sixth Worldwide Air Transport Conference (ATConf/6) recommended that ICAO develop a set of high level non prescriptive core principles on consumer protection[6], which should "strike an appropriate balance between protection of consumers and industry competitiveness and which take into account the need of States for flexibility given different State social, political and economic characteristics."

2.11 Commercial space transportation

2.11.1 The emergence of space transportation as a commercial activity has drawn attention on the need for regulatory predictability, and in particular on the necessary clarification of which set of rules apply to such activity: aviation law or space law, or a combination of these regimes. The industry, regulators and academics have already started brainstorming to explore possible ways of regulating aerospace transportation.[7]

2.11.2 So far, a few high net worth individuals have had the opportunity to commercially fly in the outer space as tourists, taking off and landing from the same location. In the near future, however, the rapid technological and commercial development could allow the transportation of passengers and freight from a point to another, crossing through both airspace and outer space. One of the first issues to be addressed is the need to clearly define the legal boundary between air space and outer space.

2.11.3 In addition, issues such as navigational and communication services, airworthiness and space worthiness of vehicles, crew training, certification of aerodromes and spaceports, traffic rights, liability for damage and injury will need to be addressed.

3. INDUSTRY DEVELOPMENTS

3.1 Along with the trend towards liberalization, the airline industry has continued to undergo major structural transformation and to adjust to a dynamic marketplace. On the one hand, airline strategy and planning has been focusing more on alliances, consolidation and cross-border equity investments to exploit network-based economies of scale and scope. On the other hand, the full service network model of traditional major airlines has come under scrutiny in an increasingly competitive environment. In addition, e-commerce is now a firmly established facility, which has been used extensively by the industry in marketing and selling its products. For airports and air navigation services providers, the anticipated demand growth and the new types of traffic generated in large part by liberalization increase business opportunities but require significant investments in an efficient and timely manner.

[6] Doc 10009 – Report of the Sixth Worldwide Air Transport Conference – Recommendation 2.3/1 b)

[7] The possible ways of regulating the aerospace transportation were discussed at the Regulation of Emerging Modes of Aerospace Transportation – REMAT Conference, organized by the Institute of Air and Space Law of McGill University, ICAO and International Association for Advancement of Space Safety (IAASS), held in Montreal on 24 and 25 May 2013.

3.2 Airline alliances

3.2.1 One of the strong global trends is the formation by airlines of alliances: voluntary unions of airlines held together by various commercial cooperative arrangements. The phenomenon has been evolving since 1997, when Star Alliances was created by five major airlines.[8] The expansion of alliances is a consequence of airlines' response to, inter alia, perceived regulatory constraints (such as bilateral restrictions on market access, ownership and control), a need to reduce their costs, and economic incentives to restructure into larger networks as markets become more competitive. Alliance agreements contain a variety of elements, such as codesharing, blocked space, cooperation in marketing, pricing, inventory control and frequent flyer programmes (FFPs), coordination in scheduling, sharing of offices and airport facilities, joint ventures, revenue sharing and franchising.

3.2.2 While numerous agreements concern cooperation on a limited scale (for example, codesharing on certain routes), the number of wide ranging strategic alliances has been on the rise. Most notable was the of three "global alliance" – Star Alliance, OneWorld and SkyTeam. The three main alliances continued to grow with the introduction of new members. Each global alliance group remains unstable with partnership relations becoming intertwined and complex. For instance, the alliances are expanding their membership base with airlines operating in complementary markets to those of existing members. Star Alliance welcomed AviancaTaca (Colombia) and Copa Airlines (Panama) in 2012. Sky Team's access to the Middle East was further developed with the introduction of Saudia (Saudi Arabia) and Middle East Airlines (Lebanon). Oneworld welcomed two new members: Malaysian Airlines (Malaysia) and SriLankan Airlines (Sri Lanka), cementing their association with Asian carriers. Shanghai Airlines (China) merged with China Eastern Airlines (China) and joined SkyTeam in 2011.

3.2.3 Recently, there have also been a number of potentially game-changing announcements, which are already altering the shape of the alliance landscape such as news reports of bilateral joint business arrangements (JBAs)[9] where generally two, sometimes more, airlines act as one on a single route or across a network [10] . Finnair (Finland) with American (United States), British Airways (United Kingdom) with Iberia (Spain) or the experience of Etihad (United Arab Emirates – forty-two codeshare arrangements, including four where it has made an investment in the partner airlines' shares) are clear demonstrations that there is an alternative to the multilateral alliance.

3.2.4 Major alliances and inter-airline activities have been closely monitored and reviewed by relevant regulatory and competition bodies and, in some cases, certain regulatory measures were introduced to ameliorate the potential anti-competitive effects. Each State is still granting antitrust immunity for airline alliances in accordance with its own competition laws and no international standards or agreements currently exist. In July 2010, the United States Department of Transportation (DoT) finalized its decision that gave antitrust immunity to American Airlines (United States), British Airways (United Kingdom), Iberia (Spain), Finnair (Finland) and Royal Jordanian (Jordan) to work together across the North Atlantic, creating an integrated global alliance under Oneworld. Those carriers had to accept a few conditions to allow competition on some routes, which are about the ones imposed by the European Commission.

3.2.5 In April 2013, Delta Airlines (United States) and Virgin Atlantic Airways (United Kingdom) have filed an application with the United States DoT for antitrust immunity for their new joint venture on flights between North America and the United Kingdom. The airlines have also sought antitrust immunity for five-way coordination on United Kingdom-North America traffic flows among Delta Airlines, Virgin Atlantic, Air France (France), KLM (Netherlands) and Alitalia (Italy) to facilitate the effective operation of the two joint ventures.

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[8] Lufthansa, United Airlines, Air Canada, Scandinavian Airlines and Thai Airways.

[9] Joint business arrangements: deepening relationships between individual partners, either as alliances within alliances or between non-aligned partners.

[10] http://www.flightglobal.com/news/articles/analysis-alliance-membership-joint-venture-or-both-383780/

3.2.6 In April 2013, Air Tahiti Nui (French Polynesia), Delta Airlines, Air France, KLM and Alitalia have applied for approval of antitrust immunity for alliance agreements covering foreign air transportation via transatlantic routings. It will provide for "metal neutrality"[11] and revenue sharing on the trunk route between Los Angeles and Paris and for codesharing beyond Paris hub routes.

3.2.7 In May 2013, JetBlue Airways (United States) and Emirates (Dubai), announced intent to expand their current partnership to include bilateral codesharing, pending Federal Aviation Administration (FAA) and DoT regulatory approval and subject to receipt of foreign government operating authority. The agreement deepens a three-year partnership between the two carriers. Table 1 below refers to the aforementioned global alliances.

Table 1. Global Alliances

Alliance	Date	Members
Star Alliance	May 1997	**Air Canada, Lufthansa, SAS**, **Thai Airways International**, and **United Airlines** (founded the Alliance in May 1997), **Air New Zealand** (March 1999), **All Nippon Airways** (October 1999), **Austrian Airlines** (with Lauda Air and Tyrolean Airways, March 2000), **Singapore Airlines** (April 2000), **Asiana Airlines** (March 2003), **LOT Polish Airlines** (October 2003), **US Airways** (May 2004), **Adria Airways** (December 2004), **Croatia Airlines** (December 2004), **TAP Portugal** (March 2005), **Swiss** (April 2006), **South African Airways** (April 2006), **Air China** (December 2007), **Turkish Airlines** (April 2008), **EgyptAir** (July 2008), **Brussels Airlines** (December 2009), **TAM Airlines,**[12] (May 2010), **Aegean Airlines** (June 2010), **Avianca** (2012), **Ethiopian Airlines** (2011), TACA (2012), **Shenzen Airlines** (November 2012), **Copa Airlines** (June 2012), **EVA Air** (June 2013).
Oneworld	September 1998	**American Airlines, British Airways, Cathay Pacific Airways, Qantas** (founded the alliance in September 1998), **Iberia** (September 1999), **Finnair** (September 1999), **LAN Airlines** (June 2000), **Royal Jordanian** (April 2007), **Japan Airlines** (April 2007), **Air Berlin** (2012), **S7 Airlines** (2010), **Malaysian Airlines** (2013).
SkyTeam	June 2000	**AeroMexico**, **Air France**, **Delta Airlines, Korean Air** (founded the alliance in June 2000), **CSA Czech Airlines** (April 2001), **Alitalia** (July 2001), **KLM Royal Dutch Airlines** (September 2004), **Aeroflot** (April 2006), **Air Europa** (September 2007), **Kenya Airways** (September 2007), **China Southern Airlines** (November 2007), **Vietnam Airlines** (June 2010), **Tarom** (June 2010), **China Airlines** (2011), **China Eastern Airlines** (2011), **Saudia** (2012), **Middle East Airlines** (2011), **Xiamen Airlines** (2012), **Aerolineas Argentinas** (August 2012).

Source: Alliances web pages (updated July. 2013)

[11] "Metal neutral" describes a trend in the airline industry in which a member of an airline alliance sees the sale of tickets using the aircraft (or "metal") of a different alliance member as being just as important as selling tickets on its own routes (see http://www.travel-industry-dictionary.com/metal-neutral.html).

[12] TAM Airlines will leave Star Alliance and moving to Oneworld after the merger with LAN Chile, a Oneworld member. This is expected to materialize in late 2013-early 2014.

3.3 Mergers and acquisitions

3.3.1 Airlines in many parts of the world have continued the pursuit of the perceived advantages brought by mergers, acquisitions or operational integration under a single holding company. The common motive of this trend is the need to remain competitive. A merger with a competitor may serve to hold and develop the market presence, gain access to new markets, achieve cost savings especially in response to the sharp increase in fuel prices and low-fare competition, and shield themselves against competition through the reduction of capacity on the overlapping routes, thereby increasing the yield.

3.3.2 With a few notable exceptions, most mergers or acquisitions were achieved within the same State. Until the early 2000s, only a smaller number of attempts at cross-border mergers or acquisitions had been achieved owing to the aero-political, economic and regulatory complexity. Nevertheless, the opportunity for cross-border mergers and acquisitions has been increasing as the economy becomes globalized and many States adopted new policies or rules on foreign investment and control in national airlines, and relaxed the airline ownership and control conditions in their ASAs. Notable recent cases are the following ones:

a) Delta Airlines and NorthWest (United States) merged in January 2010;

b) In October 2010, United Airlines (United States) completed its acquisition of Continental Airlines (United States). The two airlines remained separated until the operational integration;

c) Air Caribbean (Trinidad and Tobago) acquired Air Jamaica (Jamaica), which was divested by the Government of Jamaica, in 2010;

d) Iberia and British Airways merged and created the International Airlines Group (IAG) in January 2011. Both airlines continue to operate under their common brands;

e) In May 2011, Southwest Airlines (UNITED STATES) acquired AirTran Airways (UNITED STATES). The full integration of the carriers is expected to be complete by 2014;

f) LAN (Chile) and TAM (Brazil) merged in 2012, creating the LATAM Airlines Group;

g) In March 2013, Airlinair, Brit Air and Regional (France), regional airline companies within the Air France group, merged to create HOP! which will serve also as a feeder for the Air France network;

h) In June 2013, Delta Airlines acquired a 49 per cent stake in Virgin Atlantic;

i) In July 2013, Virgin Australia Holdings Limited (Australia) and Tiger Airways Holdings Limited (Singapore) confirm that they have today completed the transaction announced on 30 October 2012, with Virgin Australia acquiring 60 per cent of Tiger Airways Australia;

j) In August 2013, Etihad (Abu Dhabi) secured regulatory approval to acquire 49 per cent of JAT Airways (Serbia) and had been awarded a five year management contract. JAT Airways will be rebranded as Air Serbia;

k) In February 2013, it was announced that American Airlines and US Airways (United States) would merge, retaining the American Airlines name and remaining in the Oneworld alliance while US Airways will be leaving the Star Alliance group. Whilst the operation has been conditionally cleared by the European Commission in August 2013, the merger gave rise to a complaint filed by the United States Department of Justice based on the *Clayton Act*.

3.3.3 Cross-border equity investments have been carried out often as part of a strategy to forge or strengthen alliances and in a limited scale, instead of taking a majority stake or pursuing a full scale merger.

3.3.4 ATConf/6 recommended States to continue liberalizing air carrier ownership and control[13] and recommended ICAO to work on the development of an international agreement involving all the parties interested (experts, States, aviation stakeholders and interested organizations). Table 2 refers.

Table 2. Domestic Mergers and Acquisitions: Major Cases since 2000

2000	Air Canada's acquisition of Canadian Airlines.
2001	American Airlines' bankruptcy buyout of Trans World Airlines.
2002	establishment of Alianza Summa by Avianca and Aces (dismantled in 2003).
2002	establishment of Japan Airlines Corporation by Japan Airlines and Japan Air System.
2002-2005	creation of three Chinese airline groups headed by Air China, China Eastern Airlines and China Southern Airlines through mergers with other smaller State-owned airlines.
2005	merger of SN Brussels Airlines and Virgin Express under common ownership (became Brussels Airlines in 2006).
2005	America West Airlines' acquisition of US Airways (operating under the US Airways name).
2006	Air Berlin's acquisition of dba.
2007	merger of Air India and Indian Airlines under National Aviation Company of India.
2008	merger of Delta Airlines and Northwest Airlines (operating under the Delta name, completed in 2010).
2009	merger of Vueling Airlines and Clickair (operating under the Vueling name).
2010	merger of China Eastern Airlines and Shanghai Airlines under common ownership.
2010	merger of Continental Airlines and United Airlines (operating under the United name).
2011	acquisition of AirTran Airway by Southwest Airlines. On March 1, 2012, the company was issued a single operating certificate, technically becoming one airline.
2011	merger of Iberia and British Airways which creates the International Airlines Group (IAG). Both airlines continue to operate under their common brands.
2011	merger of Olympic Air and Aegan Airlines.
2012	merger of LAM and TAM which creates the LAMTAM airlines Group.
2013	announcement of the merger of US Airways and American Airlines.

Source: ICAO

[13] *Report of the ATConf/6* – Recommendation 2.2/1 (Doc 10009)

3.4 Privatization

3.4.1 Privatization of government-owned airlines has been one of the pre-eminent transformations in air transport. The motives for privatization have been highly diverse, ranging from purely economic considerations, to try to improve operating efficiency and competitiveness, to a more pragmatic desire to reduce the heavy financial burden for governments for financing capital investment in new equipment. Whatever the reasons, the privatization of government-owned airlines has accompanied a more commercially oriented outlook within a liberalized competitive environment.

3.4.2 It should be noted that achievement of privatization has not been easy. Many of the initial privatization plans had to be deferred or postponed because of the complexities encountered in the process or the economic condition of the airlines concerned, or local circumstances, although in most such cases the intention to privatize remains. The uncertainties surrounding the privatization process are also illustrated by a small counter trend of renewal, usually as a temporary measure, of government ownership as a national interest response to the potential demise of a privatized airline. Aerolineas Argentina, Air Jamaica, Air Mauritius, Air Tanzania, BWIA West Indies Airways, LIAT, and Pluna Líneas Aéreas Uruguayas are examples of privatized airlines, in which the governments raised their shareholdings since 2004. In April 2013, Poland's government has passed a regulation that paves the way for the privatization of LOT Polish Airlines. Kuwait Airways, Saudi Airlines and TAP are expected to be privatized in the next future.

3.5 Airline business models

3.5.1 The success of LCCs has confirmed in recent years challenging the full service network model of traditional major airlines as well as the holiday package business of charter airlines. The common features of the business model of LCCs are, with some variations: point-to-point network focusing on regional routes, high frequencies, simple low fare structures, high-density single class with no seat assignment, simple in-flight services, staffing flexibility and minimal overheads, and intensive use of electronic commerce (e-commerce) for marketing and distribution. To sustain low-cost structures, these airlines usually operate a single aircraft type with higher daily aircraft utilization. They often use less-congested secondary airports to ensure short turn-rounds and high punctuality and to save airport related costs. It is the low operating costs that enable LCCs to allocate a large portion of their seats to low fares even though, in the last years, LCCs use also major airports (as is the case of Easyjet in Europe).

3.5.2 The low-cost formula has been adopted by many new entrants in the United States following domestic deregulation in 1978. Although only few of the earlier entrants survived, successful LCCs have established sustainable significant cost advantages, and grown rapidly at the national level (for example: Southwest Airlines, JetBlue Airways and Virgin America in the United States, Westjet in Canada, GOL in Brazil, Virgin Blue Airlines in Australia, Skymark Airlines in Japan, Spring Airlines in China, IndiGo and SpiceJet in India, Nas Air and Sama in Saudi Arabia, and 1Time in South Africa). The LCC phenomenon has also been increasingly international (for example: Ryanair and EasyJet in Europe, AirAsia in South East Asia, and Air Arabia and Jazeera Airways in Middle East). The low-cost model has been spreading quickly with some successful LCCs investing in airlines in neighbouring countries. For example, AirAsia established its affiliate airlines in Indonesia, Thailand and other countries, as Virgin Blue Airlines established Pacific Blue Airlines (New Zealand) and Polynesian Blue Airlines (Samoa).

3.5.3 The analysis of the capacity of LCCs in the last 10 years shows a considerable increase of the seats offered. For example, the number of seats offered by LCCs in Europe has increased by an average of 14 per cent per year over the last decade, compared to a 1 per cent average annual rise in capacity among legacy carriers. Traditional airlines increased their annual market volume by 2.8 million seats between May 2004 and May 2013. LCC capacity within Europe, by contrast, has grown at an

average rate of 14 per cent each year, and the market has tripled from just below 10 million seats to just over 30 million. The top five country markets for LCC capacity in Europe are the United Kingdom, Spain, Italy, Germany and France, all with over 3 million international LCC seats in May 2013[14]. Some examples of successful LCCs are GOL in Latin America, Ryanair in Europe, Air Arabia in the Middle East, Atlas Blue in Africa, and AirAsia in the Asia Pacific Region.

3.6 Fastest growing LCCs

3.6.1 EasyJet is the largest airline of the United Kingdom, measured by number of passengers carried on over 600 routes in thirty-two countries. As of March 2013, it employs over 8 000 persons, based throughout Europe. EasyJet has seen rapid expansion since its establishment in 1995, having grown through a combination of acquisitions and base openings fuelled by consumer demand for low-cost air travel. The airline, along with subsidiary airline EasyJet Switzerland, has twenty-three bases across Europe. In 2012, it carried over 50 million passengers and was the second-largest low-cost carrier in Europe, behind Ryanair. EasyJet has been able to undertake the acquisition of several rival airlines. In March 1998, it purchased a 40 per cent stake in Swiss charter airline TEA Basel, which was renamed EasyJet Switzerland and commenced franchise services on 1 April 1999. In 2002, it purchased GO, a rival airline founded by British Airways in 1998. Its fleet consists of the following aircraft (as of July 2013): 138 Airbus A319-100s and fifty-four Airbus A320-200s. Recently, it has ordered forty-eight Airbus A320-200s and 100 Airbus A320neo.

3.6.2 Ryanair, since its establishment in 1984, has grown from a small airline flying the short journey from Waterford to London into the biggest European LCC as well as one of Europe's largest carriers. After the rapidly growing airline went public in 1997, funds raised were used to expand the airline into a pan-European carrier. It now employs over 8 500 staff members (as of 2012) including over 1 200 pilots. In 2012, Ryanair announced its intentions to make an all-cash offer to buy Aer Lingus. On 15 May 2013, Ryanair CEO announced plans to target European-USA flights. As of June 2013, its fleet consists of 303 Boeing B737-800. In March 2013, it signed an order for 175 new Boeing B737-800s.

3.6.3 AirAsia, a Malaysian low-cost airline, has grown from a domestic airline to an international one, serving more than fifty-five destinations from its five hubs in Malaysia. It has four affiliates: Thai AirAsia, Indonesia AirAsia, Philippines' AirAsia and AirAsia Japan and AirAsia X which is focused on the low-cost, long-haul segment. [15]

3.6.4 Facing growing cost and competitive pressures, major network airlines and charter airlines have been forced to change their business priorities towards redesigning their business concepts and developing alternative models for their operations. One of the models chosen by the major network airlines is to set up separate organizations or subsidiaries to handle operations on short-haul routes to be able to compete with LCCs and to avoid the potential threat of new entrants as shown in **Table 3**. This low-cost "airline within an airline" strategy, despite limited success of earlier attempts, tries to combine key ingredients of LCCs' approach with the reputation and quality of their own brand. Again, an "airline within an airline" is a formula that is developed mainly for domestic services but is also extended to international services.

[14] http://www.oag.com/sites/default/files/May%20FACTS.pdf
[15] http://www.airasia.com/

Table 3. Low-Cost "Airline within an Airline"

Network Airlines (parent)	LCCs (subsidiary)	Year
Air Canada	Rouge	2013
Air France-KLM	Transavia.com	2005
	Hop!	2013
Air India	Air India Express	2004
Bmi British Midland	Bmibaby	2002
British Airways	Openskies	2008
Comair	Kulula.com	2001
Garuda Indonesia	Citilink	2001
Iberia	Vueling Airlines*	2004
Korean Air	Jin Air	2008
Mexicana	Click Mexicana	2005
Philippine Airlines	PAL Express	2008
Qantas Airways	Jetstar	2003
	Valuair*	2003
	Jetstar Asia*	2004
	Jetstar Pacific*	2008
Royal Air Maroc	Atlas Blue	2004
SAS	Blue 1	2004
Singapore Airlines	Tiger Airways*	2003
South African Aiways	Mango	2006
Thai Airways	Nok Air*	2004
Vietnam Airlines	Jetstar Pacific	2009

Source: ICAO
**: denotes minority shareholding*

3.7 Hubs

3.7.1 The more common but informal use for the phrase airline hub is an airport that an airline uses as a transfer point to get passengers and freight to their intended destination. It is part of a hub and spoke model, where travelers moving between airports not served by direct flights, change planes en route to their destinations[16]. This is as opposed to the Point to Point model (mostly used by LCCs). Hubs began to develop after the airline industry deregulation in 1978. Table 4 below refers.

[16] The United States Federal Aviation Authority (FAA) ranked hubs are airports ranked as large, medium, small, and non-hubs. In details they are Nonhub primary (airports handling less than 0.05% of the annual passenger boardings); Small hub primary (airports with 0.05 to 0.25% of the annual passenger boardings); Medium hub primary (airports handling 0.25 to 1% of the annual passenger boardings) and Large hub primary (airports handling over 1% of the annual passenger boardings).

Table 4: List of main hubs for airline alliances.

ONEWORLD	
Airport	**Airline**
Dallas/Fort Worth International Airport	American Airlines
Hong Kong International Airport	Cathay Pacific
Narita International Airport	Japan Airlines
Moscow Domodedovo Airport	S7 Airlines
London Heathrow Airport	British Airways
Madrid-Barajas Airport	Iberia
Queen Alia International Airport	Royal Jordanian Airlines
Miami International Airport	American Airlines
Sydney Airport	Qantas
Helsinki-Vantaa Airport	Finnair
Berlin-Tegel Airport	Air Berlin
Comodoro Arturo Merino Benítez International Airport	LAN Airlines
Kuala Lumpur International Airport	Malaysia Airlines

SKYTEAM	
Airport	**Airline**
Incheon International Airport	Korean Air
Amsterdam Airport Schiphol	KLM
Leonardo da Vinci-Fiumicino Airport	Alitalia
Moscow Sheremetyevo Airport	Aeroflot
Detroit Metropolitan Wayne County Airport	Delta Air Lines
Hartsfield-Jackson Atlanta International Airport	
Cincinnati/Northern Kentucky International Airport	
Minneapolis-Saint Paul International Airport	
John F. Kennedy International Airport New York City	
Mexico City International Airport	Aeroméxico
Paris-Charles de Gaulle Airport	Air France
Prague Ruzyne Airport	Czech Airlines
Jomo Kenyatta International Airport	Kenya Airways
Madrid-Barajas Airport	Air Europa
Tan Son Nhat International Airport	Vietnam Airlines
Taiwan Taoyuan International Airport	China Airlines
Shanghai Pudong International Airport	China Eastern Airlines

STAR ALLIANCE	
Airport	**Airline**
OR Tambo International Airport	South African Airways
Haneda Airport	All Nippon Airways
Incheon International Airport	Asiana Airlines
Charlotte/Douglas International Airport	US Airways
Frankfurt am Main Airport	Lufthansa
Munich Airport	
Warsaw Airport	LOT Polish Airlines

Houston George Bush Intercontinental Airport	United Airline
Washington Dulles International Airport	
Newark Liberty International Airport	
Singapore Changi Airport	Singapore Airlines
Toronto Pearson International Airport	Air Canada
Zurich-Kloten Airport	Swiss International Air Lines
Cairo International Airport	EgyptAir
Atatürk International Airport	Turkish Airlines
Addis Ababa Bole International Airport	Ethiopian Airlines
Suvarnabhumi Airport	Thai Airways International
São Paulo–Guarulhos International Airport	TAM Airlines
Thessaloniki International Airport	Aegean Airlines
Athens International Airport	
Heraklion Airport	
El Dorado International Airport	Avianca
Comalapa International Airport	
Jorge Chávez International Airport	

Source: http://en.wikipedia.org/wiki/Airline_hub

3.7.2 With the deregulation and the agreements between States or groups of States, the concept of the hub has been modified. Secondary hubs with a large share of short haul traffic are becoming less attractive for the main air carriers. In Europe, for example, certain small hubs are struggling to keep operating while main ones, which are more focused on the spoke and hub model, are facing a strong competition from emerging hubs in other regions.

3.7.3 Hubs are often directly linked with airlines: Atlanta with Delta Airlines, London with British Airways, Beijing with Air China, Frankfurt with Lufthansa, Dubai with Emirates are a few examples of airports with close links to a dominant airline.

3.8 Product distribution

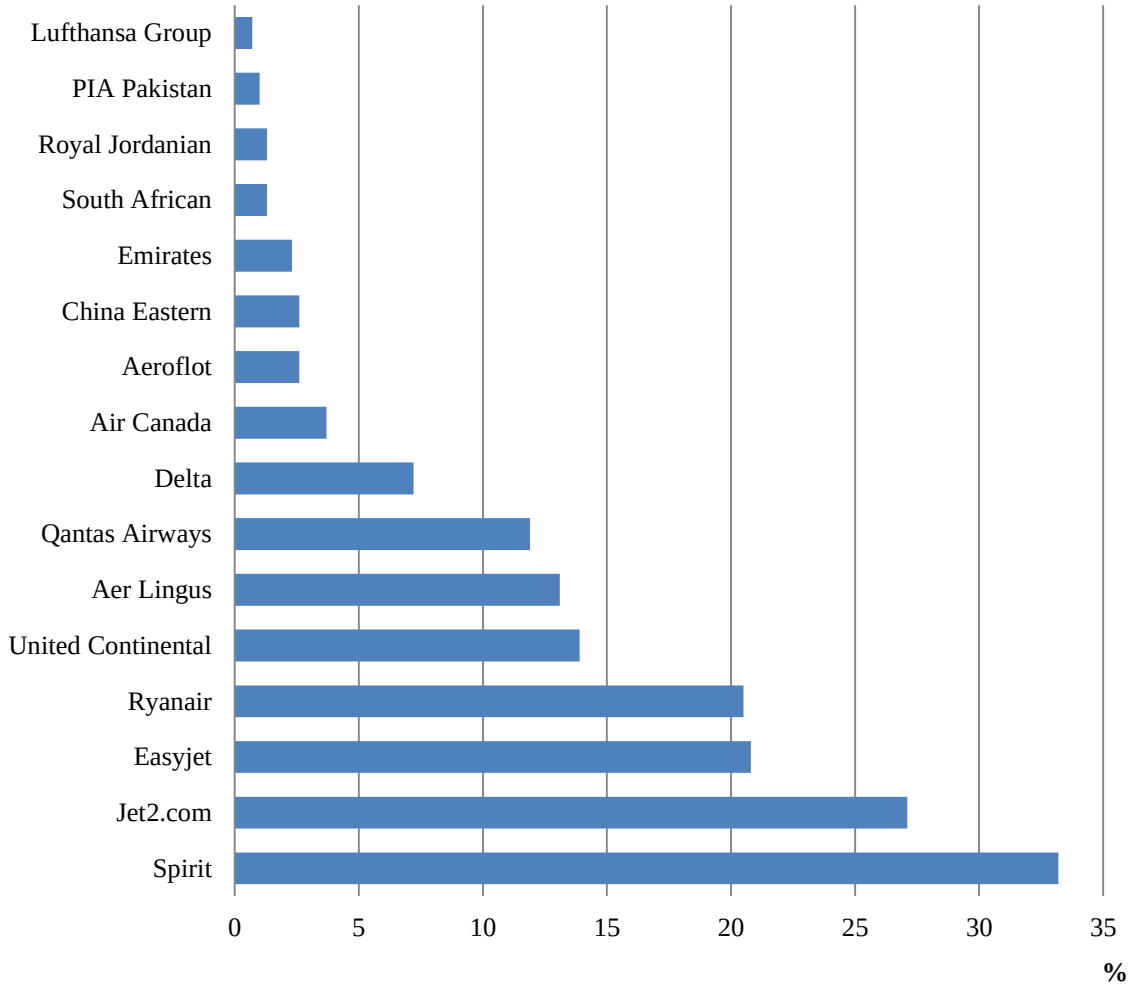
3.8.1 The three major global Computer Reservation System (CRS) vendors (Amadeus, Sabre and Travelport) have seen themselves as global distribution systems (GDSs), and actively acquired stakes in regional CRS vendors, set up joint ventures and concluded partnership agreements with local interests to expand their business overseas. Nowadays, GDSs typically allow users to book hotel rooms or cars. They also provide access to railway reservations and bus reservations in some markets[17].

3.9 Share of ancillary revenues in total airlines' revenue

3.9.1 Air carrier income from non-ticket sources, such as baggage fees and sale of on-board food and services, has become a significant financial component, notably for LCCs. The importance of ancillary revenues has further increased and, for many carriers, they accounted for a huge part of their total revenues, according to industry studies, like for Allegiant (29 per cent), Spirit Airlines (23 per cent) and Ryanair (22 per cent). Figure 2 refers.

[17] The main GDS systems are: ameliaRES, Abacus, Accelaero, Takeflite, Axess, Amadeus, Internet Booking Engine, Patheo, KIU, Travelport, Mercator, Radixx, Navitaire, Sabre, TravelSky, Pars/Shares by EDS.

Figure 2: Ancillary revenues as a percentage of the total revenues (2011)



Fonts: The Amadeus Yearbook of Ancillary revenue by Ideaworks Company

3.10 **Commercial space transportation**

3.10.1 Some companies are already offering sales of orbital and suborbital flights. According to estimates, for supersonic/hypersonic flights into the extreme stratosphere, the market size could vary between USD 10 and 100 billion; for commercial launches to low earth orbit, it could be not less than USD 10 billion; for space tourism and adventures, the potential market size could reach USD 2 billion. For private space stations/habitats, the market size could be between USD 1 and 2 billion. Below is a short description of the more advanced projects.

a) **Virgin Galactic (United Kigndom)**
Other than providing suborbital launches for space science missions and orbital launches of small satellites, it also plans to provide sub-orbital space flights to space tourists. The first commercial flight of its vehicle (the SpaceShipTwo), which will

have a crew of two pilots and room for six passengers, is scheduled for 25 December 2013. As of May 2012, more than 550 people are reported to have signed up for a flight, each paying USD 200 000 to experience approximately six minutes of weightlessness during what will be a two-hour end-to-end flight. The company decided to start operations in the New Mexico where authorities are investing almost USD 200 million in a purpose-built facility.

b) **Space Adventures (United States)**
Space Adventures is a space tourism company founded in 1998. It offers zero-gravity atmospheric flights, orbital space flights and other spaceflight-related experiences (cosmonaut training, spacewalk training, and launch tours). A few clients have participated in the orbital spaceflight program with Space Adventures.

c) **SpaceX (United States)**
SpaceX is a private space company which is developing their own rocket family called Falcon and a capsule named Dragon, capable of sending up to seven people to any space station. Falcon 1 has already undertaken test flights and successfully completed its first commercial flight on 14 July 2009. SpaceX anticipates that Dragon could be qualified for human spaceflight. On 25 May 2012, an uncrewed variant of Dragon became the first commercial spacecraft to successfully rendezvous with the International Space Station.

d) **Excalibur Almaz (United Kigndom)**
Excalibur Almaz is a private company which plans to use modernized space capsules to carry paying research crews into low Earth orbit and beyond. In June 2012, it announced it was ready to sell tickets for private expeditions to the moon, and expects to undertake the first of these voyages by 2015.

4. CONCLUSIONS

4.1 The adoption of liberalization programmes and measures by States to open up the air transport sector has been transforming the operating environment for international airlines, while the industry's strategic responses to constantly changing and often uncertain economic and commercial opportunities have been the major driving force for regulatory changes and adjustments. The spread of liberalization and the emergence of new business practices in the aviation marketplace would continue to interact and have implications on each other.

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APPENDIX

GLOBAL QUANTITATIVE INDICATORS FOR EVALUATING THE DEGREE OF LIBERALIZATION

(ICAO Secretariat)

1. BACKGROUND

1.1 As one of the tasks requested by the 36th Session of the Assembly, the Secretariat developed three types of global quantitative indicators for evaluating the degree of liberalization of international air transport services. The first and second indicators track the development of liberalization in terms of number/percentage of liberalized country-pair routes and scheduled passenger frequencies offered on such routes, respectively. The third indicator compares the opportunities created by liberalization with the actual utilization of such opportunities by airlines.

1.2 Sections three and four of this report, as well as figures and tables, are an updated version of the reference material presented during the 37th Session of the Assembly on this subject.

2. METHODOLOGY USED TO DEVELOP INDICATORS

2.1 Air services agreements (ASAs) between and amongst States govern the operation of international air transport services. The liberalization of ASAs reflects changes in the economic regulatory environment. The indicators are designed to serve a s a yardstick to measure the degree of liberalization by focussing on scheduled passenger services conducted under "liberalized ASAs".

2.2 The first step is to determine what constitutes "liberalized ASAs". Over 70 per cent of the ASAs concluded/amended during the past decade contain one or more liberal elements, but in most instances, liberalization with respect to market access is limited to a specific city/airport-pair level. Liberalization encompassing a whole country-pair or much wider region has been achieved primarily through the adoption of an "open skies" agreement model and/or a group approach involving regional or sub-regional liberalization arrangements. Therefore, the following two types of agreements were selected as representative of liberalized ASAs:

a) **Bilateral "open skies" ASAs**. Based on the information collected by the Secretariat, including the records contained in *Database of the World's Air Services Agreements* (WASA), a bilateral ASA was classified as "open skies" if it contains at least the following liberal elements: unrestricted traffic rights (at a minimum covering Third, Fourth and Fifth Freedoms), multiple airline designation with no route limitations, free determination of capacity, and dual disapproval (or country of origin) or free pricing tariff regime. The number of bilateral "open skies" ASAs has been reported every year in the Annual Report of the Council; and

b) **Regional/plurilateral liberal ASAs**. The Secretariat also compiled and published a list of regional and plurilateral air transport liberalization agreements or arrangements on the ICAO website: www.icao.int/sustainability/pages/Eap_ER_Databases.aspx. Those agreements/arrangements, which liberalize Third, Fourth and Fifth Freedoms

in respect of scheduled passenger services amongst the parties to the agreement, were selected as "regional/plurilateral liberal ASAs".

2.3 The selection of the above agreements as liberalized ASAs means that the indicators generally capture the highly liberal end of the spectrum of ASAs. It is recognized that the selected liberalized ASAs, especially the regional/plurilateral ones, have heterogeneities in terms of the degree of "openness" in their provisions, and effective/actual implementation in practice. However, quantifying such differences is difficult and unwarranted due to insufficient details available on some agreements, as well as the need to minimize an element of subjective judgements[1].

2.4 According to the relationships of the parties to the selected liberalized ASAs, a yearly list of country-pairs governed by liberalized ASAs (hereinafter called liberalized country-pair routes) was produced. For ease of comparison with traffic data and considering traffic directionality, "Country A-Country B" and "Country B–Country A" are counted as two country-pairs. For example, in 2012, there were a total of 4 710 liberalized country-pair routes in the world.

2.5 The next step is the aggregation of scheduled passenger traffic data at the country-pair level corresponding to the basic unit of ASAs. Since the coverage of "actual" scheduled passenger traffic data maintained in ICAO's On-Flight Origin and Destination (OFOD) database is not yet sufficiently complete for this exercise, the official airline guide (OAG)-UBM airline schedule database was used to obtain scheduled passenger frequencies from 1995 to 2012. OAG-UBM offers the most comprehensive set of airline "schedule" data (not "actual" traffic data) presently available although not all airlines report their schedules accurately (for example, scheduled operations of charter airlines). In 2012, there were a total of 5 564 directional country-pair routes having frequencies of direct flights (i.e. either non- or multi-stop flights or both), 5 206 of which have non-stop flights. Please note that direct flight data count a single flight with multi-stops twice or more according to the number of stops.

2.6 In order to look at the regional differences in the degree of liberalization, the country-pair data have been grouped based on the six ICAO statistical regions (Europe, Africa, Middle East, Asia/Pacific, North America and Latin America)[2]. They also cover the intra-regional level (i.e. within the same region) as well as the inter-regional level (i.e. between these regions). The data for each ICAO region consist of all the country-pair routes to/from and within the region concerned (i.e. including those which are either origin or destination or both). In other words, the inter-regional country-pair routes were double counted in the two ICAO regions (for example, routes "between Europe and North America" were included both in "Europe" and "North America").

2.7 By matching ASAs' data with traffic data, three types of indicators have been developed. The first and second indicators track the development of liberalization in terms of number/percentage of liberalized country-pair routes and frequencies offered on such routes, respectively (Figures 1 and 2). The third indicator compares the available opportunities created by liberalized ASAs with the actual utilization of such opportunities by airlines, i.e. actual services operated (Figure 3). The details of these three indicators are summarized in Tables 1 and 2.

[1] One of the attempts to quantify the level of "openness" of ASAs is the air liberalization indexes developed by the World Trade Organization (http://www.wto.org/english/tratop_e/serv_e/transport_e/review2_e.htm#quasar). The construction of such indexes involves the assignment of specific weights to each provision of ASAs. However, the choice of the weights is arbitrary and many options exist.

[2] ICAO's statistical regions were used in order to be consistent with ICAO's traffic statistics and forecast. However, regional break-down may also be done in various other ways, for example, based on ICAO's Regional Air Navigation Plans, the International Monetary Fund (IMF)'s economic outlooks classification, or the International Air Transport Association (IATA)'s Traffic Conference areas. Since the regional break-down is projected also for the proposed high-level indicators in the Organization's Business Plan, the appropriateness of the use of ICAO's statistical regions will be reviewed in this context.

3. MAJOR FINDINGS

3.1 For ease of usage and comprehension, the indicators that have been developed are simple descriptive statistics, and as such they are not designed to explain the impact of liberalizing air services on traffic. The causal relationship between the volume or growth of traffic and the liberalized ASAs could only be studied through the conduct of advanced econometric analysis (i.e. the identification and estimation of empirical equation models by using statistical techniques), which is beyond the scope of the present project.

3.2 Bearing in mind this statistical limitation, the major findings of the analysis of these indicators are summarized below:

a) there has been a steady development of air transport liberalization since the mid-1990s. In 2012, about 35 per cent of the country-pairs with non-stop scheduled passenger services and about 58 per cent of the frequencies offered were between countries which have embraced liberalization (compared with about 22 and 42 per cent, respectively, a decade ago) [3];

b) the degree of liberalization varies widely among the regions. Africa, Europe and North America show a more liberal picture (because of the extensive coverage of regional/plurilateral ASAs in the first two regions) while Asia/Pacific remains at the rear of this trend;

c) liberalization achieved at the intra-regional level has moved ahead of the inter-regional level due to the expansion of regional/plurilateral ASAs (leading to big jumps in intra-regional numbers during the 2000-2001 and 2004-2005 periods); and

d) the consistently higher share of frequencies offered, relative to the number of liberalized country-pair routes, indicates that, in the aggregate (except for North America and Africa), liberalization of ASAs has been more advanced on high traffic country-pairs than on country-pairs with lower traffic volumes.

e) About 60 per cent of liberalized country-pair routes do not have corresponding direct flights, indicating that the opportunities created by liberalized ASAs might not necessarily match the commercial interests and business priorities of the airlines, at least for the short term. However, this does not mean that the opportunities created by liberalized ASAs for such country-pairs are of no value because there sometimes exists codesharing, indirect and cargo operations, and a better utilization might be achieved in the longer term.

4. CONCLUSIONS

4.1 The major findings from the analysis of these indicators are that there has been a steady development of air transport liberalization (with 35 per cent of country-pairs and 58 per cent of frequencies covered by liberalization in 2012); that the progress of liberalization varies widely amongst the regions, between intra- and inter-regional levels, as well as between high and low traffic routes; and that the opportunities created by liberalization might not necessarily match the commercial interests and business priorities of airlines, at least in the short term.

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[3] Statistical tests suggest that the overall result or general trend is not significantly changed even if multi-stop flights are included. The same robustness applies to b), c) and d).

Figure 1. Liberalized Country-Pair Routes with Non-Stop Flights

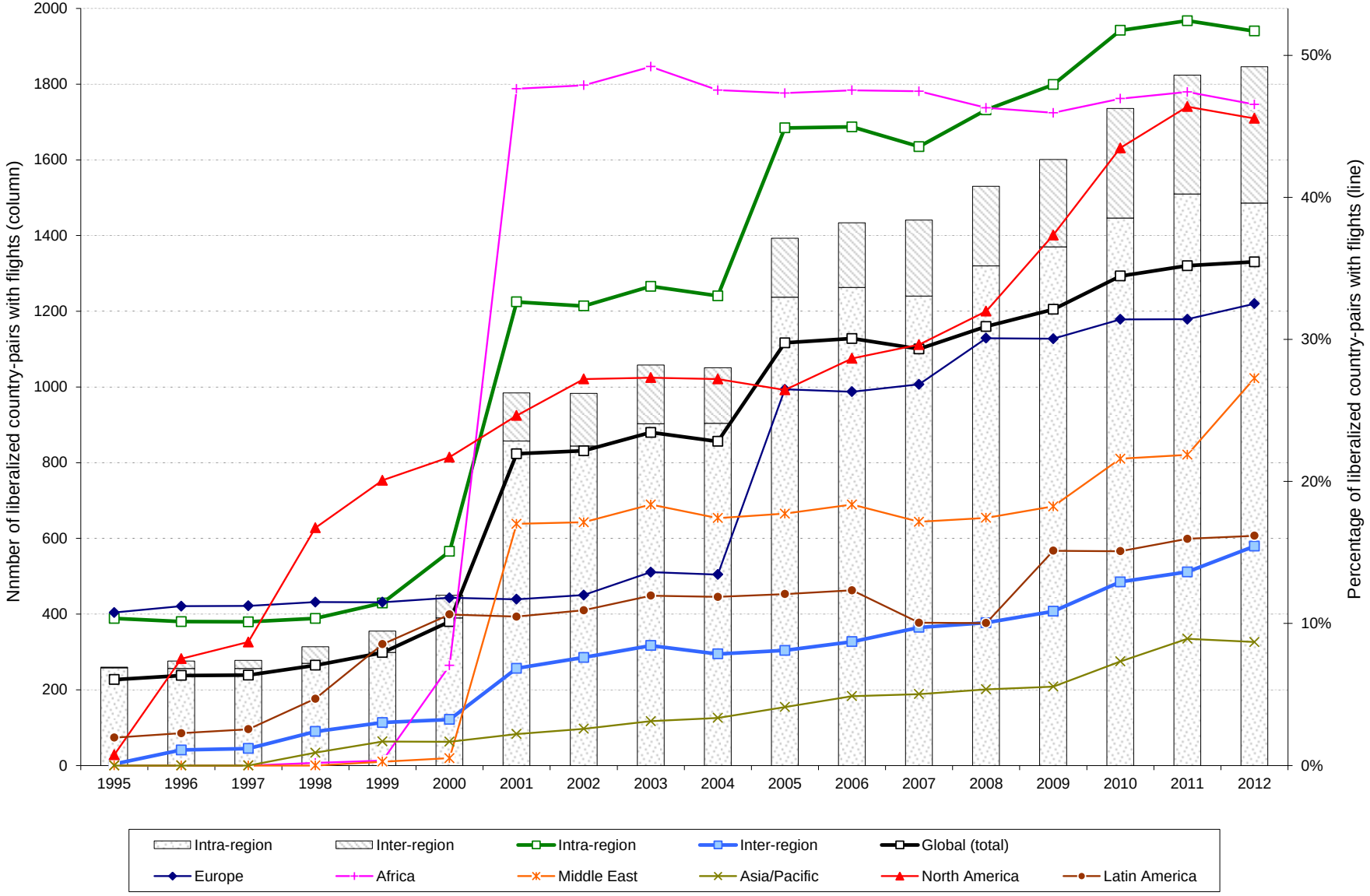

Figure 2. Non-Stop Flight Frequencies on Liberalized Country-Pair Routes

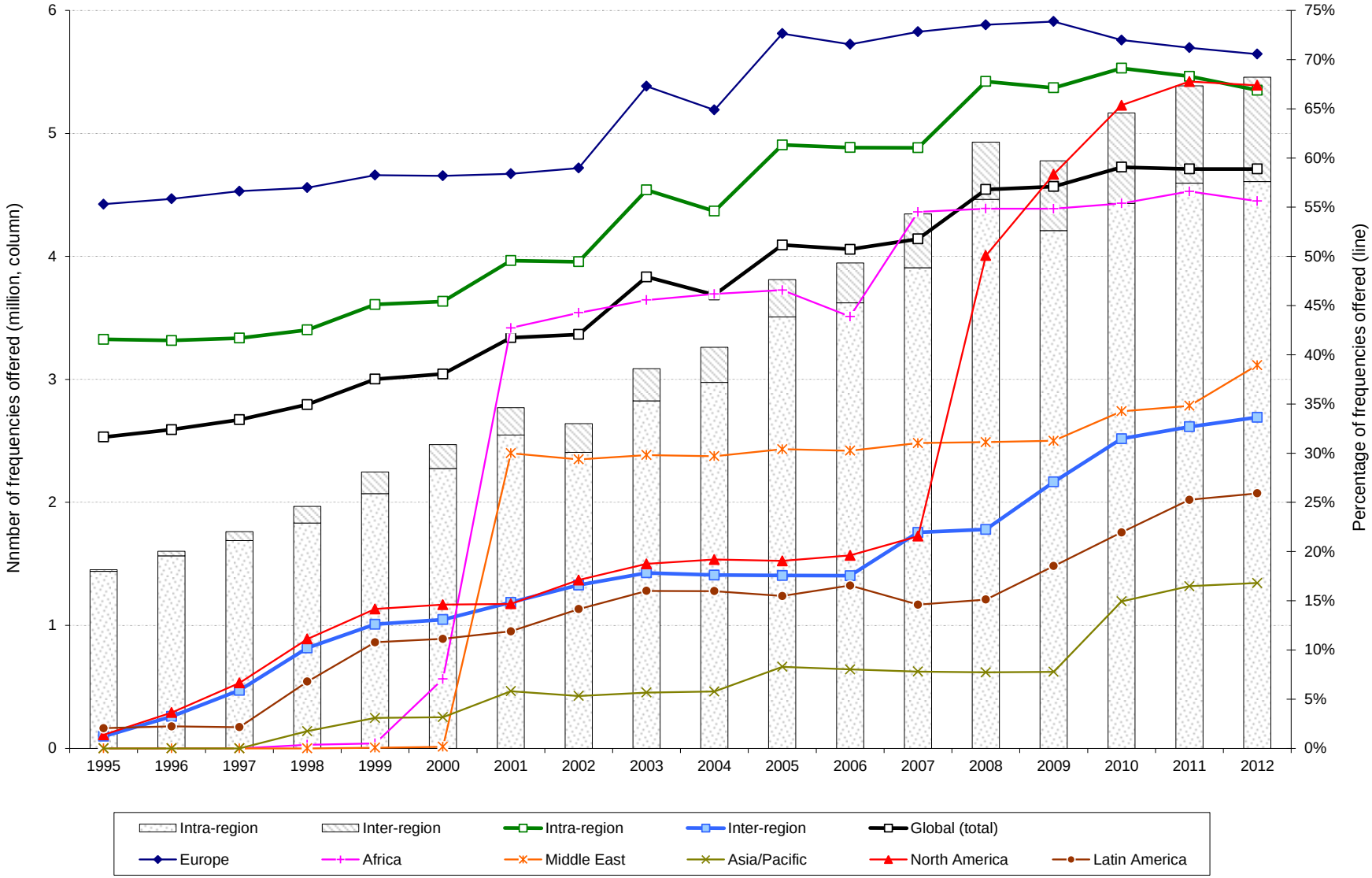

Figure 3. Regulatory Network of Liberalization vs. Actual Network Operated by Airlines

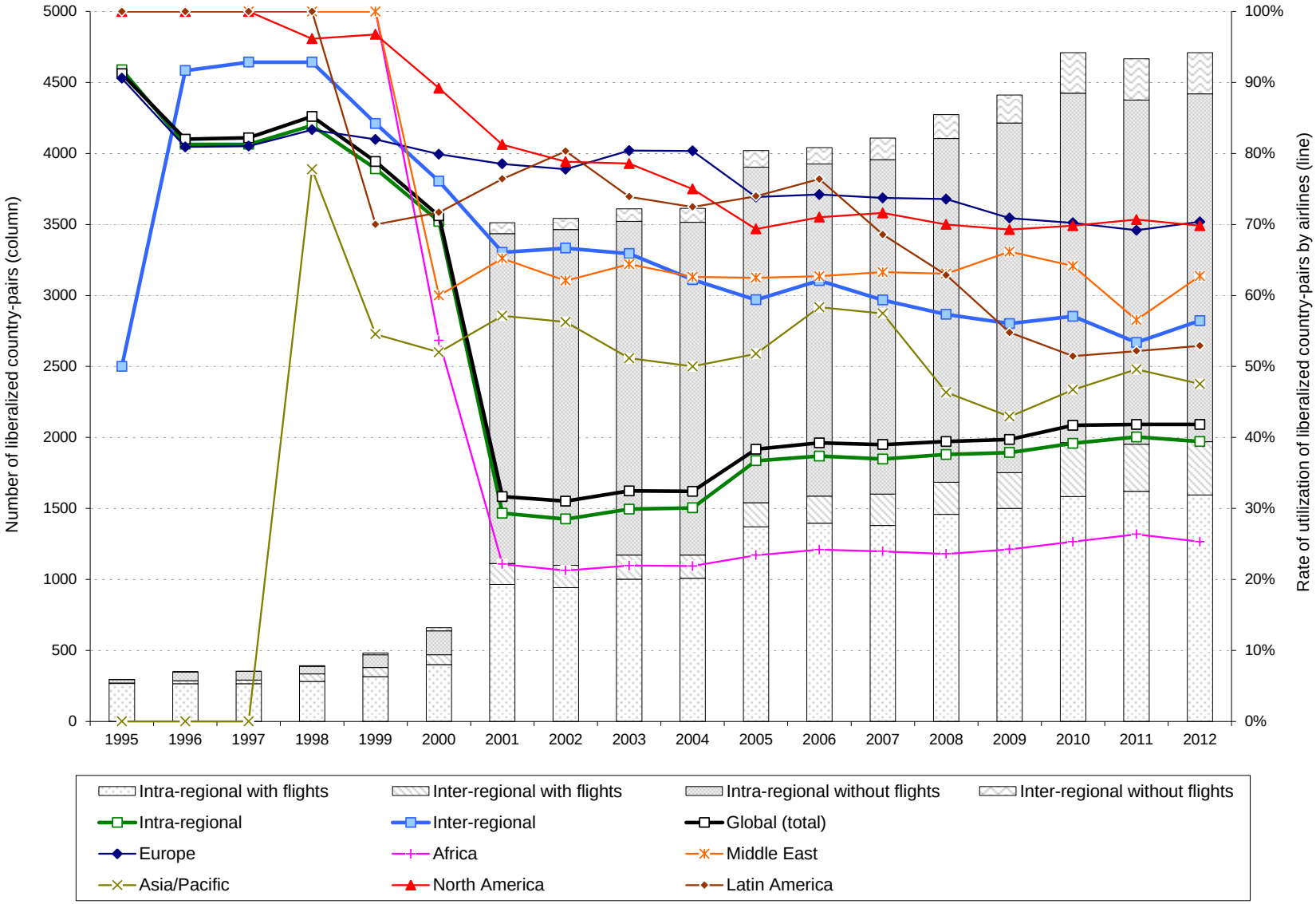

TABLE 1. SUMMARY OF INDICATOR DATA (in numbers)

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
A. Liberalized country-pair routes with non-stop flights [Figures 1]																		
Europe	246	260	260	270	274	278	278	278	318	323	648	656	692	790	789	860	876	920
Africa	0	0	0	2	4	80	535	533	551	533	542	560	562	545	567	616	662	632
Middle East	0	0	0	0	2	4	132	131	142	135	142	151	152	158	170	206	210	260
Asia/Pacific	0	0	0	10	18	18	24	28	34	38	48	58	62	66	68	86	108	108
North America	2	20	22	42	52	56	68	74	80	80	78	88	96	103	121	140	154	154
Latin America	14	16	18	34	61	74	74	78	88	89	91	92	78	78	117	118	128	132
Inter-regional	2	20	22	44	56	60	127	139	155	147	156	171	201	210	231	290	314	360
Intra-regional	258	256	256	270	299	390	857	844	903	904	1,237	1,263	1,240	1,320	1,370	1,446	1,510	1,486
Global (total)	260	276	278	314	355	450	984	983	1,058	1,051	1,393	1,434	1,441	1,530	1,601	1,736	1,824	1,846
B. Liberalized country-pair routes without non-stop flights																		
Europe	30	70	72	66	70	70	76	82	80	79	232	236	256	292	331	456	396	396
Africa	0	0	0	0	0	84	2,359	2,361	2,347	2,365	2,256	2,242	2,294	2,319	2,301	2,268	2,222	2,252
Middle East	0	0	2	2	2	6	98	101	94	103	106	101	104	102	96	218	172	164
Asia/Pacific	2	2	2	8	26	32	32	36	52	50	64	62	72	98	116	158	134	136
North America	0	2	4	10	10	18	28	30	32	32	46	50	52	57	71	92	78	78
Latin America	6	4	2	4	39	32	32	44	50	49	55	52	62	62	113	158	148	144
Inter-regional	2	4	6	12	20	32	97	95	103	115	132	135	173	186	217	376	308	306
Intra-regional	34	70	70	66	107	178	2,431	2,464	2,449	2,448	2,495	2,473	2,494	2,558	2,594	2,598	2,534	2,558
Global (total)	36	74	76	78	127	210	2,528	2,559	2,552	2,563	2,627	2,608	2,667	2,744	2,811	2,974	2,842	2,864
C. Liberalized country-pair routes with direct flights [Figures 3]																		
Europe	250	267	269	280	282	278	278	280	320	323	650	662	699	796	794	924	880	926
Africa	0	0	0	2	4	88	641	615	636	634	655	678	684	676	695	730	760	730
Middle East	0	0	2	2	4	6	150	144	152	149	155	158	162	164	176	272	216	266
Asia/Pacific	0	0	0	14	24	26	32	36	44	44	58	70	77	76	79	114	120	116
North America	2	22	26	50	60	66	78	82	88	84	86	98	106	112	133	162	164	162
Latin America	20	20	20	38	70	76	81	98	102	100	108	110	96	88	126	142	144	146
Inter-regional	2	22	26	52	64	70	148	156	170	163	171	190	222	227	251	380	332	376
Intra-regional	268	265	265	282	316	400	964	943	1,002	1,008	1,370	1,396	1,380	1,458	1,501	1,584	1,620	1,594
Global (total)	270	287	291	334	380	470	1,112	1,099	1,172	1,171	1,541	1,586	1,602	1,685	1,752	1,964	1,952	1,970
D. Liberalized country-pair routes without direct flights [Figure 3]																		
Europe	26	63	63	56	62	70	76	80	78	79	230	230	249	286	326	392	392	390
Africa	0	0	0	0	0	76	2,253	2,279	2,262	2,264	2,143	2,124	2,172	2,188	2,173	2,154	2,124	2,154
Middle East	0	0	0	0	0	4	80	88	84	89	93	94	94	96	90	152	166	158
Asia/Pacific	2	2	2	4	20	24	24	28	42	44	54	50	57	88	105	130	122	128
North America	0	0	0	2	2	8	18	22	24	28	38	40	42	48	59	70	68	70
Latin America	0	0	0	0	30	30	25	24	36	38	38	34	44	52	104	134	132	130
Inter-regional	2	2	2	4	12	22	76	78	88	99	117	116	152	169	197	286	290	290
Intra-regional	24	61	61	54	90	168	2,324	2,365	2,350	2,344	2,362	2,340	2,354	2,420	2,463	2,460	2,424	2,450
Global (total)	26	63	63	58	102	190	2,400	2,443	2,438	2,443	2,479	2,456	2,506	2,589	2,660	2,746	2,714	2,740

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
E. Liberalized country-pair routes (= A + B or C + D) [Figure 3]																		
Europe	276	330	332	336	344	348	354	360	398	402	880	892	948	1,082	1,120	1,316	1,272	1,316
Africa	0	0	0	2	4	164	2,894	2,894	2,898	2,898	2,798	2,802	2,856	2,864	2,868	2,884	2,884	2,884
Middle East	0	0	2	2	4	10	230	232	236	238	248	252	256	260	266	424	382	424
Asia/Pacific	2	2	2	18	44	50	56	64	86	88	112	120	134	164	184	244	242	244
North America	2	22	26	52	62	74	96	104	112	112	124	138	148	160	192	232	232	232
Latin America	20	20	20	38	100	106	106	122	138	138	146	144	140	140	230	276	276	276
Inter-regional	4	24	28	56	76	92	224	234	258	262	288	306	374	396	448	2,840	2,756	2,826
Intra-regional	292	326	326	336	406	568	3,288	3,308	3,352	3,352	3,732	3,736	3,734	3,878	3,964	1,870	1,910	1,884
Global (total)	296	350	354	392	482	660	3,512	3,542	3,610	3,614	4,020	4,042	4,108	4,274	4,412	4,710	4,666	4,710
F. Country-pair routes with non-stop flights																		
Europe	2,284	2,318	2,314	2,347	2,384	2,354	2,376	2,317	2,336	2,403	2,447	2,493	2,579	2,626	2,626	2,738	2,788	2,830
Africa	1,092	1,073	1,083	1,116	1,143	1,136	1,123	1,113	1,120	1,121	1,145	1,178	1,184	1,177	1,234	1,312	1,396	1,358
Middle East	733	736	746	737	753	776	776	765	773	775	801	822	886	906	932	954	960	954
Asia/Pacific	1,020	1,087	1,106	1,118	1,067	1,077	1,085	1,084	1,089	1,135	1,166	1,187	1,233	1,231	1,224	1,174	1,210	1,242
North America	267	266	253	251	259	258	276	272	293	294	295	307	324	322	324	322	332	338
Latin America	714	705	706	723	714	696	706	714	736	750	754	746	776	778	774	782	802	816
Inter-regional	1,809	1,829	1,838	1,842	1,853	1,855	1,858	1,828	1,835	1,872	1,926	1,962	2,068	2,090	2,128	2,244	2,304	2,332
Intra-regional	2,492	2,527	2,532	2,608	2,614	2,587	2,626	2,609	2,677	2,734	2,756	2,809	2,846	2,860	2,858	2,794	2,880	2,874
Global (total)	4,301	4,356	4,370	4,450	4,467	4,442	4,484	4,437	4,512	4,606	4,682	4,771	4,914	4,950	4,986	5,038	5,184	5,206
G. Country-pair routes with direct flights																		
Europe	2,798	2,801	2,766	2,773	2,759	2,690	2,653	2,538	2,551	2,597	2,594	2,622	2,710	2,747	2,761	2,850	2,884	2,926
Africa	1,446	1,397	1,410	1,445	1,420	1,395	1,356	1,293	1,286	1,302	1,337	1,365	1,372	1,382	1,446	1,494	1,544	1,516
Middle East	872	887	887	889	881	900	881	869	868	864	874	898	950	950	981	1,012	1,006	1,008
Asia/Pacific	1,389	1,431	1,437	1,435	1,371	1,374	1,339	1,331	1,332	1,365	1,350	1,377	1,405	1,381	1,356	1,284	1,326	1,354
North America	339	330	318	315	326	321	330	326	340	339	331	341	349	348	354	340	360	358
Latin America	1,022	1,037	978	992	941	901	918	895	903	909	931	906	954	936	915	890	908	910
Inter-regional	2,501	2,498	2,460	2,448	2,393	2,354	2,289	2,204	2,189	2,207	2,193	2,213	2,299	2,303	2,358	2,442	2,488	2,508
Intra-regional	2,864	2,887	2,876	2,953	2,912	2,873	2,899	2,844	2,902	2,962	3,031	3,083	3,142	3,138	3,097	2,986	3,052	3,056
Global (total)	5,365	5,385	5,336	5,401	5,305	5,227	5,188	5,048	5,091	5,169	5,224	5,296	5,441	5,441	5,455	5,428	5,540	5,564
H. Non-stop flight frequencies offered on liberalized country-pair routes [Figure 2]																		
Europe	1,435,065	1,583,434	1,743,032	1,886,437	2,113,466	2,298,940	2,361,020	2,219,219	2,619,256	2,718,058	3,219,516	3,325,938	3,706,839	3,831,587	3,625,491	3,764,823	3,850,968	3,820,382
Africa	0	0	0	1,030	1,597	23,996	148,956	156,198	171,506	191,691	212,656	211,437	292,640	320,512	338,756	396,949	411,305	421,279
Middle East	0	0	0	0	221	544	104,386	98,155	108,334	126,420	141,479	159,802	182,587	211,603	243,064	303,187	330,524	394,610
Asia/Pacific	0	0	0	15,990	28,363	30,810	60,090	56,124	59,739	73,106	114,361	118,853	125,514	132,316	132,408	264,033	321,541	353,522
North America	13,745	38,066	71,977	133,675	174,630	191,967	193,141	205,698	229,547	249,423	257,828	271,168	311,483	727,676	804,511	944,189	993,290	1,023,699
Latin America	17,275	19,364	18,861	63,999	104,622	116,223	123,770	138,686	159,541	169,976	168,994	182,568	162,936	170,744	198,901	227,147	269,180	292,709
Inter-region	13,745	38,066	71,977	134,705	176,227	193,709	221,684	234,075	261,040	285,366	304,079	324,089	436,777	465,706	566,593	734,592	790,617	849,418
Intra-region	1,438,595	1,564,732	1,689,916	1,831,721	2,070,445	2,275,062	2,547,995	2,405,930	2,825,843	2,957,942	3,506,676	3,621,588	3,908,445	4,463,026	4,209,945	4,431,144	4,595,574	4,607,365
Global (total)	1,452,340	1,602,798	1,761,893	1,966,426	2,246,672	2,468,771	2,769,679	2,640,005	3,086,883	3,243,308	3,810,755	3,945,677	4,345,222	4,928,732	4,776,538	5,165,736	5,386,191	5,456,783

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
I. Direct flight frequencies offered on liberalized country-pair routes																		
Europe	1,604,258	1,795,894	1,995,801	2,076,573	2,281,909	2,449,530	2,484,900	2,340,104	2,731,959	2,809,549	3,304,915	3,409,184	3,802,684	3,922,716	3,731,027	3,921,340	3,955,253	3,903,398
Africa	0	0	0	1,030	1,872	28,129	187,025	193,178	214,146	245,428	272,224	265,620	348,762	378,124	394,161	470,614	484,482	490,168
Middle East	0	0	847	897	1,318	1,954	122,509	113,073	123,034	140,467	155,554	173,493	196,929	224,989	256,512	364,718	347,759	410,497
Asia/Pacific	0	0	0	34,091	52,206	57,057	87,176	80,329	82,555	98,381	141,751	155,766	159,342	164,214	163,052	350,156	361,398	385,752
North America	20,647	72,573	149,023	220,939	271,060	292,646	287,345	291,996	314,595	327,584	335,206	357,893	407,937	872,654	974,971	1,189,122	1,183,053	1,193,431
Latin America	30,870	33,102	33,175	118,876	178,559	195,329	195,305	222,371	244,669	252,606	250,638	260,623	215,873	219,638	252,087	327,948	336,905	354,097
Inter-region	20,647	72,573	149,023	221,969	272,932	294,906	321,407	325,311	352,548	370,093	388,780	419,015	544,486	570,476	688,861	976,712	947,794	977,637
Intra-region	1,614,481	1,756,423	1,880,800	2,008,468	2,241,060	2,434,833	2,721,446	2,590,429	3,005,862	3,133,829	3,682,728	3,784,549	4,042,555	4,641,383	4,394,088	4,670,474	4,773,262	4,782,069
Global (total)	1,635,128	1,828,996	2,029,823	2,230,437	2,513,992	2,729,739	3,042,853	2,915,740	3,358,410	3,503,922	4,071,508	4,203,564	4,587,041	5,211,859	5,082,949	5,647,186	5,721,056	5,759,706
J. Non-stop flight frequencies																		
Europe	2,594,672	2,835,392	3,078,120	3,310,708	3,627,596	3,951,024	4,043,068	3,762,676	3,892,291	4,189,246	4,432,141	4,648,171	5,089,800	5,210,608	4,907,605	5,229,891	5,407,732	5,414,926
Africa	229,827	243,061	261,622	284,131	313,695	340,554	348,665	352,845	376,472	415,130	456,696	481,885	536,837	584,300	617,702	716,754	726,754	757,469
Middle East	256,961	267,645	277,999	293,404	321,498	346,189	348,038	334,205	363,403	425,780	465,335	528,255	588,466	679,916	777,674	885,159	949,410	1,013,040
Asia/Pacific	791,416	859,471	917,592	914,435	917,241	972,988	1,034,936	1,053,685	1,053,340	1,265,358	1,380,432	1,482,599	1,608,644	1,714,870	1,701,729	1,767,590	1,950,905	2,103,773
North America	998,576	1,047,206	1,082,715	1,202,932	1,233,619	1,314,645	1,315,248	1,202,715	1,224,067	1,299,898	1,353,932	1,383,247	1,444,477	1,453,103	1,379,151	1,444,764	1,465,835	1,519,221
Latin America	846,794	870,282	878,457	944,153	971,134	1,044,290	1,040,627	980,099	997,210	1,063,768	1,091,270	1,103,052	1,116,062	1,129,289	1,073,787	1,035,214	1,065,912	1,129,457
Inter-region	1,128,644	1,174,264	1,221,849	1,321,133	1,397,548	1,480,465	1,495,169	1,410,494	1,463,567	1,620,552	1,730,984	1,847,825	1,990,469	2,093,916	2,092,953	2,334,299	2,418,904	2,524,569
Intra-region	3,460,958	3,774,529	4,052,807	4,307,497	4,589,687	5,008,760	5,140,244	4,865,237	4,979,649	5,418,076	5,717,838	5,931,559	6,403,348	6,584,254	6,271,742	6,410,774	6,728,740	6,888,748
Global (total)	4,589,602	4,948,793	5,274,656	5,628,630	5,987,235	6,489,225	6,635,413	6,275,731	6,443,216	7,038,628	7,448,822	7,779,384	8,393,817	8,678,170	8,364,695	8,745,073	9,147,644	9,413,317
K. Direct flight frequencies																		
Europe	3,245,534	3,556,064	3,661,102	3,768,356	4,034,309	4,323,809	4,373,629	4,056,886	4,171,511	4,447,362	4,659,026	4,865,720	5,308,631	5,421,806	5,100,345	5,437,089	5,607,400	5,584,450
Africa	326,570	333,363	348,919	372,543	401,136	429,890	432,197	428,710	457,986	506,603	553,685	571,542	625,942	677,266	707,455	828,123	840,611	868,161
Middle East	350,383	358,893	364,881	377,757	410,209	436,203	434,174	416,083	449,567	519,590	557,969	618,025	673,090	762,636	859,616	967,624	1,029,600	1,093,993
Asia/Pacific	1,115,548	1,177,060	1,229,331	1,200,155	1,178,001	1,232,838	1,291,962	1,283,750	1,274,305	1,510,753	1,629,728	1,726,336	1,837,977	1,939,374	1,918,991	1,989,037	2,167,065	2,305,134
North America	1,823,958	1,866,415	1,750,663	1,760,226	1,732,429	1,790,686	1,781,537	1,598,837	1,608,366	1,677,004	1,739,399	1,767,755	1,802,260	1,775,753	1,677,473	1,750,650	1,753,775	1,776,635
Latin America	1,464,379	1,446,934	1,466,645	1,529,163	1,486,319	1,535,270	1,498,243	1,408,983	1,416,656	1,490,300	1,502,130	1,482,968	1,428,535	1,411,105	1,312,725	1,261,343	1,286,299	1,325,536
Inter-region	2,069,339	2,118,955	2,024,020	2,005,243	2,020,615	2,086,358	2,082,536	1,929,354	1,970,853	2,127,207	2,226,858	2,326,505	2,443,733	2,514,596	2,476,677	2,736,025	2,815,388	2,876,328
Intra-region	4,187,694	4,500,819	4,773,501	4,997,714	5,201,173	5,575,980	5,646,670	5,334,541	5,436,685	5,897,198	6,188,221	6,379,336	6,788,969	6,958,748	6,623,251	6,761,816	7,053,974	7,201,253
Global (total)	6,257,033	6,619,774	6,797,521	7,002,957	7,221,788	7,662,338	7,729,206	7,263,895	7,407,538	8,024,405	8,415,079	8,705,841	9,232,702	9,473,344	9,099,928	9,497,841	9,869,362	10,077,581

Note: All the data are international scheduled passenger services.

Sources: ICAO Air Transport Bureau and OAG-UBM airline schedule database

TABLE 2. SUMMARY OF INDICATOR DATA (in percentages)

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
L. Liberalized country-pair routes with non-stop flights (= A / F) [Figure 1]																		
Europe	10.77%	11.22%	11.24%	11.50%	11.49%	11.81%	11.70%	12.00%	13.61%	13.44%	26.48%	26.31%	26.83%	30.08%	30.05%	31.41%	31.42%	32.51%
Africa	0.00%	0.00%	0.00%	0.18%	0.35%	7.04%	47.64%	47.89%	49.20%	47.55%	47.34%	47.54%	47.47%	46.30%	45.95%	46.95%	47.42%	46.54%
Middle East	0.00%	0.00%	0.00%	0.00%	0.27%	0.52%	17.01%	17.12%	18.37%	17.42%	17.73%	18.37%	17.16%	17.44%	18.24%	21.59%	21.88%	27.25%
Asia/Pacific	0.00%	0.00%	0.00%	0.89%	1.69%	1.67%	2.21%	2.58%	3.12%	3.35%	4.12%	4.89%	5.03%	5.36%	5.56%	7.33%	8.93%	8.70%
North America	0.75%	7.52%	8.70%	16.73%	20.08%	21.71%	24.64%	27.21%	27.30%	27.21%	26.44%	28.66%	29.63%	31.99%	37.35%	43.48%	46.39%	45.56%
Latin America	1.96%	2.27%	2.55%	4.70%	8.54%	10.63%	10.48%	10.92%	11.96%	11.87%	12.07%	12.33%	10.05%	10.03%	15.12%	15.09%	15.96%	16.18%
Inter-region	0.11%	1.09%	1.20%	2.39%	3.02%	3.23%	6.84%	7.60%	8.45%	7.85%	8.10%	8.72%	9.72%	10.05%	10.86%	12.92%	13.63%	15.44%
Intra-region	10.35%	10.13%	10.11%	10.35%	11.44%	15.08%	32.64%	32.35%	33.73%	33.07%	44.88%	44.96%	43.57%	46.15%	47.94%	51.75%	52.43%	51.70%
Global (total)	6.05%	6.34%	6.36%	7.06%	7.95%	10.13%	21.94%	22.15%	23.45%	22.82%	29.75%	30.06%	29.32%	30.91%	32.11%	34.46%	35.19%	35.46%
M. Liberalized country-pair routes with direct flights (= C / G)																		
Europe	8.93%	9.53%	9.73%	10.10%	10.22%	10.33%	10.48%	11.03%	12.54%	12.44%	25.06%	25.25%	25.79%	28.98%	28.76%	32.42%	30.51%	31.65%
Africa	0.00%	0.00%	0.00%	0.14%	0.28%	6.31%	47.27%	47.56%	49.46%	48.69%	48.99%	49.67%	49.85%	48.91%	48.06%	48.86%	49.22%	48.15%
Middle East	0.00%	0.00%	0.23%	0.22%	0.45%	0.67%	17.03%	16.57%	17.51%	17.25%	17.73%	17.59%	17.05%	17.26%	17.94%	26.88%	21.47%	26.39%
Asia/Pacific	0.00%	0.00%	0.00%	0.98%	1.75%	1.89%	2.39%	2.70%	3.30%	3.22%	4.30%	5.08%	5.48%	5.50%	5.83%	8.88%	9.05%	8.57%
North America	0.59%	6.67%	8.18%	15.87%	18.40%	20.56%	23.64%	25.15%	25.88%	24.78%	25.98%	28.74%	30.37%	32.18%	37.57%	47.65%	45.56%	45.25%
Latin America	1.96%	1.93%	2.04%	3.83%	7.44%	8.44%	8.82%	10.95%	11.30%	11.00%	11.60%	12.14%	10.06%	9.40%	13.77%	15.96%	15.86%	16.04%
Inter-region	0.08%	0.88%	1.06%	2.12%	2.67%	2.97%	6.47%	7.08%	7.77%	7.39%	7.80%	8.59%	9.66%	9.86%	10.64%	15.56%	13.34%	14.99%
Intra-region	9.36%	9.18%	9.21%	9.55%	10.85%	13.92%	33.25%	33.16%	34.53%	34.03%	45.20%	45.28%	43.92%	46.46%	48.47%	53.05%	53.08%	52.16%
Global (total)	5.03%	5.33%	5.45%	6.18%	7.16%	8.99%	21.43%	21.77%	23.02%	22.65%	29.50%	29.95%	29.44%	30.97%	32.12%	36.18%	35.23%	35.41%
N. Non-stop flight frequencies offered on liberalized country-pair routes (= H / J) [Figure 2]																		
Europe	55.31%	55.85%	56.63%	56.98%	58.26%	58.19%	58.40%	58.98%	67.29%	64.88%	72.64%	71.55%	72.83%	73.53%	73.87%	71.99%	71.21%	70.55%
Africa	0.00%	0.00%	0.00%	0.36%	0.51%	7.05%	42.72%	44.27%	45.56%	46.18%	46.56%	43.88%	54.51%	54.85%	54.84%	55.38%	56.59%	55.62%
Middle East	0.00%	0.00%	0.00%	0.00%	0.07%	0.16%	29.99%	29.37%	29.81%	29.69%	30.40%	30.25%	31.03%	31.12%	31.26%	34.25%	34.81%	38.95%
Asia/Pacific	0.00%	0.00%	0.00%	1.75%	3.09%	3.17%	5.81%	5.33%	5.67%	5.78%	8.28%	8.02%	7.80%	7.72%	7.78%	14.94%	16.48%	16.80%
North America	1.38%	3.64%	6.65%	11.11%	14.16%	14.60%	14.68%	17.10%	18.75%	19.19%	19.04%	19.60%	21.56%	50.08%	58.33%	65.35%	67.76%	67.38%
Latin America	2.04%	2.23%	2.15%	6.78%	10.77%	11.13%	11.89%	14.15%	16.00%	15.98%	15.49%	16.55%	14.60%	15.12%	18.52%	21.94%	25.25%	25.92%
Inter-region	1.22%	3.24%	5.89%	10.20%	12.61%	13.08%	14.83%	16.60%	17.84%	17.61%	17.57%	17.54%	21.94%	22.24%	27.07%	31.47%	32.68%	33.65%
Intra-region	41.57%	41.46%	41.70%	42.52%	45.11%	45.42%	49.57%	49.45%	56.75%	54.59%	61.33%	61.06%	61.04%	67.78%	67.13%	69.12%	68.30%	66.88%
Global (total)	31.64%	32.39%	33.40%	34.94%	37.52%	38.04%	41.74%	42.07%	47.91%	46.08%	51.16%	50.72%	51.77%	56.79%	57.10%	59.07%	58.88%	57.97%
O. Direct flight frequencies offered on liberalized country-pair routes (= I / K)																		
Europe	49.43%	50.50%	54.51%	55.11%	56.56%	56.65%	56.82%	57.68%	65.49%	63.17%	70.94%	70.07%	71.63%	72.35%	73.15%	72.12%	70.54%	69.90%
Africa	0.00%	0.00%	0.00%	0.28%	0.47%	6.54%	43.27%	45.06%	46.76%	48.45%	49.17%	46.47%	55.72%	55.83%	55.72%	56.83%	57.63%	56.46%
Middle East	0.00%	0.00%	0.23%	0.24%	0.32%	0.45%	28.22%	27.18%	27.37%	27.03%	27.88%	28.07%	29.26%	29.50%	29.84%	37.69%	33.78%	37.52%
Asia/Pacific	0.00%	0.00%	0.00%	2.84%	4.43%	4.63%	6.75%	6.26%	6.48%	6.51%	8.70%	9.02%	8.67%	8.47%	8.50%	17.60%	16.68%	16.73%
North America	1.13%	3.89%	8.51%	12.55%	15.65%	16.34%	16.13%	18.26%	19.56%	19.53%	19.27%	20.25%	22.63%	49.14%	58.12%	67.92%	67.46%	67.17%
Latin America	2.11%	2.29%	2.26%	7.77%	12.01%	12.72%	13.04%	15.78%	17.27%	16.95%	16.69%	17.57%	15.11%	15.56%	19.20%	26.00%	26.19%	26.71%
Inter-region	1.00%	3.42%	7.36%	11.07%	13.51%	14.13%	15.43%	16.86%	17.89%	17.40%	17.46%	18.01%	22.28%	22.69%	27.81%	35.70%	33.66%	33.99%
Intra-region	38.55%	39.02%	39.40%	40.19%	43.09%	43.67%	48.20%	48.56%	55.29%	53.14%	59.51%	59.33%	59.55%	66.70%	66.34%	69.07%	67.67%	66.41%
Global (total)	26.13%	27.63%	29.86%	31.85%	34.81%	35.63%	39.37%	40.14%	45.34%	43.67%	48.38%	48.28%	49.68%	55.02%	55.86%	59.46%	57.97%	57.15%

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
P. Utilization of liberalized country-pair routes by airlines in terms of non-stop flights (= A / E)																		
Europe	89.13%	78.79%	78.31%	80.36%	79.65%	79.89%	78.53%	77.22%	79.90%	80.35%	73.64%	73.54%	73.00%	73.01%	70.45%	65.35%	68.87%	69.91%
Africa	na	na	na	100.00%	100.00%	48.78%	18.49%	18.42%	19.01%	18.39%	19.37%	19.99%	19.68%	19.03%	19.77%	21.36%	22.95%	21.91%
Middle East	na	na	0.00%	0.00%	50.00%	40.00%	57.39%	56.47%	60.17%	56.72%	57.26%	59.92%	59.38%	60.77%	63.91%	48.58%	54.97%	61.32%
Asia/Pacific	0.00%	0.00%	0.00%	55.56%	40.91%	36.00%	42.86%	43.75%	39.53%	43.18%	42.86%	48.33%	46.27%	40.24%	36.96%	35.25%	44.63%	44.26%
North America	100.00%	90.91%	84.62%	80.77%	83.87%	75.68%	70.83%	71.15%	71.43%	71.43%	62.90%	63.77%	64.86%	64.38%	63.02%	60.34%	66.38%	66.38%
Latin America	70.00%	80.00%	90.00%	89.47%	61.00%	69.81%	69.81%	63.93%	63.77%	64.49%	62.33%	63.89%	55.71%	55.71%	50.87%	42.75%	46.38%	47.83%
Inter-regional	50.00%	83.33%	78.57%	78.57%	73.68%	65.22%	56.70%	59.40%	60.08%	56.11%	54.17%	55.88%	53.74%	53.03%	51.56%	10.21%	11.39%	12.74%
Intra-regional	88.36%	78.53%	78.53%	80.36%	73.65%	68.66%	26.06%	25.51%	26.94%	26.97%	33.15%	33.81%	33.21%	34.04%	34.56%	77.33%	79.06%	78.87%
Global (total)	87.84%	78.86%	78.53%	80.10%	73.65%	68.18%	28.02%	27.75%	29.31%	29.08%	34.65%	35.48%	35.08%	35.80%	36.29%	36.86%	39.09%	39.19%
Q. Utilization of liberalized country-pair routes by airlines in terms of direct flights (= C / E) [Figure 3]																		
Europe	90.58%	80.91%	81.02%	83.33%	81.98%	79.89%	78.53%	77.78%	80.40%	80.35%	73.86%	74.22%	73.73%	73.57%	70.89%	70.21%	69.18%	70.36%
Africa	na	na	na	100.00%	100.00%	53.66%	22.15%	21.25%	21.95%	21.88%	23.41%	24.20%	23.95%	23.60%	24.23%	25.31%	26.35%	25.31%
Middle East	na	na	100.00%	100.00%	100.00%	60.00%	65.22%	62.07%	64.41%	62.61%	62.50%	62.70%	63.28%	63.08%	66.17%	64.15%	56.54%	62.74%
Asia/Pacific	0.00%	0.00%	0.00%	77.78%	54.55%	52.00%	57.14%	56.25%	51.16%	50.00%	51.79%	58.33%	57.46%	46.34%	42.93%	46.72%	49.59%	47.54%
North America	100.00%	100.00%	100.00%	96.15%	96.77%	89.19%	81.25%	78.85%	78.57%	75.00%	69.35%	71.01%	71.62%	70.00%	69.27%	69.83%	70.69%	69.83%
Latin America	100.00%	100.00%	100.00%	100.00%	70.00%	71.70%	76.42%	80.33%	73.91%	72.46%	73.97%	76.39%	68.57%	62.86%	54.78%	51.45%	52.17%	52.90%
Inter-regional	50.00%	91.67%	92.86%	92.86%	84.21%	76.09%	66.07%	66.67%	65.89%	62.21%	59.38%	62.09%	59.36%	57.32%	56.03%	13.38%	12.05%	13.31%
Intra-regional	91.78%	81.29%	81.29%	83.93%	77.83%	70.42%	29.32%	28.51%	29.89%	30.07%	36.71%	37.37%	36.96%	37.60%	37.87%	84.71%	84.82%	84.61%
Global (total)	91.22%	82.00%	82.20%	85.20%	78.84%	71.21%	31.66%	31.03%	32.47%	32.40%	38.33%	39.24%	39.00%	39.42%	39.71%	41.70%	41.83%	41.83%

Sources: ICAO Air Transport Bureau and OAG-UBM airline schedule database

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