



**Current Market Outlook**  
2013–2032



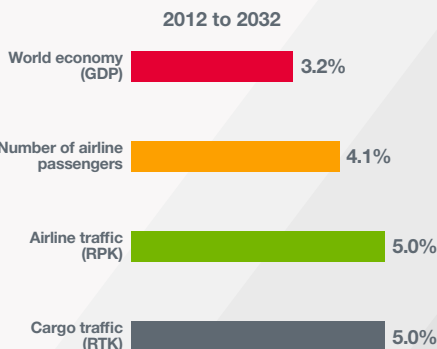




# Outlook on a Page

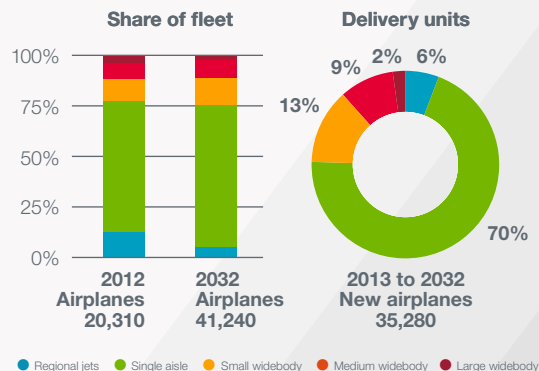
## World regions

Market growth rates



## World regions

Market value: \$4,840 billion



## World regions

Key indicators and new airplane markets

### Growth measures

Regions		Asia Pacific	North America	Europe	Middle East	Latin America	CIS	Africa	World
World economy	(GDP) %	4.5	2.5	1.8	3.8	4.0	3.4	4.4	3.2
Airline traffic	(RPK) %	6.3	2.7	4.2	6.3	6.9	4.5	5.7	5.0
Cargo traffic	(RTK) %	5.8	3.8	3.8	6.6	6.0	4.5	6.6	5.0
Airplane fleet	%	5.5	1.5	3.1	4.7	5.6	1.5	4.0	3.6

### Market size

Deliveries		12,820	7,250	7,460	2,610	2,900	1,170	1,070	35,280
Market value	(\$B)	1,890	810	1,020	550	300	140	130	4,840
Average value	(\$M)	150	110	140	210	100	120	120	140
Unit share	%	36	21	21	7	8	4	3	100
Value share	%	39	17	21	11	6	3	3	100

### New airplane deliveries

Large widebody	260	30	170	280	—	20	—	760
Medium widebody	1,470	390	650	670	40	60	20	3,300
Small widebody	1,860	760	850	410	270	130	250	4,530
Single aisle	8,810	5,000	5,610	1,240	2,420	860	730	24,670
Regional jets	420	1,070	180	10	170	100	70	2,020
<b>Total</b>	<b>12,820</b>	<b>7,250</b>	<b>7,460</b>	<b>2,610</b>	<b>2,900</b>	<b>1,170</b>	<b>1,070</b>	<b>35,280</b>

### Market value (2012 \$B, catalog prices)

Large widebody	90	10	60	110	—	10	—	280
Medium widebody	490	130	210	220	10	20	10	1,090
Small widebody	460	170	210	100	70	30	60	1,100
Single aisle	840	460	530	120	210	70	60	2,290
Regional jets	10	40	10	1	10	10	2	80
<b>Total</b>	<b>1,890</b>	<b>810</b>	<b>1,020</b>	<b>550</b>	<b>300</b>	<b>140</b>	<b>130</b>	<b>4,840</b>

### 2012 fleet

Large widebody	330	120	180	80	—	60	10	780
Medium widebody	500	290	360	270	20	20	60	1,520
Small widebody	660	710	340	230	120	170	80	2,310
Single aisle	3,470	3,760	3,160	500	1,050	680	420	13,040
Regional jets	130	1,710	350	60	90	200	120	2,660
<b>Total</b>	<b>5,090</b>	<b>6,590</b>	<b>4,390</b>	<b>1,140</b>	<b>1,280</b>	<b>1,130</b>	<b>690</b>	<b>20,310</b>

### 2032 fleet

Large widebody	350	60	200	250	—	50	—	910
Medium widebody	1,550	500	690	700	50	70	50	3,610
Small widebody	2,080	1,040	990	450	380	190	280	5,410
Single aisle	10,350	6,140	5,930	1,420	3,150	1,100	1,040	29,130
Regional jets	420	1,070	200	30	210	120	130	2,180
<b>Total</b>	<b>14,750</b>	<b>8,810</b>	<b>8,010</b>	<b>2,850</b>	<b>3,790</b>	<b>1,530</b>	<b>1,500</b>	<b>41,240</b>

Market values above 5 have been rounded to the nearest 10.



# Long-Term Market

## Purpose of the forecast

The *Current Market Outlook* is our long-term forecast of air traffic volumes and airplane demand. The forecast has several important practical applications. It helps shape our product strategy and provides guidance for our long-term business planning. We have shared the forecast with the public since 1964 to help airlines, suppliers, and the financial community make informed decisions.

Each year we start fresh, so we can factor the effects of current business conditions and developments into our analysis of the long-term drivers of air travel. The forecast details demand for passenger and freighter airplanes, both for fleet growth and for replacement of airplanes that retire during the forecast period. We also project the demand for conversion of passenger airplanes to freighters.

## Air travel continues to be resilient

The remarkable resilience of air travel is amply documented in more than 45 years of published editions of the Boeing *Current Market Outlook*.

Commercial aviation has weathered many downturns in the past. Yet recovery has followed quickly as the industry reliably returned to its long-term growth rate of approximately 5 percent per year. Despite uncertainties, 2012 passenger traffic rose 5.3 percent from 2011 levels. We expect this trend to continue over the next 20 years, with world passenger traffic growing 5.0 percent annually. Air cargo traffic has been moderating after a high period in 2010. Air cargo contracted by 1.5 percent in 2012. Expansion of emerging-market economies will, however, foster a growing need for fast, efficient transport of goods. We estimate that air cargo will grow 5.0 percent annually through 2032.

## The shape of the market

We forecast a long-term demand for 35,280 new airplanes, valued at \$4.8 trillion. We project that 14,350 of these new airplanes (41 percent of the total new deliveries) will replace older, less efficient airplanes, reducing the cost of air travel and decreasing carbon emissions. The remaining 20,930 airplanes will be for fleet growth, stimulating expansion in emerging markets and innovative airline business models. Approximately 24,670 airplanes (70 percent of new deliveries) will be single-aisle airplanes, reflecting growth in emerging markets such as China, and the continued expansion of low-cost carriers throughout the world. Widebody share will also increase, from 23 percent of today's fleet to 24 percent in 2032. The 8,590 new widebody airplanes will allow airlines to continue expansion into more international markets.

**Current Market Outlook**  
2013–2032



Randy Tinseth introduces the 2013 **Current Market Outlook**

Airplanes in service 2012 and 2032			Demand by size 2013 to 2032		
Size	2012	2032	Size	New airplanes	Value (\$B)
Large widebody	780	910	Large widebody	760	280
Medium widebody	1,520	3,610	Medium widebody	3,300	1,090
Small widebody	2,310	5,410	Small widebody	4,530	1,100
Single aisle	13,040	29,130	Single aisle	24,670	2,290
Regional jets	2,660	2,180	Regional jets	2,020	80
<b>Total</b>	<b>20,310</b>	<b>41,240</b>	<b>Total</b>	<b>35,280</b>	<b>4,840</b>

\*\$ values throughout the CMO are catalog prices.

Key indicators 2012 to 2032		Demand by region 2013 to 2032		
Growth measures		Region	New airplanes	Value (\$B)
World economy Gross domestic product (GDP)	<b>3.2%</b>	Asia Pacific	12,820	1,890
Airplane fleet	<b>3.6%</b>	Europe	7,460	1,020
Number of passengers	<b>4.1%</b>	North America	7,250	810
Airline traffic Revenue passenger-kilometers (RPK)	<b>5.0%</b>	Middle East	2,610	550
Cargo traffic Revenue tonne-kilometers (RTK)	<b>5.0%</b>	Latin America	2,900	300
		CIS*	1,170	140
		Africa	1,070	130
		<b>Total</b>	<b>35,280</b>	<b>4,840</b>

\*Commonwealth of Independent States.



## Market Developments

### Dynamic industry

Aviation is a dynamic industry that continuously adapts to various market forces. Key market forces that impact the airline industry are fuel prices, economic growth and development, environmental regulations, infrastructure, market liberalization, airplane capabilities, other modes of transport, business models, and emerging markets. Each of these forces can have both positive and negative impacts on the industry. Fuel is now the largest component of an airline's cost structure. This has driven manufacturers to produce more efficient airplanes, such as the 787 and the 737 MAX, while encouraging airlines to pursue cost reductions and revenue enhancements in other areas in order to maintain profitability, even with higher fuel costs.

These market forces are incorporated into the long-term forecast that Boeing produces annually. The economy, as reflected by gross domestic product (GDP), one of the main contributors to airline growth, is forecast to rise 3.2 percent over the next 20 years, which will drive 5.0 percent annual growth in passenger traffic as well as 5.0 percent annual growth in cargo traffic (which is also highly dependent on global trade).

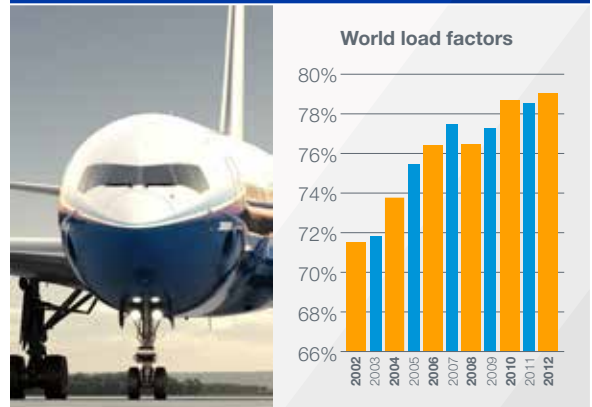
### Airlines responding and adapting

Airlines continue to adapt to the dynamic business environment. Operating statistics suggest that airlines are deploying capacity strategically to help boost yields and cover higher fuel expenses. Passenger traffic continues to grow at or above trend. Passenger traffic grew 5.3 percent in 2012 compared to 2011, while capacity grew at a rate of 3.9 percent. This led to an industry-high load factor of 79.1 percent in 2012. Despite a challenging economy, 2012 was one of the best years the airline industry has had since the Great Recession. In 2012, airlines earned \$7.6 billion profit. Asian airlines and North America contributed the most to profitability. IATA forecasts an even more profitable year in 2013, with traffic following the trend of at least 5.0 percent annual growth.

### Market developments

World passenger load factors at historic highs

Source:  
ICAO/  
IATA



### Market developments

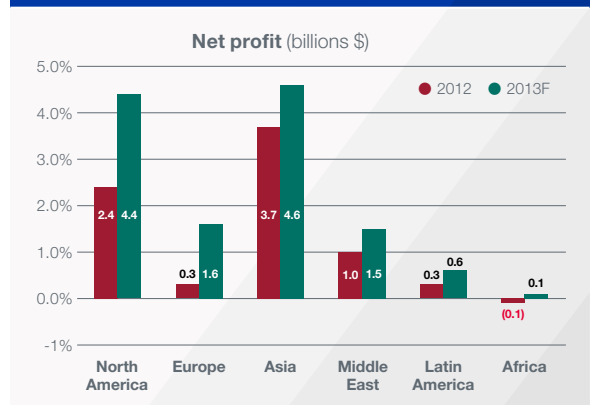
Market drivers and considerations



### Market developments

Regional profitability outlook

Source:  
IATA  
June 2013





## Market Developments

### Business Environment

#### Growth tempered by policy uncertainty

Global GDP growth for 2012 was disappointing at 2.2 percent. Expectations for a strengthening economic recovery as the year progressed failed to materialize. Policy uncertainty in the Eurozone caused the yields of peripheral country sovereign bonds to spike in mid-year, pushing Europe back into recession. US policy uncertainty produced the threat of the economy falling over a “fiscal cliff.” The result was weaker growth, not only in these major developed economies, but also in major emerging economies.

#### Regions recover at different rates

Emerging economies also faced their own headwinds. In China, investment and industrial production slowed in the face of the inventory buildup that resulted from the stimulus-driven boom of 2010 and 2011. Regulations aimed at curbing excesses in the property market also contributed to the slowdown. Growth in the rest of Asia was relatively strong, driven by robust domestic demand, which buffered lower demand for exports. The exception was Japan, which was mired in recession for most of the year. Growth moderated in Latin America and the deceleration was particularly pronounced in Brazil. The Mexican economy, by contrast, strengthened as increased business and consumer confidence sustained domestic demand.

Recovery in the major developed economies has been weak as households and governments reduce debt built up before and during the Great Recession. Global growth in 2013 is forecast to be no stronger than in 2012, though as policy uncertainty recedes, momentum is projected to increase in the second half of the year. This should provide a more robust base for accelerated growth in 2014 and 2015.

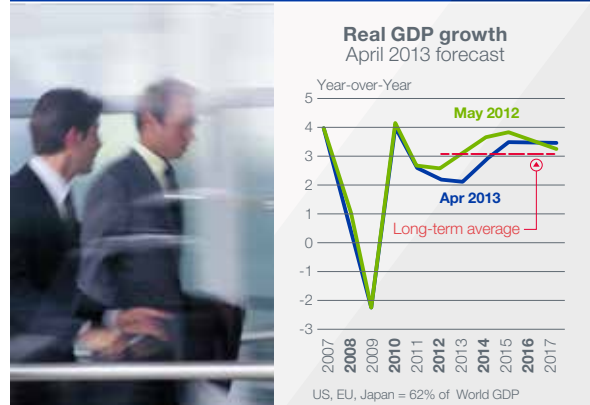
#### Fuel prices continue to challenge profitability

Volatile oil prices have been the greatest challenge to airline profitability apart from the weak economy. Fuel costs have surpassed labor as the largest segment of airline operating cost. Fuel costs, approximately 13 percent of total costs in 2002, are closer to 34 percent today. After spiking in early 2012, oil prices have remained relatively stable. On the demand side, the weak economic outlook has moderated near-term growth projections. On the supply side, rising shale oil production in the United States is moderating near-term price projections. Lower jet fuel prices are bolstering near-term airline profitability outlooks.

#### Business environment

##### Near-term economic challenges

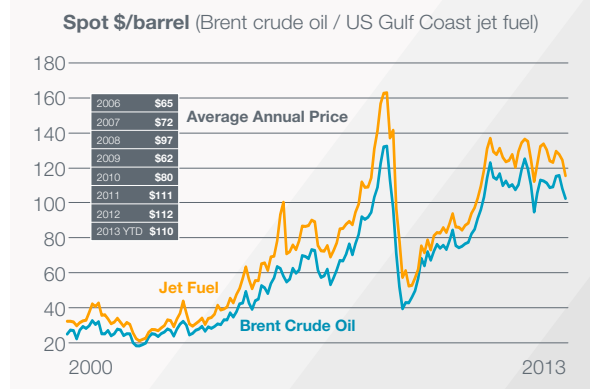
Source:  
IHS Global  
Insight



#### Business environment

##### Oil and jet fuel prices elevated and volatile

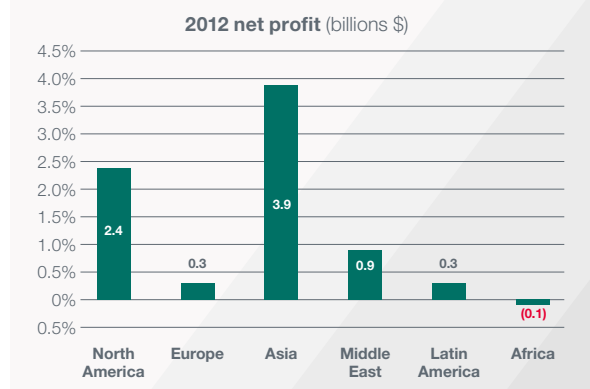
Source:  
EIA



#### Business environment

##### Regional profitability outlook

Source:  
IATA





## Market Developments Today's Fleet

### Single-aisle market share on the rise

Today there are more than 900 airlines in operation, with more than 20,000 jet airplanes in service. The fleet composition has changed over the past 20 years, and we expect that it will continue to evolve over time. The widebody fleet mix has seen one of the largest changes. In 1992, the majority of widebody airplanes were of the small and large size categories. We expect the medium widebody category to gain an increasing share through 2032. The regional jet segment of the market continues to shrink as airlines focus on costs. This market segment will remain flat, thus losing share as airlines favor other size categories of airplanes. As emerging markets and the diversity of business models continue to expand, we expect that single-aisle airplanes will remain popular with airlines and passengers and thus gain share going forward.

### Growing fuel efficiency

Fuel costs have nearly doubled over the past 10 years. Fuel represents up to 30 percent of total operating cost for single-aisle airplanes and up to 50 percent for widebody airplanes. Airlines are looking at all opportunities to reduce costs. One way to do this is to replace older, less efficient airplanes with new-technology airplanes, such as the 737 MAX and 787. Other ways include increasing airplane utilization. Utilization for the single-aisle fleet is currently 2 percent higher than it was in 2011, and the widebody fleet is 0.4 percent higher than in 2011. The steadily rising load factor is another way airlines are increasing efficiency. Average load factor reached a record high of 79 percent in 2012.

### Increasing geographical diversity

At year-end 2012, the United States had the world's largest commercial fleet, comprising 6,080 airplanes. China, Russia, and the United Kingdom followed with the second, third, and fourth largest commercial fleets. Commercial airplane backlogs indicate growing geographical diversity in the order base. The United States and China retain the top two positions in terms of number of airplane orders, as new entrants including Indonesia, India, Malaysia, and Russia gain a significant presence.

### Today's fleet

Fuel has doubled as a percentage of airline costs

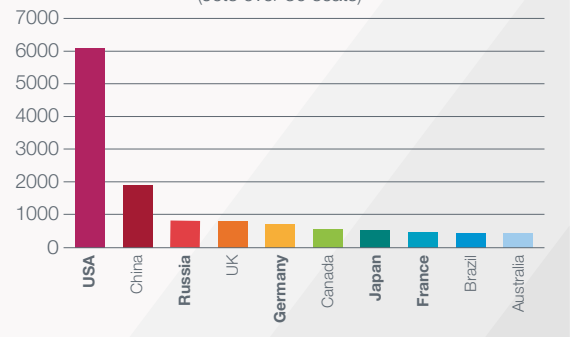


### Today's fleet

In-service fleet: 20,314

Source:  
Flight Global Ascend  
online database

### Largest in-service jet fleet at year-end 2012 (Jets over 30 seats)

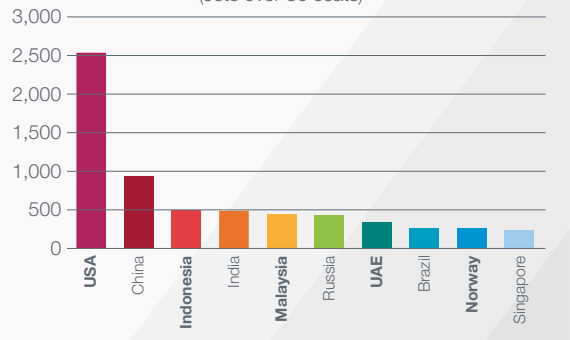


### Today's Fleet

Backlog: 10,022

Source:  
Flight Global Ascend  
online database

### Backlog by country at year-end 2012 (Jets over 30 seats)





## Market Developments Infrastructure

### Infrastructure investment remains crucial

Sustained investment in aviation infrastructure is crucial to the continuing growth of commercial aviation. Airports, national airspace management agencies, and airlines share challenges and opportunities of aviation growth.

Boeing analysis indicates that congestion at certain airports around the world will increase over the next 20 years as projected commercial air traffic growth drives demand for takeoffs and landings to reach or surpass airport capacity. The world's busiest airports, such as London's Heathrow, have already reached their limits for hourly airplane movements, even with slot controls.

Many airports have capacity to meet projected traffic growth. Other airports have the capacity to handle demand efficiently during off-peak hours, but are constrained during morning and/or evening hours when demand is highest. Continued infrastructure investment is particularly important in regions, such as China, Northeast and Southeast Asia, India, and Latin America, where aviation growth outpaces planned infrastructure development.

### Capital improvements

Airport authorities around the world are investing in large capital projects, including new or improved runways, terminal expansions, and entirely new airports. These investments can significantly increase airport capacity, but are substantial, and development times typically extend more than a decade from initial planning to completion of construction. Community noise and environmental concerns often stretch development times further and may limit the scope of expansion.

### Airspace management enhancements

Many national and regional airspace management agencies are engaged in programs to overhaul airspace systems. For example, the United States is implementing the NextGen program to help airports run smoother and avoid long takeoff lines on the runway. This type of program is implemented gradually, and the improvements in airport efficiency will be realized over time.

Airlines have implemented a number of approaches to manage airport crowding. In particular, airlines have replaced smaller airplanes such as regional jets with larger single-aisle airplanes, helping to ease demand for takeoff and landing slots during peak periods. Creating secondary hubs and expanding service to secondary airports also can ease congestion at the busiest airports. Airline alliances have proven effective in allowing airlines to expand route systems without duplicating services that would add to congestion.

In sum, although airports and governmental air services agencies will need to continue investing in infrastructure improvements, and airlines will need to evolve strategic responses at some airports, congestion will not be a major limiting factor to commercial air traffic growth during the forecast period.

### Infrastructure

Infrastructure is crucial to growth

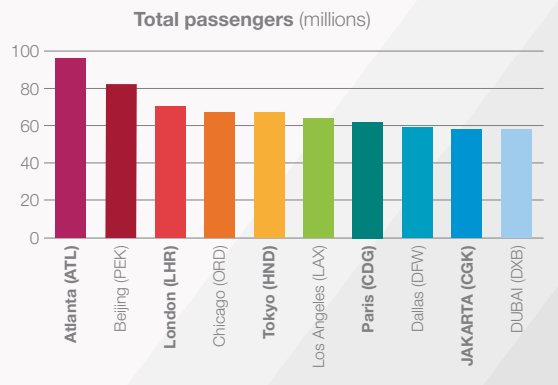


Investment in infrastructure is key to growth

### Infrastructure

2012 busiest airports by passengers

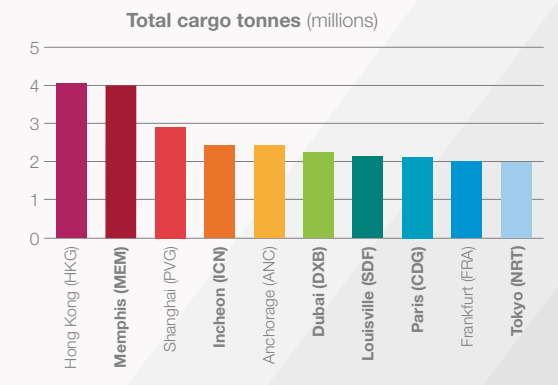
Source:  
ACI Preliminary  
Ranking



### Infrastructure

2012 busiest airports by cargo

Source:  
ACI Preliminary  
Ranking







# Market Developments

## High-Speed Rail

### Limited competition with commercial aviation

Our long-term forecast considers the impact that other technologies, including high-speed rail (HSR), have on air travel. In 2010, worldwide railways carried 45 percent less passenger traffic, but 45 times more cargo traffic than commercial aviation. The total distance covered by railway networks was just 2.5 percent that of the aviation network. Analysis shows that (1) railways are well suited for carrying passengers over relatively short distances (terrain permitting), whereas aviation excels for longer journeys; (2) railways are an efficient mode for overland cargo transport; and (3) aviation is very effective for creating large transportation networks without heavy investment in infrastructure.

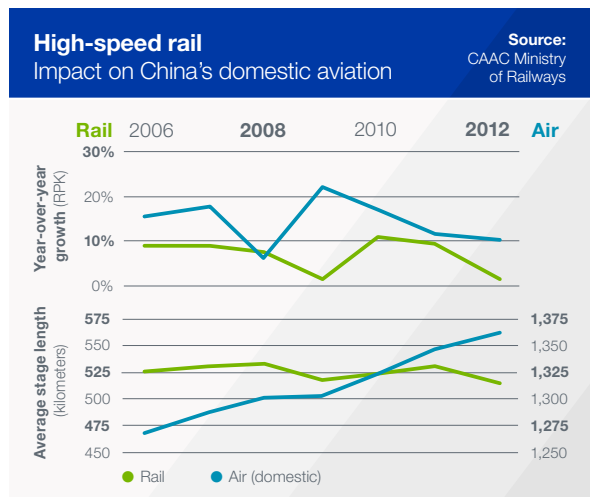
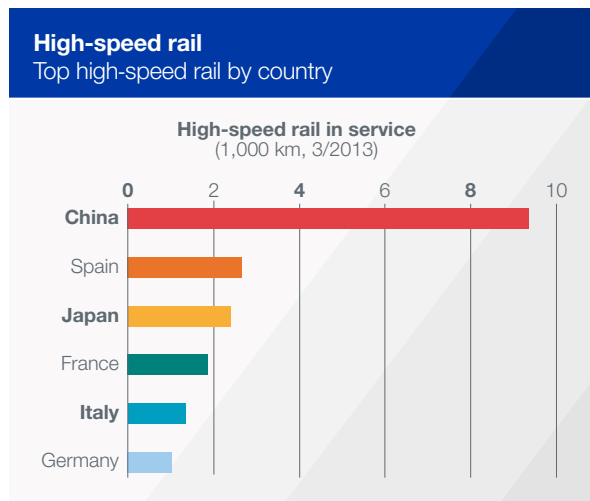
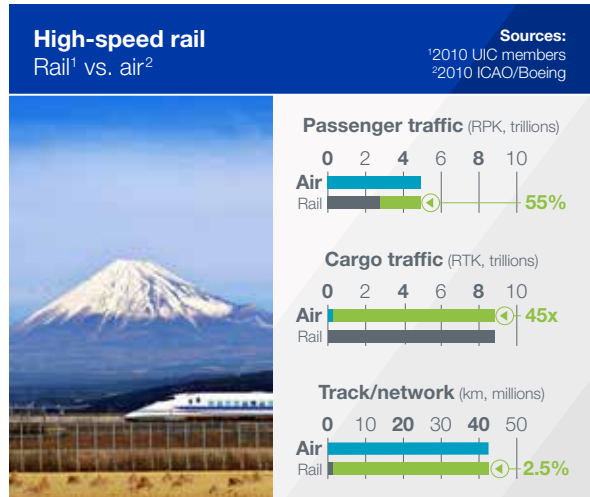
It has been 50 years since Japan introduced the world's first modern HSR service between Tokyo and Osaka. At the end of 2012, the world's longest HSR line with 2,230 kilometers between Beijing and Guangzhou became fully operational. A total of about 10,000 kilometers of HSR is in operation in China, more than in the rest of the world combined. Altogether, HSR still accounts for less than 2 percent of the world's railway lines.

### Recent information from China confirms limited competition

Overall rail traffic growth (conventional plus HSR) in China has not changed significantly since the introduction of the first 350-km/hr HSR between Beijing and Tianjin in 2008. Growth in rail traffic remains slower than domestic air travel growth. The average distance per rail trip has also remained flat for the past few years. In other countries, average trip distance has typically increased after the introduction of new HSR lines. Of the roughly 1,350 domestic city pairs served by airlines in China, about 200 are on the HSR network. For markets with more than twice-daily service, only 17 have experienced more than a 25 percent reduction in capacity since 2009. Although airlines must adjust fares to compete with HSR, industry data shows that average airline fares on the busiest Beijing-to-Shanghai route have held up well since the 2011 HSR inauguration.

### Intermodal strategies

HSR could compete with some airlines in high-volume, high-yield markets. Yet, the relatively short routes where HSR excels represent only a small portion of the market served by commercial aviation. Airline assets are highly flexible, because airplanes can be easily redeployed to more lucrative markets. In addition, the infrastructure investment for a comprehensive aviation network is much lower than for ground modes of transport. Aviation's network connectivity simply cannot be replicated by ground-based modes. Opportunities to develop intermodal solutions can potentially combine the advantages of both HSR and aviation.





## Market Developments Environment

### Environmental challenges for the airplane market

For both economic and environmental reasons, airline customers demand ever-increasing fuel efficiency. Boeing and the aviation industry have committed to ambitious carbon dioxide emissions targets to achieve carbon-neutral aviation growth beyond 2020 and halve net carbon emissions by 2050 (compared to 2005). Boeing is playing a leadership role in leveraging technology and innovation in support of the industry's strategy by

- Improving the performance of current jetliners and introducing new airplanes, such as the 787 Dreamliner, 747-8, and 737 MAX, that are significantly more efficient than the airplanes they replace.
- Enabling greater operational efficiency through improved airline operations and advocating for modernization of the global air traffic management system infrastructure.
- Championing the commercialization of sustainable aviation fuels that produce better than 50 percent lower life-cycle carbon dioxide emissions than conventional fuels.

This long-term approach will enable the aviation industry to meet its environmental targets and retain its license to grow.

### Sustainable aviation fuels

Two aviation biofuels processes have already been approved for commercial use, and several more are on track for approval in the coming years. Already, conventional jet fuel blends with up to 50 percent biofuel derived from sources such as camelina, waste cooking oil, and algae have been used on more than 1,500 commercial flights. Increasing the availability of sustainable aviation fuel is a critical component of aviation's strategy to reduce emissions. Meeting airline fuel demand at price points comparable to those of petroleum-based fuels requires continued investment and government policy support. Boeing will continue to be an industry catalyst and advocate in both arenas.

### Airport environment and growth

The *Current Market Outlook* projects a near doubling of the commercial airplane fleet by 2032. This will require many constrained airports to increase capacity. In some regions of the world, particularly Europe, airport communities have expressed concerns about the environmental effects of increased operations and airport expansion. Finding the appropriate balance between growth and community concerns takes time and can slow or limit progress in a region's capacity planning. The combination of new, cleaner, and quieter airplanes like the 787, and innovative operational procedures that take advantage of Required Navigational Performance (RNP) and other operational efficiency technologies, holds the potential to improve the environment around airports while enabling airports to sustain regional economic growth.

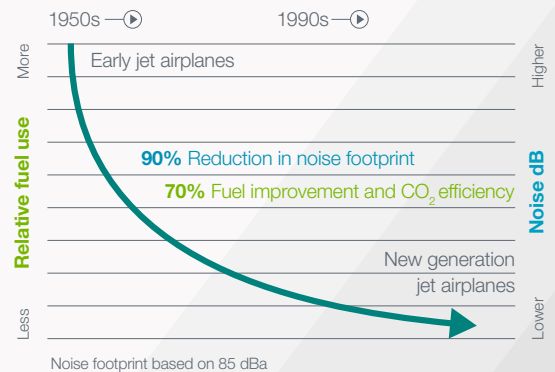
### Environment 2013



Reducing  
**environmental**  
impacts through  
technology  
improvements

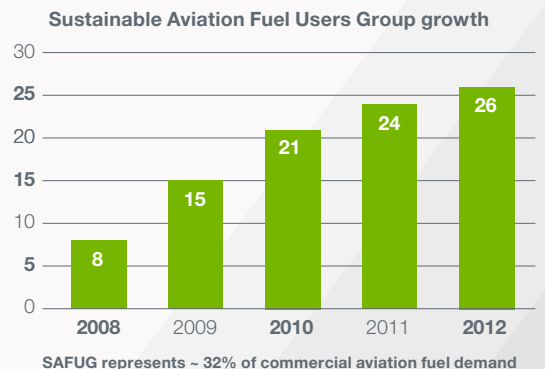
### Environment

Track record of significant progress



### Environment

Airline commitment to biofuels is growing





## Market Developments Global Policy Trends

### Industry growth amid economic uncertainty

Boeing's business analysis includes extensive study of global geopolitical dynamics that influence commercial aviation. This research focuses on current events as well as long-term trends. The analysis helps to determine risk and opportunity in the commercial aviation market as a whole, and in specific regions around the world.

While recent global events, including regional political turmoil, energy price volatility, and debt crises, have dampened near-term global economic growth, over the longer term, global growth forecasts are nearing pre-crisis levels. As the effects of government support programs wind down, it will be important for governments to maintain pro-growth policies. With respect to trade policy, the pace of new protectionist measures has slowed. Any resurgence of protectionism could constrain economic growth, adversely affecting demand for air travel and new airplanes.

### Level playing field and aviation liberalization

Government assistance for civil aircraft development remains a concern. Recent World Trade Organization rulings have made clear that such government support must be provided on commercial terms. In the area of export finance, with other nations ramping up their own export credit activity, the Export-Import Bank of the United States remains a vital contributor to the competitiveness of US exporters.

Liberalization of aviation services ("Open Skies") stimulates competition, giving passengers more choices and generally reducing ticket prices, which in turn increases demand for air travel. While the aviation industry remains heavily regulated in many parts of the world, the pace of liberalization has been steady, led by the United States, which has concluded Open Skies agreements with nearly 110 partners, including major markets such as the European Union and Japan.

### Infrastructure, security, and environment

The *Current Market Outlook* projects that the global large commercial airplane fleet will nearly double by the year 2032. Such growth will require infrastructure investments, as initiatives to modernize air traffic management provide crucial enhancements to both system capacity and efficiency.

While significant improvements in aviation security have been made globally since 9/11, constant vigilance is still required. Security concerns will continue to affect commercial aviation operations.

The aviation industry is addressing environmental challenges with a three-pronged strategy of designing more efficient and safer aircraft, improving operational procedures, and developing sustainable biofuels. Boeing is working with governments around the world to support the industry's emission-reduction goals. This approach will allow the industry to continue strong growth over the long term, despite anticipated regulatory constraints.

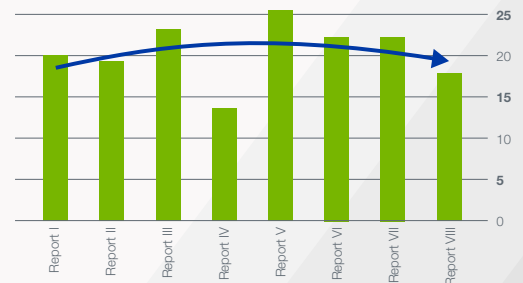
### Global policy trends 2013



A global business needs a global policy perspective

### Global policy trends New trade restrictive measures by G-20 members

New protectionist measures by G-20 nations  
(monthly average)



Source: Reports on G-20 Trade and Investment Measures, April 2009–October 2012 (each report covers approximately five months).

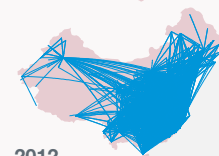
### Global policy trends China domestic frequencies

Source:  
August OAG

Domestic frequencies  
24-fold since 1992.



1992



2012

	1992	2012
Total weekly ASKs* (millions)	351	8,701
Weekly frequencies	2,184	52,651
Total airport pairs	199	1,208
Airplane size (seats)	148	150

\*Available seat-kilometers.



# Methodology

## Practical value for Boeing and the industry

The long-term forecast contained in Boeing's *Current Market Outlook* guides product strategy and provides the basis for business plan development. We have shared the forecast with the public since 1964 to help airlines, suppliers, industry organizations, academia, and financiers make informed business decisions and benchmark other forecasts or analyses.


## Air travel demand is resilient

Global and regional economic cycles profoundly affect air travel demand, so it is essential to take the current phase of the economic cycle into account in developing the long-term forecast. Historically, declines in economic activity are often associated with unexpected events. The resilience of air travel demand depends on the nature of the event and the extent to which the event affects air travel, directly or indirectly. For example, events related to personal safety, such as pandemic, war, or threats against aircraft, have a greater effect than commercial or political events. Perturbations from the long-term demand trend are typically relatively short lived, lasting around 12 months. The role air travel plays in the fabric of society is key to its resilience. Air travel is an essential part of personal and business life for many travelers. The Internet, mobile connectivity, and social media are increasingly integrated into daily life, including how we research, discuss, plan, and book travel. At the same time, improved airplane technology and efficiency are allowing airlines to make air travel more affordable, so airfares generally represent a smaller portion of total trip costs.

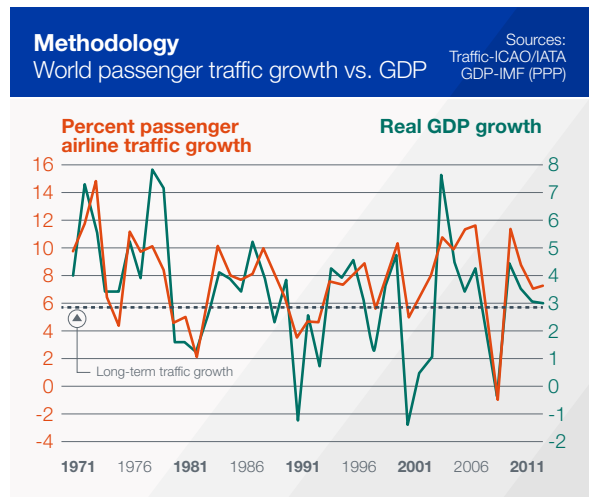
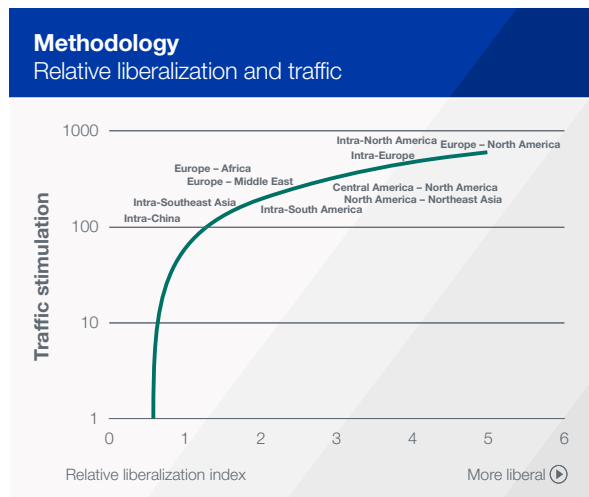
## Development process for air travel demand outlook

Our air travel demand forecast is developed by constructing and matching top-down and bottom-up analyses. Bottom-up analysis involves forecasts of traffic between and within individual countries, based on economic predictions, growth momentum, historical trends, travel attractiveness, and projections of the relative openness of air services and domestic airline regulation. Additionally, government statistics on inbound and outbound visitors and tourism receipts are included to identify and cross-check trends. Countries are grouped into geographical regions that generate air traffic flows between and within the regions. In the top-down approach, global and regional markets are similarly projected on aggregated variables. The bottom-up and top-down projections are then reconciled, allowing for the effects of industry and airline business model developments. Further, positive or negative region-specific developments, including population dynamics, shifts toward or away from other modes of transport, and emergence of new air services, are factored in. The resulting regional traffic forecasts are used in developing the airplane demand forecast.

**Methodology**  
2013



**EXPLORE!**  
The methodology behind the 2013 traffic outlook





## Methodology—continued

### Philosophy behind the forecast

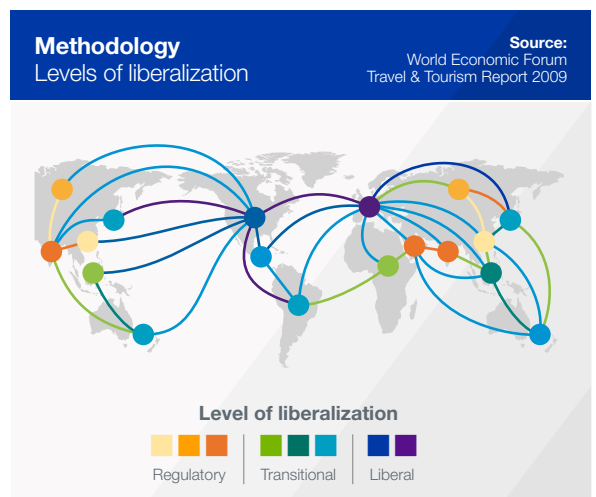
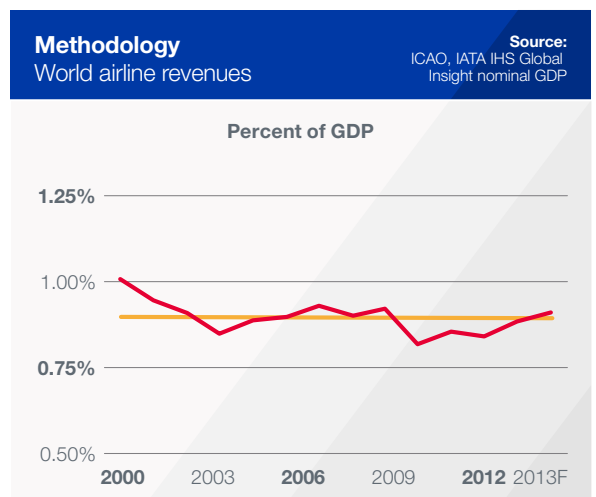
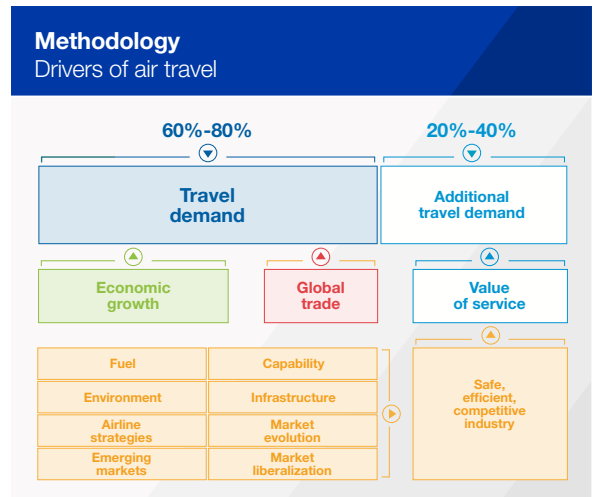
Growth in air travel, measured in revenue passenger-kilometers (RPK), has historically outpaced economic growth, represented by GDP. At the global level, the relationship is

$$RPK (\text{growth}) = GDP (\text{growth}) + f(t)$$

where  $f(t)$  is a time-varying function that typically centers around 2 percent.

This leads us to conclude that, at the regional level, about 60 to 80 percent of air travel growth can be attributed to economic growth, which in turn is driven by trade. This conclusion is consistent with the observation that countries whose economies are tied to trade tend to have higher rates of air travel. Air travel revenues consistently average about 1 percent of GDP in countries around the world, regardless of the size of the national economy. Globally, air travel has consistently tended toward this historical share of GDP. With a few exceptions, most countries move toward the general trend over the long term. The time-varying function  $f(t)$  accounts for the 20 to 40 percent of air travel growth that is not directly associated with GDP growth. This component of growth derives from the value travelers place on the speed and convenience that only air travel can offer. For example, the value travelers place on choice of arrival and departure times, routings, nonstop flights, choice of carriers, service class, and fares stimulates increased aviation services.

Liberalization is the primary driver of value creation in the global air transport network, typically spurring a “bump” in traffic demand. Studies suggest that as the relative openness of a country’s bilateral air service rises from the 20th to the 70th percentile, the resulting increase in traffic can boost air travel demand by 30 percent. Often, improved air services directly and indirectly stimulate economic growth, creating a virtuous circle that leads to further air transport growth, which in turn leads to added economic growth, and so on. The percentage of air transport growth that comes from economic development compared to the percentage that comes from the value of air travel services is an indicator of the maturity of an air travel market. Although individual regions may exhibit signs of slowing due to maturing markets, other regions continue or begin to grow vigorously. Current global percentages do not indicate that the world aviation market is nearing maturity in aggregate.





## Forecast Indicators

### New airline business models and emerging economies

Each year, we begin our analysis for the *Current Market Outlook* by examining key industry indicators, including fuel, market liberalization, airline capabilities, airline strategies, emerging markets, economic growth, high-speed rail, and the environment. Worldwide economic activity is the most powerful driver of commercial air transport growth and the resulting demand for airplanes. The global gross domestic product (GDP) is projected to grow 3.2 percent per year for the next 20 years, driving both air passenger traffic and air cargo traffic to average 5.0 percent annual growth worldwide over the same period.

### Global growth spurred by emerging economies

Emerging economies are projected to grow 5.2 percent per year over the next 20 years, outpacing established economies, which will average 2.1 percent growth. Emerging and developing economies will account for 60 percent of global growth between 2012 and 2032. Their share of real global GDP will increase from 31 percent to 45 percent over the same period. The fastest growing economies include Asia Pacific (projected 4.5 percent growth), Latin America (projected 4.0 percent growth), and the Middle East (projected 3.8 percent growth).

Household income will grow and consumption patterns will change as educated labor forces expand, investment in physical and social infrastructure increases, urbanization progresses, and the relative importance of economic sectors shifts within the world's emerging economies. With urbanization, the labor force shifts toward the industrial and service sectors, which spurs median incomes to converge toward the income levels of developed economies. The emerging global middle class will expect to enjoy standards of living comparable to those in developed economies. As demand for international goods and services rises and leisure time increases, appetite for travel will grow.

### Business models and airline strategies

There is a need for 35,280 new airplanes, 41 percent of which will replace older airplanes and 59 percent will expand the fleet. Airline strategies and business models help determine the types of airplanes that airlines purchase and, consequently, the types of airplanes that manufacturers produce. Low-cost carriers drive the strong demand for new, efficient single-aisle airplanes. Their share of the market is expected to grow from 14 percent to 20 percent by 2032. International expansion of network carriers is driving demand for 8,590 new widebody airplanes, including 850 freighters, primarily large freighters such as the 747-8 Freighter and 777 Freighter.

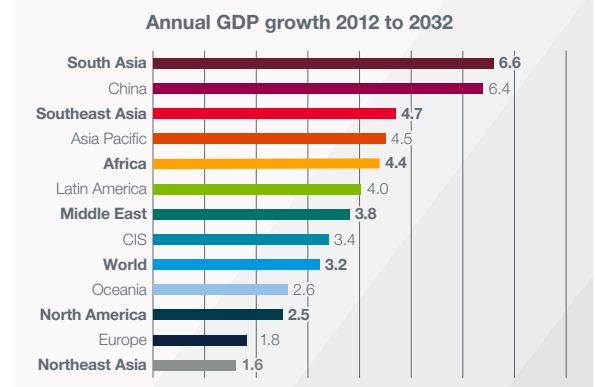
### Forecast indicators

#### Growth rates



### Forecast indicators

#### Emerging markets driving economic growth



### Forecast indicators

#### Annual traffic growth





# Fleet Development

## Fleet size will double

The in-service commercial fleet will grow an average 3.6 percent per year to double in size from 20,310 airplanes today to 41,240 by 2032. Over the next 20 years, the airline industry will need 35,280 new airplanes, of which 41 percent will replace older, less efficient airplanes. Nearly 59 percent of the new deliveries will reflect growth in emerging markets and evolving business models.

## Single-aisle airplanes to predominate

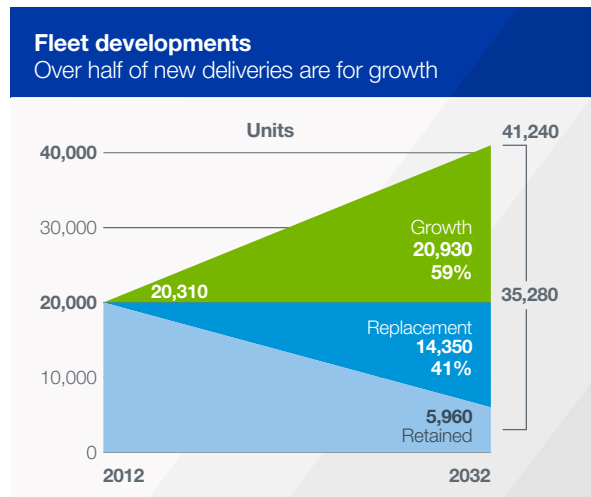
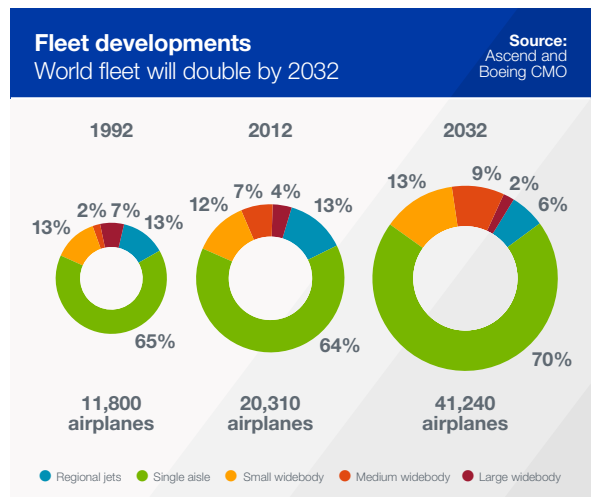
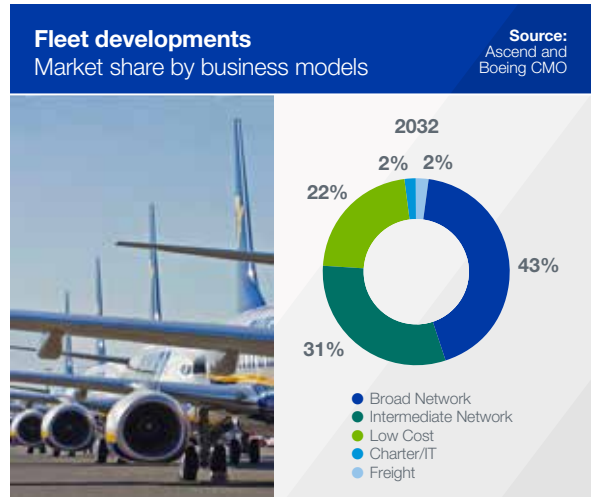
Single-aisle airplanes continue to dominate the world's fleet. In 2012, the single-aisle category comprised 64 percent of the world's fleet. By 2032, we estimate that share will rise to 70 percent. Of the forecast demand for 24,670 new single-aisle airplanes, valued at \$2.3 trillion, 35 percent will replace older airplanes, while 65 percent will expand the fleet. Emerging markets are driving demand for single-aisle airplanes. The Asia Pacific region is expected to need 8,810 new airplanes to expand its single-aisle fleet from 3,470 to 10,350 airplanes by 2032. Latin America, which is expected to take delivery of 2,420 new single-aisle airplanes, and the Middle East, which is expected to take delivery of 1,240 new airplanes, also generate strong demand. Low-cost carriers, whose business models focus on fleet commonality, also drive demand for single-aisle airplanes.

## Expanding international markets increase demand

Traffic on long-haul routes is forecast to grow 5.1 percent annually over the next 20 years, creating demand for 8,590 new widebody airplanes. The largest widebody markets are Asia Pacific, Europe, North America, and the Middle East, which will take nearly 92 percent of all new deliveries.

## Efficiencies of the fleet

Increased airline costs, specifically increased fuel costs, are driving airlines to operate the most efficient airplanes available. Consequently, we foresee a modest increase in the average size of airplanes in operation. Airlines are replacing small regional jets with larger regional jets. This trend continues in the single-aisle category. Airlines that have ordered 737-700s are ordering 737-800s, and airlines that ordered 737-800s are ordering 737-900ERs. In the widebody fleet, small- and medium-size airplanes are in greatest demand, representing 91 percent of the projected widebody market. The multiple sizes in the widebody airplane families, which include the 787, 777, and 747 families, allow airlines to optimize their networks by choosing the right size airplane for each market they serve.





## New Airplanes

### Single-aisle airplanes remain pivotal

Over the next 20 years, we project that 24,670 single-aisle airplanes will be delivered, representing 70 percent of commercial airplane deliveries and 47 percent of total delivery value. Typically used for shorter distance travel, single-aisle airplanes are a flexible asset that airlines use both within regions and to connect adjacent regions. Demand for single-aisle airplanes will continue to be high in emerging economies where passenger traffic is growing and markets are liberalizing. Asia Pacific will receive 36 percent of the new single-aisle airplanes, while Europe and North America take 23 percent and 20 percent, respectively. In the mature markets, roughly half of new single-aisle airplanes will replace aging airplanes. As new 737 MAX and A320neo airplanes enter service, fleet fuel efficiency will improve and the more capable airplanes will be able to serve new, longer markets. Passengers will especially appreciate the new interior already available on the 737 for these longer flights.

### International traffic creates small and medium widebody demand

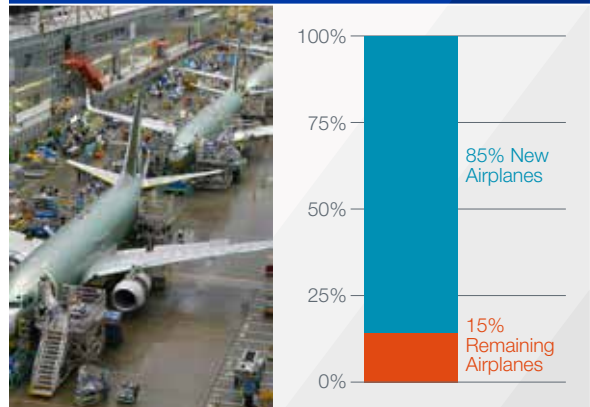
The small and medium widebody airplane category is the highest valued market segment of the forecast. Accounting for 22 percent of forecast deliveries, the category represents 45 percent of the total world airplane delivery value at US\$2.2 trillion over the next 20 years. This product category is also the most dynamic, with deliveries of the Boeing 787 Dreamliner increasing, introduction of the Airbus A350 pending, and development of even more fuel-efficient mid-sized airplanes anticipated. These products allow airlines to create new, economical, point-to-point international services and give airlines flexibility to complement existing Boeing 787 and 777 and Airbus A330 service. Over the next 20 years, the vast majority of these airplanes currently flying will be retired. By 2032, about 87 percent of the small and medium widebody airplanes in operation will have been delivered since 2012.

### Demand for large airplanes focused in key regions

Asia Pacific, Europe, and the Middle East account for more than 90 percent of large-airplane demand in the 20-year forecast. These airplanes will serve as passenger jetliners on high-traffic trunk routes, as well as dedicated commercial freighters. The forecast 760 deliveries comprise 6 percent of total delivery value. The Asia Pacific region will receive 34 percent of these deliveries, while Europe will take 22 percent and the Middle East will take 37 percent. Although their share of long-haul traffic will diminish over the next 20 years, large airplanes remain an important part of the commercial airline fleet.

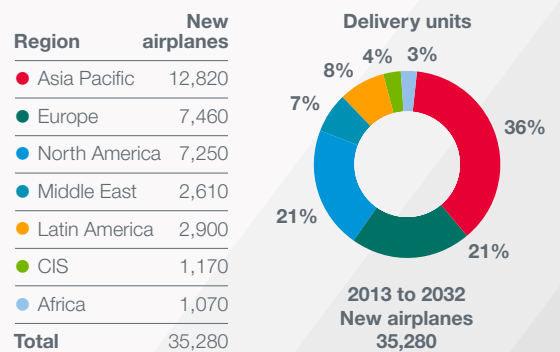
### New airplanes

85% of fleet will be new by 2032



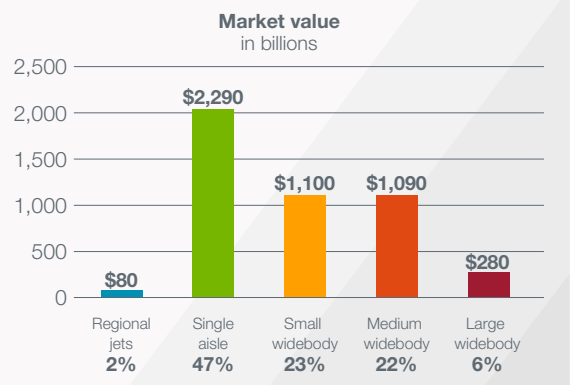
### New airplanes

Deliveries by region



### New airplanes

Market value: \$4.8 trillion







## Air Cargo Market

### Remarkable air cargo traffic stability

Despite an unusually challenging environment over the past several years, air cargo remains indispensable for a variety of industries that require transport of time-sensitive commodities. These commodities include perishables; high-value, low-weight goods including consumer electronics; high-fashion apparel; pharmaceuticals; industrial machinery; and high-value intermediate goods such as auto parts. The speed and punctuality advantages of air freight ensure that it will continue to play a significant role in the global economy.

Both dedicated freighters and passenger airplane lower holds carry air cargo. Cargo capacity on passenger flights has been expanding as airlines deploy new jetliners, such as the 777-300ER, that have excellent cargo capability. Dedicated freight services, however, offer shippers a combination of reliability, predictability, and control over timing and routing that lower-hold cargo operations can't often match. Thus, freighters consistently account for roughly 60 percent of global air cargo traffic.

Air cargo traffic, as measured in revenue tonne-kilometers (RTK), is projected to average 5.0 percent growth per year over the next 20 years, as global GDP and world trade return toward historic growth rates. Replacement of aging airplanes, plus the industry's growth requirements, will create a demand for 2,300 freighter deliveries over the same period. About 1,450 of these will be passenger airplane conversions. The remaining 850 airplanes, valued at \$240 billion, will be new. The freighter fleet will increase by more than half, from 1,730 airplanes in 2012 to 2,810 in 2032.

### All standard-body freighters will be conversions

Boeing forecasts a requirement for 940 standard-body freighters, all passenger conversions, which are attractive for standard-body operations due to their low capital cost. Demand will be especially strong in emerging markets.

### Express carriers drive medium widebody demand

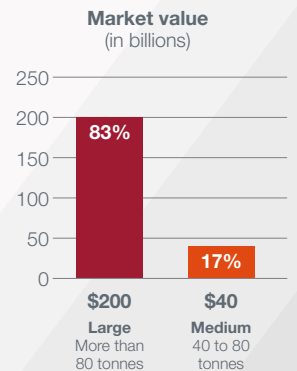
About one-third of the 590 medium widebody freighters delivered during the forecast period will be new purpose-built freighters. This freighter market is driven by express carriers that mitigate the lower economic efficiency of medium widebodies with higher yields. Competition from less expensive surface transport and passenger airplane lower-hold capacity constrains the use of medium widebody freighters in regional markets.

### Intercontinental operations favor new, large freighters

The performance, efficiency, and reliability of new, purpose-built freighters outweigh the lower purchase prices for converted large freighters, especially for intercontinental operations, where high cargo density, larger payloads, and extended range are crucial. Thus, of the 770 large freighter deliveries, more than 80 percent will be new airplanes.

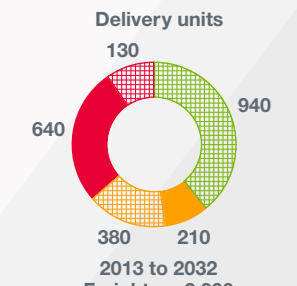
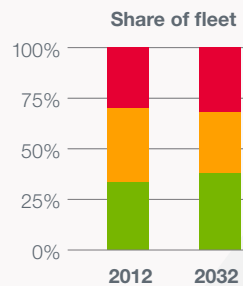
### Air cargo market

Market value: \$240 billion



### Air cargo market

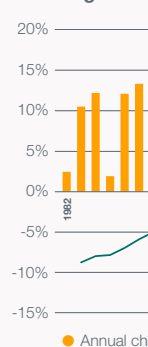
850 new and 1,450 converted



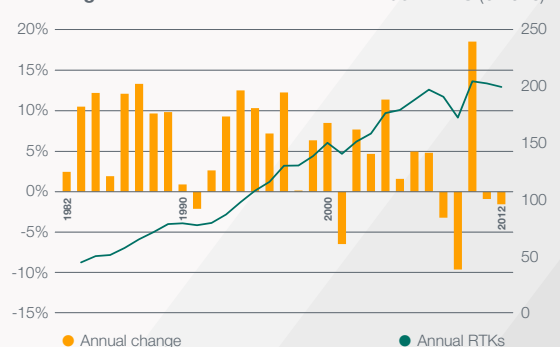
### Air cargo market

Annual growth: 5.4% since 1982

#### Annual growth



#### Annual RTKs (billions)

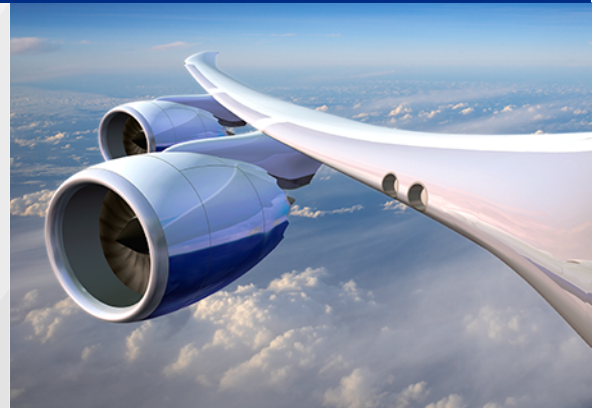




## World Regions

### World regions

New airplane market by region



### Globalized demand

As aviation continues to become an integral part of life, it is bringing people closer together. As emerging markets continue to grow and new business models expand, airplane manufacturers are seeing greater geographical diversity in their customer base. In 1992, more than 70 percent of all traffic was carried by airlines in Europe or North America. By 2032, that proportion will shrink to 39 percent. Asia Pacific and Middle East airlines are becoming prominent in global aviation. The low-cost business model is becoming a viable option in emerging markets, offering consumers access to a wider range of destinations and the opportunity to choose the speed and convenience of flying over traditional modes of transportation. In addition, modern twin-aisle airplanes enable smaller operators in developing economies to compete on longer routes traditionally dominated by foreign carriers. Rapidly evolving aviation services in these regions are broadening the geographical balance of airplane demand, spurring a worldwide requirement for 35,280 new jet airplanes, of which 24,670 will be single aisle.

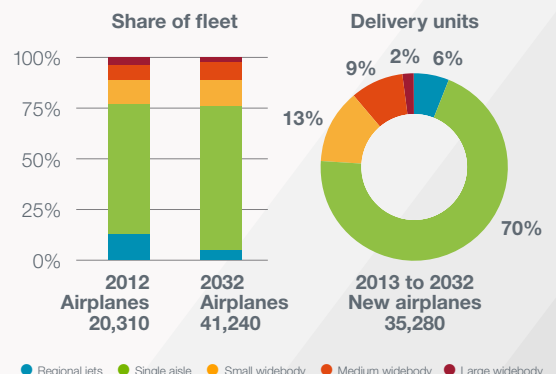
### Regional focus

Different regions will still have varying conditions with specialized requirements. Middle Eastern airlines will still favor twin-aisle airplanes and premium passenger services to take advantage of the area's centrality and prominence in business travel. European and North American airlines respond to growing competition from low-cost carriers by replacing older, fuel inefficient airplanes with larger, more economical single-aisle models. In Asia, rising demand across the board will require a mix of single- and twin-aisle airplanes.

All regions will face similar challenges of fuel price volatility, emission control regimes, and ever-increasing airport congestion as the growing world fleet tries to keep pace with swelling international and local demand for air travel.

### World regions

Market value: \$4,840 billion



### World regions

Key indicators and new airplane markets

Growth measures		New airplanes	Share by size	
Economy (GDP)	3.2%	Large widebody	760	2%
Traffic (RPK)	5.0%	Medium widebody	3,300	9%
Cargo (RTK)	5.0%	Small widebody	4,530	13%
Airplane fleet	3.6%	Single aisle	24,670	70%
		Regional jets	2,020	6%
		<b>Total</b>	<b>35,280</b>	
Market size		2012 Fleet	2032 Fleet	
Deliveries	35,280	Large widebody	780	910
Market value	\$4,840B	Medium widebody	1,520	3,610
Average value	\$140M	Small widebody	2,310	5,410
		Single aisle	13,040	29,130
		Regional jets	2,660	2,180
		<b>Total</b>	<b>20,310</b>	<b>41,240</b>



## World Regions Asia Pacific

### Growing markets

Asia Pacific economies continue to exhibit strong growth. Intrinsic strength, progressive trade agreements among the region's countries, and recovering global demand are helping most economies in the region maintain healthy growth. Led by China and India, the region's economies will grow 4.5 percent per year over the next 20 years, outpacing the world's average growth rate. The region's share of world GDP will expand from 28 percent today to 36 percent by 2032.

### Rising traffic levels

During the next 20 years, nearly half of the world's air traffic growth will be driven by travel to, from, or within the Asia Pacific region. Total traffic for the region will grow 6.3 percent per year. Fueled by national economic growth and the increasing accessibility of air transport services, traffic within the region will grow faster than traffic to and from other regions. Domestic and international travel within the region will grow 6.5 percent per year.

Air cargo plays a critical role in the region's economy, transporting goods over difficult terrain and vast stretches of ocean. Some of the world's largest and most efficient cargo operators are located in Asia. The region's air cargo will grow 5.8 percent per year during the next 20 years. Carriers within the region are expected to take 370 new freighters, with an additional 490 conversions.

Asia Pacific airlines will need 12,820 new airplanes, valued at \$1.9 trillion, over the next 20 years. The number of airplanes in the Asia Pacific fleet will nearly triple, from 5,090 airplanes in 2012 to 14,750 airplanes in 2032. New low-cost carriers and demand for intra-Asia travel have spurred a substantial increase in single-aisle airplanes, a trend that will continue as single-aisle airplanes gain an increasing percentage of the region's traffic.

### Liberalization expands markets

The structure of the Asia Pacific airline industry is changing as regulations liberalize and carriers expand beyond national boundaries. Cross-border franchise agreements and direct investment in foreign carriers allow established airlines access to new markets and promote expanded air service to smaller markets. The growth of air travel as low-cost carriers reduce fares and open new markets testifies to the effects of liberalization. To compete, established airlines are forming low-cost enterprises, often through joint ventures with recognized LCCs. The improved affordability and accessibility of air travel will stimulate demand in established markets and meet emerging travel needs of the rising middle class.

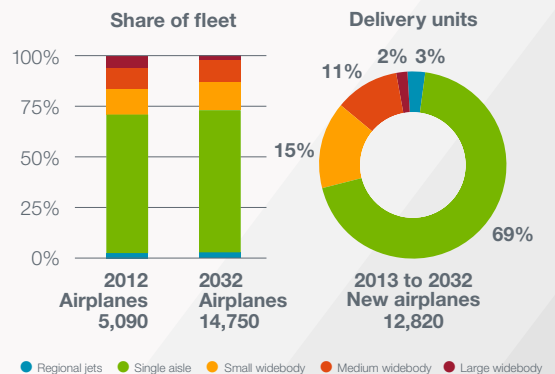
### Asia Pacific

New airplanes 12,820



### Asia Pacific

Market value: \$1,890 billion



### Asia Pacific

Key indicators and new airplane markets

Growth measures		New airplanes	Share by size
Economy (GDP)	4.5%	Large widebody	260 2%
Traffic (RPK)	6.3%	Medium widebody	1,470 11%
Cargo (RTK)	5.8%	Small widebody	1,860 15%
Airplane fleet	5.5%	Single aisle	8,810 69%
		Regional jets	420 3%
		<b>Total</b>	<b>12,820</b>

Market size		2012 Fleet	2032 Fleet
Deliveries	12,820	Large widebody	330 350
Market value	\$1,890B	Medium widebody	500 1,550
Average value	\$150M	Small widebody	660 2,080
		Single aisle	3,470 10,350
		Regional jets	130 420
		<b>Total</b>	<b>5,090 14,750</b>



# World Regions

## China

### Regional leader

China continues to lead the Asia Pacific region in new deliveries. Over the next 20 years, Chinese airlines will need nearly 6,000 new airplanes, valued at \$780 billion, accounting for more than 40 percent of forecast deliveries to the Asia Pacific region.

### Continued growth

With GDP forecast to rise 6.4 percent per year over the next 20 years, China's share of the total world GDP is expected to grow from 8.5 percent today to 16 percent by 2032. As Chinese incomes converge toward those in the historical industrialized nations, an expanding middle class will expect to enjoy a comparable standard of living and consumption patterns.

Air traffic continues to be robust. In 2012, traffic to, from, and within China increased 10.6 percent, according to the CAAC. Domestic traffic accounted for 78 percent of the total, international for 20 percent, and the remaining 2 percent was to Hong Kong, Macau, and Taiwan. Over the next 20 years, international travel will grow faster than domestic travel, increasing at an annual rate of 7.2 percent, compared to 6.8 percent for domestic travel.

China's airports are rising in rank for total enplanements and deplanements, with Beijing at number 2 in the world, Hong Kong at 10, Guangzhou at 19, and Shanghai at 20. Hong Kong ranked as the number 1 cargo airport in terms of metric tonnes, with Shanghai at 3, Beijing at 14, and Guangzhou at 21.

### Airplane demand

As in other parts of the world, single-aisle airplanes, such as the 737-800 and new 737 MAX 8, are the mainstay of the Chinese fleet and will continue to be over time. Today there are more than 1,650 single-aisle airplanes in service and a backlog of nearly 700 airplanes with airlines and lessors. Going forward, China will need 3,900 new airplanes, with single-aisle airplanes accounting for 70 percent of new deliveries.

With the fast growth in international travel, airlines in the region will need 1,440 new widebody airplanes. The number of new international long-haul markets has increased 135 percent over the past 10 years, with eight new markets opened in 2012 alone. Airlines continue to look for opportunities to expand their networks as international flying increases from secondary cities apart from Beijing, Shanghai, and Guangzhou. Long-haul service currently operates from Chengdu, Hangzhou, Xiamen, Chongqing, Sanya, Nanjing, and Shenyang, with the growth trend expected to continue.

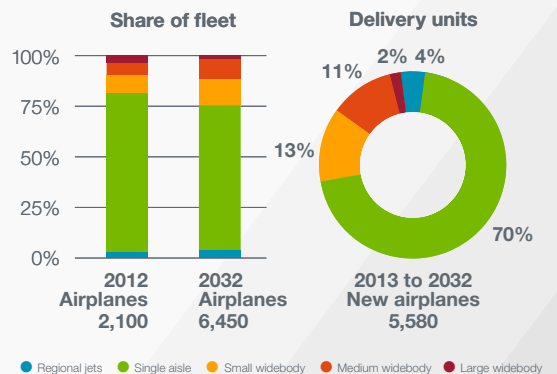
### China

Rapid expansion on international routes



### China

Market value: \$780 billion



### China

Key indicators and new airplane markets

Growth measures	Value	New airplanes	Share by size
Economy (GDP)	6.4%	Large widebody	100 2%
Traffic (RPK)	6.9%	Medium widebody	610 11%
Cargo (RTK)	6.9%	Small widebody	730 13%
Airplane fleet	5.8%	Single aisle	3,900 70%
		Regional jets	240 4%
		<b>Total</b>	<b>5,580</b>
Market size	Value	2012 Fleet	2032 Fleet
Deliveries	5,580	Large widebody	80 120
Market value	\$780B	Medium widebody	120 630
Average value	\$140M	Small widebody	190 830
		Single aisle	1,650 4,630
		Regional jets	60 240
		<b>Total</b>	<b>2,100 6,450</b>



## World Regions Northeast Asia

### Modest economic growth

This year, our definition of the Northeast Asia region encompasses Taiwan, Japan, and North and South Korea. Consequently, the economic base for our analysis is larger and the region's economic growth appears slightly higher than in previous outlooks. Northeast Asia's gross domestic product is forecast to grow 1.6 percent annually over the next 20 years. Japan's economy is forecast to grow as it recovers from the economic challenges of the last decade, although low birth rates and a declining working-age population will moderate growth in the long term. Japan remains the dominant economy of the region, but South Korea and Taiwan provide one-quarter of the base and one-half of the projected economic growth over the forecast period.

Northeast Asia's air capacity grew substantially in the 1990s, but slowed during the past decade as a result of a series of economic disruptions. Northeast Asia countries are concluding trade agreements, reducing travel barriers, and considering infrastructure changes to spur domestic and inbound travel in response to growth in the economy and air travel between neighboring nations.

### Easing operating restrictions

Northeast Asia's air travel is forecast to grow 3.1 percent annually over the next 20 years. In particular, several developments will boost air travel in Taiwan, including a recent Open Skies agreement with Japan, inclusion in the US Visa Waiver Program, and continued easing of cross-strait travel restrictions to mainland China.

Expanded operations agreements by Northeast Asia nations with the United States, Europe, the Middle East, and fast-growing neighboring nations are encouraging expansion of services and the opening of new markets. Airport capacity will continue to increase, particularly at Tokyo's Haneda and Narita airports. Improved market access, increased trade, liberalization, airport development, amplified competition, and expanded low-cost service to, from, and within Northeast Asia will nurture continued air travel growth.

### Fleet modernization continues

Network carriers in Northeast Asia are renewing fleets, forming joint ventures, and introducing new products. Airlines in Japan, Taiwan, and South Korea continue to modernize their fleets and grow their international networks, creating a need for 1,360 new airplanes over the next 20 years.

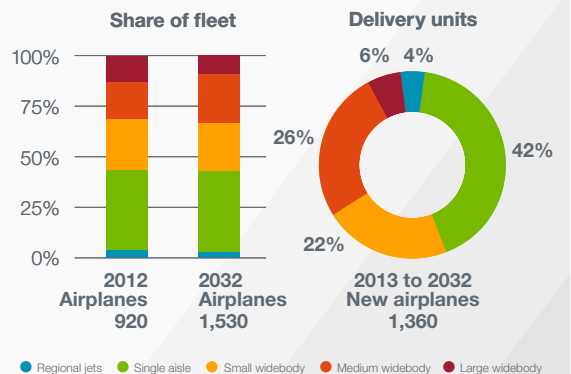
The number of regional jets, including the anticipated Mitsubishi MRJ, is forecast to grow modestly. Single-aisle airplanes will account for 42 percent of new deliveries. New small and medium widebody airplanes will account for 48 percent of new deliveries, while the number of large airplanes will remain relatively constant.

### Northeast Asia Economic growth

Source:  
IHS Global Insights  
Dec. 2012



### Northeast Asia Market value: \$280 billion



### Northeast Asia Key indicators and new airplane markets

Growth measures	Value	New airplanes	Share by size
Economy (GDP)	1.6%	Large widebody	90 7%
Traffic (RPK)	3.1%	Medium widebody	350 26%
Cargo (RTK)	4.8%	Small widebody	300 22%
Airplane fleet	2.6%	Single aisle	570 42%
		Regional jets	50 4%
		<b>Total</b>	<b>1,360</b>
Market size	Value	2012 Fleet	2032 Fleet
Deliveries	1,360	Large widebody	120 140
Market value	\$280B	Medium widebody	170 370
Average value	\$210M	Small widebody	230 360
		Single aisle	360 610
		Regional jets	40 50
		<b>Total</b>	<b>920 1,530</b>



## World Regions South Asia

### Robust traffic growth

South Asian air travel is expected to grow 8.6 percent per year over the next 20 years. Domestic travel, and travel between South Asia, the Middle East, and Southeast Asia, will account for the largest flows.

South Asia's demographics are highly favorable to the growth of air transportation. The region has a large population (totaling 1.7 billion people in 2012), and the share of this population entering the workforce is growing. The region's real GDP is forecast to grow an average 6.6 percent per year between 2012 and 2032, by the end of which period, India could have the world's fourth-largest economy if current trends toward economic policy liberalization, market reform, and investment continue.

### Consolidation and new allies

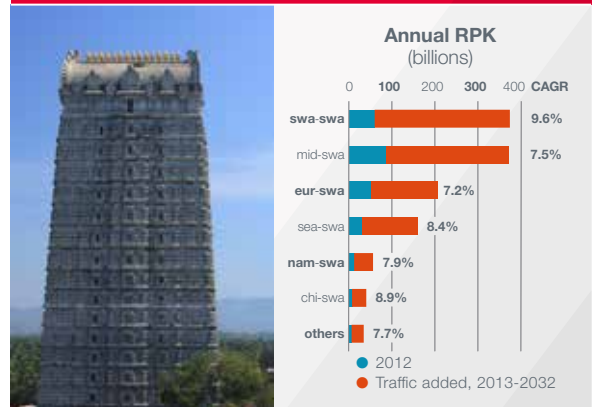
Having suffered large financial losses in recent years, Indian airlines moved toward more sound financial footing in 2013, with Kingfisher's suspension of operations hailed as an opportunity for the surviving airlines to gain market share and raise fares.

Reform of foreign direct investment rules allowed foreign airlines to acquire up to 49 percent of an Indian airline, which quickly led Abu Dhabi's Etihad Airways to acquire 24 percent of Jet Airways. This will provide much-needed funds for the Indian carrier and will have far-reaching implications for its network as traffic is shifted toward Abu Dhabi and away from other connecting airports. A new scissor-hub operation in the UAE is widely expected. This equity partnership continues to make its way through the Indian government agencies, having secured approval from some, while awaiting approval from others.

Also in 2013, AirAsia announced that it would partner with the Tata Group to launch a new low-cost airline. AirAsia would own 49 percent of the proposed airline, with Indian companies, the Tata Group and Telestra Tradeplace, controlling 51 percent of the venture. The new low-cost airline will mark the return of the Tata Group to the airline industry, some 60 years after the 1953 nationalization of Air India.

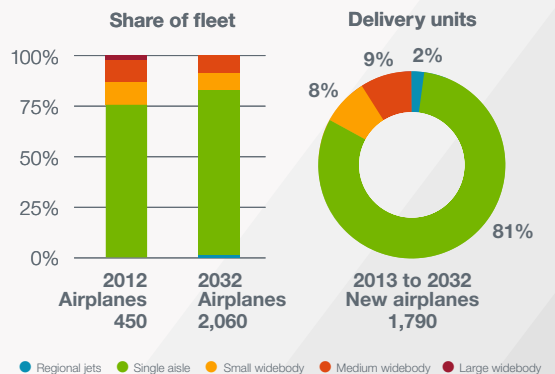
### South Asia

South Asian travel varies by market



### South Asia

Market value: \$240 billion



### South Asia

Key indicators and new airplane markets

Growth measures	Value	New airplanes	Share by size
Economy (GDP)	6.6%	-	-
Traffic (RPK)	8.6%	-	-
Cargo (RTK)	7.0%	-	-
Airplane fleet	7.9%	-	-
		Large widebody	-
		Medium widebody	170
		Small widebody	140
		Single aisle	1,450
		Regional jets	30
		<b>Total</b>	<b>1,790</b>
Market size		2012 Fleet	2032 Fleet
Deliveries	1,790	Large widebody	10
Market value	\$240B	Medium widebody	50
Average value	\$130M	Small widebody	50
		Single aisle	340
		Regional jets	-
		<b>Total</b>	<b>450</b>
			<b>2,060</b>



## World Regions Southeast Asia

### Airlines expand operations

Southeast Asia's airlines are growing rapidly as the region continues to develop economically. Low-cost carriers are expanding and gaining market share, stimulating passenger demand with attractive fares and new routes. Network carriers have restructured, both operationally and financially, for growth and increased competitiveness, some launching subsidiaries or partnering with low-cost airlines to expand their product offering in the quickly developing marketplace. The heightened competition has increased the availability and affordability of air travel within the region.

Regional markets will continue to grow rapidly as the Association of Southeast Asian Nations (ASEAN) strengthens ties for business and leisure travel. Travelers are increasingly likely to include multiple stops on their itineraries as low fares and integration of regional networks make this more attractive. Southeast Asian airlines have dramatically increased their orders for new airplanes to meet growing demand and open new, direct, long-range markets. In fact, more than half of the region's forecast 2,160 single-aisle airplane deliveries over the next 20 years are already on order. New, efficient airplanes with improved capabilities and lower operating costs are integral to carriers' business strategies.

### Liberalization opens routes

Regulatory changes and infrastructure improvements are crucial to air travel expansion. Relaxation of market regulations among ASEAN countries has removed many traditional barriers to growth. Flights among ASEAN capital cities have also increased, marking an intermediate step in the path to a unified regional aviation market. Several carriers are aggressively expanding into new markets by acquiring or partnering with other carriers in Southeast Asia and surrounding regions. Governments and airport authorities in the region are eager to expand their aviation infrastructures and capitalize on increased trade and tourism.

### Airlines bolster economic growth

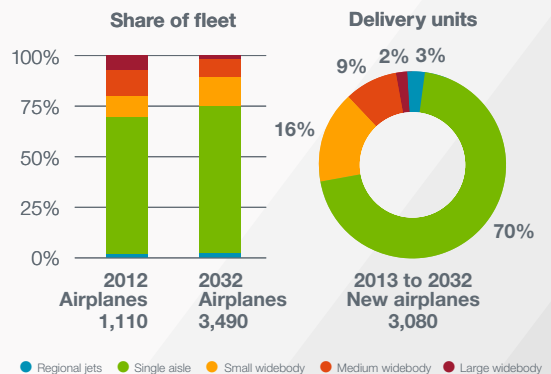
The economic relationships and collaboration among the region's countries continue to strengthen. Air transportation plays a vital role in the region's projected above-average 4.9 percent annual GDP growth over 10 years. For example, affordable air travel options have spurred growth throughout the region's services sector, including tourism and financial services. The region's strong air cargo operations enable efficient shipment of manufactured goods. Overall, air travel to, from, and within the region is projected to grow at an average annual rate of 6.7 percent over the next 20 years, led by 7.5 percent annual growth in the intraregional sector. About 70 percent of new airplane deliveries will be single-aisle airplanes to serve markets within the region.

### Southeast Asia Backlog 1.5 times larger than fleet

Source:  
Flight Global Ascend  
online database  
(July 2013) and CMO



### Southeast Asia Market value: \$450 billion



### Southeast Asia Key indicators and new airplane markets

Growth measures		New airplanes	Share by size	
Economy (GDP)	4.7%	Large widebody	50	2%
Traffic (RPK)	6.7%	Medium widebody	290	9%
Cargo (RTK)	5.2%	Small widebody	490	16%
Airplane fleet	5.9%	Single aisle	2,160	70%
		Regional jets	90	3%
		<b>Total</b>	<b>3,080</b>	
Market size		2012 Fleet	2032 Fleet	
Deliveries	3,080	Large widebody	80	60
Market value	\$450B	Medium widebody	140	310
Average value	\$150M	Small widebody	120	500
		Single aisle	750	2,530
		Regional jets	20	90
		<b>Total</b>	<b>1,110</b>	<b>3,490</b>



## World Regions Oceania

### A thriving market

Oceania is a dynamic region of roughly 40 million people. Total air traffic is forecast to continue to grow at the current annual rate of 4.8 percent over the next 20 years as connections to the neighboring Asia Pacific region and other world regions improve. Traffic growth within Oceania will slightly lag the overall rate at 4.4 percent. Capacity between Oceania and Southeast Asia, the primary gateway to other world regions, is forecast to increase 5.0 percent per year. In addition, continued expansion of trade and tourism will spur the opening of more flights and new markets to North America, the Middle East, and China. Middle East airlines, bridging Oceania to Europe and Africa via stops in the Middle East, are forecast to spur 7.0 percent growth of Middle East flow. Traffic between China and Oceania will grow at a robust 6.5 percent.

### The region's airlines continue to evolve

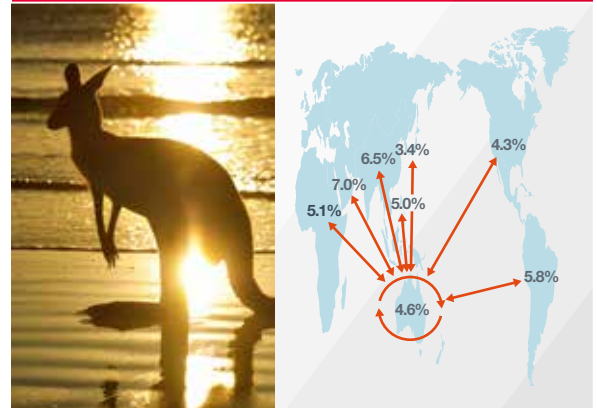
Airlines within Oceania continue to evolve in response to economic conditions and competition. Qantas introduced its own LCC, Jetstar, to counter increasing LCC competition in Oceania and has extended that model throughout Asia with franchises in Japan and Hong Kong. Recently Qantas entered a 10-year partnership with Emirates to collaborate on routes, pricing, scheduling, and other important aspects of operations. Virgin Australia acquired a major share of tigerair Australia. Etihad Airways, Singapore Airlines, and Air New Zealand acquired ownership shares of Virgin Australia. The first 787s in the region will arrive at Jetstar in the second half of 2013.

### New airplanes are needed in the region

As traffic increases and airlines evolve, there will be a continued need for new airplanes in the region. Over the next 20 years, Oceania is expected to need 1,010 new airplanes to be delivered, of which 730 will be single-aisle airplanes needed to transport people within the region or to nearby Southeast Asia. To meet demand for travel across the globe, 270 widebody airplanes will be required, of which approximately 200 will be small widebodies, 50 will be medium widebodies, and 20 will be large widebodies.

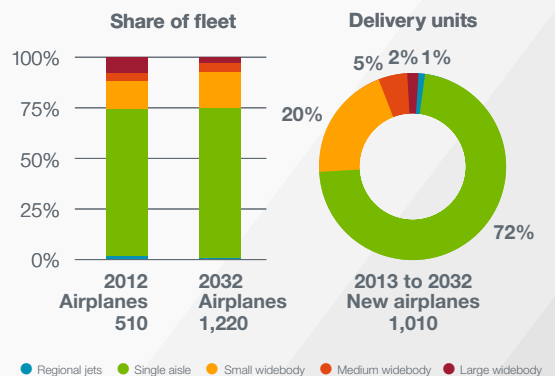
### Oceania

Strong annual capacity growth on traffic flows



### Oceania

Market value: \$140 billion



### Oceania

Key indicators and new airplane markets

Growth measures		New airplanes		Share by size
Economy (GDP)	2.6%	Large widebody	20	2%
Traffic (RPK)	4.8%	Medium widebody	50	5%
Cargo (RTK)	5.2%	Small widebody	200	20%
Airplane fleet	4.5%	Single aisle	730	72%
		Regional jets	10	1%
		<b>Total</b>	<b>1,010</b>	
<b>Market size</b>		<b>2012 Fleet</b>	<b>2032 Fleet</b>	
Deliveries	1,010	Large widebody	40	30
Market value	\$140B	Medium widebody	20	60
Average value	\$140M	Small widebody	70	220
		Single aisle	370	900
		Regional jets	10	10
		<b>Total</b>	<b>510</b>	<b>1,220</b>





## World Regions North America

### The US airline industry continues to restructure

The US airline industry continues to evolve into a financially stable industry due to the merger activity and resulting capacity and fleet rationalization that have occurred over the past five years. The fourth and final legacy airline merger between American Airlines and US Airways is pending government approval. If the merger is approved, further capacity rationalization is expected. In the interim, airline consolidation continues as Southwest integrates AirTran into its system, and United and Continental continue to merge their operations. Once the American-US Airways merger has been consummated, the four largest US airline operators will dominate other domestic competitors with at least 80 percent of available capacity.

### Low-cost carriers lead capacity growth

For the fourth consecutive year, the US commercial airline industry has posted an increase in traffic growth, as measured by revenue passenger-miles (RPMs). Total RPMs flown by the network and low-cost carriers grew 1 percent in 2012 compared to the previous year. The low-cost carriers posted a year-over-year capacity increase of 4 percent while capacity for the legacy carriers was flat. The average annual load factor of 83 percent for the US carriers was an increase of half a percentage point from 2011.

Financial results for US airlines continue to show improvement as the industry restructures. Excluding American Airlines, which was engaged in corporate restructuring, the US airline industry had a net profit of US\$1.9 billion for the year. Net margins, however, averaged slightly above 1 percent. With jet fuel representing between 35 and 40 percent of operating expenses, the airline industry will continue to focus on revenue growth and cost reductions to further improve financial performance that is necessary to fund future capital investment.

### Passenger traffic to slightly outpace GDP growth

Long-term moderate capacity growth, renewed focus on financial returns, ongoing investment in the fleet, and further product and technological enhancements are expected as US airline industry restructuring continues. North American passenger traffic growth will slightly outpace GDP and grow at an annual rate of 2.7 percent over the next 20 years. Both GDP and traffic were revised downward slightly from the previous year's forecast due to the expectation of a long-term US economic recovery. Cargo revenue ton-mile projections were also revised downward to 3.8 percent per year compared to the previous forecast of 4.5 percent as the air freight industry undergoes its own fleet and capacity rationalization.

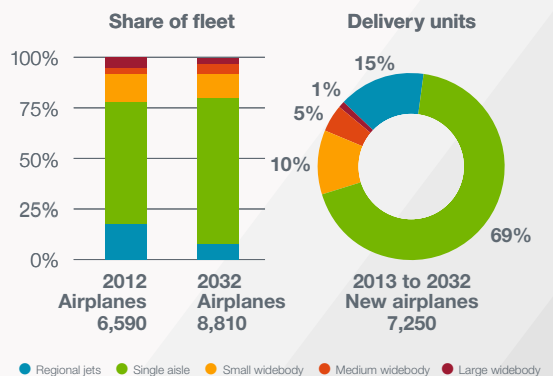
### North America

Growth of 2,200 aircraft by 2032



### North America

Market Value: \$810 billion



### North America

Key indicators and new airplane markets

Growth measures			New airplanes	Share by size
Economy (GDP)	2.5%		Large widebody	30 >1%
Traffic (RPK)	2.7%		Medium widebody	390 5%
Cargo (RTK)	3.8%		Small widebody	760 10%
Airplane fleet	1.5%		Single aisle	5,000 69%
			Regional jets	1,070 15%
			<b>Total</b>	<b>7,250</b>
Market size			2012 Fleet	2032 Fleet
Deliveries	7,250		Large widebody	120 60
Market value	\$810B		Medium widebody	290 500
Average value	\$110M		Small widebody	710 1,040
			Single aisle	3,760 6,140
			Regional jets	1,710 1,070
			<b>Total</b>	<b>6,590 8,810</b>



## World Regions Europe

### Strength despite uncertainty

The European aviation market remained strong in 2012, despite uncertainties from the sovereign debt crisis and recessions in some economies. Europe's GDP was flat in 2012 and is forecast to grow by 1.8 percent annually through 2032. The Association of European Airlines reports that member airlines carried 1.5 percent more passengers in 2012. Members of the European Low Fares Airline Association (ELFAA) reported a 7.2 percent increase in passengers over 2011 levels. European airlines acquired more than 230 new airplanes in 2012, of which 74 percent were single aisle.

Aviation growth is expected to continue over the next 20 years, with European airlines forecast to acquire 7,460 new airplanes valued at \$530 billion. Single-aisle airplanes will account for the majority of deliveries, representing a 73 percent share.

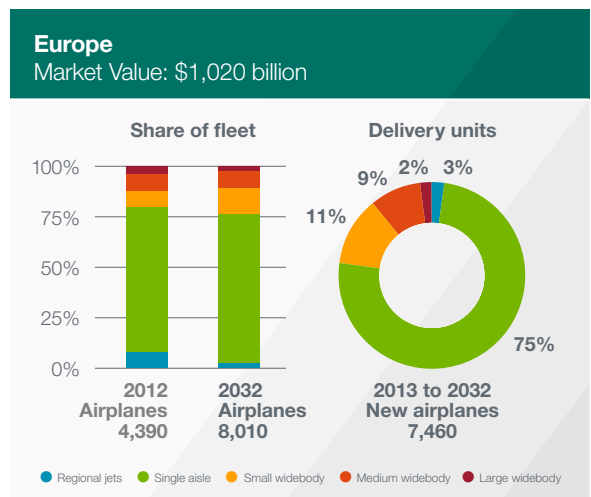
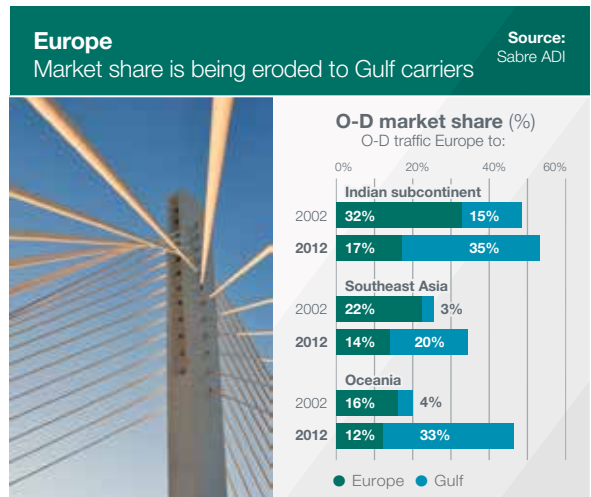
Although aviation growth in Europe is not as rapid as in the world's emerging economies, the region's large installed base of almost 4,400 airplanes sustains a substantial demand for replacement airplanes. This demand will account for 51 percent of Europe's new-airplane market.

### Leading strategic change

Airline operations continue to evolve with the launch of new ventures and new business models. Long-haul service by European low-cost carriers (LCC) is becoming a reality in 2013 with the delivery of the 787 to LCC Norwegian Air Shuttle. The next 20 years are expected to bring additional mergers and acquisitions, along with increased collaboration with alliance partners around the world.

Large Middle East carriers have captured significant long-haul share from European network carriers by providing one-stop service from Europe to markets such as India, Australia, and Southeast Asia. These carriers are also changing the way that they compete for European business: one by entering an alliance, another by acquiring an equity stake in a European carrier, and a third through a cooperative agreement with a non-European partner.

Large network airlines are tending to shift away from short-haul traffic, which is targeted by LCCs, and toward flowing passengers through their hubs on longer itineraries. LCCs have continued to add service in short-haul markets, with ELFAA members providing 35 percent of capacity on intra-Europe flights in 2012. Smaller flag carriers and charter airlines will be challenged to compete in an environment where LCCs dominate short-haul, point-to-point service, and large network carriers and their alliance partners exploit the cost advantages of mega-hubs for long-haul traffic.



**Europe**  
Key indicators and new airplane markets

Growth measures		New airplanes		Share by size
Economy (GDP)	1.8%	Large widebody	170	2%
Traffic (RPK)	4.2%	Medium widebody	650	9%
Cargo (RTK)	3.8%	Small widebody	850	11%
Airplane fleet	3.1%	Single aisle	5,610	75%
		Regional jets	180	3%
		<b>Total</b>	<b>7,460</b>	
Market size		2012 Fleet	2032 Fleet	
Deliveries	7,460	Large widebody	180	200
Market value	\$1,020B	Medium widebody	360	690
Average value	\$140M	Small widebody	340	990
		Single aisle	3,160	5,930
		Regional jets	350	200
		<b>Total</b>	<b>4,390</b>	<b>8,010</b>



## World Regions Middle East

### Many growth strategies

Growth of Middle Eastern aviation outpaced the global average and will continue to do so, supported by a variety of growth strategies. Fleet expansion is the predominant strategy, with Emirates as the foremost practitioner.

Alliances and partnerships also contribute, as with the 2012 Emirates-Qantas codeshare agreement, or Qatar Airways' pending membership in the oneworld alliance.

Low-cost carriers tend to pursue growth through business model innovation: reducing short-haul fares, setting up national subsidiaries, and opening new avenues of access to air transport services.

Other strategies include the purchase of equity shares in other airlines. For example, Etihad invested in airberlin and Jet Airways, in order to grow quickly and gain access to new markets without fleet expansion.

### Liberalization gains ground

Further support for growth could come from liberalization of industry regulations. The Kingdom of Saudi Arabia (KSA) took significant steps in 2012 toward opening its markets. Gulf Air (Bahrain) and Qatar Airways have been granted rights to operate domestic flights within the KSA. Competition will be allowed in the markets for ground services, and it is expected that Saudia will be privatized. More vigorous competition should result in better, more frequent, and lower cost services.

The opportunity to relax price controls on domestic KSA flights remains, though it has not been adopted as a policy goal. Price deregulation could bolster industry health, enhancing service quality over the long term.

Liberalization of the region's bilateral agreements is having important impacts. In the wake of Etihad's investment in Jet Airways, the UAE and India are set to increase weekly seating entitlements from 13,300 to nearly 50,000 seats by 2015. These entitlements, which will be available to qualified airlines on both sides, will spur competition.

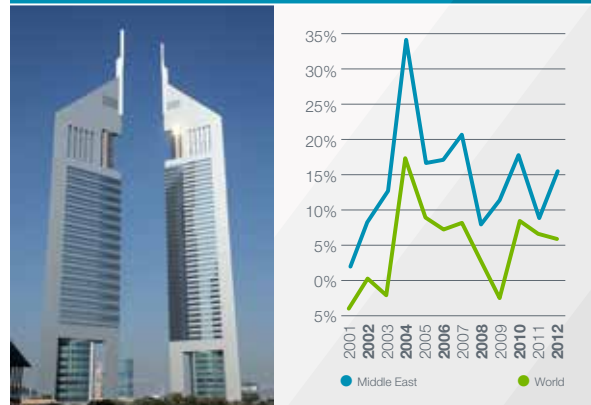
### Infrastructure and airspace development

Infrastructure development is a long-term concern. Although the region's airspace is not yet crowded, large sections remain under military control, limiting the airspace available for commercial traffic. The region's air traffic control (ATC) is not centralized, leaving airlines to manage flights within a patchwork of different ATC systems. Further, investment tends to target new runways and terminals, rather than ATC modernization. Awareness of infrastructure challenges is growing, and ongoing discussions between the Gulf Cooperation Council countries and their neighbors signal progress.

### Middle East

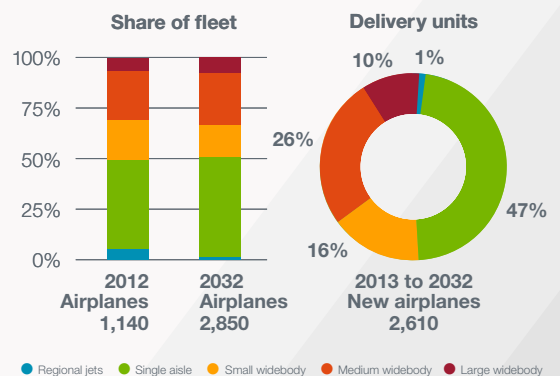
Outpaces the world in international traffic growth

Source:  
IATA



### Middle East

Market value: \$550 billion



### Middle East

Key indicators and new airplane markets

Growth measures	Value	New airplanes		Share by size
		2012 Fleet	2032 Fleet	
Economy (GDP)	3.8%	Large widebody	280	10%
Traffic (RPK)	6.3%	Medium widebody	670	26%
Cargo (RTK)	6.6%	Small widebody	410	16%
Airplane fleet	4.7%	Single aisle	1,240	47%
		Regional jets	10	1%
		<b>Total</b>	<b>2,610</b>	
<b>Market size</b>		<b>2012 Fleet</b>		<b>2032 Fleet</b>
Deliveries	2,610	Large widebody	80	250
Market value	\$550B	Medium widebody	270	700
Average value	\$210M	Small widebody	230	450
		Single aisle	500	1,420
		Regional jets	60	30
		<b>Total</b>	<b>1,140</b>	<b>2,850</b>



## World Regions Latin America

### Lower but steady growth

The World Bank semiannual report projects 3.5 percent GDP growth in Latin America and the Caribbean for 2013, better than last year's 3 percent, but still lagging the 5 percent historical trend and the 6 percent growth in 2010. The Economic Commission for Latin America and the Caribbean predicts Latin America's fastest growing economies will be Paraguay (10 percent), Panama (8 percent), and Peru (6 percent). Growth in Brazil and Argentina will not meet previous expectations.

Political and macroeconomic stability, solid growth, poverty reduction, and a fairer income distribution buoyed regional growth in the 2000s. The World Bank projects that future growth will rely more on a demand-driven domestic economy and less on cheap labor, exports, and undervalued currency. A robust aviation sector is crucial to growth. Brazil, the world's seventh largest economy, has the third largest domestic aviation industry. Total domestic RPKs have nearly doubled from 44 million RPKs in 2007 to 87 billion RPKs in 2012. A majority of interstate passengers now travel by air.

### A wave of consolidations

LATAM Airlines Group, established as the parent of LAN and TAM, is the largest instance of a massive consolidation trend that includes the mergers of Avianca with TACA, Gol with Webjet, and Azul with Trip. The region's fleet, meanwhile, will grow from 1,280 airplanes to more than 3,790 and will need 2,900 new airplanes with a value of \$300 billion by 2032. Average airplane age in the region's fleet has been reduced from 14.8 years to 9.7 years since 2003, giving Latin America a younger fleet than those in the United States and Europe. Major carriers are cutting unprofitable routes and reducing capacity to achieve a more sustainable business environment.

### Rise of the low-cost carriers

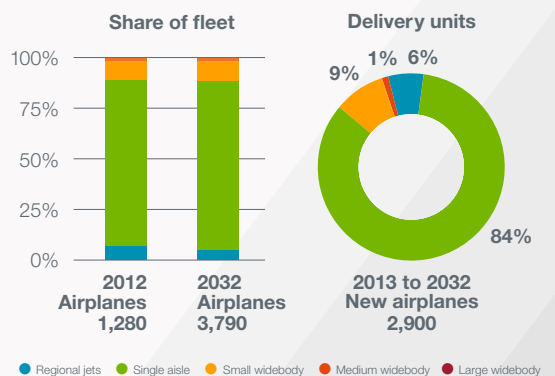
LCCs have grown quickly in Brazil and Mexico, Latin America's two largest markets. LCCs now account for more than 50 percent of Latin American capacity. The Ryanair-backed Viva Group already controls VivaAerobus and VivaColombia and is said to be eyeing expansion. LCCs are also extending their reach through partnerships. With only six LCCs in the region, the potential for expansion is great.

### Latin America Strong backlog in region

Source:  
Flight Global Ascend  
Online Database



### Latin America Market value: \$300 billion



### World regions Key indicators and new airplane markets

Growth measures		New airplanes		Share by size
Economy (GDP)	4.0%	Large widebody	-	-
Traffic (RPK)	6.9%	Medium widebody	40	1%
Cargo (RTK)	6.0%	Small widebody	270	9%
Airplane fleet	5.6%	Single aisle	2,420	84%
		Regional jets	170	6%
		<b>Total</b>	<b>2,900</b>	
Market size		2012 Fleet	2032 Fleet	
Deliveries	2,900	Large widebody	-	-
Market value	\$300B	Medium widebody	20	50
Average value	\$100M	Small widebody	120	380
		Single aisle	1,050	3,150
		Regional jets	90	210
		<b>Total</b>	<b>1,280</b>	<b>3,790</b>



## World Regions CIS

### Younger, more efficient fleet

The outlook for aviation demand in the Commonwealth of Independent States (CIS) continues to grow. The region is forecast to take delivery of a total of 1,170 new airplanes over the next 20 years, valued at \$140 billion. In the mid-1990s, Western-built airplanes represented less than 2 percent of the CIS fleet, with only a few dozen Boeing and Airbus airplanes in operation. Today, around 70 percent of the fleet consists of more efficient Western-built airplanes, which can fly more hours per day than the average airplane of the fleet operating in the 1990s. The switch to more efficient airplanes is allowing carriers to meet market demand with fewer airplanes.

### Regional economies recovering

The economies of the CIS region grew moderately in 2011. GDP expanded at a rate of 3.8 percent in 2012, slowing from a 5.0 percent rate in 2011. Overall, regional growth is expected to continue, with GDP averaging 3.4 percent annual growth over the next 20 years. Russia's economy continues to be the region's largest, accounting for more than 70 percent of the region's GDP in 2012. The economies of Ukraine and Kazakhstan follow Russia in size.

The Russian Transport Ministry's Federal Air Transport Agency reported that the number of passengers carried by Russian airlines rose to 74.0 million in 2012, an increase of 15.5 percent compared to 2011. Over the next 20 years, Boeing forecasts that air traffic to and from the CIS region will grow at a rate of 4.8 percent annually.

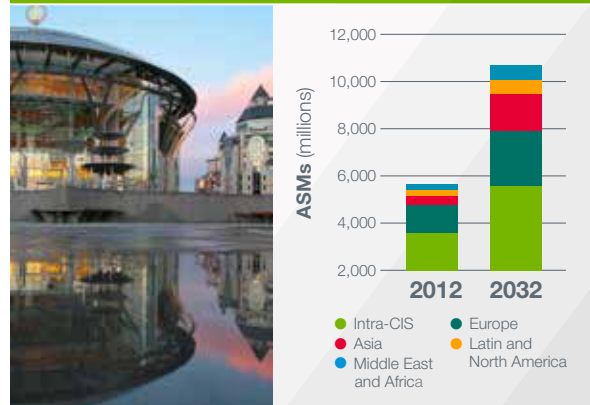
### Strong demand for single-aisle airplanes

The potential for domestic growth will create demand for an estimated 860 new single-aisle airplanes over the next 20 years. The region's geographical size and diverse terrain make airline travel an attractive transportation option. Air travel should increase over the coming 20 years as personal incomes rise and liberalization of air transport regulations makes aviation services more available and affordable.

### CIS

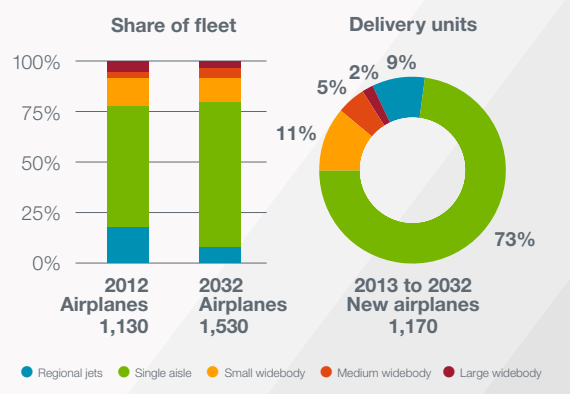
Traffic varies by market

Source:  
OAG and  
Boeing analysis



### CIS

Market value: \$140 billion



### CIS

Key indicators and new airplane markets

Growth measures		New airplanes		Share by size	
Economy (GDP)	3.4%	Large widebody	20	2%	
Traffic (RPK)	4.5%	Medium widebody	60	5%	
Cargo (RTK)	4.5%	Small widebody	130	11%	
Airplane fleet	1.5%	Single aisle	860	73%	
		Regional jets	100	9%	
		<b>Total</b>	<b>1,170</b>		
Market size		2012 Fleet	2032 Fleet		
Deliveries	1,170	Large widebody	60	50	
Market value	\$140B	Medium widebody	20	70	
Average value	\$120M	Small widebody	170	190	
		Single aisle	680	1,100	
		Regional jets	200	120	
		<b>Total</b>	<b>1,130</b>	<b>1,530</b>	



## World Regions Africa

### Robust air travel demand outlook

Optimism about the strength and sustainability of Africa's economic growth has increased recently. Sub-Saharan Africa weathered the financial crisis of 2008 and 2009 and commodity price volatility particularly well, continuing to achieve above-world-average economic growth. Accordingly, both the IMF and World Bank increased their expectations for sub-Saharan Africa's economic growth over the next two years, despite a relatively weak global outlook.

Africa's long-term economic growth rate of 4.4 percent is well above the world average. Commodity markets are expected to remain the primary driver of the continent's economic growth, but recent indicators show increasing diversification among the region's economies. According to the World Bank, this can be seen in foreign direct investment (FDI) flows, where the number of manufacturing and services investments is increasing. Rising investments and trade foster demand for air travel to and from the region.

### Air travel network development

Consistent with economic growth, air travel demand to, from, and within Africa is forecast to outpace world average growth at 5.7 percent annually. Growth to and from other emerging markets is expected to lead the way, as airlines both in Africa and other emerging market regions are planning to increase inter-regional connectivity.

Prospects for intra-African growth are also rising. Airlines in the region are exploring new business models and development of intra-regional hubs. Growth in pan-African airline networks can bring the efficiency of air travel to the continent's transportation system. The flexibility of aviation networks and the relatively low cost per network kilometer make aviation infrastructure investment very attractive compared to investment in other modes.

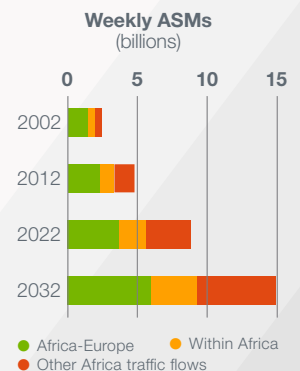
Capacity to and from Europe will remain the largest single flow over the next decades, but long-term capacity growth will be slower than in other regions where trade and economic growth drive air travel demand more strongly.

### Increased travel demand drives fleet growth

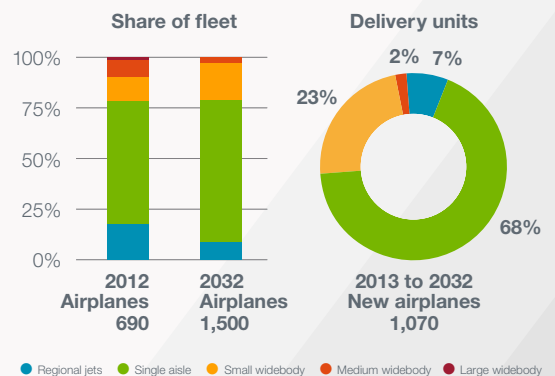
Africa is forecast to require close to 1,100 new airplanes over the next 20 years. Approximately 70 percent of forecast deliveries will support growth. Replacement of the existing aging fleet is also an important component of demand in Africa where the average in-service age of the fleet has declined by almost 20 percent since 2004. Single-aisle airplanes will account for the largest share of deliveries, while widebody airplanes will account for nearly half of the value of deliveries to Africa.

### Africa Capacity to become more diverse

Source:  
Boeing Analysis  
and OAG



### Africa Market value: \$130 billion



### Africa Key indicators and new airplane markets

Growth measures		New airplanes		Share by size
		2012	2032	
Economy (GDP)	4.4%	-	-	-
Traffic (RPK)	5.7%	20	2%	2%
Cargo (RTK)	6.6%	250	23%	23%
Airplane fleet	4.0%	730	68%	68%
		70	7%	7%
		<b>Total</b>	<b>1,070</b>	
Market size		2012 Fleet	2032 Fleet	
Deliveries	1,070	10	-	
Market value	\$130B	60	50	
Average value	\$120M	80	280	
		420	1,040	
		120	130	
		<b>Total</b>	<b>690</b>	<b>1,500</b>



## Pilot & Technician Outlook

### Burgeoning demand for highly trained personnel

As global economies expand and airlines take delivery of tens of thousands of new commercial jetliners over the next 20 years, the demand for personnel to fly and maintain those airplanes will be unprecedented. The aviation industry will need to supply approximately one million new commercial airline pilots and maintenance technicians between now and 2032 to support this tremendous growth.

The 2013 Boeing Pilot & Technician Outlook, a respected industry forecast of personnel demand, projects a requirement for 498,000 new commercial airline pilots and 556,000 new maintenance technicians to fly and maintain the new airplanes entering the world fleet over the next 20 years.

Meeting this exponential demand growth will require innovative solutions focused on new digital technology to match the learning requirements of a new generation. The growing diversity of aviation personnel will require instructors to have cross-cultural and cross-generational skills. Training providers will focus more strongly on enabling airplane operators to gain optimum advantage from the advanced features of the latest generation of airplanes, such as the 787 Dreamliner.

### Pilot outlook

Airlines across the globe are expanding their fleets and flight schedules to meet surging aviation demand in emerging markets. The industry continues to consider how to address challenges and fill the future pilot pipeline.

The largest projected growth in pilot demand is in the Asia Pacific region, with a requirement for 192,300 new pilots over the next 20 years. China will generate the largest share of the region's demand, with a need for 77,400 pilots. Europe will require 99,700 pilots, North America 85,700, Latin America 48,600, the Middle East 40,000, Africa 16,500, and the Commonwealth of Independent States 15,200.

### Technician outlook

As new-generation airplanes come to dominate the world fleet, airplane reliability will improve and maintenance check intervals will lengthen. Although this trend will moderate demand growth, global demand for technicians remains significant.

Emerging markets that currently recruit maintenance technicians from outside the region will have to develop a strong foundation for developing and training qualified technical personnel from within the local workforce.

The need for maintenance personnel is greatest in the Asia Pacific region, which will require 215,300 new technical personnel. China's requirement will be the region's greatest, with a need for 93,900 technicians. Airlines in Europe will require 108,200, North America 97,900, the Middle East 53,100, Latin America 47,600, the Commonwealth of Independent States 18,000, and Africa 15,900 technicians.

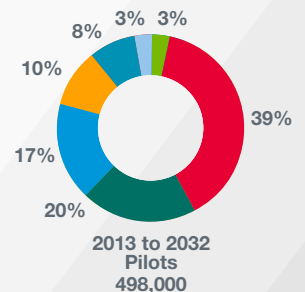
### Pilot & Technician Outlook 20-year demand for aviation personnel



**NEW!**  
Innovative  
training for  
tomorrow's  
workforce

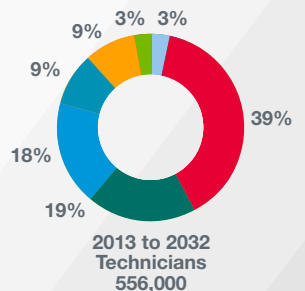
### Pilot & Technician Outlook New pilots by region 2013–2032

Region	Pilots
● Asia Pacific	192,300
● Europe	99,700
● North America	85,700
● Latin America	48,600
● Middle East	40,000
● Africa	16,500
● CIS	15,200
<b>Total</b>	<b>498,000</b>



### Pilot & Technician Outlook New technicians by region 2013–2032

Region	Technicians
● Asia Pacific	215,300
● Europe	108,200
● North America	97,900
● Middle East	53,100
● Latin America	47,600
● CIS	18,000
● Africa	15,900
<b>Total</b>	<b>556,000</b>





## Passenger Traffic

### Airline passenger traffic Growth by regional flow

Regions	2005	2006	2007	2008	2009	2010	2011	2012	2032	Average growth 2012 to 2032
<b>RPKs in billions</b>										
Africa – Africa	35.97	35.56	37.31	41.58	43.88	48.66	51.06	55.76	190.72	6.3%
<b>Africa – Europe</b>	<b>106.37</b>	<b>121.95</b>	<b>125.32</b>	<b>125.60</b>	<b>128.17</b>	<b>135.45</b>	<b>134.13</b>	<b>140.46</b>	<b>362.07</b>	<b>4.8%</b>
Africa – Middle East	16.79	20.87	23.09	24.90	32.86	36.41	39.45	48.98	208.24	7.5%
<b>Africa – North America</b>	<b>3.33</b>	<b>4.33</b>	<b>4.89</b>	<b>6.28</b>	<b>8.77</b>	<b>11.31</b>	<b>11.40</b>	<b>12.34</b>	<b>38.13</b>	<b>5.8%</b>
Africa – Southeast Asia	4.07	4.12	5.18	5.37	4.09	5.61	5.91	4.02	14.61	6.7%
<b>Central America – Central America</b>	<b>26.65</b>	<b>28.18</b>	<b>29.68</b>	<b>32.29</b>	<b>29.80</b>	<b>31.29</b>	<b>32.23</b>	<b>35.89</b>	<b>88.21</b>	<b>4.6%</b>
Central America – Europe	67.05	74.15	80.71	83.29	77.08	73.82	73.67	75.61	183.97	4.5%
<b>Central America – North America</b>	<b>100.59</b>	<b>104.99</b>	<b>106.83</b>	<b>115.77</b>	<b>104.67</b>	<b>112.65</b>	<b>114.51</b>	<b>122.40</b>	<b>279.28</b>	<b>4.2%</b>
Central America – South America	10.22	10.33	11.01	13.08	13.97	18.31	19.19	23.02	81.40	6.5%
<b>China – China</b>	<b>164.21</b>	<b>189.79</b>	<b>223.12</b>	<b>236.53</b>	<b>287.36</b>	<b>335.44</b>	<b>380.11</b>	<b>403.31</b>	<b>1,523.24</b>	<b>6.9%</b>
China – Europe	63.10	75.27	91.03	82.52	77.33	82.12	94.19	98.90	325.34	6.1%
<b>China – North America</b>	<b>48.14</b>	<b>51.44</b>	<b>54.52</b>	<b>62.70</b>	<b>60.88</b>	<b>71.37</b>	<b>85.43</b>	<b>86.04</b>	<b>293.46</b>	<b>6.3%</b>
China – Northeast Asia	39.68	42.41	49.31	48.44	43.23	51.81	51.45	63.17	159.97	4.8%
<b>China – Oceania</b>	<b>17.55</b>	<b>19.26</b>	<b>19.40</b>	<b>21.37</b>	<b>22.79</b>	<b>27.43</b>	<b>31.35</b>	<b>33.29</b>	<b>115.55</b>	<b>6.4%</b>
China – Southeast Asia	48.04	44.57	49.34	50.59	45.29	54.71	62.99	73.36	313.32	7.5%
<b>CIS – CIS</b>	<b>73.14</b>	<b>77.34</b>	<b>80.76</b>	<b>88.93</b>	<b>76.86</b>	<b>87.55</b>	<b>103.07</b>	<b>104.18</b>	<b>253.19</b>	<b>4.5%</b>
CIS – International	58.07	63.64	81.59	77.73	83.62	101.55	124.10	133.13	349.06	4.9%
<b>Europe – Europe</b>	<b>561.88</b>	<b>593.32</b>	<b>634.21</b>	<b>660.55</b>	<b>624.92</b>	<b>640.17</b>	<b>659.48</b>	<b>710.02</b>	<b>1,448.03</b>	<b>3.6%</b>
Europe – Middle East	87.28	99.18	106.59	115.15	131.16	143.81	153.27	177.39	470.64	5.0%
<b>Europe – North America</b>	<b>390.71</b>	<b>403.37</b>	<b>420.61</b>	<b>432.38</b>	<b>405.40</b>	<b>418.58</b>	<b>430.20</b>	<b>441.83</b>	<b>881.39</b>	<b>3.5%</b>
Europe – Northeast Asia	60.72	60.59	67.90	68.97	59.36	64.27	63.76	71.75	135.95	3.2%
<b>Europe – South America</b>	<b>63.89</b>	<b>67.36</b>	<b>70.75</b>	<b>75.17</b>	<b>79.34</b>	<b>82.95</b>	<b>89.82</b>	<b>94.51</b>	<b>242.08</b>	<b>4.8%</b>
Europe – Southeast Asia	98.00	95.88	96.84	101.53	95.92	97.11	100.43	100.49	265.72	5.0%
<b>Europe – South Asia</b>	<b>43.42</b>	<b>53.26</b>	<b>58.51</b>	<b>55.48</b>	<b>51.29</b>	<b>53.80</b>	<b>54.05</b>	<b>51.85</b>	<b>207.66</b>	<b>7.2%</b>
Middle East – Middle East	48.72	53.68	60.27	63.37	68.59	77.91	82.38	78.32	235.17	5.7%
<b>Middle East – North America</b>	<b>16.08</b>	<b>20.65</b>	<b>23.44</b>	<b>29.54</b>	<b>41.56</b>	<b>45.70</b>	<b>50.32</b>	<b>52.77</b>	<b>182.46</b>	<b>6.4%</b>
Middle East – Southeast Asia	29.50	33.36	41.14	45.36	46.70	56.28	61.31	64.05	229.52	6.6%
<b>Middle East – South Asia</b>	<b>36.06</b>	<b>41.97</b>	<b>46.49</b>	<b>49.46</b>	<b>64.81</b>	<b>75.11</b>	<b>83.05</b>	<b>86.97</b>	<b>372.41</b>	<b>7.5%</b>
North America – North America	972.26	977.36	1,022.41	974.07	915.13	946.28	976.35	978.19	1,538.67	2.3%
<b>North America – Northeast Asia</b>	<b>146.27</b>	<b>140.66</b>	<b>143.74</b>	<b>139.37</b>	<b>120.18</b>	<b>128.38</b>	<b>135.41</b>	<b>140.93</b>	<b>219.72</b>	<b>2.2%</b>
North America – Oceania	29.06	30.58	32.11	32.26	34.81	34.85	38.30	38.64	87.81	4.2%
<b>North America – South America</b>	<b>46.23</b>	<b>50.68</b>	<b>52.06</b>	<b>52.68</b>	<b>56.87</b>	<b>60.93</b>	<b>66.67</b>	<b>69.13</b>	<b>224.68</b>	<b>6.1%</b>
North America – Southeast Asia	11.77	9.45	11.25	9.33	10.29	10.32	11.29	10.44	37.11	6.5%
<b>Northeast Asia – Northeast Asia</b>	<b>82.79</b>	<b>87.39</b>	<b>88.79</b>	<b>84.85</b>	<b>81.93</b>	<b>84.65</b>	<b>81.93</b>	<b>97.31</b>	<b>160.76</b>	<b>2.5%</b>
Northeast Asia – Oceania	21.24	21.50	21.05	20.81	15.09	18.15	16.63	16.33	32.22	3.5%
<b>Northeast Asia – Southeast Asia</b>	<b>74.61</b>	<b>80.14</b>	<b>86.32</b>	<b>87.73</b>	<b>74.32</b>	<b>79.60</b>	<b>92.32</b>	<b>102.18</b>	<b>267.03</b>	<b>4.9%</b>
Oceania – Oceania	65.25	70.84	74.35	72.01	73.29	78.37	83.82	95.51	231.67	4.5%
<b>Oceania – Southeast Asia</b>	<b>54.49</b>	<b>51.91</b>	<b>52.36</b>	<b>57.42</b>	<b>54.65</b>	<b>61.14</b>	<b>66.89</b>	<b>69.55</b>	<b>189.00</b>	<b>5.1%</b>
South America – South America	64.07	74.25	83.08	81.60	86.93	115.85	134.39	136.38	566.54	7.4%
<b>Southeast Asia – Southeast Asia</b>	<b>79.11</b>	<b>78.78</b>	<b>93.39</b>	<b>93.22</b>	<b>95.99</b>	<b>113.15</b>	<b>130.72</b>	<b>151.98</b>	<b>644.70</b>	<b>7.5%</b>
Southeast Asia – South Asia	20.44	19.37	20.56	24.34	21.89	28.52	29.17	31.84	161.24	8.4%
<b>South Asia – South Asia</b>	<b>25.16</b>	<b>31.31</b>	<b>36.29</b>	<b>40.08</b>	<b>43.81</b>	<b>49.50</b>	<b>58.57</b>	<b>60.05</b>	<b>374.54</b>	<b>9.6%</b>
Rest of world	31.49	38.56	44.29	55.49	69.35	87.85	97.41	109.37	485.81	7.7%
<b>World total</b>	<b>4,043.46</b>	<b>4,253.61</b>	<b>4,561.90</b>	<b>4,639.17</b>	<b>4,564.19</b>	<b>4,938.73</b>	<b>5,262.17</b>	<b>5,551.62</b>	<b>14,672.32</b>	<b>5.0%</b>

RPK: Revenue passenger-kilometers. The number of fare-paying passengers multiplied by the number of kilometers they fly (i.e., airline traffic).

Note: Taiwan has been moved from Southeast Asia to Northeast Asia.





## Airplanes Required

### Passenger and freighter airplanes Market value and demand by region

#### Demand and value by region

Region	\$B Airplanes	
Asia Pacific	1,890	12,820
Europe	1,020	7,460
North America	810	7,250
Latin America	300	2,900
Middle East	550	2,610
CIS	140	1,170
Africa	130	1,070
<b>World</b>	<b>4,840</b>	<b>35,280</b>

#### Deliveries by airplane size and region

Region	Regional jets	Single aisle	Small widebody	Medium widebody	Large widebody	Total deliveries
Asia Pacific	420	8,810	1,860	1,470	260	12,820
Europe	180	5,610	850	650	170	7,460
North America	1,070	5,000	760	390	30	7,250
Latin America	170	2,420	270	40	0	2,900
Middle East	10	1,240	410	670	280	2,610
CIS	100	860	130	60	20	1,170
Africa	70	730	250	20	–	1,070
<b>World</b>	<b>2,020</b>	<b>24,670</b>	<b>4,530</b>	<b>3,300</b>	<b>760</b>	<b>35,280</b>

#### Market value by airplane size and region\*

Region	Regional jets	Single aisle	Small widebody	Medium widebody	Large widebody	Total deliveries
Asia Pacific	10	840	460	490	90	1,890
Europe	10	530	210	210	60	1,020
North America	40	460	170	130	10	810
Latin America	10	210	70	10	–	300
Middle East	–	120	100	220	110	550
CIS	10	70	30	20	10	140
Africa	–	60	60	10	–	130
<b>World</b>	<b>\$80</b>	<b>\$2,290</b>	<b>\$1,100</b>	<b>\$1,090</b>	<b>\$280</b>	<b>\$4,840</b>

\*2012 \$B, catalog prices. Values above 10 have been rounded to the nearest 10.

### Passenger and freighter airplanes In service and future fleet

#### Total airplanes in service

Size	2012	2032
Regional jets	2,660	2,180
Single aisle	13,040	29,130
Small widebody	2,310	5,410
Medium widebody	1,520	3,610
Large widebody	780	910
<b>Total</b>	<b>20,310</b>	<b>41,240</b>

#### Passenger airplanes in service

Size	2012	2032
Regional jets	2,610	2,180
Single aisle	12,490	28,100
Small widebody	1,720	4,630
Medium widebody	1,290	2,900
Large widebody	470	620
<b>Total</b>	<b>18,580</b>	<b>38,430</b>

#### Freighter airplanes in service

Size	2012	2032
Large*	540	1,000
Medium widebody	590	780
Standard	600	1,030
<b>Total</b>	<b>1,730</b>	<b>2,810</b>

#### Airplane demand

Size	\$B	Airplanes
Regional jets	80	2,020
Single aisle	2,290	24,670
Small widebody	1,100	4,530
Medium widebody	1,090	3,300
Large widebody	280	760
<b>Total</b>	<b>4,840</b>	<b>35,280</b>

#### Passenger airplane demand

Size	\$B	Airplanes
Regional jets	80	2,020
Single aisle	2,290	24,670
Small widebody	1,060	4,320
Medium widebody	940	2,810
Large widebody	230	610
<b>Total</b>	<b>4,600</b>	<b>34,430</b>

#### Freighter airplane demand

Size	\$B	Airplanes
Large*	200	640
Medium widebody	40	210
Standard body	–	–
<b>Total</b>	<b>240</b>	<b>850</b>

\*Large passenger and large freighter categories differ.



## Fleet Development

### Passenger and freighter airplanes Market value and fleet development

#### Market by airplane size

Size	Market value 2012 \$B	Market share value	New airplane deliveries	Market share units
Large*	280	6%	760	2%
Medium	1,090	22%	3,300	9%
Small	1,100	23%	4,530	13%
<b>Total twin aisle</b>	<b>2,470</b>	<b>51%</b>	<b>8,590</b>	<b>24%</b>
More than 175 seats	540	11%	5,040	14%
90 to 175 seats	1,750	36%	19,630	56%
<b>Total single aisle</b>	<b>2,290</b>	<b>47%</b>	<b>24,670</b>	<b>70%</b>
<b>Total regional jets</b>	<b>80</b>	<b>2%</b>	<b>2,020</b>	<b>6%</b>
<b>Total fleet</b>	<b>4,840</b>	<b>100%</b>	<b>35,280</b>	<b>100%</b>

#### Passenger fleet development

Size	End of year 2012	Removed from service	Converted to freighter	New deliveries 2013 to 2032	End of year 2032
Large*	470	460	–	610	620
Medium	1,290	1,200	–	2,810	2,900
Small	1,720	1,410	–	4,320	4,630
<b>Total widebody</b>	<b>3,480</b>	<b>3,070</b>	<b>510</b>	<b>7,740</b>	<b>8,150</b>
More than 175 seats	1,620	1,210	–	5,040	5,450
90 to 175 seats	10,870	7,850	–	19,630	22,650
<b>Total single aisle</b>	<b>12,490</b>	<b>9,060</b>	<b>940</b>	<b>24,670</b>	<b>28,100</b>
<b>Total regional jets</b>	<b>2,610</b>	<b>2,450</b>	<b>0</b>	<b>2,020</b>	<b>2,180</b>
<b>Total passenger fleet</b>	<b>18,580</b>	<b>14,580</b>	<b>1,450</b>	<b>34,430</b>	<b>38,430</b>

#### Freighter fleet development

Size	End of year 2012	Removed from service	Converted to freighter	New deliveries 2013 to 2032	End of year 2032
Large*	540	310	130	640	1,000
Medium widebody	590	400	380	210	780
Standard body	600	510	940	0	1,030
<b>Total freighter fleet</b>	<b>1,730</b>	<b>1,220</b>	<b>1,450</b>	<b>850</b>	<b>2,810</b>

#### Total fleet

Size	End of year 2012	Removed from service	Converted to freighter	New deliveries 2013 to 2032	End of year 2032
Passenger fleet	18,580	14,580	1,450	34,430	38,430
Freighter fleet	1,730	1,220	1,450	850	2,810
<b>Total fleet</b>	<b>20,310</b>	<b>15,800</b>	<b>1,450</b>	<b>35,280</b>	<b>41,240</b>

\*Large passenger and large freighter categories differ.

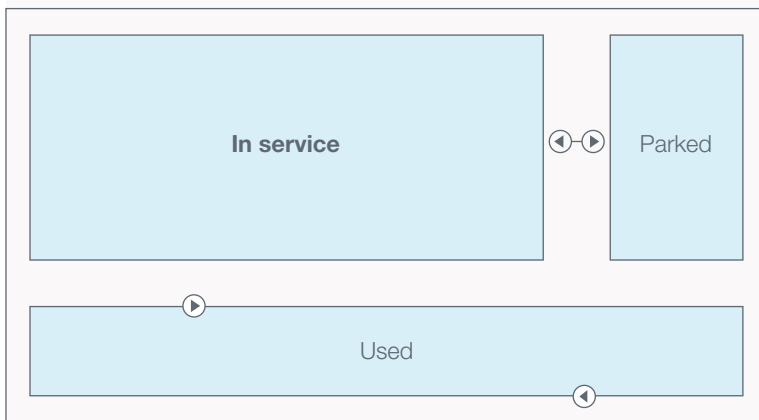


# Flow of Airplanes

## Airplane fleet

How the fleet develops as airplanes are added and removed

**18,580**  
Passenger fleet in 2012



**+**  
**34,430**  
New airplanes

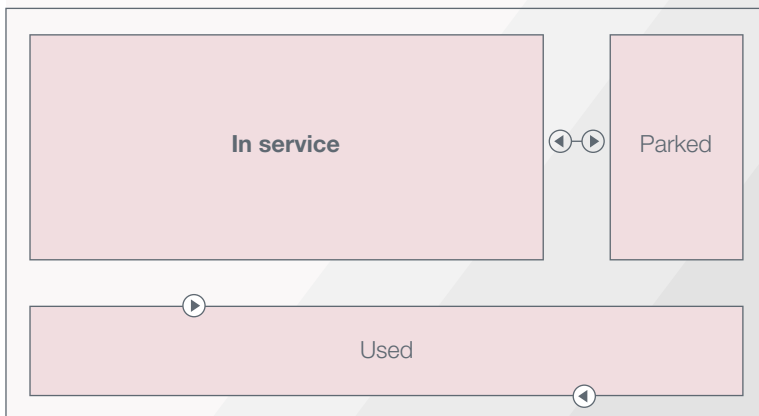
**-**  
**14,580**  
Removed airplanes

**13,130**  
Permanently retired



**38,430**  
Passenger fleet in 2032

**1,730**  
Freighter fleet in 2012

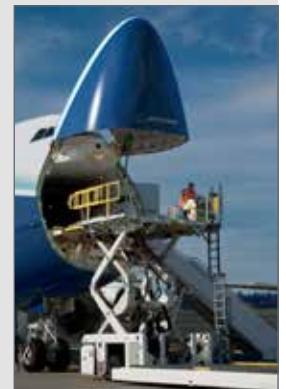


**+**  
**1,450**  
Converted to freighter

**+**  
**850**  
New freighters

**-**  
**1,220**  
Removed freighters

**1,220**  
Permanently retired



**2,810**  
Freighter fleet in 2032



## Fleet by Region

### Fleet growth

By size and region

#### Fleet by airplane size

Size	Airplanes in service 2012	Fleet share 2012	Airplanes in service 2032	Fleet share 2032
Large*	780	4%	910	2%
Medium	1,520	7%	3,610	9%
Small	2,310	12%	5,410	13%
<b>Total widebody</b>	<b>4,610</b>	<b>23%</b>	<b>9,930</b>	<b>24%</b>
More than 175 seats	1,840	9%	5,850	14%
90 to 175 seats	11,200	55%	23,280	56%
<b>Total single aisle</b>	<b>13,040</b>	<b>64%</b>	<b>29,130</b>	<b>71%</b>
<b>Total regional jets</b>	<b>2,660</b>	<b>13%</b>	<b>2,180</b>	<b>6%</b>
<b>Total fleet</b>	<b>20,310</b>	<b>100%</b>	<b>41,240</b>	<b>100%</b>

#### Fleet by region in 2012

Region	Regional jets	Single aisle	Small widebody	Medium widebody	Large widebody	Total fleet
Asia Pacific	130	3,470	660	500	330	5,090
North America	1,710	3,760	710	290	120	6,590
Europe	350	3,160	340	360	180	4,390
Latin America	90	1,050	120	20	0	1,280
Middle East	60	500	230	270	80	1,140
CIS	200	680	170	20	60	1,130
Africa	120	420	80	60	10	690
<b>World</b>	<b>2,660</b>	<b>13,040</b>	<b>2,310</b>	<b>1,520</b>	<b>780</b>	<b>20,310</b>

#### Fleet by region in 2032

Region	Regional jets	Single aisle	Small widebody	Medium widebody	Large widebody	Total fleet
Asia Pacific	420	10,350	2,080	1,550	350	14,750
North America	1,070	6,140	1,040	500	60	8,810
Europe	200	5,930	990	690	200	8,010
Latin America	210	3,150	380	50	0	3,790
Middle East	30	1,420	450	700	250	2,850
CIS	120	1,100	190	70	50	1,530
Africa	130	1,040	280	50	0	1,500
<b>World</b>	<b>2,180</b>	<b>29,130</b>	<b>5,410</b>	<b>3,610</b>	<b>910</b>	<b>41,240</b>

\*Large passenger and large freighter categories differ.



## Major Traffic Flows

### Airline traffic flows By region

#### Airline passenger growth rates 2012 to 2032

RPKs	Africa	Latin America	Middle East	Europe	North America	Asia Pacific
Asia Pacific	7.1%	5.7%	7.3%	5.5%	4.5%	<b>6.5%</b>
North America	5.8%	5.0%	6.4%	3.5%	<b>2.3%</b>	
Europe	4.8%	4.7%	5.0%	<b>3.6%</b>		
Middle East	7.5%	—	<b>5.7%</b>			
Latin America	8.7%	<b>6.9%</b>				
Africa	<b>6.3%</b>					

#### Airline passenger traffic in 2012

RPKs in billions	Africa	Latin America	Middle East	Europe	North America	Asia Pacific
Asia Pacific	17.8	3.8	208.1	323.0	288.4	<b>1,208.1</b>
North America	12.3	191.5	52.8	441.8	<b>978.2</b>	
Europe	140.5	323.0	177.4	<b>710.0</b>		
Middle East	49.0	—	<b>78.3</b>			
Latin America	2.7	<b>195.3</b>				
Africa	<b>55.8</b>					

#### Airline passenger traffic in 2032

RPKs in billions	Africa	Latin America	Middle East	Europe	North America	Asia Pacific
Asia Pacific	70.1	11.6	853.1	934.7	694.5	<b>4,229.2</b>
North America	38.1	504.0	182.5	881.4	<b>1,538.7</b>	
Europe	362.1	426.1	470.6	<b>1,448.0</b>		
Middle East	208.2	—	<b>235.2</b>			
Latin America	14.2	<b>736.1</b>				
Africa	<b>190.7</b>					

**Bold:** Share within region.



## Traffic by Region

### Airline traffic distribution By region

#### Traffic in 2012

RPKs	Asia Pacific	North America	Europe	Middle East	Latin America	Africa
Asia Pacific	<b>59%</b>	15%	16%	37%	1%	6%
North America	14%	<b>50%</b>	23%	9%	34%	4%
Europe	16%	22%	<b>36%</b>	31%	30%	51%
Middle East	10%	3%	9%	<b>14%</b>	—	18%
Latin America	—	10%	9%	—	<b>35%</b>	—
Africa	1%	1%	7%	9%	0%	<b>20%</b>
<b>Total traffic to and from region</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

#### Traffic in 2032

RPKs	Asia Pacific	North America	Europe	Middle East	Latin America	Africa
Asia Pacific	<b>62%</b>	18%	21%	44%	1%	8%
North America	10%	<b>40%</b>	19%	9%	30%	4%
Europe	14%	23%	<b>32%</b>	24%	25%	41%
Middle East	13%	5%	10%	<b>12%</b>	—	24%
Latin America	—	13%	9%	—	<b>44%</b>	2%
Africa	1%	1%	8%	9%	1%	<b>22%</b>
<b>Total traffic to and from region</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

**Bold:** Share within region. Sum data down the table only. Excludes other small flows that are not included in the summary table (less than 1% of each region).

### How to read the tables

Read down the selected column; for example:

- In 2012, traffic within North America accounted for 50% of all the total traffic to, from, within North America.
- In 2032, traffic within North America accounted for 40% of all the total traffic to, from, within North America.



# Airplane Categories

## Passenger and freighter Airplane market sector definitions

### Single-aisle passenger airplanes

#### Regional jets

##### Antonov An-148

##### AVIC ARJ-700

Avro RJ70, RJ85  
BAe 146-100, -200

##### Bombardier CRJ

Dornier 328JET

##### Embraer 170, 175

Embraer ERJ-135, -140, -145  
Fokker 70, F28

##### Mitsubishi MRJ

##### Sukhoi Superjet 100

Yakovlev Yak-40

#### 90 to 175 seats

Boeing 717, 727

Boeing 737-100 through -500

##### Boeing 737-600, -700, -800

##### Boeing 737 MAX 7, MAX 8

##### Airbus A318, A319, A320

##### Airbus A319neo, A320neo

Boeing-MDC DC-9, MD-80, -90

##### AVIC ARJ-900

BAe 146-300, Avro RJ100

##### Bombardier CRJ-1000

##### Bombardier CS100, CS300

##### Embraer 190, 195

##### COMAC C919

Fokker 100

UAC MS 21-200 -300

Ilyushin IL-62

Tupolev TU-154

Yakovlev Yak-42

#### More than 175 seats

Boeing 707, 757

##### Boeing 737-900ER

##### Boeing 737 MAX 9

##### Airbus A321

##### Airbus A321neo

##### Tupolev TU-204, TU-214

##### UAC MS21-400

### Widebody passenger airplanes

#### Small

Two class: 230 to 340 seats  
Three class: 200 to 300 seats

##### Boeing 767, 787

Boeing-MDC DC-10  
Airbus A300, A310

##### Airbus A330-200, -300\*\*

##### Airbus A350-800, -900\*\*

Lockheed L-1011

##### Ilyushin IL-96

#### Medium

Two class: 340 to 450 seats  
Three class: 300 to 400 seats

##### Boeing 777

Boeing-MDC MD-11

##### Airbus A340

##### Airbus A350-1000

Ilyushin IL-86

##### Boeing 787-10

#### Large\*

Three class: more than 400 seats

##### Boeing 747-8

Boeing 747-100 through -400

##### Airbus A380

### Freighter airplanes

#### Standard body

Less than 45 tonnes

BAe 146

Boeing-MDC DC-8, -9

Boeing 737

Boeing 727

Tupolev TU-204

Boeing 707

Boeing-MDC MD-80

Boeing 757-200

Airbus A318, A319, A320, A321

#### Medium widebody

40 to 80 tonnes

Boeing 767

Lockheed L-1011SF

Boeing-MDC DC-10

Boeing 787

Airbus A300

Airbus A330

Ilyushin IL-76TD

#### Large\*

More than 80 tonnes

Boeing-MDC MD-11

Boeing 747-100 through -400

Boeing 777

Airbus A350

Ilyushin IL-96T

Antonov An-124

747-8F

**Bold:** Airplanes in production or launched. Production and conversion (SF) models assumed for each type unless otherwise specified.

\*Large passenger and large freighter categories differ. \*\*A330-300 and A350-900 moved from the medium category to the small category.



## Opinion and Feedback

### We value your opinion

Please provide your name, position, company, and address below, or attach your business card.

### Feedback

What do you think?

#### Your perspective

- What will be the main factors to affect future air transport markets?
- What will be the likely impact of these factors?

#### Your feedback

- What do you think of web-only access to forecast information (with a PDF for you to print locally)?
- If you have used the interactive forecast database on our website, tell us what you think of it.
- What areas would you like to see covered in more detail in the *Current Market Outlook*?
- What additional data would you like us to make available?
- What did you find most valuable?
- Was there anything you disliked?

### Send your comments to us

Our contact details are below.

#### Your comments

Any other questions or comments?

#### Website

[www.boeing.com/cmo](http://www.boeing.com/cmo)

#### Forecast database

[www.boeing.com/cmo/data](http://www.boeing.com/cmo/data)

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