

2015 FLY-THROUGH

AVIATION

MARKET MONITOR

2015

Facts & Figures of the Airline Industry

2015 FLY-THROUGH

AVIATION MARKET MONITOR

Facts and Figures of the Airline Industry

CONTENT

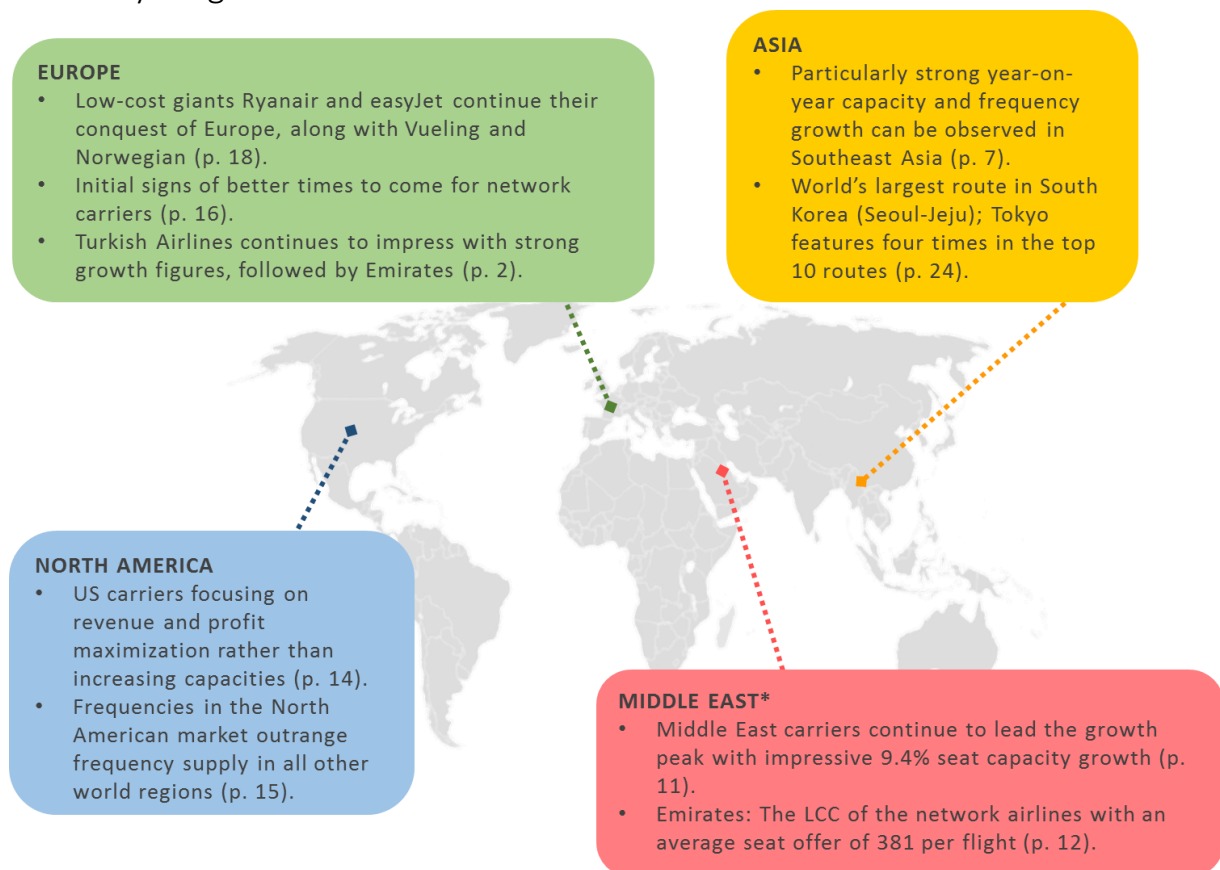
In a Nutshell.....	1
Industry Developments	1
Facts by Region.....	1
Fleet Developments	1
2015 Capacity & Frequency Changes	2
Turkish Airlines continues to impress with strong growth figures, followed by Emirates.....	2
Market sizes still varying strongly	4
Persistently high growth potentials in Asia	6
Continued strong growth in the Middle East	11
Revenue and profit maximization by North American carriers.....	14
European Network Carriers: Facing better times?	16
Europe of the LCCs	18
South America: Brazil in recession	19
Africa: Enormous growth potentials	20
Oceania: No significant changes.....	21
Airport Developments	22
Routes.....	24
2015 Fleet Facts & Deliveries	26
Fleet Sizes & Deliveries.....	26
Fleet Age.....	30
Summary	31
References.....	i
About PROLOGIS.....	iii
About ch-aviation	iii

IN A NUTSHELL

Industry Developments

- The airline industry can look back upon a successful 2015: 6.2% capacity growth, 3.1% frequency increase, 1,310 new aircraft deliveries.
- Low fuel prices played into the airlines' hands internationally, which can be expected to be reflected in the 2015 annual financial reports.

Facts by Region



*The Middle East region includes the following States:

Afghanistan, Bahrain, Iran, Iraq, Israel, Jordan, Kuwait, Lebanon, Oman, Palestine, Qatar, Saudi-Arabia, Syria, UAE and Yemen.

Fleet Developments

- Young fleet ages: Middle East carriers' average fleet age of 5.7 years, Turkish Airlines and European LCCs close behind.
- American Airlines: Largest fleet, most deliveries.
- Turkish Airlines: Strongest European fleet growth.

In this report, aviation consultancy PROLOGIS presents the year 2015 in figures. This is a market monitor, based on data prepared by airline intelligence provider ch-aviation, that summarizes capacity¹, frequency² and fleet³ developments of the last year.

The paper contains a year-on-year analysis, comparing weekly seat capacities and frequencies for the week of Monday, October

20, 2014 with the week of Monday, October 19, 2015. Data of a total of 736 airlines worldwide was taken into consideration. In addition, fleet data of nearly 1,300 passenger and cargo airlines was analyzed with regard to fleet size and age, contrasting November 3, 2015, against November 1, 2014. Figures of 2015 deliveries by aircraft manufacturers were also taken into consideration.

2015 CAPACITY & FREQUENCY CHANGES

With regard to the capacities and frequencies offered, the aviation industry has been growing as a whole. However, carriers have brought proportionally more seats into the international markets than flight frequencies.

Overall, capacities increased from 85.6 million seats per week in October 2014 to 90.9 million seats per week in October 2015. This corresponds to a relative growth of 6.2%. Frequencies, on the other hand, increased by only half as much as capacities, from 0.63 million weekly flights in October 2014 to 0.65 million weekly flights in October 2015, which corresponds to a year-on-year growth of 3.1%.

Carriers have brought proportionally more seats into the international markets than flight frequencies.

The stronger capacity increase can be partly related to the fact, that carriers have been operating with larger aircraft. In addition, especially in North America capacity and frequency growth figures vary significantly (see page 6, chart 3). This might be due to a decrease in competition, as the market has already been divided amongst the continent's largest carriers (for more details see page 15).

Turkish Airlines continues to impress with strong growth figures, followed by Emirates

Table 1 lists the top 20 airlines based on weekly seat capacities and weekly frequencies in the week of October 19, 2015. The largest capacity and frequency year-on-year growth amongst

these top 20 was achieved by Turkish Airlines, which thereby continues its impressive growth success. The carrier's weekly frequencies went up by 13.3% compared to October 2014.

¹ Data source: ch-aviation & OAG

² Data source: OAG

³ Data source: ch-aviation

Capacity-wise, Turkish Airlines also achieved another leap in growth, closely approaching Europe's largest network carrier, Lufthansa, by

offering a total of 1.6 million weekly seats in October 2015 - an increase of 16.4% compared to the previous year.

2015 Top 20 Airlines:

RANKING		AIRLINE	CAPACITIES (million)			FREQUENCIES (thousands)		
CAPA	FREQU		2014	2015	YoY	2014	2015	YoY
1	1	American Airlines	4.66	4.71	1.0%	45.1	44.2	-2.0%
2	2	Delta Air Lines	4.10	4.18	2.1%	35.8	35.9	0.3%
3	4	Southwest Airlines	3.44	3.51	2.2%	23.9	24.1	1.0%
4	3	United Airlines	3.32	3.36	1.3%	35.1	32.6	-7.0%
5	7	Ryanair	2.14	2.33	8.6%	11.3	12.3	8.6%
6	5	China Southern Airlines	2.13	2.14	0.6%	13.4	13.1	-1.9%
7	6	China Eastern Airlines	1.81	2.05	13.0%	12.5	12.7	1.0%
8	9	Lufthansa	1.74	1.72	-1.3%	10.7	10.3	-4.1%
9	11	Turkish Airlines	1.38	1.60	16.4%	7.9	8.9	13.3%
10	10	easyJet	1.46	1.55	6.4%	9.0	9.4	5.3%
11	12	Air China	1.35	1.49	9.8%	7.7	8.4	10.2%
12	15	ANA - All Nippon Airways	1.52	1.40	-8.3%	7.3	6.6	-8.9%
13	42	Emirates	1.20	1.38	14.5%	3.4	3.6	6.9%
14	13	British Airways	1.15	1.23	6.6%	7.0	7.2	2.8%
15	14	Air France	1.17	1.19	2.0%	6.9	6.8	-1.3%
16	18	Gol Linhas Aéreas	1.05	1.03	-1.2%	6.2	5.9	-4.5%
17	20	Lion Airlines	1.05	0.98	-6.4%	6.0	5.7	-5.3%
18	8	Air Canada	0.93	0.98	5.3%	10.6	10.9	3.1%
19	23	JAL - Japan Airlines	1.02	0.97	-4.7%	5.2	5.2	-0.2%
20	21	Aeroflot	0.76	0.87	15.0%	5.1	5.6	9.1%
21	17	SAS Scandinavian Airlines	0.87	0.87	0.4%	6.5	6.5	-0.8%
24	19	jetBlue Airways	0.71	0.79	10.6%	5.4	5.9	8.8%
25	16	Alaska Airlines	0.70	0.76	8.5%	6.0	6.5	7.8%

Reference periods: Oct. 20-26, 2014 vs. Oct. 19-25, 2015

Table 1: Top 20 largest airlines based on weekly seat capacities (in million) and weekly frequencies (in thousands) in Oct. 2015, year-on-year development Oct. 2014 vs. Oct. 2015; data source: ch-aviation & OAG

Market sizes still varying strongly

As in many other industries, international aviation has been experiencing strong growth in the world's emerging and developing markets over recent years, whereas industrial nations have been struggling with recessions or low growth.

It is, for instance, nothing new that North American and European carriers that once operated as their countries' flag carriers have been losing market shares to the geographically well-positioned Middle East

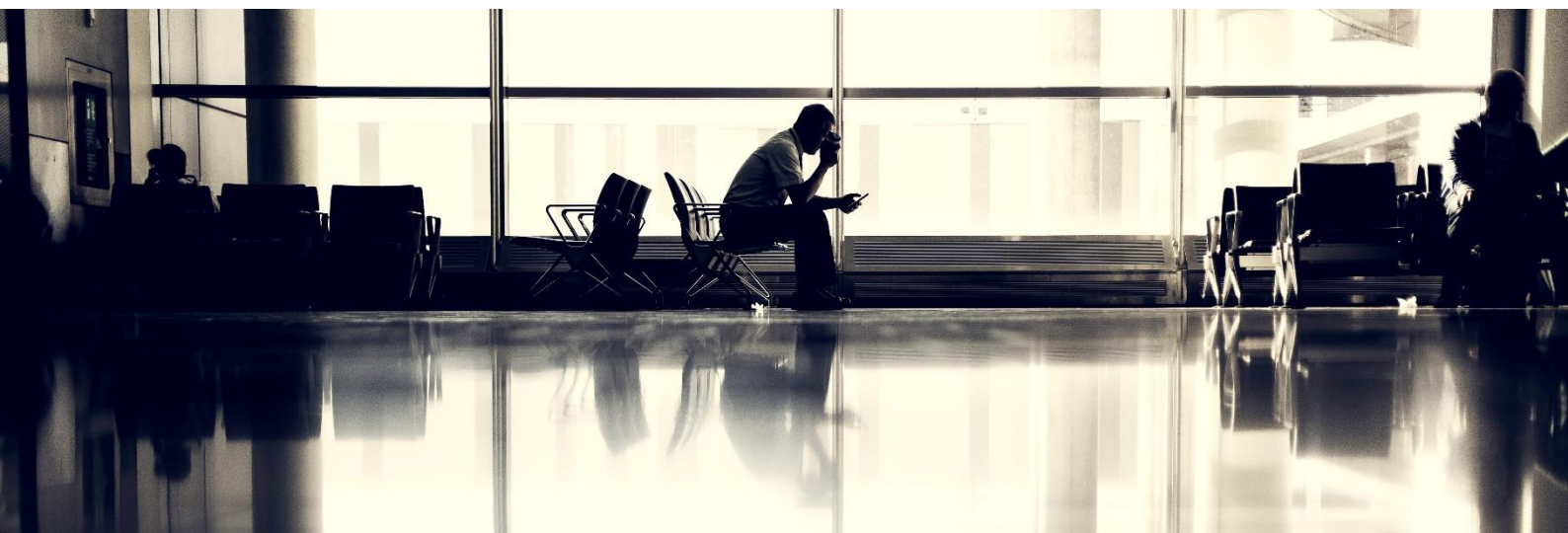
airlines Emirates, Qatar Airways and Etihad Airways. With their hubs in the United Arab Emirates and Qatar, these carriers have been very successful in acquiring passengers, to whom they offer high-class products.

At the same time, ongoing strong competition from low-cost carriers such as Ryanair and easyJet in Europe, as well as Southwest Airlines, jetBlue, Spirit and Frontier in the United States, have been giving legacy carriers in these regions a hard time.

North American and European flag carriers have been losing market shares to the geographically well-positioned Middle East airlines.

However, when comparing growth rates, it is important to keep in mind that relative growth rates differ from absolute growth. Charts 1 and 2 show that market sizes and thus saturation with regard to capacities and frequencies still vary enormously within the different world regions.

Absolute capacity figures in North America and Europe exceed Middle East numbers by more than fivefold and African numbers by more than eightfold, for instance. Therefore, though relative growth rates in the Middle East may be significantly higher than in North America, the former region is still far behind the latter in terms of actual market size and growth.



Absolute Growth 2015:

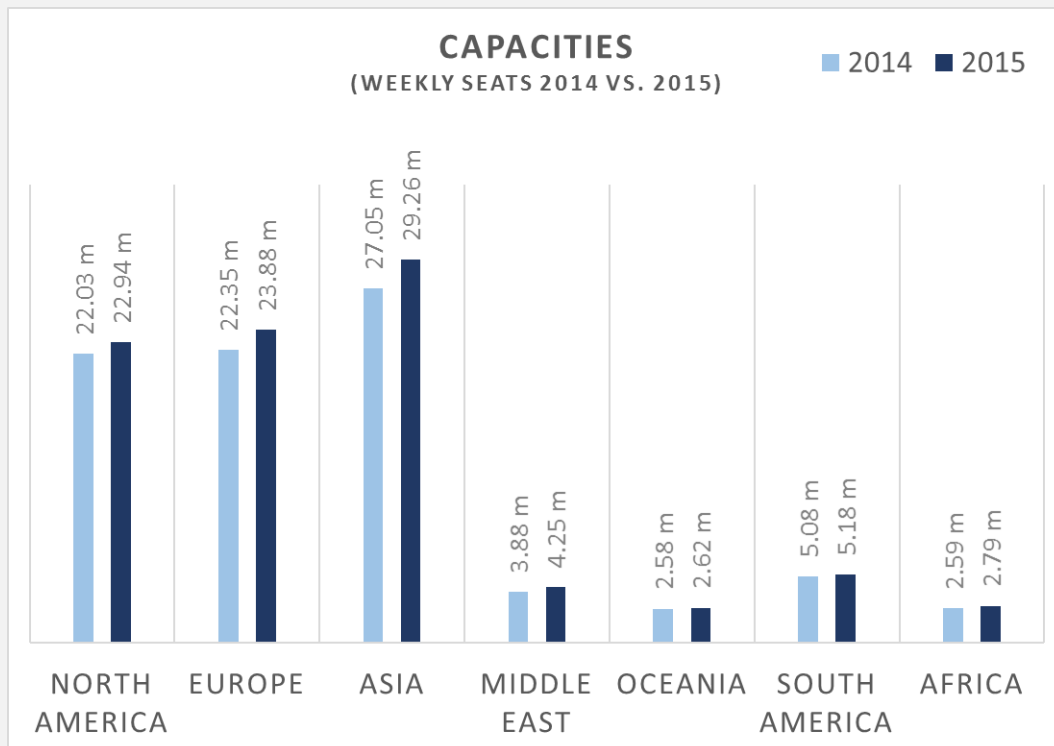


Chart 1: Weekly seat capacities by region, absolute figures; data source: ch-aviation & OAG.

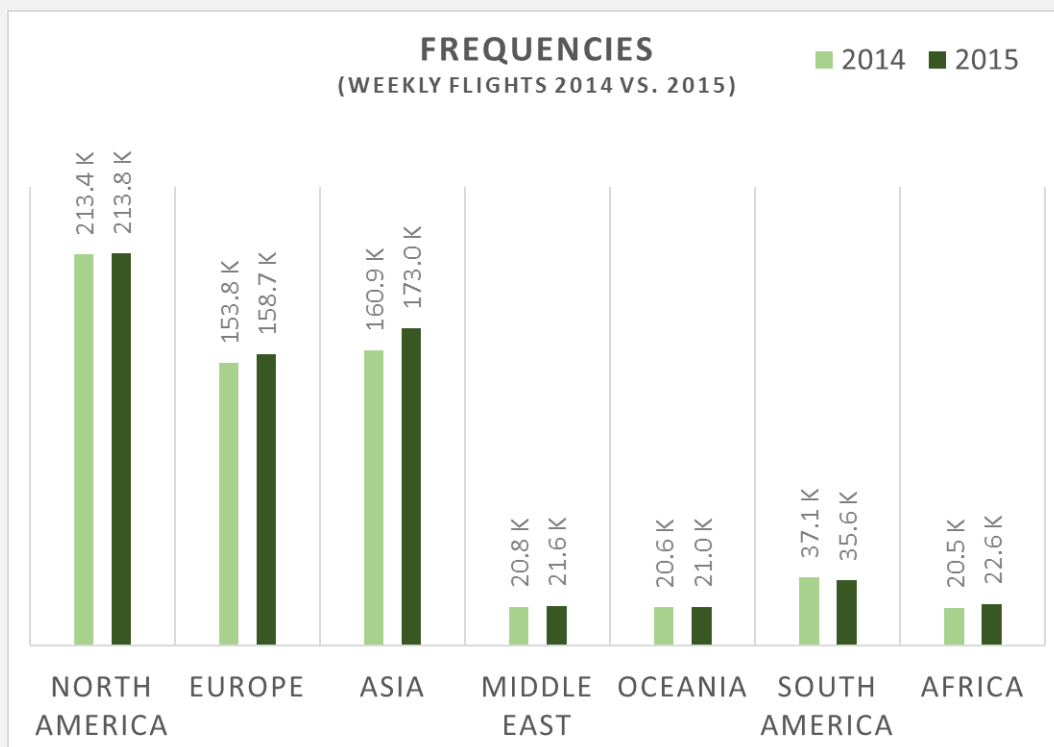


Chart 2: Weekly frequencies by region, absolute figures; data source: ch-aviation & OAG.



Persistently high growth potentials in Asia

In regards to the Asian markets, both absolute and relative figures reveal persistently high growth potentials. Despite already having the highest (absolute) number of weekly seats, the region also experienced the second-largest relative growth, with an increase of 8.2% (see chart 3). This equals an addition of 2.2 million seats to the Asian markets year-on-year.

Of the top 100 largest airlines of the world, based on both seat capacities and frequencies in October 2015, more than a third were Asian carriers (in total 38 Asian carriers regarding capacities, 34 regarding frequencies).

Relative Growth 2015:

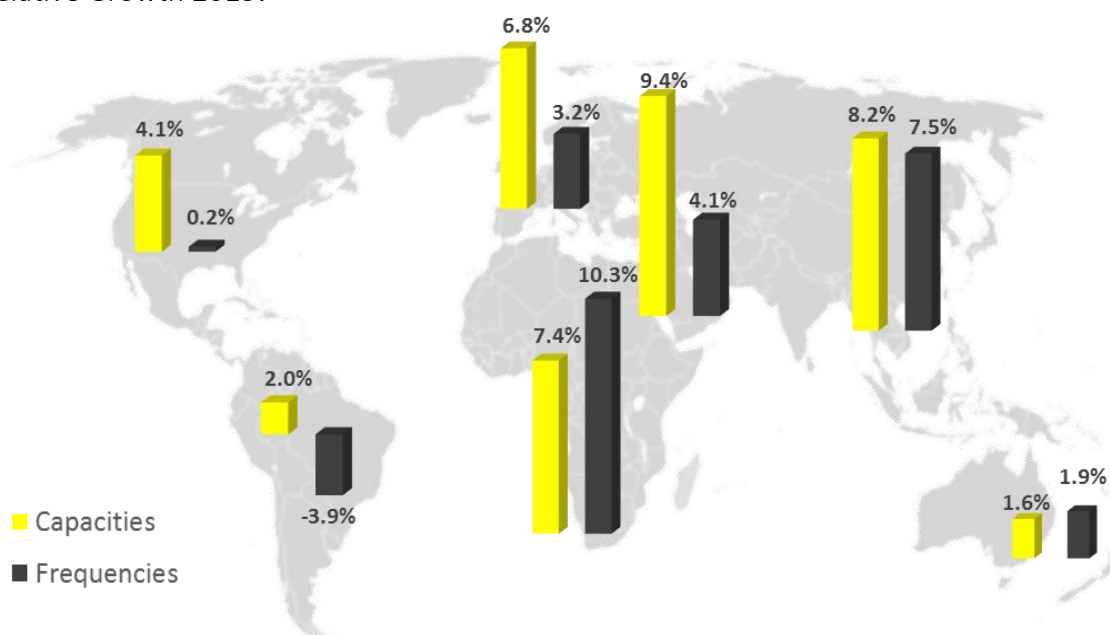


Chart 3: Capacity & frequency year-on-year growth, relative figures; data source: ch-aviation & OAG, illustration: PROLOGIS.

Myanmar, Thailand and Vietnam: The growth winners

Particularly strong year-on-year capacity and frequency growth can be observed in Southeast Asia. Ever since military dictatorship ended in early 2011, the tourism industry of Myanmar has been growing dramatically. With a total of only 142,374 weekly seats offered on departing flights in October 2015, the country formerly known as Burma still bears enormous growth potential. This is reflected in the 2015 growth figures: Year-on-year capacity increased by an astonishing 82.9%, while flight frequencies rose by a staggering 115.5% (see chart 4).

Neighboring Thailand's capacity and frequency baselines strongly exceed Myanmar's, and this

country, too, has experienced considerably large growth in these areas, despite political unrest and the Bangkok explosions in August 2015.

In October 2015, nearly 1.6 million weekly seats were offered on flights departing Thai airports, which is 18.2% more than in October 2014. Frequencies increased by 16.5%. Growth rates in Vietnam, too, are strong, with seat capacities increasing by a quarter (25.1%) and frequencies by nearly 22%.

Particularly strong year-on-year capacity and frequency growth can be observed in Southeast Asia.

2015 Capacity Growth in Myanmar, Thailand and Vietnam

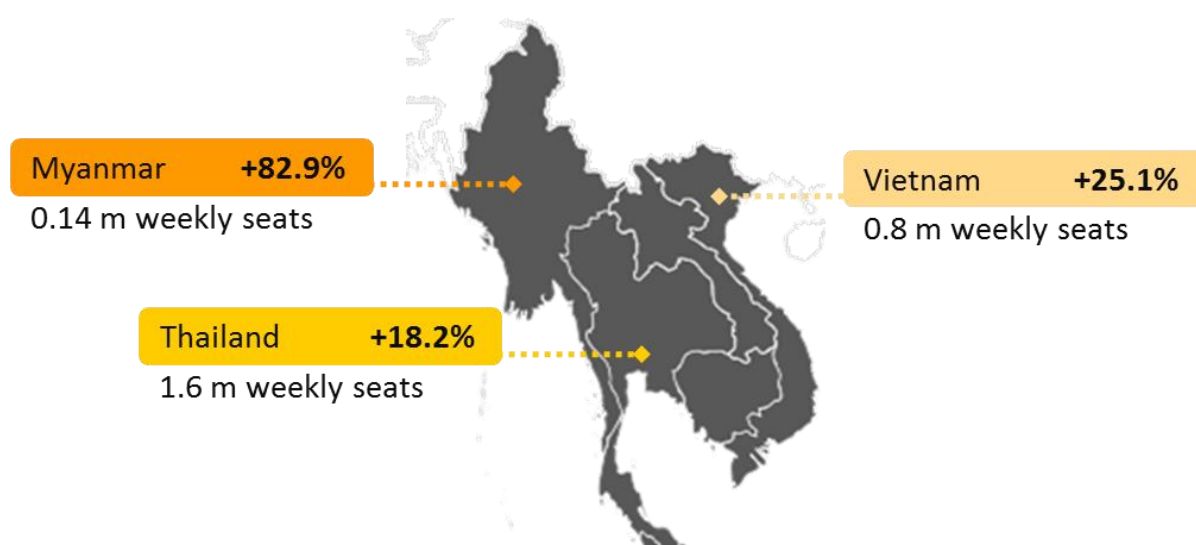


Chart 4: 2015 year-on-year seat capacity growth in Myanmar, Thailand and Vietnam; data source: ch-aviation & OAG, illustration: PROLOGIS.

Malaysia, Indonesia and China: Defying economic slowdown

More modest growth can be observed in Malaysia and Indonesia with 2.2% and 4.3% capacity growth, respectively. Relative frequencies in Malaysia grew even less with 1.2%, bringing the total number to 7,784. In

Indonesia, however, the amount of flights offered rose to 15,170, an increase of 5.7%. Nevertheless, these growth figures are evidently smaller than in the other Southeast Asian countries. In Indonesia, this is probably to

some extent a side-effect of the country's weak currency. But it must also be noted that the Indonesian market is already quite large, ranking at number 9 worldwide based on capacities, and number 10 based on frequencies (see chart 6). Hence, baselines are already comparatively high.

Malaysia's economy slowed down in 2015⁴, partly explaining the moderate growth figures. These figures must, however, also be seen in connection with the negative growth numbers of the nation's largest network carrier. Due to the tragic events of 2014, Malaysia Airlines has been experiencing a significant decline, which is also reflected in the carrier's year-on-year growth figures: Seat capacity fell by 10.5% and frequency by 8.8%.

Two of Asia's largest LCCs are based in Malaysia and Indonesia, respectively: AirAsia and Lion Air. Together with its affiliate airlines Indonesia AirAsia, Thai AirAsia, AirAsia Zest, AirAsia India and AirAsia Philippines the Kuala Lumpur based AirAsia forms the AirAsia Group. Affiliates of

Lion Air, which operates out of Jakarta, are Batik Air, Wings Air, Malindo Air and Thai Lion. All five airlines belong to the Lion Air Group.

In October 2015, the Lion Air Group offered 1.33 million weekly seats and the AirAsia Group offered 1.21 million seats. Despite the economic slowdown in Malaysia, the latter added further seats and frequencies in 2015, with growth rates of 4.6% and 3.8%, respectively. The Lion Air Group increased capacities by significant 15.8% and frequencies by 13.1% (see chart 5). This is mainly thanks to the carrier's full-service subsidiary, Batik Air, which grew massively by an incredible 2,090.0% from 6,832 weekly seats to 149,620 weekly seats year-on-year. The carrier's frequencies went up by a remarkable 1,541.1%, from 56 to 919.

The Indonesian market is already quite large, ranking at number 9 worldwide based on capacities, and number 10 based on frequencies.

2015 Capacities: Top 3 Asian LCCs

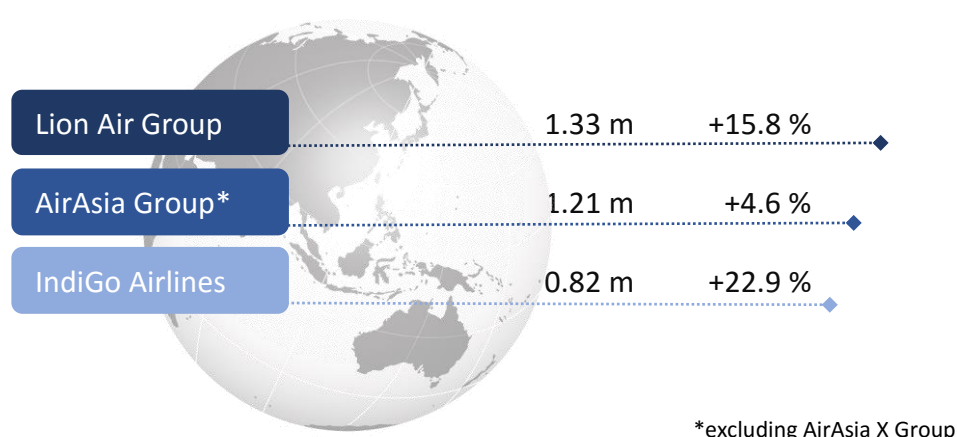


Chart 5: Weekly seat capacities of top 3 Asian LCCs in October 2015 and year-on-year growth rates; data source: ch-aviation & OAG, illustration: PROLOGIS.

⁴ ADB – Asian Development Bank (2015a)

Speaking of Asia's largest LCCs, IndiGo Airlines, based in Delhi, India, and offering 0.82 million weekly seats, should not go unmentioned. Between October 2014 and October 2015, this budget airline was able to increase both its seat capacity and frequency by nearly a quarter (22.9% year-on-year; see chart 5). The Indian market as a whole grew by 8.9% to 2.7 million weekly seats. The number of weekly departing flights rose to more than 16,400, a 10.9% year-on-year increase.

The economy in Asia's largest country by population, China, slowed down more than expected in the first half of 2015.⁵ Nevertheless, the country's aviation industry managed to grow with regard to capacities and frequencies: The amount of weekly seats

offered in October 2015 reached nearly 11.2 million, a 9.2% year-on-year growth. Frequencies went up by 5.8% to nearly 70,000 weekly flights. Only the United States can keep up with these high numbers, offering more than 18.8 million (+3.7%) seats and over 167,500 (-0.5%) weekly frequencies during the corresponding period (see chart 6). These figures show how, after a period of consolidation, US carriers are moving towards less flights with larger aircraft.

All other markets are significantly smaller: Based on capacities, Japan is ranked the third largest market with 3.7 million weekly seats. With regard to frequencies, Canada is the third largest market with just short of 21,000 weekly flights (see chart 6).

Top 10 countries by Capacities & Frequencies in Oct. 2015

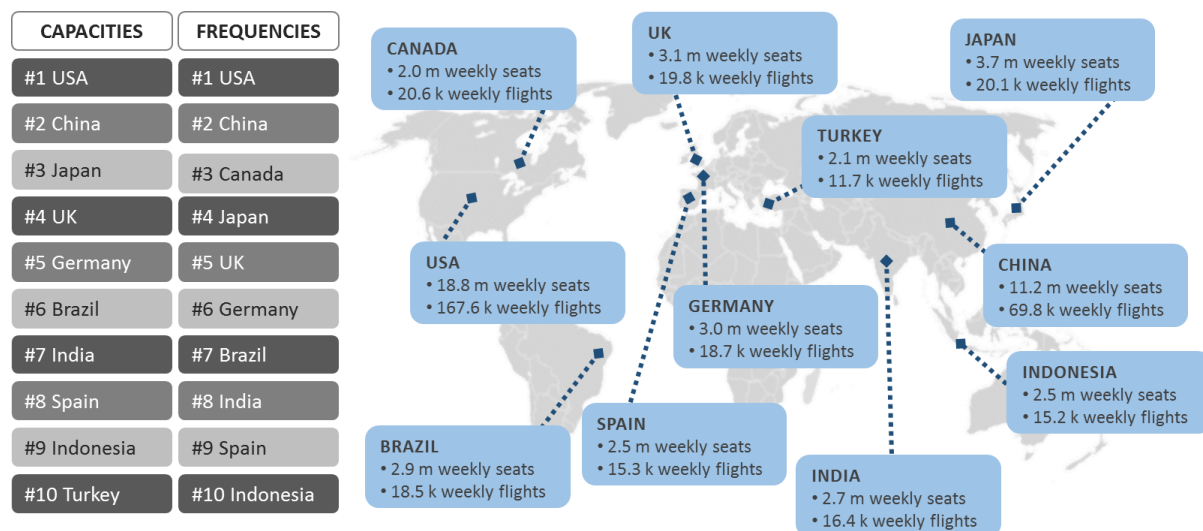


Chart 6: Largest countries by weekly capacities (in million, m) and weekly frequencies (in thousands, k) in Oct. 2015; data source: ch-aviation & OAG, illustration: PROLOGIS.

⁵ ADB – Asian Development Bank (2015b)

The many airlines of China

As mentioned previously, 38 of the world's top 100 carriers (based on seat capacities) operate out of Asia. In fact, 16 of these 38 (42%) are Chinese enterprises that partly cooperate, reflected by stakes they hold in each other. China's two largest airlines are China Southern and China Eastern, ranked at numbers 6 and 7 amongst the world's largest carriers, based on seat capacities, and numbers 5 and 6 based on frequencies (see table 1). The third-largest Chinese carrier is Air China.

China Southern Airlines is based in Guangzhou and has its main hubs at Guangzhou Baiyun International Airport and Beijing Capital International Airport. In 2015, the carrier increased its capacities insignificantly by 0.6% year-on-year to 2.1 million weekly seats (see chart 7). Frequencies decreased by 1.9% to 13,132. China Southern's subsidiary Xiamen

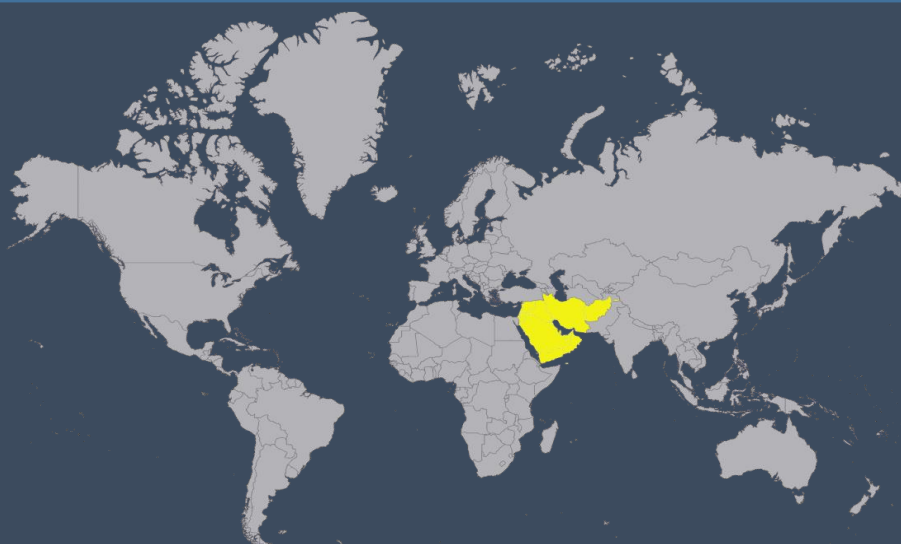
Airlines, based in the coastal city of the same name, west of Taiwan, however, increased its capacities immensely by 38.3% year-on-year to 0.67 million weekly seats and its frequency by an also impressive 33.6% to 4,869 weekly flights. China Southern owns a 51% stake in Xiamen Airlines.

Competitor China Eastern Airlines expanded its weekly capacities in the double-digit range, by 13.0%, to 2.0 million weekly seats. However, the carrier's frequency grew by only 1% year-on-year. This large difference can be explained with the fact that the carrier separated from its regional jets and at the same time added several larger aircraft (see below: Fleet Facts & Deliveries). China Eastern is based in Shanghai with hubs at both Shanghai Hongqiao International and Shanghai Pudong International.

China's two largest carriers



Chart 7: China Southern Airlines versus China Eastern Airlines; data source: ch-aviation & OAG,



Continued strong growth in the Middle East

Chart 3 (page 6) showed that the Middle East region was able to continue expanding in 2015. In international comparison, weekly seat offering on flights departing this area increased the most, with a growth rate of 9.4%, followed by Asia (8.2%). However, the nature of growth in these two parts of the world differs.

The Asian markets generally experience strong local demand, with a lot of domestic and intracontinental traffic. In contrast, the Middle East region's traffic figures consist of intercontinental traffic from and to the region and, even more so, of transfer traffic from the United States and Europe to Asia, Oceania and Africa and vice versa, as well as local traffic. As a result, passenger transfer traffic between these parts of the world is shifting from Europe to the Middle East, and the airlines from the Gulf have been taking market shares, especially from their European legacy competitors.

The overall imbalance between the capacity and frequency growth rate is especially noticeable in the Middle East region.

The overall imbalance between the capacity and frequency growth rates is especially noticeable in the Middle East region. Relative frequencies increased comparatively slowly (4.1%) as opposed to relative capacities, indicating high average seat numbers offered per flight and the usage of large aircraft. Also, in Europe and North America, relative frequencies (3.2% and 0.2% respectively) rose nowhere near as strongly as relative capacities, which were 6.8% in Europe and 4.1% in North America.

Qatar is head to head with Turkish Airlines regarding strong growth. With a capacity increase of 15.9% and a frequency increase of 12.9%, the carrier can look back upon a successful year 2015. Emirates, too, increased its capacities with a similarly strong growth rate of 14.5% and a total of 1.4 million weekly seats in October 2015. The capacity growth figures in the Middle East can also be explained with the carriers' investment in new, larger aircraft (see below: 2015 Fleet Facts & Deliveries) and thus with an investment in their products. This is also acknowledged by passengers, as it allows the airlines to set themselves apart from their competitors. Qatar, for instance, was named Airline of the Year 2015 by rating system

SKYTRAX.⁶ Nevertheless, absolute figures again show that there is still quite a gap between the Gulf carriers' seat capacities and those of both

Europe's and North America's largest airlines, a fact which makes it easier for the Gulf carriers to achieve higher growth figures.

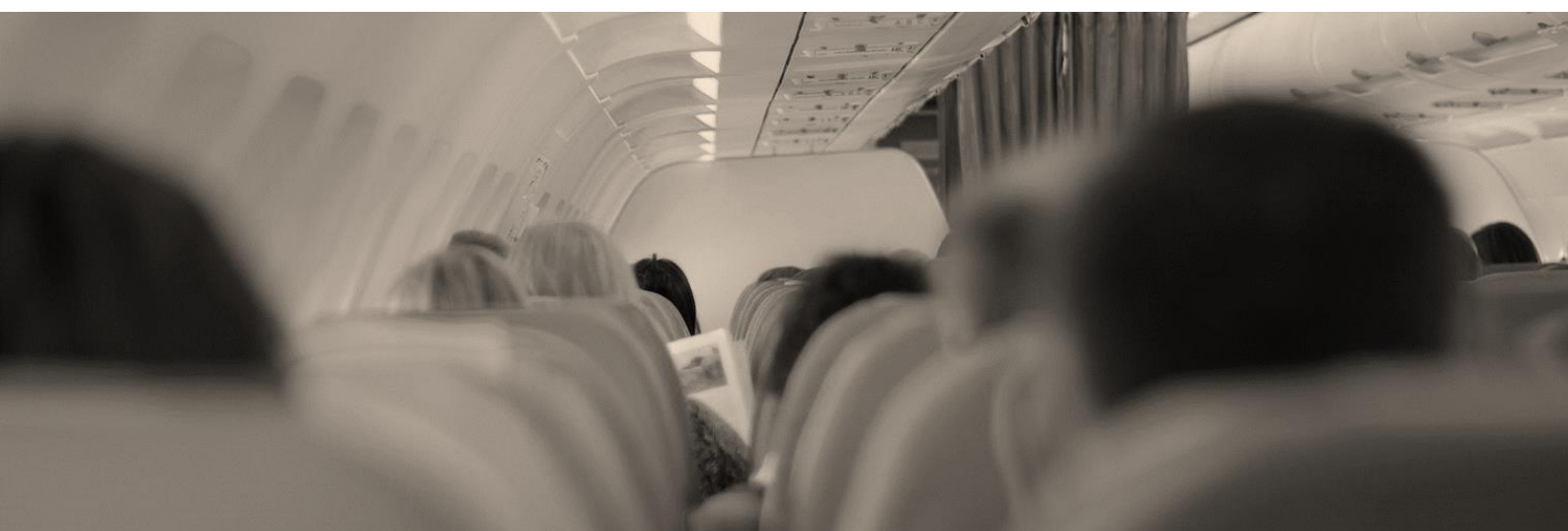
Emirates' seat average: The LCC of the network airlines

Looking at the world's largest airlines, their ranking regarding seat capacities for the most part corresponds to their ranking regarding frequency, with only a few minor differences in ranking order. Emirates, however, is an exception: The carrier, based in Dubai, UAE, is ranked the 13th largest airline based on seat capacities, but with regard to frequency, it is listed only at number 42 (see table 1).

To some extent, this can certainly be explained with the geographical location of the airline's hub and its subsequent focus on less-frequented long-haul flight operations. Nevertheless, a direct comparison and analysis of the capacity and frequency figures of the top 100 carriers (based on capacity) reveals that Emirates' average seat offering of 381 seats per flight is unbeatable.

Emirates can basically be seen as the low-cost carrier of the network airlines, considering the relatively low per-seat cost.

The only carriers that can even remotely compare with such high average flight capacities are Thai Airways International (306 seats/flight), Cathay Pacific (304 seats/flight) and Singapore Airlines (302 seats/flight; see chart 8). This fact indicates that, with regard to its operational strategy, Emirates can basically be seen as the low-cost carrier of the network airlines, considering the resulting, relatively low, per-seat cost.



⁶ SKYTRAX (2015)

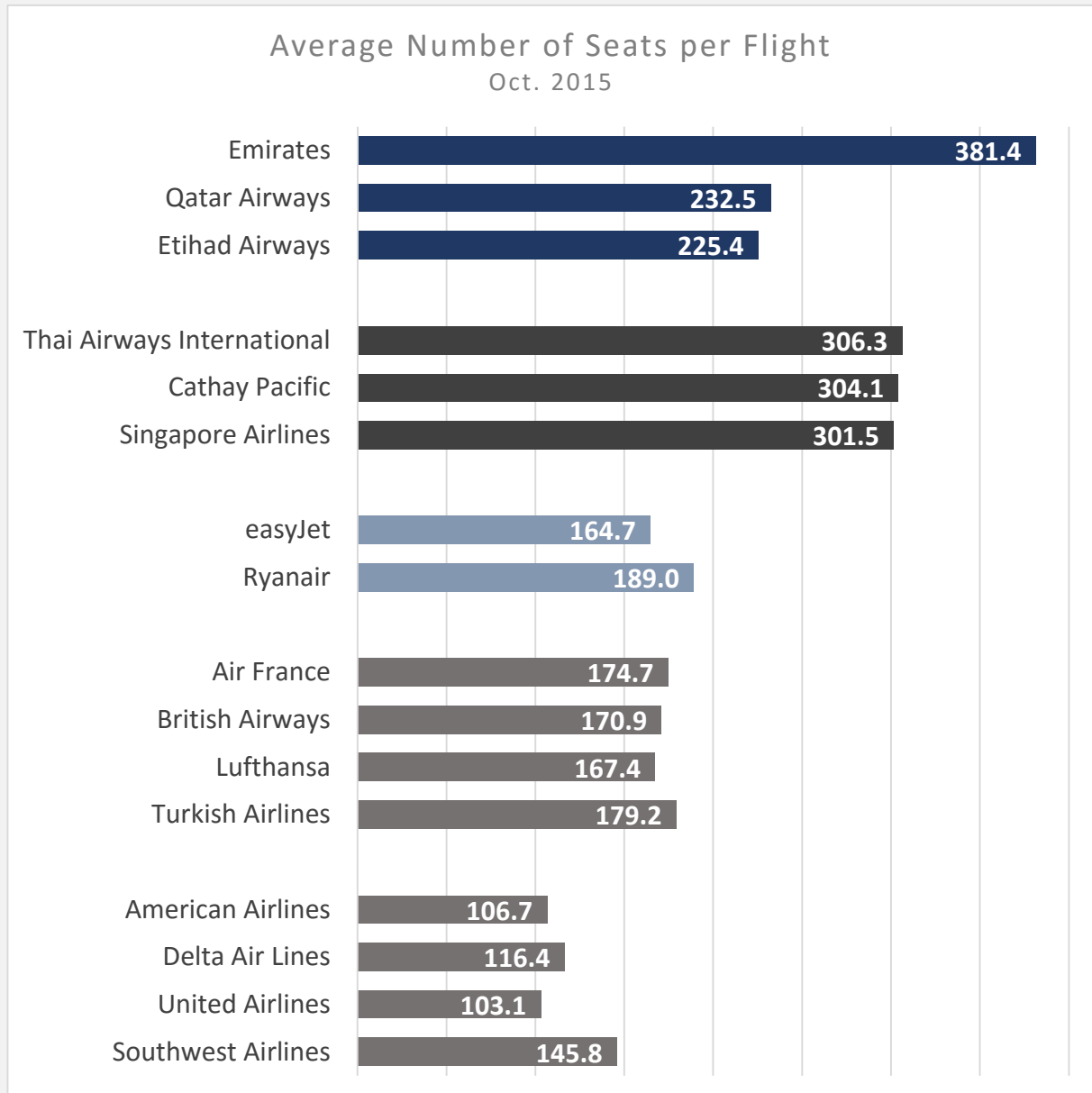


Chart 8: Average number of seats offered per flight in Oct. 2015; data source: ch-aviation & OAG.





Revenue and profit maximization by North American carriers

In contrast to Asia and the Middle East, market saturation has already been reached in Europe and North America. For the last couple of years, the North American major network carriers, especially, have been focusing on reducing overcapacities by means of consolidation.

In contrast to Asia and the Middle East, market saturation has already been reached in Europe and North America.

“Capacity Discipline”

The world’s four largest carriers are based in the United States; three of them are network carriers – American Airlines, Delta Air Lines and United Airlines – and one of them is an LCC – Southwest Airlines. These four strongly dominate their region and do not need to fear much competition from other North American carriers. When comparing the region’s 10 largest carriers, based on their overall seat capacities, American, Delta, United and

Southwest claim a market share of 80% (see chart 9).

Over the last decade, the number of large US airlines has been halved. In a wave of consolidation, US Airways, Continental and Northwest have all been merged with one of the remaining three network carriers, all at some point filing for Chapter 11 bankruptcy. Furthermore, Southwest acquired AirTran in 2010; as of December 2014, the carrier was fully integrated into the nation’s and world’s largest LCC.

As a result, overcapacities were scaled down and competition decreased.⁷ After many years of unprofitability, the USA’s largest airlines still seem to operate by the mantra of “capacity discipline”.⁸ Growth figures show that, with an average 1.6% seat increase, the four carriers are focusing on making profits rather than increasing capacities again; the low fuel prices in 2015 will also have benefited them in this respect.

⁷ Economist.com (2015)

⁸ Economist.com (2015)

North America's 10 largest Carriers, measured by capacities in October 2015:

- American Airlines
- Delta Air Lines
- Southwest Airlines
- United Airlines
- Air Canada
- jetBlue Airways
- Alaska Airlines
- WestJet
- AeroMéxico
- Spirit Airlines

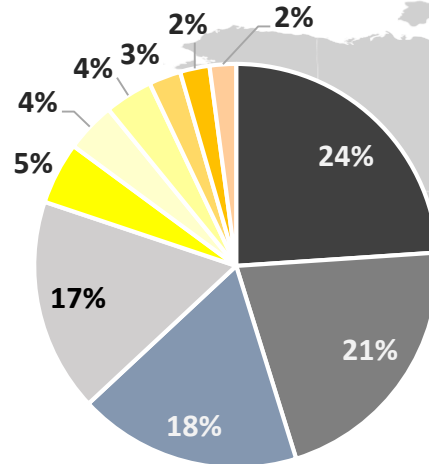


Chart 9: The 10 largest North American carriers' market shares by seat capacities.

Highly frequented North America

Another phenomenon that can be observed in the North American market regards the carriers' frequency offer. The figures in table 1 clearly show that the number of weekly flights offered by America's largest airlines is particularly high. It is also evident from chart 2 that the frequency supply of the North American market outranges that of all other world regions.

Furthermore, chart 8 shows that the average amount of seats per flight offered by the three network carriers American (107), Delta (116) and United (103) is significantly lower than the

global average of 141 seats per flight (see chart 8). The European legacy competitors reach numbers around 170 seats per flight, with 175 for Air France, 171 for BA, 167 for Lufthansa and 179 for Turkish Airlines.

The high frequency numbers in North America can be explained by the fact that the North American carriers employ regional jets much more than their legacy competitors in Europe do. In addition, compared to Europe, where one can observe a lot of point-to-point traffic, a larger amount of traffic in North America is routed via hubs.





European Network Carriers: Facing better times?

Iberia's recovery

In Europe, the 2015 development figures from IAG (International Airlines Group) subsidiaries Iberia and British Airways suggest initial signs of better times to come for network carriers. Both airlines experienced a leap forward, with 11.8% (IB) and 6.6% (BA) capacity growth, respectively (see table 1). Weekly flights were increased by 5.6% (IB) and by 2.8% (BA).

In Europe, the 2015 development figures suggest initial signs of better times to come for network carriers.

Iberia now seems to be recovering, after being in the red for several years. In 2014, the Spanish airline finally drew profit again for the first time since 2007, and its restructuring program 'Plan de Futuro' now seems to be paying off.⁹ BA's growth, however, is partly due to the acquisition of BMI in 2012, and its subsequent, steady integration over recent years, resulting in 42 new BA slots at London Heathrow airport.¹⁰

Etihad pushing Alitalia growth

One network carrier that has been able to keep up with Turkish Airlines' growth figures and thus expand significantly in 2015, is Alitalia. Based in Rome Fiumicino, the airline has increased its seat capacities by 16.4% and its frequency by 15.4%. These growth figures can be traced back to the investment agreement between Etihad Airways and Alitalia in August of last year, when Etihad acquired a 49% stake in Alitalia. The Gulf carrier has since been

steadily aligning the loss-making European airline's network to its own, connecting several Italian cities with Etihad's hub in Abu Dhabi, UAE.¹¹

With a share of 29.2%, Etihad is also the largest single shareholder in struggling Air Berlin. Since the beginning of the airlines' strategic partnership in January 2012, Etihad has been supporting the financially stricken Berlin Tegel

⁹ CAPA (2015)

¹⁰ CAPA (2014)

¹¹ ch-aviation (2014)

based airline. According to the year-on-year growth figures from October 2015, Air Berlin has made further cutbacks to capacity and frequency, with a decrease of 8.0% in seats and 6.3% in flights. Just recently, competition in the German capital has increased once again, as,

starting with the winter schedule 2015/16, Ryanair has begun developing Berlin Schönefeld as its sixth German base.¹² easyJet has been using Schönefeld as a base since 2004.

Lufthansa and Air France-KLM still on austerity measures

Europe's largest network carrier Lufthansa has been facing a rough year with the tragic crash of subsidiary germanwings' flight 4U9525 and an enormous amount of flight cancellations due to extensive strikes from both pilots and flight attendants. Between October 2014 and October 2015, the German airline reduced its seat offering by 1.3% to 1.7 million and lowered frequencies by 4.1% to 10,253 (see table 1).

germanwings, grew its capacity by 16.3% and its frequency by 4.6%. This is partly due to capacity being shifted from Lufthansa to germanwings/Eurowings. Swiss increased its seat offering by 15.4% and its flight offer by 2.8%, while Brussels Airlines added an extra 12.6% in capacity and 3.3% in frequency year-on-year. Only Austrian Airlines dropped its capacities by 0.7%, while frequency was reduced by 1.7%.

Lufthansa Group members Eurowings, Swiss and Brussels Airlines all increased their capacity figures greatly.

Air France-KLM did not change its capacity and frequency significantly. With a capacity decrease of 3.8% by KLM and an increase of 2.0% by Air France, the airline alliance lowered its overall weekly seat offering by 0.2% in October 2015 compared to October 2014. Overall frequencies went down by 0.7% with 1.3% less offered flights by Air France and an insignificant increase of 0.1% year-on-year by KLM.

Lufthansa Group members Eurowings, Swiss and Brussels Airlines, however, all increased their capacity figures significantly: The Group's LCC, based in Cologne, Germany, and until just recently operating under the brand



¹² Ch-aviation (2015)

Aeroflot: Decreasing competition

Majority state-owned Aeroflot, based in Moscow, Russia, considerably increased both capacities and frequencies, by 15.0% and 9.1%, respectively (see table 1).

The carrier's competition on international routes declined in 2015, as several foreign carriers reduced their offer to Russia, which has been having a positive effect on the carrier's growth figures.¹³

Moreover, competition declined further as Transaero, which used to be the nation's second largest airline, went out of business due to bankruptcy in October 2015. UTair, too, is struggling tremendously due to a liquidity shortage and has undergone a restructuring program. Even though this regional carrier

received financial support from the Russian government,¹⁴ it has had to reduce its fleet significantly by 36.9% from 103 to 65 aircraft.

In addition, Aeroflot shifted a large amount of capacities from its subsidiary Orenair's charter flights to scheduled services, mainly from Simferopol (SIP) and Moscow Vnukovo (VKO). Aeroflot's scheduled flight capacities increased by 184% in SIP and by 681% in VKO as a result.

Russia's legacy carrier plans to merge Donavia and Orenair into Rossiya in due course. Furthermore, Aeroflot has another growth tool in the form of LCC Pobeda, which was founded in December 2014 and just recently received permission to operate international flights.¹⁵

Europe of the LCCs

Ryanair: Europe's largest airline

Low-cost giants Ryanair and easyJet continue their conquest of Europe. They are ranked as the world's 8th (Ryanair) and 10th (easyJet) largest airlines, based on seat capacities (see table 1).

Within Europe, Ryanair has already overtaken all the network carriers regarding both capacity and frequency, and can now call itself the continent's largest airline. In 2015, Ryanair was able to continue its strong expansion with capacity and frequency growth rates close to 9%. With its new base at Berlin Schönefeld, the carrier's relative growth was the strongest in the German market. Between February 2015 and February 2016, the LCC will have increased its frequency in Germany by 64%.¹⁶ Both Ryanair and easyJet aim to be number one or number two at all their bases.

Within Europe, Ryanair has already overtaken all the network carriers regarding both capacity and frequency, and can now call itself the continent's largest airline.

Norwegian and Vueling: The LCC competition

However, the two LCCs from Ireland and the UK are no longer Europe's one and only budget carriers gaining market shares. Both Norwegian and IAG subsidiary Vueling Airlines have enormously increased their networks over the last couple of years.

Between 2009 and 2014, Norwegian and Vueling added 56 and 103 new destinations, respectively. During this five-year period, Vueling increased its seat capacities and frequencies by more than 400%, and the

¹³ Aeroflot.ru (2015)

¹⁴ aeroTelegraph.com (2015)

¹⁵ ATOonline.com (2015)

¹⁶ anna.aero (2015)

Scandinavian carrier by more than 80%.¹⁷ Over the last year, Barcelona El Prat-based Vueling managed to continue its growth success by achieving another impressive 14.6% year-on-year capacity growth and a 13.3% frequency increase.

Norwegian has been changing its business strategy, including adding long-haul flights in 2013, for which they acquired eight new

Boeing Dreamliners (B787-8s). It is still unclear if this business model will pay off. Based on seat capacities in October 2015, the carrier is now the 9th largest airline in Europe, growing its year-on-year capacities slightly by 1.4% (this being the combined capacity numbers of Norwegian Air Shuttle and Norwegian Air International, Norwegian's second AOC (Air Operator Certificate)). Total frequencies dropped marginally by 1.3%.



South America: Brazil in recession

Absolute capacity and frequency figures for South America show that the continent's emerging and developing markets still bear a lot of potential (see charts 1 and 2). Nevertheless, in 2015, the amount of seats offered increased by a mere 2.0% and frequencies even dropped by 3.9% year-on-year.

For South America's largest country, especially, times are hard. Since 2011, the Brazilian Real has dropped by more than 60%,¹⁸ and the unemployment rate had increased to 7.6% in

August 2015.¹⁹ Considering that the country is deeply in recession, decreasing growth figures with regard to capacities (-1.7%) and frequencies (-4.8%) are to be expected. Nonetheless, the country ranks sixth and seventh in the world in terms of capacity and frequency, respectively, with a total of 2.9 million weekly seats and 18,509 weekly flights in October 2015 (see chart 6).

The nation's largest airline, low-cost carrier Gol, is also the largest airline of the continent and ranks among the top 20 largest carriers of

¹⁷ PROLOGIS (2014)

¹⁸ Bloomberg (2015)

¹⁹ Fortune (2015)

the world (see table 1). In 2015, the LCC decreased both its capacities and its frequencies by 1.2% and 4.5%. Brazil's legacy airline TAM finalized its merger with Santiago de Chile-based LAN Airlines in 2012. The two partners are now operating under the umbrella of the LATAM Airlines Group and plan to start

operating under their joint LATAM brand soon. Whereas TAM reduced its seat offering by 7.7% and its frequencies by 9.9%, for LAN Airlines 2015 was a year of strong growth. The carrier added 13.0% more seats, offering a total of 0.75 million in October 2015, and increased frequencies by 0.4% to 4,405.



Africa: Enormous growth potentials

In Africa, too, growth potentials are enormous and, unlike South America, the continent has had a successful year with regard to capacity and frequency growth figures.

Africa accounts for the highest frequency growth rate with 10.3% (see chart 3). In absolute figures, this is an increase from 20,483 to 22,587 (see chart 2). It is the only region where the frequency growth rate increased noticeably higher than the capacity growth rate, which was 7.4% (i.e. 2.9 million weekly seats in October 2015). One reason for this could be that the African market is still strongly growing with new markets being tapped in. As

a result, these markets are still rather small and frequencies grow faster than capacities.

All in all, the region's markets are only insignificantly larger than that of the Oceania region, where 2.6 million weekly seats and 21,011 weekly flights were offered in October 2015. In this context, it should be noted that the surface area of Oceania is nearly four times smaller than that of the African continent.²⁰

Based on capacities, there are only three African carriers within the 100 largest airlines of the world: At number 81, South African Airways is the largest African airline with only 269,218 weekly seats in October 2015 – a 4.3%

²⁰ Worldatlas (2015)

year-on-year decrease. Ethiopian Airlines (256,886; 16.8%), Africa's airline with the second largest capacity offer, ranks 87th. And, last but not least, EgyptAir ranks at number 96 with 226,505 weekly seats (-3.2%). Based on weekly frequencies, Royal Air Maroc joins the three aforementioned carriers on the list of the

100 largest airlines, with South African ranking at number 56 (2,745; -1.4%), EgyptAir at number 91 (1,577; 4.5%), Ethiopian Airlines at number 94 (1,535; 14.1%) and Royal Air Maroc at number 100 (1,306; 1.0%).



Oceania: No significant changes

Among the top 100 airlines based on capacities and frequencies, there are four carriers from the Oceania region: Qantas, Virgin Australia, Air New Zealand and Jetstar Airways. Australia's legacy carrier Qantas is ranked at number 26 with 0.76 million weekly seats and at number 24 with 5,160 thousand weekly flights offered in October 2015.

Based on capacities and frequencies, Virgin Australia is ranked 48th (0.54 million weekly seat capacity) and 41st (3,721 weekly frequencies), Qantas' LCC Jetstar is at number 59 based on capacities (0.45 million) and at number 64 based on frequencies (2,328), while Air New Zealand is ranked at number 66 (0.35 million weekly seats) and number 44 (3,531 weekly frequencies).

Oceania as a whole grew insignificantly by 1.6% (capacities) and 1.9% (frequencies; see chart 3). The four aforementioned airlines clearly dominate the region with a market share of 80% (capacities) and 70% (frequencies).

The largest countries within the region are Australia and New Zealand. They account for 91% of Oceania's capacities and of 85% of the region's frequencies. Whereas Australia decreased both capacities and frequencies insignificantly by -0.4% year-on-year, the New Zealand market grew by 6.5% (seat capacity) and 6.8% (frequencies). However, it must be mentioned that the Australian market is 4.7 times larger than the New Zealand market based on capacities and 3.3 times larger based on frequencies in October 2015.



Airport Developments

Table 2 lists the 20 largest airports, based on capacities. Comparing 2014 and 2015 figures, it quickly becomes apparent that there has only been one change in the order of the top 10 ranking: Dubai International Airport (DXB), UAE, has risen from number 5 to number 3, growing by 14.8% and thereby displacing Tokyo Haneda (HND), Japan, which has slipped down to number 4, and London Heathrow, which has been demoted to number 5.

Of the 20 largest airports (based on capacities), DXB is not the only one to have experienced double-digit capacity growth rates: Istanbul Atatürk (IST) achieved 13.5% growth, while Shanghai Pu Dong (PVG) grew by 13.6%. At PVG, which is the largest airport of the world's most populous city, frequencies, too, rose significantly, by 10.1%. At DXB, 11.1% more weekly flights were offered in October 2015, compared to October 2014.

ATL versus PEK: Comparing the top leaders

Atlanta Hartsfield Jackson (ATL), Georgia, USA remains the world's largest airport, leading with a weekly seat offering of 1,151,608. It is closely followed by Beijing Capital International Airport (PEK), China, with 1,110,279 weekly seats. These two airports grew with similar year-on-year growth rates of 4.3% (ATL) and 4.6% (PEK).

Their infrastructure differs insofar as ATL consists of only two terminals – one regional and one international – and five runways, whereas PEK has three terminals and three runways, of which two exceed ATL's maximum runway length and width.

Atlanta Hartsfield Jackson (ATL), Georgia, USA remains the world's largest airport, leading with a weekly seat offering of 1,151,608.

ATL has a lot more transfer traffic than PEK. For this reason, the two airports' distribution between domestic and international gates varies significantly. ATL's "domestic terminal" comes with six concourses (A-E and T) and is used for both domestic and international flights. In addition, there is an international terminal with concourse F. All in all, the airport has 211 gates.²¹ In contrast, PEK has a total of 194 gates. Terminal 1 is used exclusively for domestic departures, but terminals 2 and 3 are used for international traffic as well.²²

²¹ Atlanta-airport.com (2015)

²² En.BCIA.com.cn (2015)

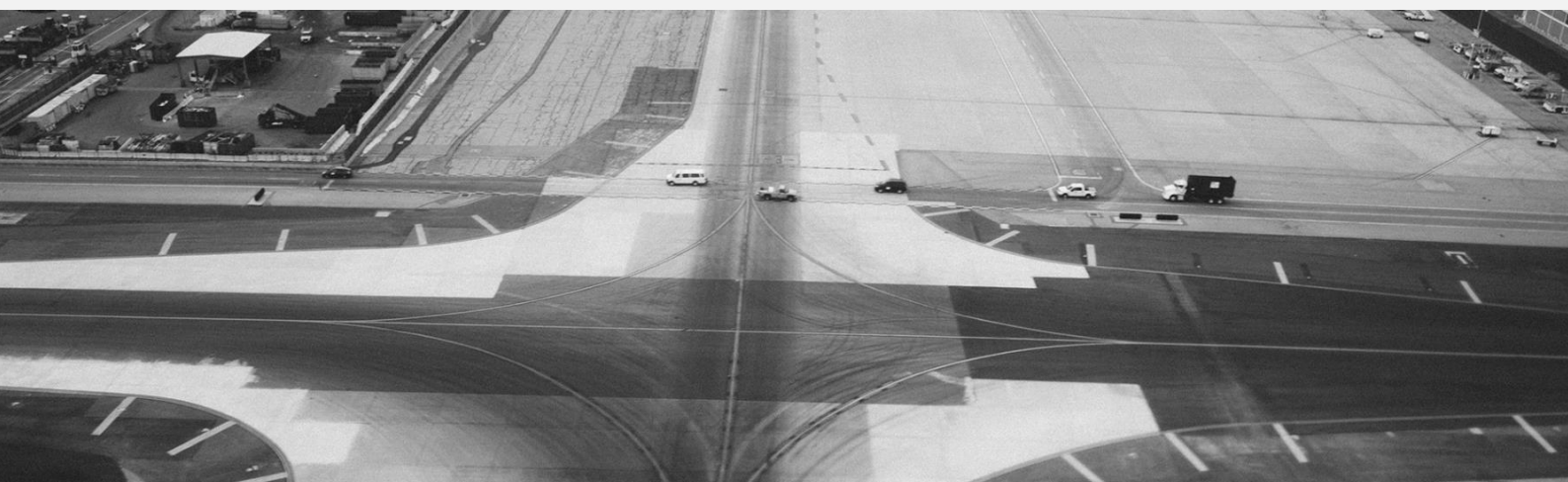
Top 20 Airports:

2015 Capacity Development (weekly seats)

RANKING by capacities	AIRPORT	CAPACITIES (millions)		
		2014	2015	YoY
1	Atlanta Hartsfield Jackson	1.10	1.15	4.3%
2	Beijing Capital	1.06	1.11	4.6%
3	Tokyo Haneda	1.01	1.00	-1.0%
4	London Heathrow	0.93	0.95	2.8%
5	Dubai Int'l	0.91	1.05	14.8%
6	Chicago O'Hare	0.87	0.89	2.5%
7	Los Angeles Int'l	0.81	0.88	8.8%
8	Frankfurt Int'l	0.80	0.82	2.0%
9	Hong Kong Chek Lap Kok	0.77	0.81	4.6%
10	Paris CDG	0.75	0.80	6.1%
11	Jakarta Soekarno-Hatta	0.74	0.73	-1.6%
12	Dallas/Fort Worth	0.73	0.73	0.9%
13	Istanbul Atatürk	0.69	0.79	13.5%
14	Singapore Changi	0.69	0.70	2.5%
15	Shanghai Pudong	0.68	0.77	13.6%
16	Guangzhou	0.65	0.64	-1.4%
17	Kuala Lumpur Int'l	0.65	0.65	0.0%
18	Amsterdam	0.65	0.66	3.0%
19	New York JFK	0.63	0.67	6.2%
20	Denver Int'l	0.61	0.62	0.9%

Reference periods: Oct. 20-26, 2014 vs. Oct. 19-25, 2015

Table 2: Top 20 largest airports based on weekly seat capacities (in million, m) in Oct. 2015, year-on-year development Oct. 2014 vs. Oct. 2015; data source: ch-aviation & OAG.



Growth winner Bangkok Don Mueang

In terms of highest relative capacity and frequency growth rates, Bangkok Don Mueang (DMK) is a clear winner, reaching a substantial weekly seat increase of over a third (34.8%) to 383,001 and a frequency increase of 28.0% to 2,057 weekly flights. Thailand's second largest international airport serves as a hub for Thai low-cost carriers Thai AirAsia, Nok Air, Thai Lion

Air and Thai Smile. Thanks to a successful year 2015, Bangkok Don Mueang has grown to become the world's largest LCC airport, overtaking Barcelona El Prat, Spain, and Kuala Lumpur International Airport, Malaysia, regarding LCC traffic.²³

Routes

Industry experts are very familiar with the world's largest airlines and airports. But what about the world's most popular routes? Information on this is often lacking. The following figures provide some insights into the largest markets in terms of route capacities.

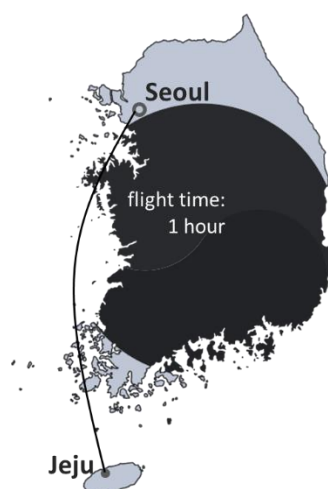
Largest route in South Korea

South Korea is home to the city pair with the highest weekly seat offering worldwide in October 2015: the route connecting the capital Seoul with Jeju, the country's largest island south of the Korean Peninsula, saw a total offering of 293,068 weekly seats (see chart 10). This equals an average of nearly 42,000 seats per day on the one-hour flights between the two destinations.

Tokyo features four times in the top ten list

The second and third largest markets, based on seat capacities, are in Japan and Brazil, respectively (see chart 10). 285,659 seats were offered on the route between Sapporo and Tokyo in October 2015. With a year-on-year growth rate of 2.7%, traffic on the 1.5-hour flight between the capital and the largest city of Japan's most northern main island, Hokkaidō, increased slightly.

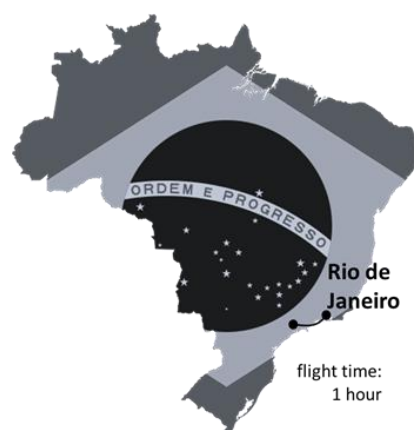
#1: Seoul-Jeju



#2: Tokyo-Sapporo



#3: Rio de Janeiro-São Paulo



²³ CAPA (2015)

Dropping from number 1 in 2014 to number 3 in 2015, the market Rio De Janeiro-São Paulo decreased by 6.3% year-on-year.

Whereas in 2014, on average around 41,500 daily seats were offered on the route between

Brazil's two largest cities, this number fell to 38,900 in 2015. These declines are most certainly linked to the country's already mentioned poor economic situation at present.

Top 10 Routes:

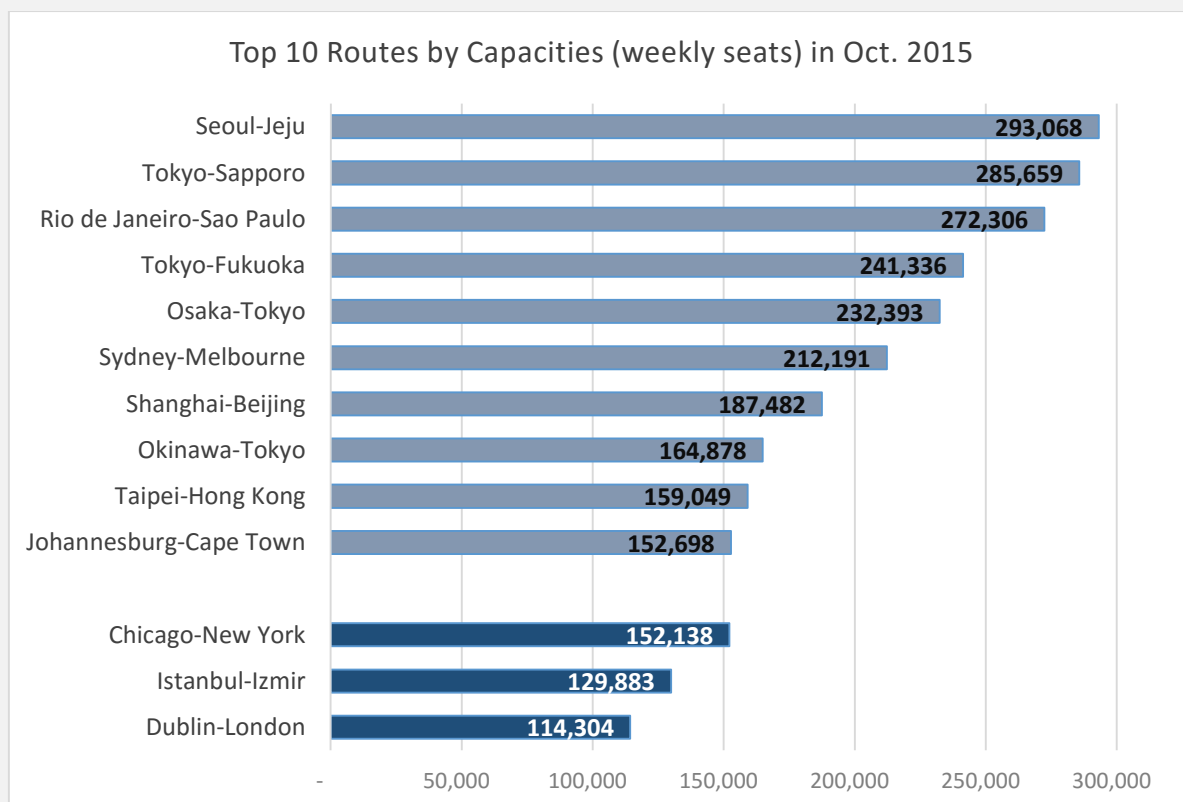
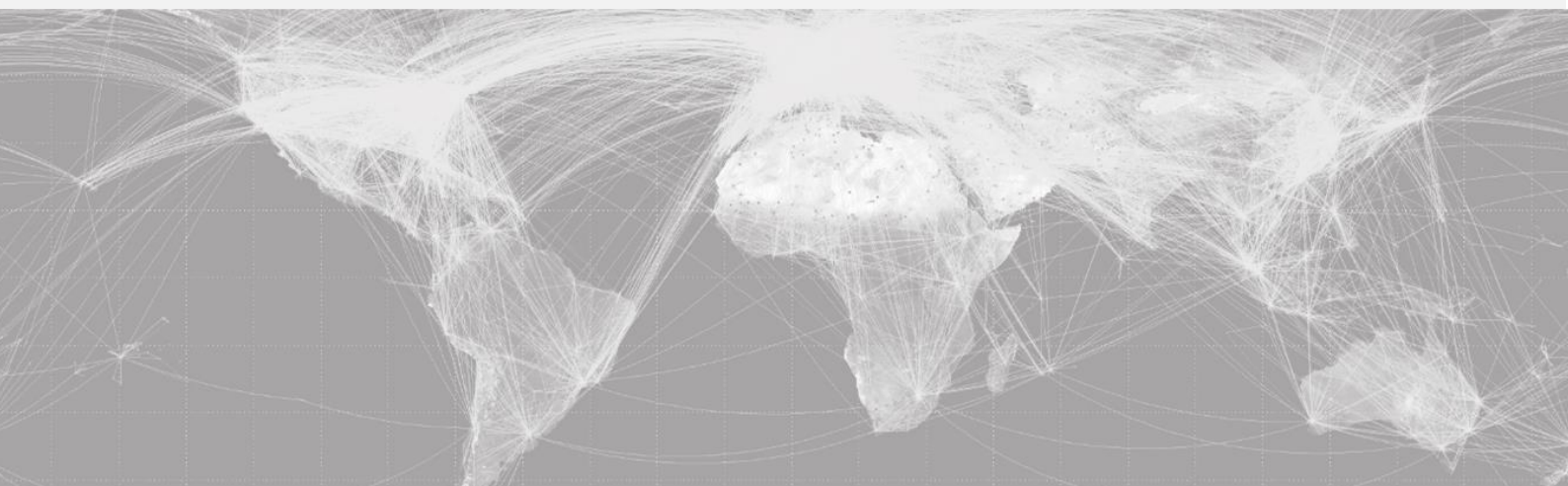


Chart 10: Top 10 routes compared to largest routes in USA and Europe measured by weekly seat capacities in Oct. 2015; data source: ch-aviation & OAG.



The world's ten largest markets, based on seat capacity in October 2015, are listed in chart 10. Capacities on the route Johannesburg-Cape Town increased significantly by 17.8% year-on-year on the back of an LCC price war in South Africa. It should be noted that, on the list of the world's 10 largest markets, Tokyo features four times as a city pair counterpart.

The largest North American route is listed as number 12: Chicago-New York with a total of 152,138 weekly seats in October 2015 (+5.6%).

It should be pointed out that this is only about half as many seats as the world's largest route capacities (Seoul-Jeju).

Europe's largest route (ranked 16th) is between the Turkish cities Istanbul and Izmir, with a total of 129,883 weekly seats (+14.3%). The city pair Dublin-London is the largest route in western Europe with 114,304 weekly seats (+7.8%). Again, this is equivalent to only about 40% of the world's largest route.

2015 FLEET FACTS & DELIVERIES

According to ch-aviation's fleet database, in 2015 the total amount of passenger and cargo aircraft rose by 848 to 25,749 (excluding government and VIP/business charter aircraft). This includes aircraft with more than 30 seats and cargo aircraft of a similar size. Adding up

the fleet figures from about 1,300 AOC (Air Operator Certificate) holders, this is an increase of 3.4%. In total, 1,310 new aircraft were delivered to the industry (see chart 11), while 462 aircraft were replaced.

Fleet Sizes & Deliveries

American Airlines: Largest fleet, most deliveries

Offering the most capacities and frequencies, the four largest American carriers also operate with the largest fleet sizes. The ranking corresponds with the frequency order: American (947), Delta (817), United (717) and Southwest (701).

Of these four, Delta was the airline to add most to its fleet during the last year, with a 6.4% increase or 49 aircraft. However, only 19 of these were new deliveries received directly from the manufacturer: 16 B737-900(ER) narrowbody and 3 A330-300 widebody aircraft.

In total, 1,310 new aircraft were delivered to the industry, while 462 aircraft were replaced.

Delta has a long-standing strategy of acquiring aircraft from the second-hand market.

American Airlines reduced its fleet by 2.3%, which is 22 aircraft less than in 2014. However, the carrier also replaced some of its old aircraft, receiving 65 new deliveries (see table 3). No other airline in the world exceeded this delivery number in 2015.

In total, the four largest American carriers received 128 new aircraft in 2015 and their fleets increased by 52 (+1.7%), i.e. 76 aircraft were replaced by new deliveries. With a total

of 110, a large amount of new aircraft was also delivered to China's three largest airlines. China Southern, China Eastern and Air China increased their fleets by 6.4% to 467, by 10.4%

Turkish Airlines: Strongest European fleet growth

In Europe, Turkish Airlines increased its fleet the most with a growth rate of 17.9% (see table 3). The carrier added 40 aircraft, of which 31 were new deliveries. In total, Turkish Airlines operated with 263 aircraft on November 1, 2015. Since November 2014, 12 A321-200s, 5 B737-900(ER)s, 8 A330-200s und 6 B777-300(ER)s were added to the fleet.

The other large European carriers cannot keep up with these numbers; even Ryanair and easyJet's growth numbers are substantially lower, with an increase of 6.3% or 19 aircraft for Ryanair and 8.0% or 16 aircraft for easyJet. The Irish carrier received 21 B737-800 narrowbodies, meaning 2 old aircraft were replaced. Its competitor from the UK received a similar amount of new aircraft: 19 A320-200s, with 3 old aircraft being replaced. Overall, though, Ryanair still operates a larger fleet than Turkish Airlines, with fleet figures of 320 versus 263.

Emirates gained significantly more seat capacity with the deliveries of 10 new A380-800s and 7 new 777-300(ER)s.

Middle East Carriers: Most A380 deliveries

In recent years, Emirates has greatly invested in new aircraft and expanded its fleet. In 2015, growth figures were comparably moderate, with an increase of 10 aircraft, bringing the total number up to 240. However, the carrier gained significantly more seat capacity with the deliveries of 10 new A380-800s and 7 new 777-

to 402 and by 10.8% to 348, respectively. In total, they added 100 new aircraft, and replaced 10 of their old aircraft.

Lufthansa's fleet size also exceeds that of Turkish Airlines, though only just, with 270 aircraft. BA's fleet shrank from 271 in 2014 to 263 in 2015 (-3.3%). However, 4 new widebody deliveries were received: 1 A380-800 and 3 B787-9s.

Air France, too, decreased its fleet by 9 aircraft to 231 (-3.8%) while KLM's remained the same at 110. In terms of deliveries, Paris-Charles de Gaulle-based AF received 2 new B777-300(ER)s, as did its Dutch alliance partner, KLM.

European LCCs Norwegian and Vueling extended their fleets. The North European carrier added 3 aircraft, and now operates with a fleet of 101. This number includes all aircraft from Norwegian Air Shuttle, Norwegian Air International and Norwegian Long Haul. In 2015, 9 new B737-800 narrowbodies were received and 1 B787-8 was added. The IAG subsidiary Vueling managed to draw level with its Scandinavian competitor by increasing its fleet by 15 aircraft, to 100, which equals an increase of 17.6% since 2014. The Spanish LCC received a total of 14 new aircraft directly from Airbus: 9 new A320-200s and 5 new A321-200s.

300(ER)s. With a fleet growth of 20.1%, competitor Qatar Airways increased its fleet quite impressively. Over the last year, 28 aircraft were added. Of these, 22 aircraft were new deliveries from the manufacturers, amongst them 2 A380-800s, 5 Boeing Dreamliners (B787-8s) and 5 A350-900s. The

carrier now operates with a fleet of 167. Etihad Airways follows a strategy of international partnerships and operates with a considerably smaller fleet of 117 aircraft. Since November 2014, 12 aircraft were added, and 15 new deliveries were received; this means the carrier replaced 3 of its old aircraft. Apart from narrowbody aircraft, the deliveries included 4 A380-800s and 5 B787-9s. With the A380 and the B787 deliveries, Emirates' competitors were able to add a large amount of capacities in 2015. With a total of 16 A380s, more than three quarters of deliveries of the world's

largest passenger aircraft (21) went to the Middle East (see chart 12). This capacity increase is also reflected in the region's high capacity growth figures.

Apart from the aforementioned Lufthansa and BA deliveries, 2 A380-800s were delivered to South Korea's Asiana Airlines (see chart 12). In contrast, the smaller Dreamliner was delivered more frequently around the globe in 2015. In total, 109 B787-8s and B787-9s respectively were delivered.

2015 Top 20 Fleets (Passenger & Cargo):

#	Airline	2014	2015	Growth %
1	American Airlines	969	947	-2.3%
2	Delta Air Lines	768	817	6.4%
3	United Airlines	702	717	2.1%
4	Southwest Airlines	691	701	1.4%
5	China Southern Airlines	439	467	6.4%
6	China Eastern Airlines	364	402	10.4%
7	FedEx Express	363	357	-1.7%
8	Air China	314	348	10.8%
9	SkyWest Airlines (USA)	349	346	-0.9%
10	ExpressJet Airlines	394	334	-15.2%
11	Ryanair	301	320	6.3%
12	Lufthansa	279	270	-3.2%
13	Turkish Airlines	223	263	17.9%
14	British Airways	271	262	-3.3%
15	Emirates	230	240	4.3%
16	UPS Airlines	237	237	0.0%
17	Air France	240	231	-3.8%
18	easyJet	201	217	8.0%
19	jetBlue Airways	200	213	6.5%
20	ANA - All Nippon Airways	201	203	1.0%

Reference periods: Nov. 1, 2014 vs. Nov. 3, 2015

Table 3: 20 largest passenger and cargo airlines based on amount of aircraft in November 2015; data source: aviation.

2015 Passenger Aircraft Deliveries:

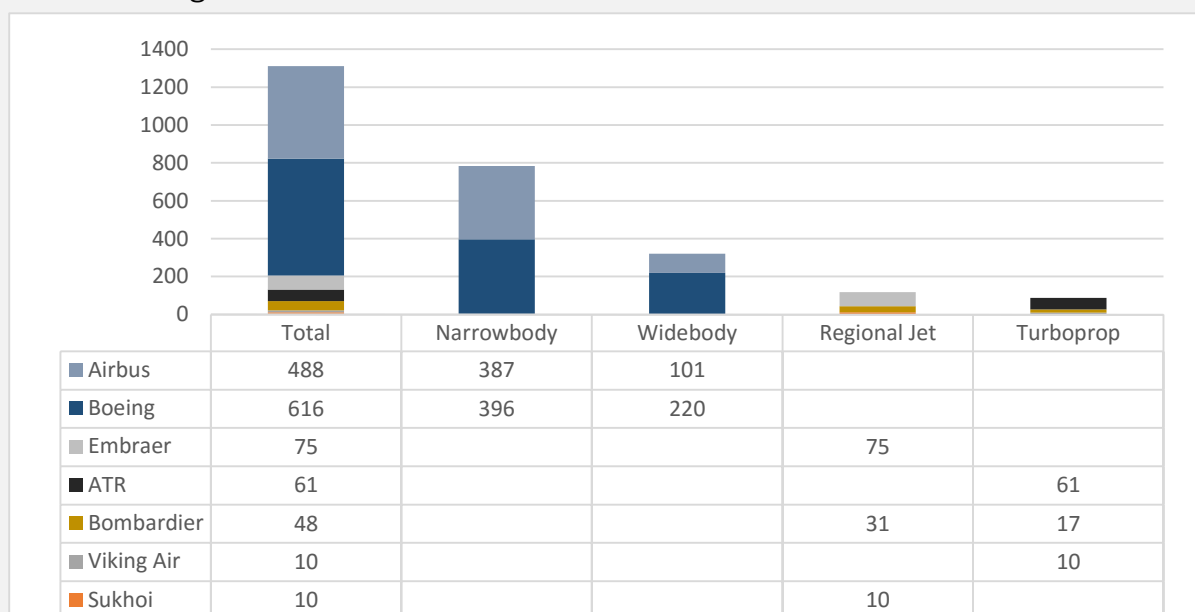


Chart 11: 2015 passenger aircraft deliveries; data source: ch-aviation.

A380 and B787 Deliveries in 2015:

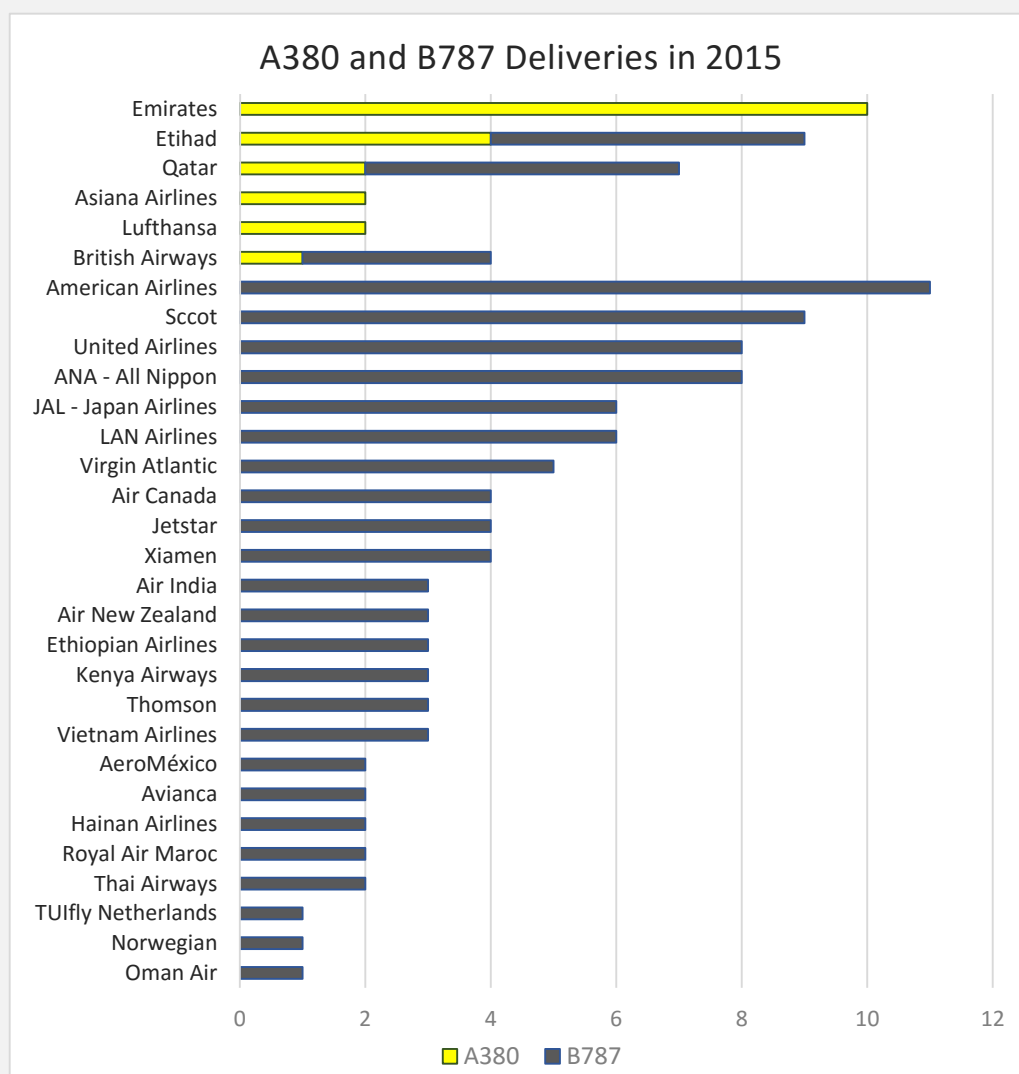


Chart 12: All Airbus A380 and Boeing B787 deliveries in 2015; data source: ch-aviation.

Fleet Age

In general, the age of an aircraft does not necessarily say anything about its safety, providing maintenance has been properly carried out over the years. It is, rather, efficiency in which older and newer aircraft generations differ.

FedEx Express: Oldest fleet amongst top 50 airlines

Based on ch-aviation's fleet data, PROLOGIS calculated the airlines' average fleet ages. Amongst the top 50 largest carriers, based on fleet size, FedEx Express has the oldest fleet

European and American carriers:
Comparably old fleets

The North American network airlines Delta, Air Canada and United operate with fleets that are on average 17.0, 14.2 and 13.5 years old, respectively. LCC Southwest's 701 aircraft are an average age of 12.1 years. With 11.2 years, American Airline operates the youngest fleet amongst America's big 4. In Europe, British Airways operates the oldest fleet, with an average aircraft age of 12.6 years, followed by SAS Scandinavian Airlines with 12.4 years, Air France with 11.5 years, and Lufthansa and KLM, both with 11.2 years.

Looking at the 50 largest carriers based on fleet size, North America and Europe's largest airlines operate the oldest fleets. Australia's flag carrier Qantas, for instance, has an average fleet age of 8.5 years. Air New Zealand's aircraft are on average 7.1 years old. With 118 (QF) and 54 (NZ) aircraft in November 2015, these airlines' fleets are, however, significantly smaller than those of their North American and European competitors'.

By contrast, China's major airlines, whose fleet sizes greatly exceed those of Europe's largest carriers, operate much younger fleets.

with an average age of 21.7 years and a total of 357 aircraft. It is the world's seventh largest carrier based on the number of aircraft. In 2015, it parted from 6 aircraft but received 17 new ones, which have already been taken into account in the average age number.

Regional carrier Jazz Air operates 127 aircraft and its fleet has an average age of 17.4 years, making it the passenger airline with the oldest fleet. The reason for this is most likely the lack of a suitable replacement for the Canadian carrier's Dash 8-100/-300 fleet.

Looking at the 50 largest carriers based on fleet size, North America and Europe's largest airlines operate the oldest fleets.

China Southern's 467 aircraft are an average age of 6.4 years. Air China operates a fleet that is on average 6.1 years old, while China Eastern's average fleet age is only 5.7 years. These numbers are comparable with the average fleet ages of the Middle East carriers, of which the largest, Emirates, has an average aircraft age of 6.3 years, followed by Etihad with 5.4 years and Qatar with 5.3 years. With 6.4 years on average, Europe's "high-flyer" Turkish Airlines can just about keep up with its competitors from the Middle East.

The European LCCs, too, operate similarly young aircraft. On average, Ryanair's 320 aircraft are 6.6 years old. Direct competitor easyJet's fleet of 217 are an average age of 6.3 years. While smaller budget carrier Vueling's fleet is roughly the same age at 6.9 years, Norwegian's average fleet age is significantly lower, at 3.8 years. This is due to a fleet extension with Dreamliners for long-haul operations, as well as B737-800 aircraft replacing the carrier's B737-300 fleet in recent years.

SUMMARY

After many years of cost cutting and capacity cutbacks for American and European legacy carriers, the 2015 figures seem to suggest that better times are coming. Following a wave of consolidation in North America, the carriers there are now focusing on making profits rather than expanding capacities. In Europe, Turkish Airlines, especially, can look back upon a very successful year.

Internationally, all airlines have benefited from low fuel prices, which is expected to be reflected in the 2015 annual financial reports.

Competition from the Middle East and Asia on the one hand, and from low-cost carriers such as Ryanair and easyJet on the other hand, is not abating, and these carriers continue to increase

their market shares by expanding their flight and capacity offers. In the case of network airlines, this is also being done by investing in large and fuel-efficient aircraft such as the Airbus' A380 and Boeing's B787, of which a total of 21 (A380) and 109 (B787) were newly delivered by the manufacturers in 2015.

Despite stunning (relative) growth rates in Africa, and the Middle East, American and European airlines are still performing better in terms of actual growth.

Asia, however, is outperforming nearly every other region, both in terms of relative growth and certainly in terms of absolute growth, adding another 2.2 million weekly seats in 2015.



REFERENCES

- ADB - Asian Development Bank. (2015). *Malaysia: Economy*. Retrieved November 23, 2015, from <http://www.adb.org/countries/malaysia/economy>
- ADB - Asian Development Bank. (2015). *People's Republic of China: Economy*. Retrieved November 23, 2015, from <http://www.adb.org/countries/prc/economy>
- Aeroflot.ru. (2015). *Aeroflot Group Passenger Traffic Up 13.3% in 8M 2015*. Retrieved November 25, 2015, from <https://www.aeroflot.ru/cms/en/new/54085>
- Aeroflot.ru. (2015). *Aeroflot Group Passenger Traffic Up 13.3% in 9M 2015*. Retrieved November 19, 2015, from <https://www.aeroflot.ru/cms/en/new/55197>
- aeroTelegraph.com. (2015). *Utair dezimiert Flotte*. Retrieved November 25, 2015, from <http://www.aerotelegraph.com/utair-russland-schulden-sporen-flugzeuge-reduktion-flotte-44-flugzeuge>
- anna.aero. (2015). *Ryanair, easyJet, Vueling, Norwegian and Wizz Air's winter 2015 growth markets revealed; Spain #1 for three of them; UK in top 3 for all*. Retrieved November 30, 2015, from http://www.anna.aero/2015/11/25/ryanair-easyjet-norwegian-vueling-wizz-air-w15-plans/?utm_source=anna.aero+newsletter&utm_campaign=f6d9aa1f01-anna_nl_251115&utm_medium=email&utm_term=0_ecdbf41674-f6d9aa1f01-86976933
- Atlanta-Airport.com. (2015). *Terminal Layout*. Retrieved November 23, 2015, from <http://www.atlanta-airport.com/Passenger/terminal/>
- ATWonline.com. (2015). *Aeroflot LCC subsidiary Pobeda gains international status*. Retrieved November 25, 2015, from <http://atwonline.com/regulation/aeroflot-lcc-subsiidiary-pobeda-gains-international-status>
- Bloomberg. (2015). *Brazil's Highs and Lows*. Retrieved November 24, 2015, from <http://www.bloombergview.com/quicktake/brazils-highs-lows>
- CAPA. (2014). *Center for Aviation - British Airways and bmi: two years after integration, BA has grown some services, reduced others*. Retrieved November 23, 2015, from <http://centreforaviation.com/analysis/british-airways-and-bmi-two-years-after-integration-ba-has-grown-some-services-reduced-others-169563>
- CAPA. (2015). *Center for Aviation - Iberia: the Futuro looks bright for IAG's star pupil as its confidence and growth are transformed*. Retrieved November 23, 2015, from <http://centreforaviation.com/analysis/iberia-the-futuro-looks-bright-for-iags-star-pupil-as-its-confidence-and-growth-are-transformed-246154>
- CAPA. (2015). *Center for Aviation: Bangkok Don Mueang becomes world's largest LCC airport, overtaking KLIA, Barcelona & Las Vegas*. Retrieved November 24, 2015, from <http://centreforaviation.com/analysis/bangkok-don-mueang-becomes-worlds-largest-lcc-airport-overtaking-klia-barcelona--las-vegas-236510>

- ch-aviation. (2014). *Etihad outlines Alitalia restructuring plans*. Retrieved November 23, 2015, from <http://www.ch-aviation.com/portal/news/30294-etihad-outlines-alitalia-restructuring-plans>
- ch-aviation. (2015). *Ryanair to establish Berlin Schönefeld base this winter*. Retrieved November 24, 2015, from <http://www.ch-aviation.com/portal/news/35653-ryanair-to-establish-berlin-schnefeld-base-this-winter>
- Economist.com. (2015). *The Economist - Airline competition: The collusion delusion*. Retrieved November 22, 2015, from <http://www.economist.com/blogs/gulliver/2015/07/airline-competition>
- En.BCIA.com.cn. (2015). *Departures*. Retrieved November 23, 2015, from http://en.bcia.com.cn/guide/domestic_departure_t1.shtml
- Fortune. (2015). *Emerging headache: Brazil sinks deeper into recession*. Retrieved November 24, 2015, from <http://fortune.com/2015/09/25/brazil-recession/>
- PROLOGIS. (2014). *The Market Conquest of Europe*. Retrieved November 20, 2015, from <http://www.prologis.aero/wp-content/uploads/2013/09/The-Market-Conquest-of-Europe.pdf>
- SKYTRAX. (2015). *SKYTRAX - Airline Quality: Top 10 Airlines 2015*. Retrieved November 22, 2015, from <http://www.airlinequality.com/review-pages/top-10-airlines/>
- Worldatlas. (2015). *Map and Details of all 7 Continents*. Retrieved November 24, 2015, from <http://www.worldatlas.com/aatlas/infopage/continent.htm>

ABOUT PROLOGIS

With more than 15 years of experience and serving more than 50 airline clients worldwide, PROLOGIS is one of the leading aviation consultancies in the world. All PROLOGIS consultants have an average of 7 years of active experience in the airline industry; they are experts on Distribution & Revenue Management, Ground Operations & Airport Processes, Revenue Accounting, Network Planning & Scheduling, IT-Services (System Migration, Evaluation and Implementation). As a result of the international consultancy projects at network, low-cost and charter airlines in more than 34 countries, PROLOGIS knows best practice and can help to implement it into every client's existing structures.

For more information about PROLOGIS visit **prologis.aero**
or contact info@prologis.aero.



Follow us

ABOUT CH-AVIATION

ch-aviation has been offering one of the world's most extensive and up to date airline knowledge bases since 1998 under www.ch-aviation.com. In addition, it provides data and consulting services in several fields including but not limited to aircraft transaction monitoring for aircraft lessors and financing providers, network management studies for airlines and airports and sales and marketing assessments for airline industry suppliers. These organizations also benefit from weekly summaries of the global airline industry developments with a focus on route network changes, strategic planning and fleet developments, airline start-ups as well as mergers, acquisitions and airline partnerships.

For more information about ch-aviation visit **ch-aviation.com**
or contact sales@ch-aviation.com.



Follow us

Study Author:

Hanna Schaal (PROLOGIS)
Senior Consultant
schaal@prologis.aero

Copyright @ 2015 PROLOGIS AG & ch-aviation GmbH

All rights reserved. This study or any portion thereof may not be reproduced or used in any manner whatsoever without the express written permission of the publisher except for the use of brief quotations embodied in critical reviews and certain other noncommercial uses permitted by copyright law.