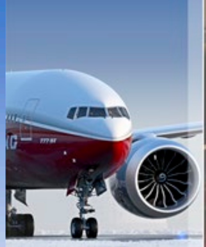
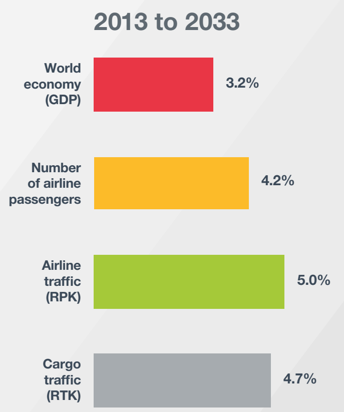
Current Market Outlook

2014–2033

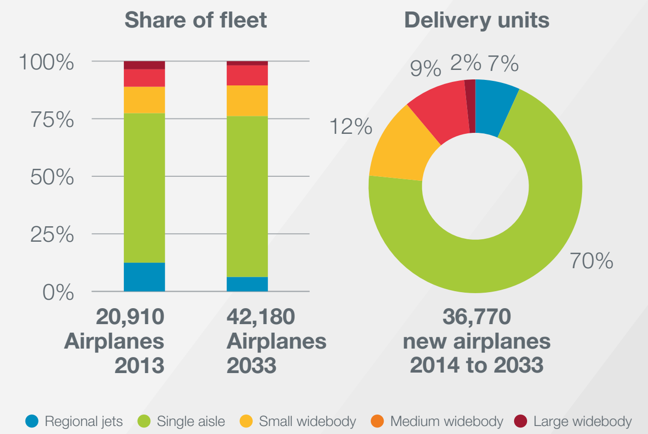
Outlook on a page



World regions
Market growth rates



World regions
Market value: $5.2 trillion



World regions
Key indicators and new airplane markets

Regions		Asia Pacific	North America	Europe	Middle East	Latin America	CIS	Africa	World
World economy	(gross domestic product [GDP])%	4.4	2.5	1.9	3.8	3.9	3.3	4.7	3.2
Airline traffic	(revenue passenger-kilometers [RPK])%	6.3	2.9	3.9	6.4	6.2	4.4	5.9	5.0
Cargo traffic	(revenue tonne-kilometers [RTK])%	5.5	3.4	3.5	5.9	5.3	4.0	6.1	4.7
Airplane fleet	%	5.2	1.6	2.9	5.4	4.8	2.2	3.6	3.6
Market size									
Deliveries		13,460	7,550	7,450	2,950	2,950	1,330	1,080	36,770
Market value	($B)	2,020	870	1,040	640	340	150	140	5,200
Average value	($M)	150	120	140	220	120	110	130	140
Unit share	%	37	21	20	8	8	4	3	100
Value share	%	39	17	20	12	7	3	3	100
New airplane deliveries									
Large widebody		210	20	60	300	0	30	0	620
Medium widebody		1420	510	590	790	40	60	50	3460
Small widebody		1940	630	810	460	360	90	230	4520
Single aisle		9,540	4,820	5,870	1,360	2,360	990	740	25,680
Regional jets		350	1570	120	40	190	160	60	2490
Total		**13,460**	**7,550**	**7,450**	**2,950**	**2,950**	**1,330**	**1,080**	**36,770**
Market value (2013 $B catalog prices)									
Large widebody		80	10	20	120	0	10	0	240
Medium widebody		480	170	190	270	10	20	20	1160
Small widebody		490	140	220	120	90	30	50	1140
Single aisle		960	490	600	130	230	80	70	2560
Regional jets		10	60	10	<5	10	10	<5	100
Total		**2,020**	**870**	**1,040**	**640**	**340**	**150**	**140**	**5,200**
2013 fleet									
Large widebody		290	100	180	100	0	60	10	740
Medium widebody		520	320	360	280	20	20	60	1,580
Small widebody		710	730	350	220	120	180	80	2,390
Single aisle		3,820	3,790	3,120	520	1,160	740	430	13,580
Regional jets		130	1,710	340	60	80	180	120	2,620
Total		**5,470**	**6,650**	**4,350**	**1,180**	**1,380**	**1,180**	**700**	**20,910**
2033 fleet									
Large widebody		270	80	110	270	0	60	0	790
Medium widebody		1,500	560	640	770	50	90	70	3,680
Small widebody		2,250	920	980	570	430	160	260	5,570
Single aisle		10,850	5,950	5,830	1,680	2,840	1,350	1,000	29,500
Regional jets		350	1,610	150	70	210	160	90	2,640
Total		**15,220**	**9,120**	**7,710**	**3,360**	**3,530**	**1,820**	**1,420**	**42,180**

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

Long-term forecast

Purpose of the forecast

The *Current Market Outlook* is our long-term forecast of air traffic volumes and airplane demand. The forecast helps shape our product strategy and guide long-term business planning. We have shared the forecast with the public for more than 50 years to inform decisions by airlines, suppliers, and the financial community.

We start fresh every year, factoring 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 passenger-to-freighter conversions.

Effects of market forces

The aviation industry continually adapts to market forces. Key among these are fuel prices, economic growth and development, environmental regulations, infrastructure, market liberalization, airplane capabilities, other modes of transport, business models, and emerging markets. Fuel is now the largest component of airline cost structure. This fact has spurred manufacturers to produce more efficient airplanes, such as the 787 and the 737 MAX, and encouraged airlines to optimize other cost and revenue centers to maintain profitability in the face of high fuel prices.

Our long-term forecast incorporates the effects of market forces on the development of the aviation industry. Economic growth, as measured by gross domestic product (GDP), is a primary contributor to aviation industry growth. GDP is forecast to rise 3.2 percent over the next 20 years, which will drive passenger traffic to grow 5.0 percent annually and cargo traffic (which also depends on global trade) to grow 4.7 percent annually.

Shape of the market

We forecast long-term demand for 36,770 new airplanes, valued at $5.2 trillion. We project that 15,500 of these airplanes (42 percent of all new deliveries) will replace older, less efficient airplanes. The remaining 21,270 airplanes will be for fleet growth, which stimulates expansion in emerging markets and development of innovative airline business models. Single-aisle airplanes continue to command the largest share of the market. Approximately 25,680 new single-aisle airplanes will be needed over the next 20 years. Fast-growing low-cost carriers and network carriers pressed to replace aging airplanes drive single-aisle demand. The widebody fleet will need 8,600 new airplanes. The new generation of efficient widebody airplanes is helping airlines open new markets that would not have been economically viable in the past.

Current Market Outlook
2014 – 2033

Randy Tinseth introduces the 2014 **Current Market Outlook**

Airplanes in service
2013 to 2033

Size	2013	2033
Large widebody	740	790
Medium widebody	1,580	3,680
Small widebody	2,390	5,570
Single aisle	13,580	29,500
Regional jets	2,620	2,640
Total	**20,910**	**42,180**

Demand by size
2014 to 2033

Size	New airplanes	Value ($B)*
Large widebody	620	240
Medium widebody	3,460	1,160
Small widebody	4,520	1,140
Single aisle	25,680	2,560
Regional jets	2,490	100
Total	**36,770**	**5,200**

*$ values though out the CMO are catalog prices.

Key indicators
2013 to 2033

Growth measures (%)	
World economy GDP	3.2
Airplane fleet	3.6
Number of passengers	4.2
Airline traffic RPK	5.0
Cargo traffic RTK	4.7

Demand by region
2014 to 2033

Region	New airplanes	Value ($B)
Asia Pacific	13,460	2,020
Europe	7,450	1,040
North America	7,550	870
Middle East	2,950	640
Latin America	2,950	340
CIS*	1,330	150
Africa	1,080	140
Total	**36,770**	**5,200**

*Commonwealth of Independent States.

Business and market environment

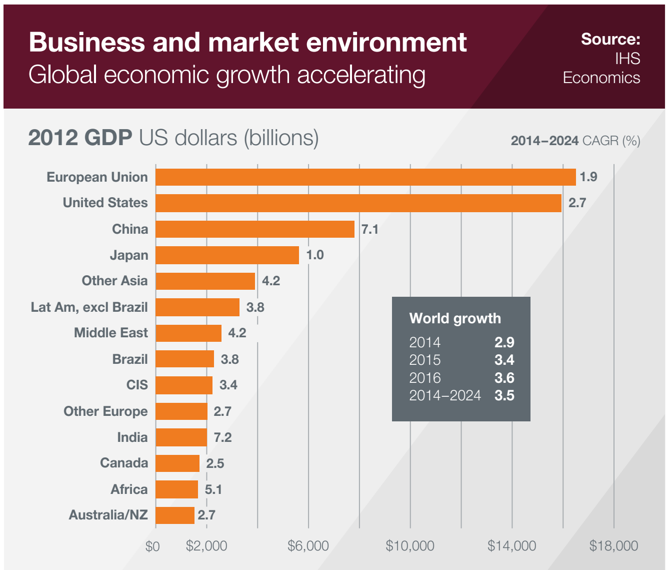
Global economic growth lagged the long-term average rate for the second straight year in 2013. However, signs of acceleration appeared in the second half of 2013, boosting confidence in predictions that better performance in North America and Western Europe will lead a gradual upward trend during 2014 and 2015. Recent data on US jobless claims, retail sales, industrial production, new home sales, and household finances support forecasts for a return to the long-term growth average. The European economy began to grow again in the second half of 2013, following five quarters of recession. Rising consumer and business confidence, low interest rates, improving export markets, and pent-up demand for durables are projected to extend the strengthening trend through 2014 and into 2015.

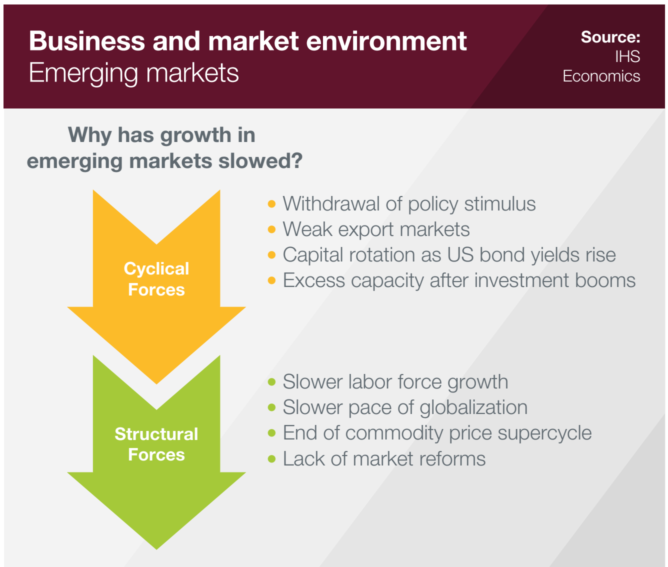
Emerging markets

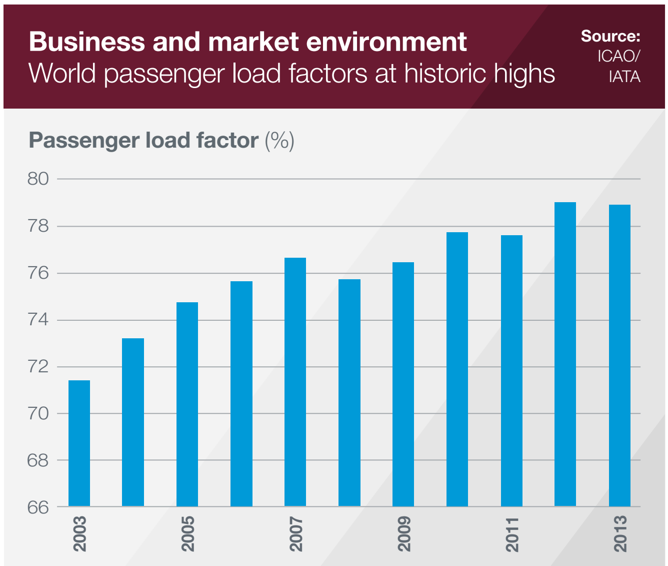
Growth in many emerging markets continues to outpace that in developed economies. Momentum has slowed, however, in recent quarters, with weakened demand from developed economies and withdrawal of government stimulus. Strengthening demand in Europe and the United States is expected to boost exports from emerging economies. Economic prospects in Asia will be shaped by capital rotation out of emerging markets, key elections in several countries, and the pace of domestic macroeconomic reforms. Rapid credit expansion in China has created vulnerabilities in real estate, banking, and local government, but government spending and fiscal policies support near-term growth. Elections in India and Indonesia should help resolve policy uncertainties, which will support stronger economic growth. The outlook for consumer spending in Asia is bright, thanks to robust income growth and deepening financial markets. In emerging markets outside Asia, commodity prices, political stability, and government response to inflationary pressures driven by weakening currencies will be key watch items.

IHS Economics forecasts an extended period of strong performance. There is a growing chance that pent-up business and household demand and idle production capacity in many parts of the world will fuel above-trend growth over the next several years, resulting in an upside growth surprise. Structural reforms will be key to sustaining these prospects.

Airline passenger traffic sustained a growth rate slightly above 5 percent during 2012 and 2013, despite consecutive years of weak global GDP growth. The global airline industry grew at or above the long-term growth rate on sound fundamentals. Productivity continues to increase, with historically high airplane utilization and passenger load factor. In 2013, load factor was 79 percent, showing that airlines are matching demand without oversupplying capacity. Unit revenue (passenger revenue per available seat-kilometer) was stable at the global level in 2013, indicating that airlines did not cut fares to fill seats. Unit cost was downslightly Better unit revenue, combined with reduced unit cost indicates a more profitable industry.







Business and market environment, continued

Airline traffic in developed economies grew at a respectable pace in 2013, although mature markets generally lag the world average. Economic growth was flat in Europe, but the region's passenger traffic increased nearly 4 percent from 2012. Profitability was sluggish, however, as network carriers restructured to compete with low-cost carriers in short-haul markets and sixth-freedom carriers in long-haul markets. In North America, consolidation and capacity discipline held growth to about 2 percent, but airline earnings in the region lead the global industry with an estimated $7 billion net profit. Their performance is expected to climb to $9 billion in 2014, representing approximately half the entire industry's projected profit.

Overall, emerging markets, led by China and the Middle East, continue to grow faster than the global average, with double-digit traffic growth. Some emerging markets, however, such as Brazil and India, have seen slower growth owing to recent economic softness and volatile exchange rates that reduced traveler purchasing power. Weakening currencies in many emerging markets have also quickly and materially raised airline costs, such as jet fuel and financing, which are generally priced in US dollars. These higher costs, combined with growing competition, have led to near-term profit challenges for many emerging market airlines. Longer term prospects remain bright, however, as a result of the strong demand outlooks associated with growing middle classes and liberalizing air travel markets.

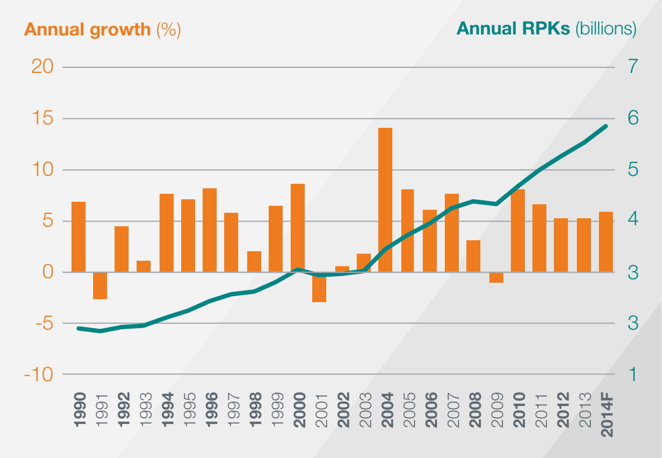
Air cargo traffic

From 1993 to 2008, air cargo traffic averaged 5.4 percent annual growth. Annual growth has slowed to about 1 percent since 2008, however. The deep recession followed by a weak recovery in developed economies strongly curbed trade and air cargo growth. Although some countries took protectionist measures during the downturn, very few became more closed. Opportunities for trade liberalization are not exhausted. There is little evidence to indicate that supply chains are becoming less global. High-value merchandise trade is forecast to expand approximately 5 percent per year through 2030, which should bolster air cargo traffic. Traffic began to accelerate during the fourth quarter of 2013 and first quarter of 2014, which may herald a long-awaited recovery in air cargo.

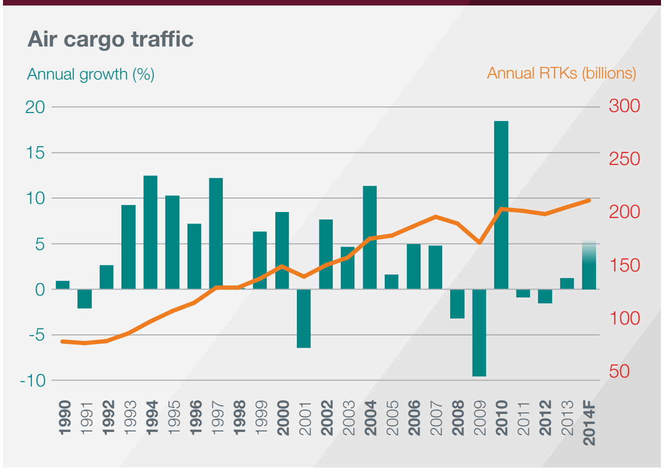
Returning profitability

Global airline industry net profits were an estimated $10.6 billion in 2013, up from $6.1 billion in 2012. Net profit for 2014 is forecast to improve further to $18 billion as economic growth accelerates and fuel prices remain stable. Brent oil prices have generally traded in the range of $110 plus or minus $5 per barrel since mid-2012. The broad trend has been relatively stable, with only very short-term volatility in response to specific events such as Middle East unrest or economic news from Europe or the United States. Inflation-adjusted price forecasts are largely stable into the middle of the decade, reflecting increased projected supply,

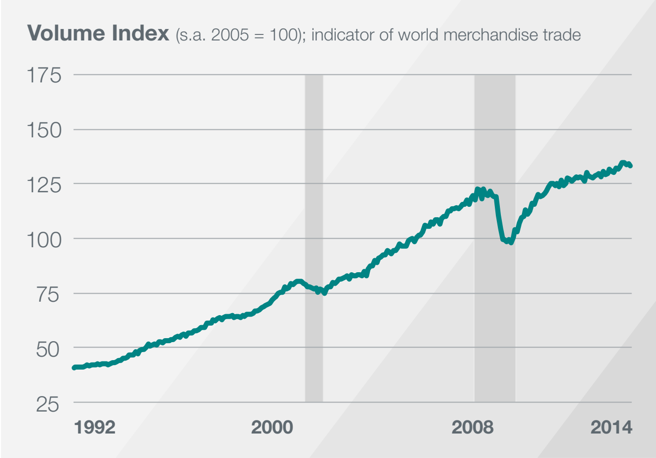
Business and market environment
Passenger traffic is resilient
Source: ICAO



Business and market environment
Cargo market slowly starting to rebound
Source: IATA / ICAO



Business and market environment
Momentum slow after 2010 may be picking up
Source: CPB



Business and market environment, continued

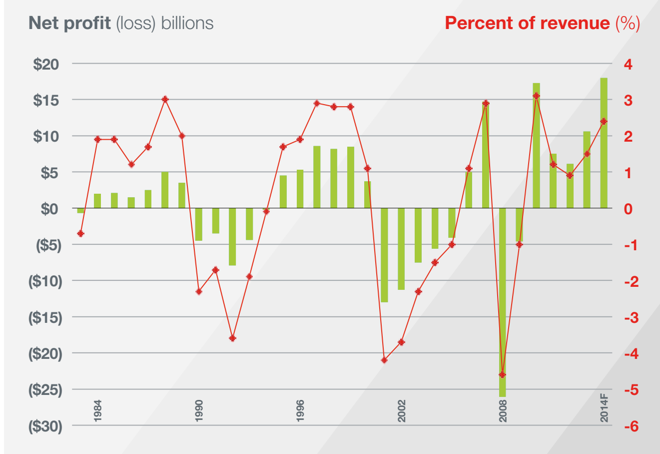
based on US oil shale production and prospects. Although forecasts anticipate upward price pressure from supply-and-demand dynamics in the longer term, the trajectory has moderated from forecasts made just a few years ago.

Airlines continue to focus on boosting revenue through alliances and partnerships and by raising fees and charging for ancillary services. Sources for ancillary revenue include fees for baggage, ticket change, extra amenities, annual subscriptions to premium services, frequent flyer programs (FFP), and even onboard duty-free sales. Some of the more innovative sources (such as annual subscriptions and FFP products like branded credit cards) generate handsome margins for the airlines and promote brand loyalty. US carriers lead the industry in ancillary revenue, earning about 5 percent of total passenger revenue from ancillary services. Among LCCs, the share of ancillary revenue far surpasses the US industry average. Nearly 40 percent of Spirit Airlines operating revenue comes from ancillary services. Such strategies helped the airlines improve profitability in 2013, despite below-average global economic growth.

Improved profitability is allowing airlines to increase strategic investment for future growth. Airlines are boosting investments to enhance their customer product offering and operating efficiencies. For example, in addition to new airplanes, airlines are investing in new information and mobile technology, upgraded cabin interiors for higher levels of service, and additional seats to improve unit costs. Some airlines are increasing equity investment in other airlines and cross-border partnerships to solidify and expand networks. Reinvestment of profit into airline products enhances the long-term growth prospects for the industry.

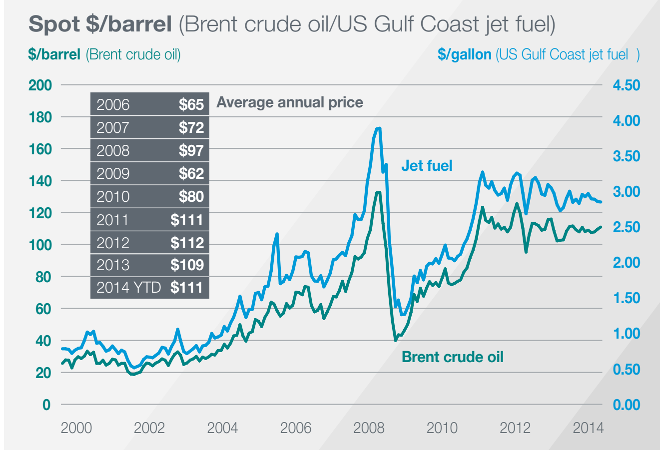
Business and market environment
Airlines managing economic uncertainty

Source: ICAO/IATA



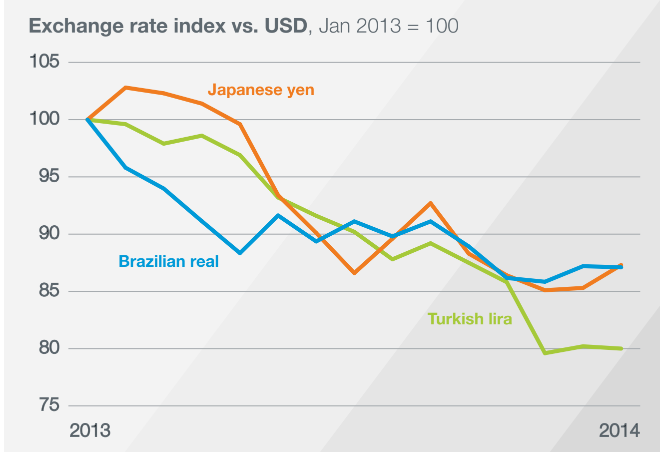
Business and market environment
Oil prices to remain elevated, but stable

Source: EIA



Business and market environment
Exchange rate fluctuations affect profits

Source: Pacific Exchange Rate Service



Airline strategies and business models

Airline strategies and business models

Strategic planning is a continual process for airlines. Plans must take into account the challenging and ever-changing competitive environment as well as how passengers define value. For example, business travelers are sensitive to flight times and expect a high level of service. Short-haul business travelers tend to be more sensitive to ticket prices than long-haul business travelers. Leisure travelers are more sensitive to price but less demanding about service levels.

Deregulation has had a significant impact on airline strategies during the past several decades. As regulations on commercial aviation relax, airlines gain freedom to vary fares in response to competition and demand, develop network and schedule planning, and manage other key aspects of airline business. Deregulation has helped stimulate traffic and network growth, and the resulting competition provides increased choice to travelers. Airline business models continue to evolve in order to adapt to the dynamic marketplace.

Low-cost carrier business model

The low-cost carrier (LCC) business model has grown tremendously over the past two decades. Successful LCC pioneers include Southwest Airlines in the United States and Ryanair in Europe. The LCC model focuses on business and operational practices that drive down airline costs. Typical cost-saving practices include operating at secondary airports, flying a single airplane type, increasing airplane utilization, relying on direct sales, offering a single-class product, avoiding frequent-flyer programs, and keeping labor costs low. Such tactics helped LCCs reduce unit cost by 20 percent to 40 percent compared with network carriers. Their lower cost structure allows LCCs to reduce fares, which significantly stimulates traffic. Thus, the LCC model has proved successful throughout the world and has driven the growth of air travel.

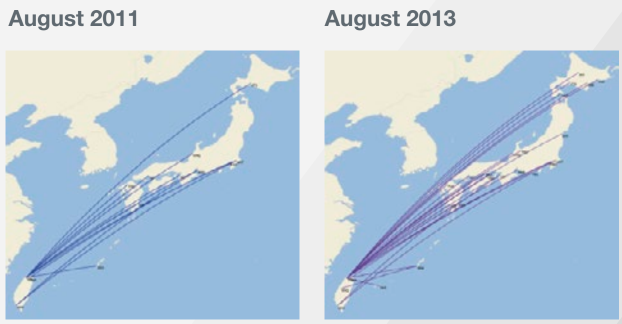
Recently, many LCCs have diverged from traditional LCC tactics. Customer expectations, regional variations, and competition have forced LCCs to adapt to new challenges. In today's market, it is not difficult to find an LCC flying multiple airplane types, operating at primary airports, or offering frequent-flier programs. Other variations include using global distribution systems, offering more frills to passengers, or even flying medium- to long-haul routes. Despite these developments, the LCC model and LCC profitability continue to grow.

Network carriers

At the other end of the spectrum, network carriers include the largest airlines in the world, such as United, Air France, and JAL. Network carriers tend to have major hub operations for domestic, regional, and international services; large, complex fleets; airline alliances; and a broad array of service offerings, such as airport lounges, onboard meals, and multiple cabin classes. Hub operations significantly increase network reach and allow carriers to offer convenient one-stop connections around the globe.

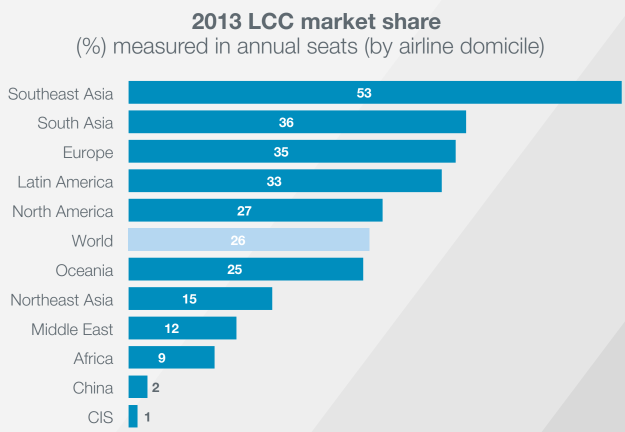
Airline strategies and business models
Destinations doubled since Japan-Taiwan Open Skies*

Source: Diio/Innovata



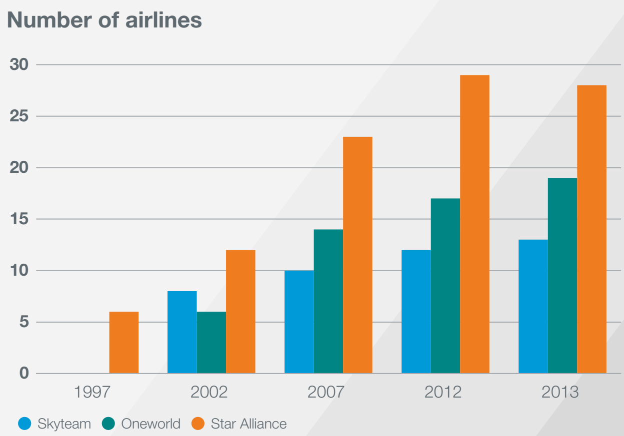
Airline strategies and business models
LCCs provide a large share of capacity

Source: Diio/Innovata 2013, jet only

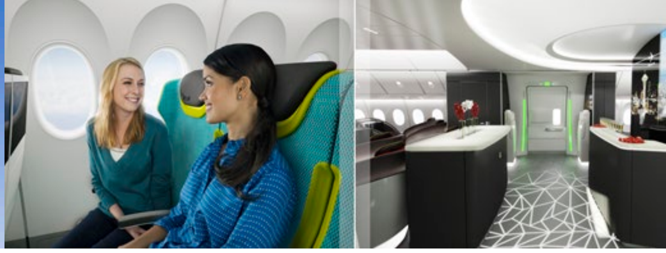


Airline strategies and business models
Airlines continue to find benefits with alliances

Source: OAG



Airline strategies and business models, continued



Some carriers use the geographical advantage of their location to funnel both short- and long-haul traffic through their hubs. Examples include Emirates in the Middle East and Copa Airlines in Latin America. These carriers have grown strongly in recent years and plan continued expansion in the coming decade.

Less common business models include airlines that specialize in charter or inclusive tour operations. Some regional carriers operate smaller airplanes to serve airports that are unserved or underserved by major airlines.

Cargo models

Carrying freight and mail gives airlines revenue opportunities beyond transporting passengers. Air cargo is commonly used for shipments of high-value, time-sensitive, or perishable goods that are not well suited for surface transportation. Many airlines carry cargo in the lower hold of passenger jets. Some operate dedicated freighters in addition to passenger airplanes. And a handful of airlines, including express carriers that provide fully integrated logistic services for businesses and consumers, focus exclusively on air cargo. The air cargo business differs in many respects from the passenger business. In particular, air cargo flows are more directional than passenger flows: passengers generally travel round trip, but air cargo does not. Therefore, network strategies for cargo operations differ significantly from passenger network strategies.

Partnerships and alliances

Airline partnerships, either full alliances or other cooperative arrangements, have become powerful tools for expanding networks, enhancing revenue, and reducing costs. Code sharing is a common partnering tactic, and code-sharing routes have grown nearly 8 percent annually during the past decade. The three major alliances (Star Alliance, SkyTeam, and oneworld) now provide more than 60 percent of global capacity. Many airlines have also entered joint ventures, some with antitrust immunity that allows them to operate more closely on applicable routes.

Airlines are also taking equity stakes in other airlines as a growth strategy. Partial acquisitions, full mergers, and cobranded subsidiaries are typical examples. These strategies are effective for opening new markets, obtaining new traffic, and rationalizing costs. Airline mergers have catalyzed industry consolidation and enabled participants to remain competitive. Creating subsidiaries has allowed airlines to expand their brands to foreign countries and to stay within foreign-ownership regulation limits. All of these tactics have contributed to the profitable growth of the industry.

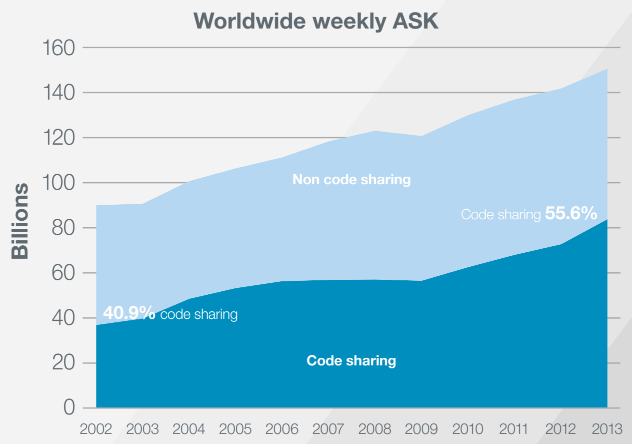
Airline strategies and business models
Middle East hubs are well situated geographically

Source: IATA

*80% of population is within an 8 hour flight from Middle East hubs

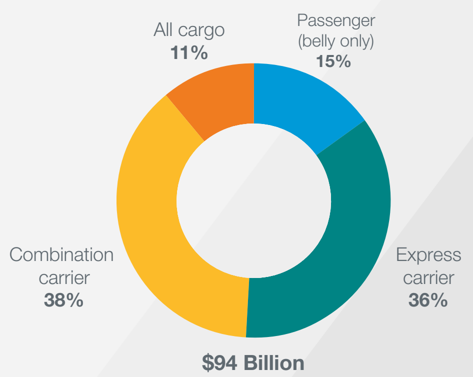
Airline strategy and business models
Codeshare growth outpaces overall growth

Source: August OAG



Airline strategies and business models
85% of cargo revenue by freighter operators

Source: ATI, US DOT



Network and hub analysis

Network and fleet planning

Airline networks constantly evolve as airlines strive to compete effectively and grow efficiently in the dynamic air transport market. Key network growth strategies include the increase of frequencies, expansion into new markets, and development of hubs. Each of these strategies enables airlines to capture greater market share and serve a broader traffic base.

Frequency growth

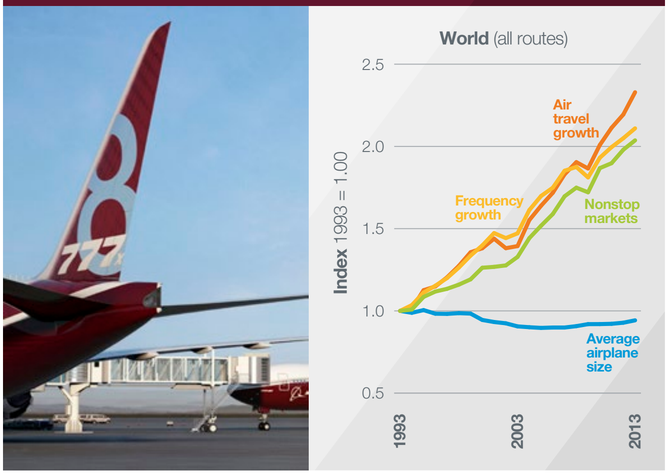
Frequency is a key driver of network growth, particularly in the competition for business travelers. Daily service is crucial to gaining a foothold in a market. Established airlines can generate incremental market share by increasing frequencies because offering additional opportunities to fly makes an airline's network more attractive to schedule-conscious business travelers. Increased frequency also boosts connectivity within hub networks, thereby multiplying the number of city pairs that can be linked. For example, over the past decade, increasing frequencies in existing markets has driven 60 percent of domestic market growth in China.

Frequency growth has begun to slow in some maturing networks as markets reach saturation, where nearly every available time slot is covered by nonstop flight options. In these networks, there is a modest trend toward increasing the number of available seats in particular markets by substituting a larger member of an airplane family for a smaller one. For example, airlines around the world are using larger 737-800 airplanes where 737-700 or 737-400 airplanes had served, as they leverage the versatility and efficiency of these fleets across stage lengths and makre types Airlines are also boosting the seat count of existing airplanes by installing new-technology seats that require less room and so allow additional seat rows. Over the past 20 years, the average capacity of single-aisle airplanes has increased by about 20 seats, to approximately 160 seats per airplane. We project that trend will continue during the next decade as airlines optimize airplane configurations for unit cost efficiency and demand for seats, while also preserving flexibility for cyclical demand and competitive dynamics

Growth strategies

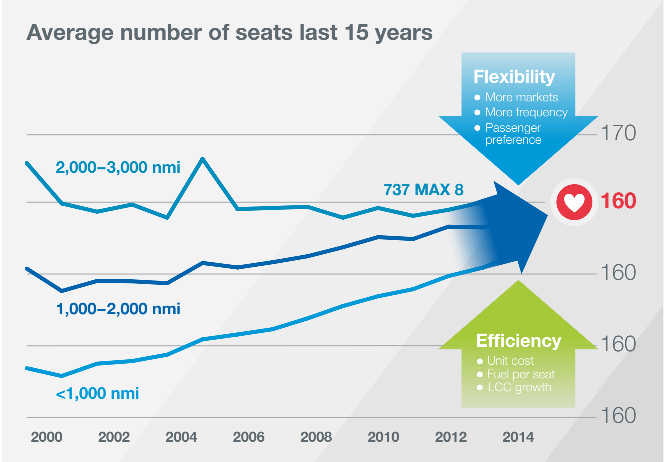
Expansion into new markets has the greatest impact on network growth. Adding new destinations to an airline's network provides access to new revenue streams and often accelerates economic development in the newly connected markets. The development of new domestic and regional routes in emerging aviation markets stimulates economic growth within the region as a result of the commerce that increased passenger traffic generates. The delivery of new, more efficient long-range airplanes in an array of sizes is enabling airlines to match airplane capacity to market demand much more precisely, which in turn, makes it possible to serve new long-distance city

Network and hub analysis
Growth met by increased frequencies and nonstops



Network and hub analysis
Average airplane converging on 160 seats

Source: Flightglobal Ascend Online Database



Network and hub analysis
787 opening new markets around the world

Network and hub analysis, continued

pairs that were not economical in the past. In fact, more than 21 new nonstop routes, including Tokyo-to-Dusseldorf, London-to-Austin, San Francisco–to-Chengdu, and Beijing-to-Boston, have been launched in the past 3 years alone, using the 787.

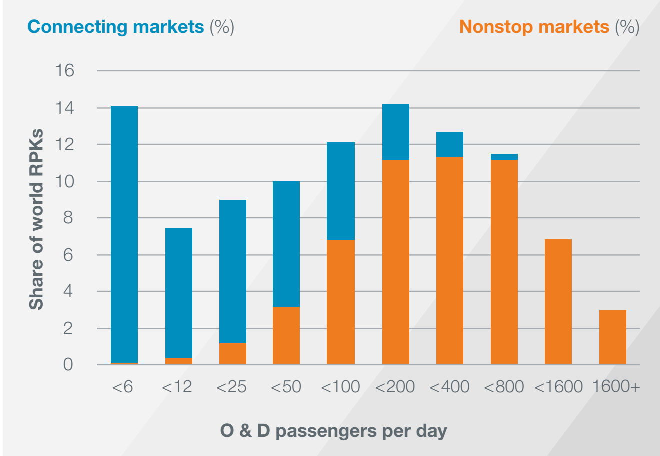
These growth strategies play a role in the development of hub-based and point-to-point networks. Airlines borrow freely from both models in the continual effort to optimize schedules for maximum revenue and operational efficiency. Airlines with global networks are strengthening schedule connections to maximize traffic and revenue as the trend toward smoothing traffic peaks at hubs, which took hold during the past decade, softens. Airlines, such as the Gulf carriers that take advantage of sixth-freedom connecting power, continue to expand their hubs and networks. Similarly, point-to-point airlines are connecting more city pairs in their networks with nonstop links to maximize airplane utilization and increase both point-to-point and connection traffic moving through their systems.

Structural and competitive challenges
In addition, airlines continuously react to structural and competitive challenges. Short-haul networks in some regions, including China and Europe, face pressure from high-speed rail alternatives, which sometimes requires rebalancing of capacity and redeployment of the fleet to support market expansion in sectors with longer routes. Networks also constantly adapt to pressures from the expansion of competitor networks and from mergers, acquisitions, or alliance partnerships among competing airlines. The most successful airlines blend frequency growth and network expansion to develop and compete profitably.

Strategic planning
To succeed, network strategies must be accompanied by effective fleet plans. Historically high airplane manufacturer backlogs, for single-aisle and widebody airplanes alike, make proactive planning essential to long-term competitive advantage. Airlines link their network strategies to their long-term requirements for airplane replacement and fleet growth to create the most efficient, capable, and flexible fleet. The global leased fleet has now surpassed 40 percent of the total fleet as airlines seek to increase fleet flexibility, obtain near-term growth capacity, and balance their capital expenditures.

The dynamics of the marketplace keep airline networks in a constant state of flux as they adjust to economic conditions, new capabilities of the latest generation of airplanes, and the evolving air transport industry. Airlines will rely increasingly on proactive strategic planning that links network development goals with airplane procurement requirements to realize long-term competitive advantage and achieve optimal network development potential.

Network and hub analysis
Networks are best for serving small markets



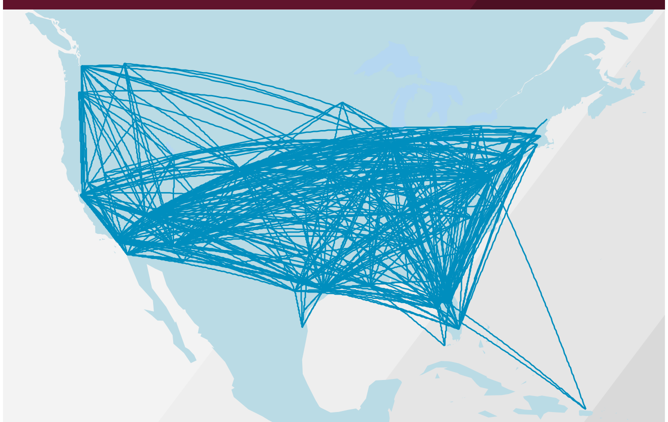
Network and hub analysis
Maximize passengers in networks*

Source:
OAG
August 2013

*Network carriers use hubs to maximize passengers in their networks

Network and hub analysis
Point-to-point service*

Source:
OAG
August 2013



*Point-to-point increases connectivity in an airlines network

Technology and capabilities

Technology and capabilities
Development of commercial aviation technology is aimed largely at improving airplane operating economics, which directly affect airline profitability. Fuel is expected to remain the largest component of airplane operating cost, so technology development efforts focus strongly on reducing fuel consumption. The latest generation of Boeing airplanes, including the 787, 747-8, and the upcoming 737 MAX and 777X, reduce fuel consumption by double-digit percentages compared with earlier-generation airplanes.

Developments in engine technology made possible by advances in materials, aerodynamics, and manufacturing techniques drive much of the improvement. Advances in wing design also contribute to better fuel efficiency. The use of composites in the 787 and 777X wings permitted aerodynamic improvements that could not be achieved using conventional materials. The Boeing Advanced Technology Winglet on the 737 MAX optimizes the performance of the single-aisle airplane's wing. Improved engines, aerodynamics, and systems also reduce noise by as much as 30 percent in the case of the 747-8.

Many developments that reduce fuel use also improve range and payload capabilities. Increased range capability enables airlines to expand the connectivity of their global networks. Increased payload capability allows airlines to carry additional passengers and revenue cargo, which improves profit potential on a given route. For example, a growing number of airlines are increasing passenger revenue by taking advantage of the flexibility of the 777-300ER interior configuration to install 10-abreast economy class seating.

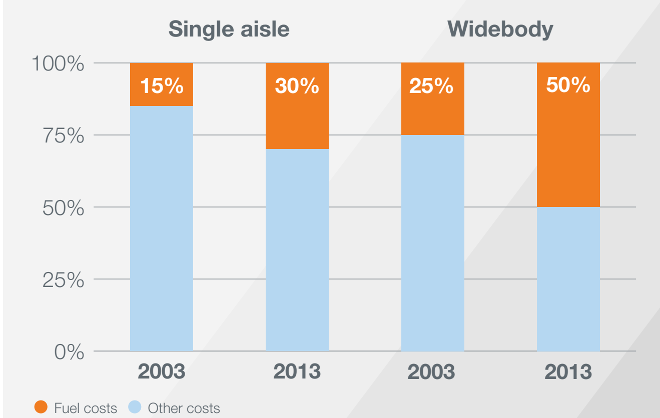
Innovative interiors enable airlines to carry more passengers while improving passenger experience. For instance, larger and higher windows, sculpted sidewalls, and higher ceilings give a cabin interior a more spacious feel. Larger bins that are easier to open and close are more convenient for the crew and enhance passenger experience. The 787 maintains cabin pressure equivalent to that at 6,000 feet of altitude, with improved air purity and more comfortable cabin humidity than earlier airplanes. Developments such as the innovative, flexible lighting on the 787 help airlines differentiate their brands in creative ways that make flying more enjoyable.

Airlines are also increasingly looking to information technology (IT) solutions to improve operational efficiency, decrease costs, improve customer service, and increase safety. Increased communications connectivity and improved mobile technologies are helping IT solutions penetrate every aspect of airline operations, including maintenance and engineering, ground, and in-flight operations.

Technology and capabilities
Reduced costs, improved performance

Evolving and **innovative technologies** are reducing costs and **improving performance** and operations.

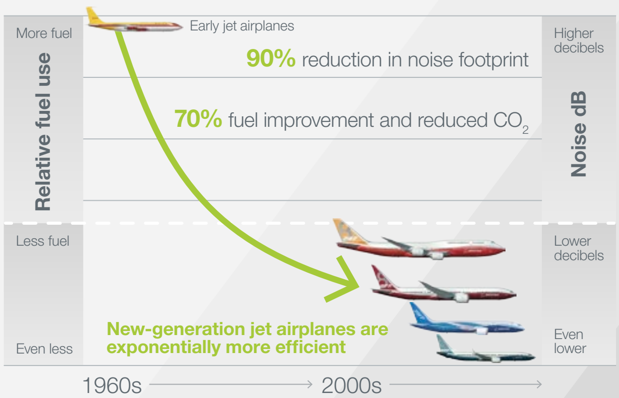
Technology and capabilities
Fuel has doubled as a percentage of airline costs



Cash operating cost, typical rules, representative aircraft

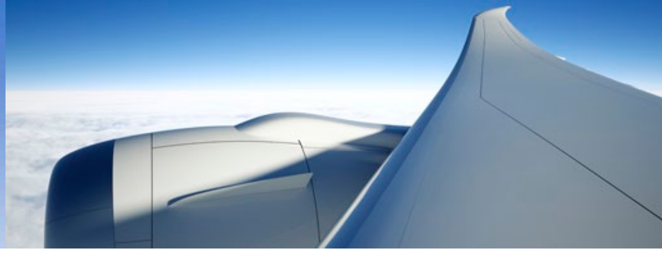
Technology and capabilities
Track record of significant progress

Source: US DOT



Noise footprint based on 85 dBa.

Technology and capabilities, continued



Maintenance and engineering

Airlines are seeking airplane and engine health management solutions that provide better prognostic capabilities. The ability to predict maintenance events and connect with maintenance operations during flight can minimize the number and duration of flight disruptions. Improved disruption management solutions can reduce the systemwide effect of delays and cancellations. Digital delivery of maintenance manuals and other technical information, updates, technical authoring tools, and data conversion technologies all improve the efficiency and accuracy of airline maintenance operations. Supply-chain solutions using optimized inventory management and parts procurement solutions can also reduce operating costs. In some cases, new aircraft technology is driving airlines to improve their own technology and capabilities. The latest airplanes, such as the Boeing 787, use vastly more loadable software airplane parts (LSAP), but the traditional method of using floppy disks to load LSAPs is becoming obsolete, pushing airlines to upgrade technology on the ground and in the air.

In-flight operations

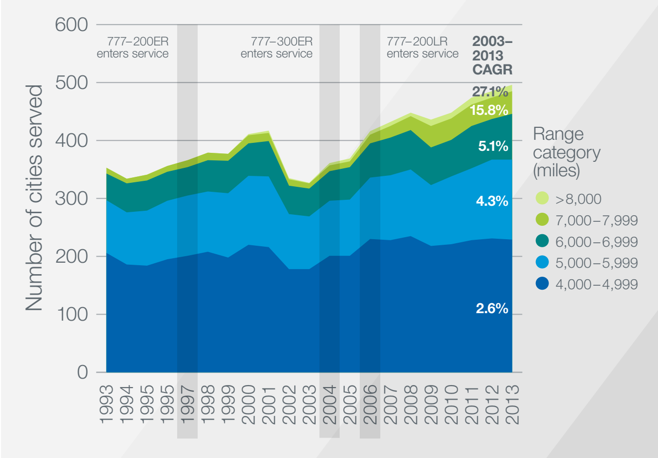
The trend toward in-flight connectivity is evident in the rapidly increasing use of mobile devices such as tablets and smart phones by the flight crew and cabin crew. Electronic flight bags have been in use for decades, but improved connectivity now allows pilots to quickly upload the latest navigation charts to their devices and monitor weather in flight, adjust flight plans to optimize fuel use, use moving runway and taxiway maps for improved situational awareness, and use a wide variety of applications to improve crew productivity and enhance safety. Cabin crew members use mobile devices with in-flight connectivity for onboard sales (including verification of credit cards to eliminate fraud), passenger services, and crew communication and to access crew reporting tools. The growing prevalence of personal electronic devices among passengers could eventually allow airlines to eliminate costly and weighty in-flight entertainment systems in favor of streamed content as onboard Wi-Fi speeds improve.

Airline planning and ground operations

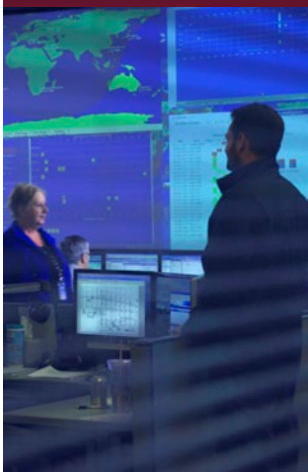
IT advances can touch all parts of the airline planning cycle. Airline planners and ground operations suppliers can take advantage of new technologies that allow airlines to react quickly to ever-changing situations, including crew legality, weather, and airport traffic congestion. IT solutions help airlines optimize activities in real time as the operational environment changes. Mobile solutions that connect applications that assist baggage handlers, gate agents, caterers, fuel providers, and passengers on the ground will become more important as airlines strive to reduce flight disruptions and maximize airplane utilization to gain the greatest return on their investment.

Technology and capabilities
Increased capabilities allow airlines to grow

Source: August OAG



Technology and capabilities
Connecting with innovation and technology



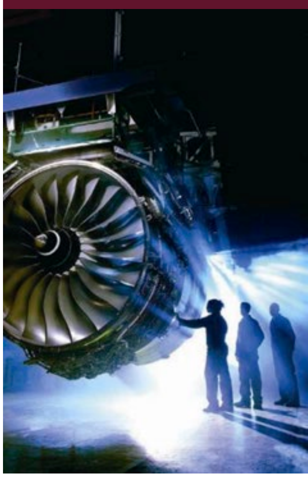
Transforming data into actionable solutions to drive effective and efficient airline operations

Leveraging airplane technology and Boeing expertise to enhance integration with airline systems

Creating the right tools for the right people, by partnering with you to create innovative, integrated IT products and professional services

Delivering on the promise of **enabling a Digital Airline**

Technology and capabilities
Improving operational efficiency



Maintenance and repair services to improve operational efficiency

Modification services to improve airplane performance and increase residual value

Digital tools for airplane troubleshooting and managing the entire maintenance process.

e-Enabled solutions to improve airplane availability and reliability.

Technology and capabilities, continued

Opportunities

IT infrastructure and connectivity can present challenges in developing economies. As these challenges are resolved, a greater number of airlines in developing economies will enter the market for IT solutions. The resultant improvements in operational efficiency, safety, and cost will allow carriers in these regions to compete more effectively with larger global carriers.

Original equipment manufacturers, regulators, and IT vendors must work together to better understand the risk of cyber attacks and develop solutions that reduce the risk. As airports, airplanes, and airlines become more connected, security risks increase. Airlines will seek integrated, robust, secure, and connected mobile solutions for application throughout their operations.

High-speed rail

Our long-term forecast considers how other technologies, such as high-speed rail (HSR), affect air travel. Railways are well suited for carrying passengers and cargo over relatively short distances (terrain permitting), whereas aviation excels for longer journeys. In addition, aviation is effective for creating large transportation networks without heavy investment in ground infrastructure.

In 2007, the world's first privately run HSR line, developed under a build-operate-transfer model, started operating in Taiwan. Even with an annual ridership of more than 40 million passengers, the HSR is heavily in debt. Taiwan's government is looking into recapitalizing and possibly nationalizing the private business venture. On the other side of the Taiwan Strait, China has seen tremendous HSR network growth. By the end of 2013, nearly 10,000 kilometers of HSR network was in operation in China, more than in the rest of the world combined. Yet according to Boeing analysis, only a handful of shorter air routes have ceased operations or reduced seat capacity significantly. The overall impact of HSR on aviation is estimated to be less than 1 percent of China's pre-HSR domestic aviation capacity.

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 that commercial aviation serves. Airline assets are highly flexible because airplanes can easily be 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 have the potential to combine the advantages of HSR and aviation.

Technology and capabilities
Improving flight operations

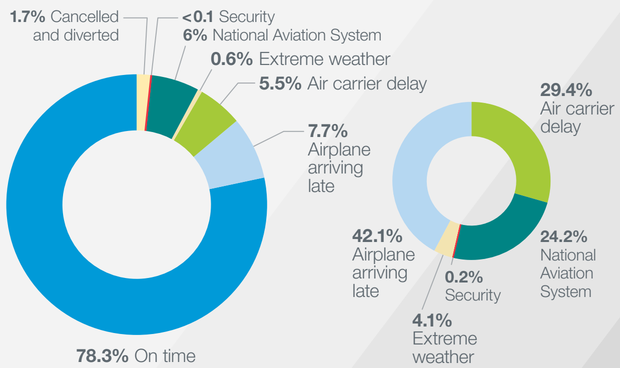
Optimization services
- Flight planning
- Crew scheduling

Flight operations
- Flight documents
- Airplane performance tools
- Airport technology
- Performance engineering training
- Technical support

Air Traffic Management
- Airspace design and transformation
- Performance-based navigation
- Optimization

Technology and capabilities
Causes of delays

Source: US DOT

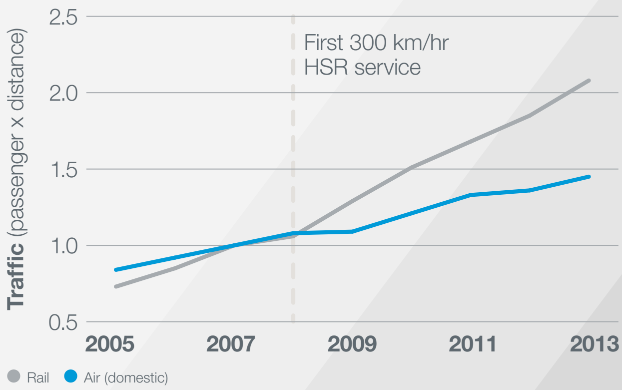


US Airline Disruptions by Cause as a Percentage of Flights

US Airline Delays by Cause as a Percentage of Total Delay Minutes

Technology and capabilities
Air travel growing, even with high-speed rail

Robust air travel in China since introduction of HSR



Traffic and market outlook

Methodology

Boeing's Current Market Outlook is a long-term, noncyclical forecast that looks beyond short-term shocks to address underlying trends in the aviation industry. In this forecast, we examine travel demand for 63 intraregional and interregional traffic flows. Key indicators include

- Gross domestic product (GDP) development.
- Population.
- Labor force composition.
- International trade (as a share of GDP).
- Emerging technology (e.g., new airplanes with improved economics and capabilities).
- Business model innovation.
- Quality of service (e.g., new nonstop city pairs, greater frequencies).
- Travel attractiveness.
- Industry competitiveness.
- Openness of air services and domestic airline regulation.

Different flows have different drivers and are therefore modeled differently. Flows touching emerging markets may emphasize GDP per capita, while mature markets may be driven more by time-series trends.

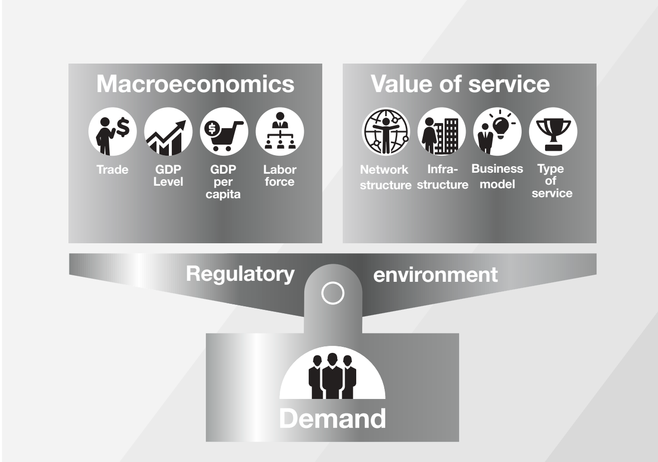
Forecasting requires more than just data because the future of a market is more than an extension of past performance. While some factors driving demand, such as GDP, are easily quantified, other factors that may have an even greater effect on market performance (e.g., liberalization) are more difficult to quantify. Where such factors are present, forecasting demand requires greater judgment than when the same factors are absent.

Short-term effects

Although the air transport industry is subject to occasional shocks, demand for air transportation is resilient, as services are often seen as essential, and discretionary trips, such as vacations or family events, are often high-priority items. Over the last 30 years, the aviation industry experienced recessions, oil price shocks, near-pandemics, wars, and security threats, yet traffic continued to grow, on average, at 5 percent annually.

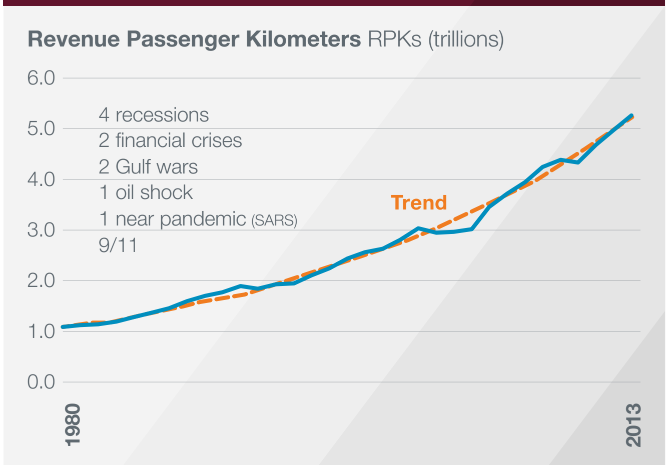
Changes in industrial structure can also result in short-term effects. For example, after consolidating, the U.S. airlines have been focusing on matching demand with capacity. Although traffic growth (expressed in revenue passenger-kilometers (RPK)) has been minimal, airline profitability has improved. Conversely, low-fare carriers in other markets, and the competitive responses they provoke, led to falling fares and traffic stimulation, thereby supporting more rapid RPK growth than those same markets might have achieved in the past.

Traffic and market outlook
Drivers of air travel demand



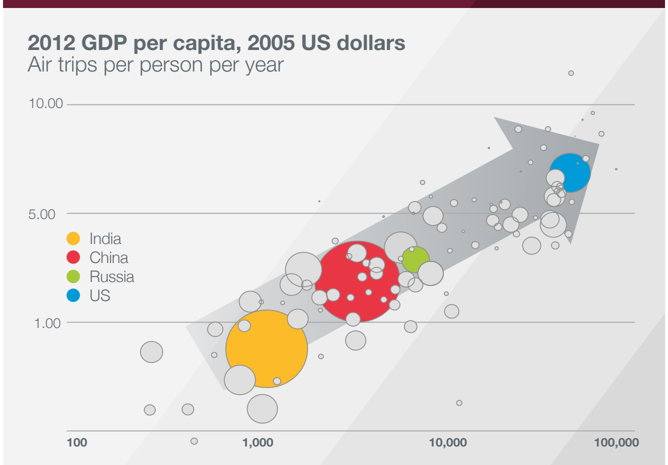
Traffic and market outlook
World air travel has grown 5% per year since 1980

Source: ICAO skd. traffic



Traffic and market outlook
Propensity to travel increases with income

Source: IHS Economics Sabre



Traffic and market outlook, continued

Evolving air travel demand
Demand dynamics are different for various levels of a country's economic development. Emerging markets throughout the world have shown that air travel is a discretionary expenditure, but it is one of the first discretionary items to be added as consumers join the global middle class. As emerging market demand begins to develop, it may take the form of nonscheduled services to leisure destinations. Later on, the same demand may migrate to scheduled services of low-fare carriers, or to the network airlines.

In developed markets, demand for essential travel has been met, leaving growth to come from discretionary travel. GDP per capita matters less in these contexts. Factors such as availability of financing (for funding vacations), consumer confidence, service pricing, service quality (e.g., availability of nonstop flights), and vacation entitlements will tend to have a greater impact.

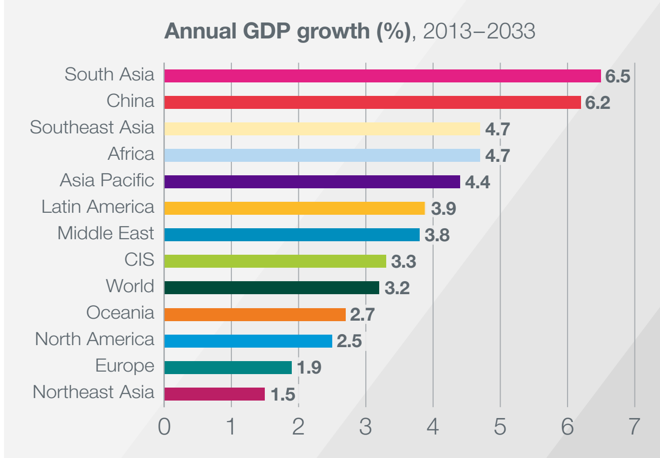
Propensity to travel, measured in trips or RPKs, generally increases with per capita income within any given region. The amount of this increase varies considerably. Generally, markets that are more open will be more responsive to changes in per capita income, as airlines are freer to add routes, frequencies, and seats to capture demand. In a more regulated environment, demand (i.e., desire to travel) may increase with GDP per capita, but lower service quality and higher pricing may restrain travel growth. Geography may also influence a region's propensity to travel, with island geographies or poorly connected land areas resulting in somewhat more air travel than might otherwise be the case.

Key indicators
As discussed in our methodology section, gross domestic product (GDP) is a strong indicator for the Current Market Outlook. IHS Economics forecasts GDP to grow at 3.2 percent over the next 20 years. Emerging economies are expected to grow at 5.2 percent per year, outpacing the established economies, which will average 2.2 percent growth. Emerging and developing economies will grow from 27 percent of total GDP in 2013 to 40 percent by 2032. The fastest growing economies are those in Asia Pacific (with a projected growth of 4.4 percent), Latin America (with a projected growth of 3.9 percent), and Africa (with a projected growth of 4.7 percent).

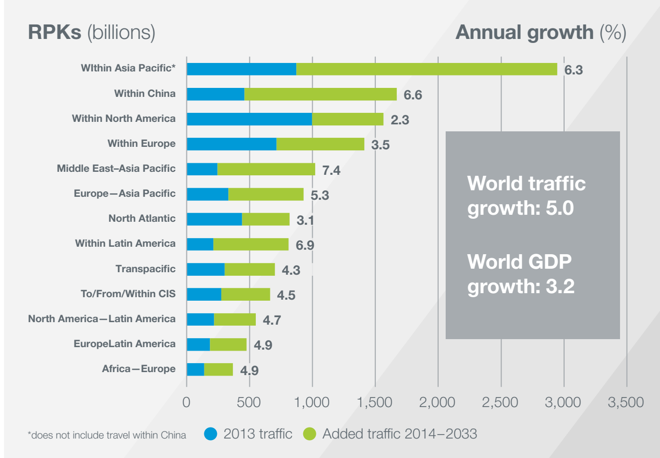
Based on the expected 3.2 percent growth in GDP, we project airline passenger traffic to grow at 5.0 percent and air cargo traffic at 4.7 percent. Passenger traffic within China will be the largest travel market, expected to grow at 6.6 percent annually. Travel within North America and Europe, while growing below trend, will be the second and third largest markets, with growth rates at 2.3 percent and 3.5 percent. Traffic to and from the Middle East and Asia Pacific, within Asia Pacific (excluding China), and within Latin America will be among the fastest to grow.

Traffic and market outlook
Emerging markets are driving growth

Source: IHS Economics

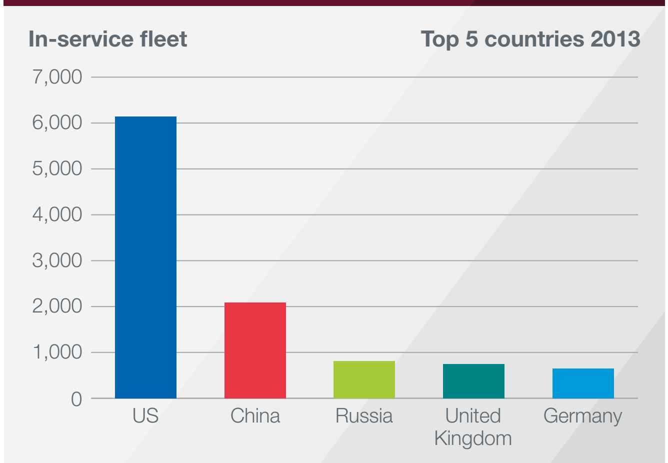


Traffic and market outlook
World traffic varies by market



Traffic and market outlook
In-service fleet of 20,910

Source: Flightglobal Ascend Online Database



Traffic and market outlook, continued

Passenger's options for air travel will continue to evolve. Twenty years ago, passengers were most likely to fly on an airline from Europe or North America. Over the next 20 years, passengers will see greater diversity among the world's airlines, with 62 percent of traffic being carried by an airline outside of North America or Europe. Trends in passenger traffic growth are similar to those of GDP. Emerging markets will grow faster than established markets. Regions growing above trend are Asia Pacific (at 6.3 percent), Middle East (at 6.4 percent), and Latin America (at 6.2 percent), while European (at 3.9 percent) and North American markets (at 2.9 percent) will be below trend.

Fleet developments

Today, nearly 21,000 jet airplanes are in commercial operation. The world's largest fleets are in the United States, China, Russia, the United Kingdom, and Germany. Over the next 20 years, the world's fleet will grow at an average rate of 3.6 percent annually, driving a need for more than 36,700 new airplanes, valued at $5.2 trillion. Of these new airplanes, more than 30 percent, 13,000 airplanes, have already been sold. The countries with the largest backlog are the United States, China, Indonesia, Russia, and India. With this demand, along with the current fleet, the world's jet fleet will more than double to a size of more than 42,000 airplanes over the next 20 years.

Forty two percent of these new airplanes will be for replacement and 58 percent will be for growth. The replacement market tends to be driven by the more mature aviation markets, such as Europe and North America. Growth is being driven by the emerging markets, such as Latin America and Asia Pacific, and by the low-cost carrier and sixth freedom business models.

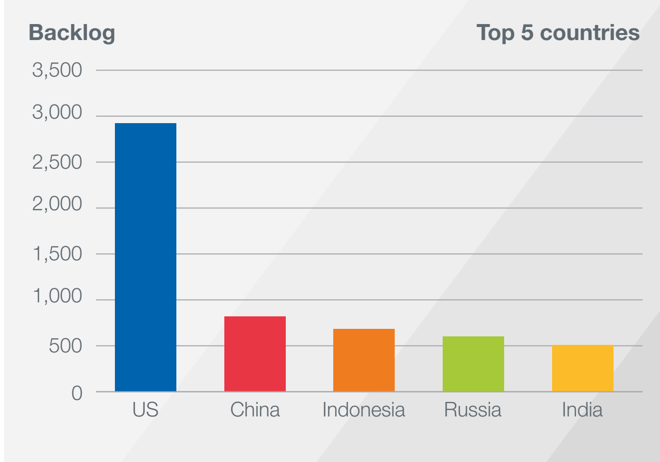
Business models

Airline business models continue to evolve. What was once a clear division between network, low-cost, and charter models is now less clear, with network carriers operating low-cost, short-haul subsidiaries; low-cost carriers providing frequencies and services to attract business passengers; and charter carriers venturing into single-seat sales. Low-cost carriers are even starting long-haul service, competing with network carriers on point-to-point routes.

The trend toward growth of the low-cost model is clear. Low-cost carriers have grown from 7 percent of the world market in 2003 to 16 percent today and are projected to capture 21 percent by 2033. Charter carriers are hardest hit by this transition, declining from 9 percent in 2003 to 3 percent today and in 2013. Broad network carriers also suffer declines, from 66 percent in 2013 to 62 percent today and 56 percent in 2033. The shift to a low-cost model is even more dramatic when we take growing low-cost subsidiaries in many broad network carriers into consideration.

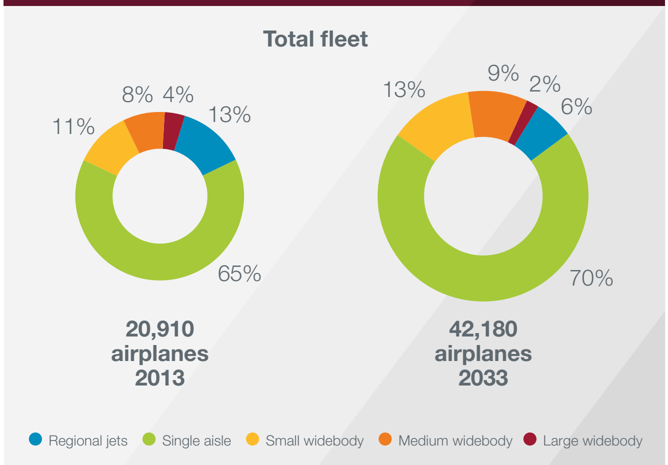
Traffic and market outlook
Backlog of 13,000 airplanes

Source: Flightglobal Ascend Online Database

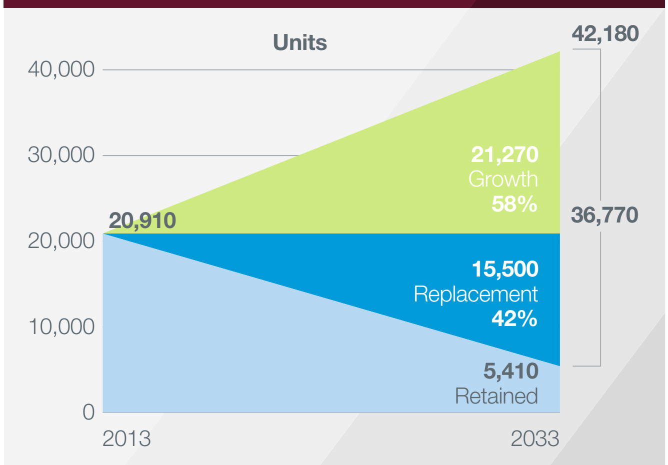


Traffic and market outlook
World fleet will double by 2033

Source: Ascend



Traffic and market outlook
58% of new deliveries are for growth



Traffic and market outlook, continued

160-seat-size aircraft remains heart of the single-aisle market

Single-aisle airplanes continue to dominate the world's fleet. In 2013, the single-aisle category comprised 65 percent of the fleet. By 2033, we estimate that share to rise to 70 percent. Of the forecast demand for 25,680 new single-aisle airplanes, valued at $2.5 trillion, 38 percent will replace older airplanes, while 62 percent will expand the fleet. Emerging markets drive demand for single-aisle airplanes. Asia Pacific airlines are expected to take the largest share of new deliveries and will need 9,540 new airplanes to expand their single-aisle fleets from 3,820 to 10,850 airplanes by 2033. Low-cost carriers, whose business models focus on fleet commonality, also drive demand for single-aisle airplanes and are expected to take 40 percent of single-aisle deliveries.

Over the past 20 years, average aircraft size across short, medium, and long regional routes have been converging to 160 seats as the flexibility of today's single-aisle aircraft allows airlines to fly more directly, more often, and more efficiently. In the short sectors, increases in fuel price drove carriers to larger aircraft to achieve lower unit costs in a challenging sector of the market, and a similar trend is seen in the medium (1,000 to 2,000 mile) segment. On the longer haul regional markets, such as those with transcontinental missions, airplane size flattened over the past 15 years, right at 160 seats, as the capabilities of airplanes such as the 737-800 allowed for more point-to-point services and greater frequencies for passengers. This size category (737-MAX8 size) continues to be the heart of the market today and going forward over the next 20 years. In today's backlog, approximately 75 percent of airplanes to be delivered are in this size category, and over the next 20 years, 70 to 75 percent of new deliveries to airlines will be of this size.

New widebodies providing more direct, more frequent service

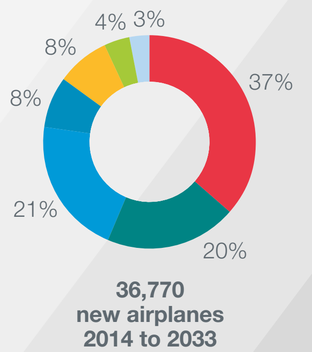
The widebody fleet continues to grow as airlines expand their international footprint and open new markets. We forecast that 8,600 new widebody airplanes will be needed to meet this demand. Of these, 4,520 will be in the 200- to 300-seat size category (787-8 and 787-9), 3,460 will be in the 300- to 400-seat size category (787-10, 777, and 777X); and the remaining 620 will be in the greater than 400-seat size category (747-8i). As with the single-aisle airplanes, 38 percent of deliveries will be for replacements and 62 percent of deliveries will be for growth. Europe and North America tend to be more of a replacement market, while Asia Pacific and Middle East are a growth market. Nearly 60 percent of all new deliveries will go to Middle Eastern and Asia Pacific airlines.

Since the 777 came to the market, the top 25 long-haul markets have expanded and capacity has increased by 60 percent. This increase in capacity has been met by an increase in frequencies (up 60 percent) and with the addition of new cities being served (up 46 percent), while

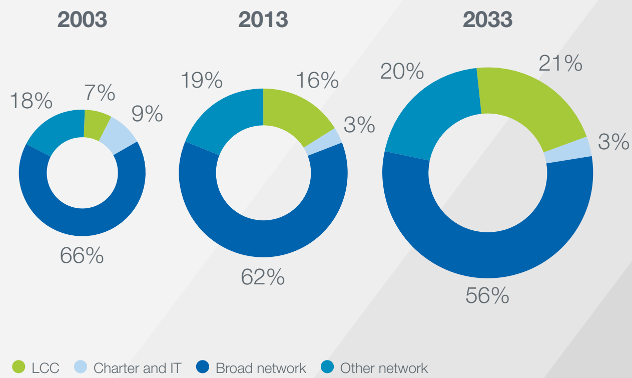
Traffic and market outlook
Delivery demand is becoming more diversified

Region	New airplanes
Asia Pacific	13,460
Europe	7,450
North America	7,550
Middle East	2,950
Latin America	2,950
CIS	1,330
Africa	1,080
Total	36,770

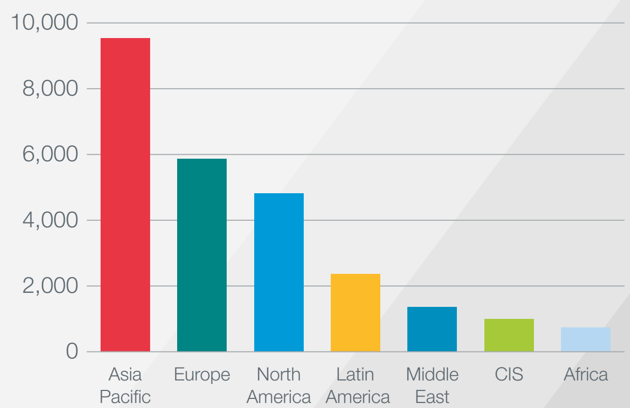
Delivery units



Traffic and market outlook
Airline business models continue to evolve



Traffic and market outlook
Airlines will need 25,680 new single aisle aircraft



Traffic and market outlook, continued

the number of seats per airplane has decreased slightly (down 2 percent). This market flexibility will continue as the 787 family and 777X come to market. The 787 is allowing airlines to provide customers the ability to fly where they want to, when they would like to fly, as in the cases of London Heathrow to Austin, Texas, San Francisco to Chengdu, and San Jose to Tokyo. Airlines are also announcing how they will be using the 787-9 in conjunction with the 787-8 to provide the right-size airplane on the right day.

The new twin-engine airplanes coming to market are also helping airlines to evolve airline business models. The 787-8 allows low-cost carriers to move from the traditional short-haul flight into more medium-haul flying, expanding their customer base while using an aircraft with lower operating costs. The range and efficiency of the 777-300ER allow airlines to take advantage of their geographical locations.

Asia Pacific, Europe, and the Middle East account for more than 90 percent of large-airplane demand in the 20-year forecast. These aircraft will serve as passenger jetliners on high-traffic trunk routes and as dedicated commercial freighters. We forecast 620 deliveries, comprising 5 percent of total delivery value, will be required. The Asia Pacific region will receive 34 percent of these deliveries, while Europe will take 10 percent and the Middle East 48 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.

Air cargo traffic stagnation amid market challenges

An unusually challenging environment over the past several years left traffic levels relatively flat and resulted in persistent overcapacity and weak yields. Nevertheless, air cargo remains indispensable for a variety of industries that require transport of time-sensitive and higher value commodities. These commodities include perishables, consumer electronics, high-fashion apparel, pharmaceuticals, industrial machinery, and high-value intermediate goods such as auto parts. The unparalleled speed and punctuality advantages of air freight ensure that it will continue to play a significant role in the global economy despite improving surface modes that can offer a cheaper transportation alternative.

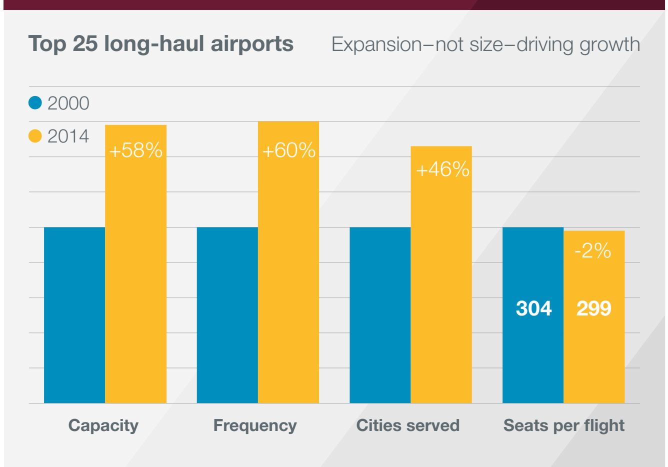
Dedicated freighters and passenger airplane lower holds both carry air cargo. Cargo capacity on passenger flights has expanded as airlines deploy new jetliners, such as the 777-300ER, that have excellent cargo capability. Dedicated freight services, however, offer shippers a combination of reliability, predictability, and control over timing and routing that passenger lower hold cargo operations cannot often match. Thus, we expect freighters to continue to carry more than half of global air cargo traffic and market capacity balance to be restored within a few years, as world trade recovers.

Traffic and market outlook
737-800 size single-aisles are "heart of the market"

Traffic and market outlook
Airlines will need 8,600 new widebody airplanes

Traffic and market outlook
Mega-cities grow efficiently

Source: Industry schedules



Traffic and market outlook, continued

Air cargo traffic, as measured in revenue tonne-kilometers (RTK), is projected to average 4.7 percent growth per year over the next 20 years as global GDP and world trade growth accelerate. In spite of multiple exogenous shocks arising from economic and political events and natural disasters, this is slightly below the 5 percent average annual rate achieved over the past three decades. Replacement of aging airplanes, plus the industry's growth requirements, will create a demand for nearly 2,200 freighter deliveries over the same period. Of these, 1,330 will be passenger airplane conversions. The remaining 840 airplanes, valued at $240 billion, will be new. The freighter fleet will increase by more than half, from 1,690 airplanes in 2013 to 2,730 in 2033.

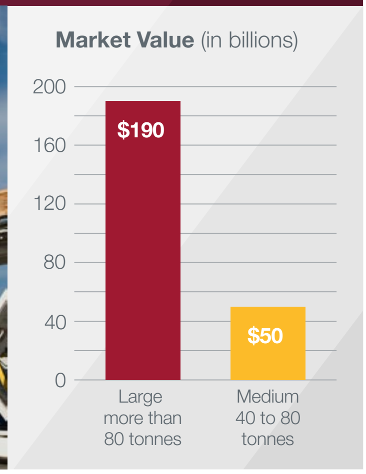
All standard-body freighters will be conversions from passenger airplanes
We forecast a need for 960 standard-body freighters, all of these passenger conversions, which are attractive for standard-body operations due to their low capital cost. Demand has recently been and will continue to be especially strong in emerging markets.

Express carriers drive medium widebody demand
Two hundred and fifty medium widebody purpose-built freighters will be delivered during the forecast period. 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.

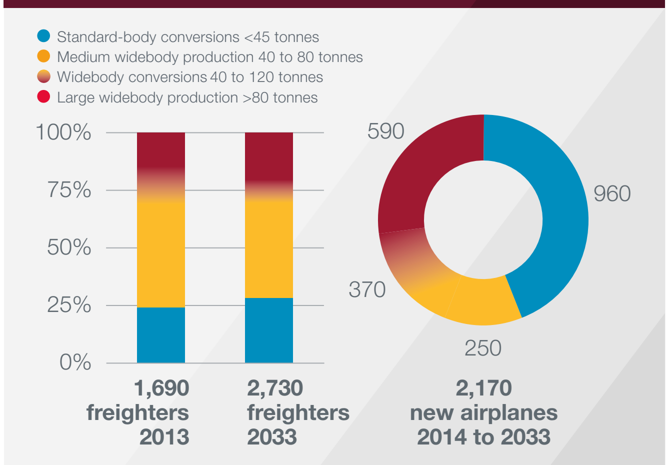
Widebody conversions
While the performance, efficiency, and reliability of new, purpose-built freighters are valued in many applications, the lower purchase prices for converted freighters often offer opportunities for carriers where very high utilization and more market-dependent demand are more significant considerations. Thus, nearly 400 widebody conversions will be needed over the forecast period.

Intercontinental operations favoring new, large freighters
Nearly 600 new, large freighters will be required where high cargo density, larger payloads, and extended range are crucial.

Traffic and market outlook
Freighter market value: $240 billion



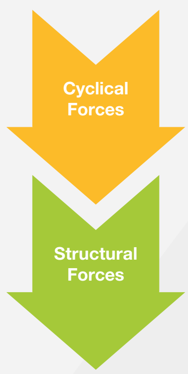
Traffic and market outlook
840 new and 1,330 converted freighters



Business and market environment
Emerging markets

Source: IHS Economics

Why has growth in emerging markets slowed?



- Withdrawal of policy stimulus
- Weak export markets
- Capital rotation as US bond yields rise
- Excess capacity after investment booms

- Slower labor force growth
- Slower pace of globalization
- End of commodity price supercycle
- Lack of market reforms

World Regions

World regions
Market value: $5.2 trillion

Globalized demand

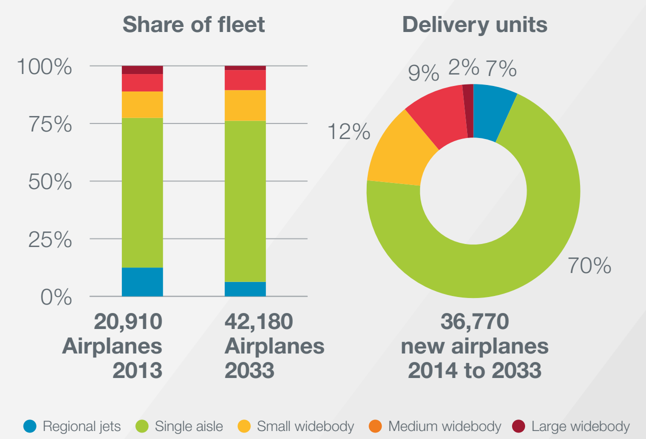
As aviation continues to become an integral part of life, it is bringing people closer together. As emerging markets continue to grow and new business models expand, airplane manufacturers are seeing greater geographical diversity in their customer base. In 1993, more than 73 percent of all traffic was carried by airlines in Europe or North America. By 2033, that proportion will shrink to 38 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 36,770 new jet airplanes, valued at $5.2 trillion.

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: $5.2 trillion



World regions
Market value: $5.2 trillion

Growth measures (%)	
Economy (GDP)	3.2
Traffic (RPK)	5.0
Cargo (RTK)	4.7
Airplane fleet	3.6

	New airplanes	**Share by size** (%)
Large widebody	620	2
Medium widebody	3,460	9
Small widebody	4,520	12
Single aisle	25,680	70
Regional jet	2,490	7
Total	**36,770**	

Market size	
Deliveries	36,770
Market value	$5,200B
Average value	$140M

	2013 fleet	**2033 fleet**
Large widebody	740	790
Medium widebody	1,580	3,680
Small widebody	2,390	5,570
Single aisle	13,580	29,500
Regional jet	2,620	2,640
Total	**20,910**	**42,180**

Asia Pacific

Today's market

Asia Pacific economies continue to have strong growth. In 2013, regional GDP rose 4.8 percent, driven both by the region's fast-growing, emerging economies and by the mature economies, which were lifted by recovery from the global recession. Passenger traffic grew 3.9 percent, slightly faster than capacity at 3.7 percent year-over-year growth. Despite high oil prices and fluctuating currency valuations, Asia Pacific airlines are estimated to have earned a net profit of $3.0 billion in 2013 and are forecast to earn $3.7 billion in 2014.

Continued liberalization

The structure of the Asia Pacific airline industry is changing as regulations liberalize and carriers expand beyond national boundaries. Cross-border cobranded subsidiary agreements and direct investment in foreign airlines allow established airlines access to new markets and promote expanded air service to small markets. The growth of air travel as low-cost carriers (LCC) reduce fares and open new markets testifies to the effects of liberalization. Improved affordability and accessibility will stimulate demand for air travel in established markets and meet the emerging travel needs of the growing middle class.

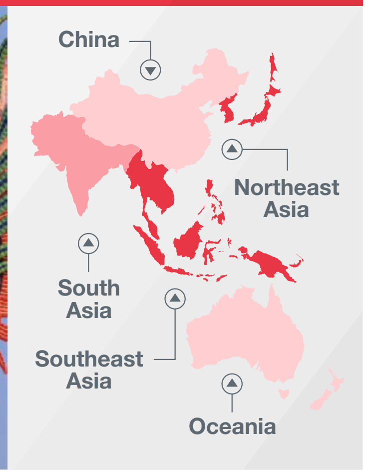
Strong demand

Continued economic growth is expected in the region over the next 20 years, with GDP averaging 4.4 percent growth annually. As income levels rise, Asia Pacific is set to become the largest air travel market in the world. In 2033, approximately 48 percent of global traffic will be to, from, or within the region. More than 100 million new passengers are projected to enter the market annually. By way of perspective, London Heathrow handles 70 million passengers and Atlanta 95 million annually.

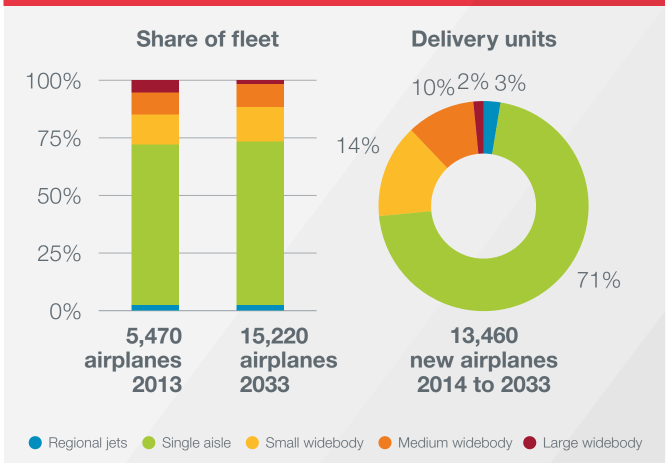
To accommodate growing demand, the region will need 13,460 new airplanes, valued at $2,020 billion. By 2033, the fleet will be three times larger than it is today. Fast-growing LCCs and rapid traffic growth within the Asia Pacific region drive a need for 9,540 single-aisle airplanes. LCC market share in Asia is expected to grow from 15 percent today to 21 percent in 2033. Network carriers, the mainstay of international long-haul air transportation, will help drive demand for 3,570 widebody airplanes.

Air cargo also plays a crucial role, transporting goods over difficult terrain and vast stretches of ocean. Many of the world's largest and most efficient cargo operators are located in Asia. The region's air cargo will grow 5.5 percent per year. Carriers in the region are expected to take 360 new production freighters and 530 converted freighters.

Asia Pacific
New airplanes: 13,460



Asia Pacific
Market value: $2.02 trillion



Asia Pacific
Key indicators and new airplane markets

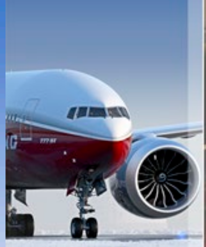
Growth measures (%)	
Economy (GDP)	4.4
Traffic (RPK)	6.3
Cargo (RTK)	5.5
Airplane fleet	5.2

	New airplanes	Share by size (%)
Large widebody	210	2
Medium widebody	1,420	10
Small widebody	1,940	14
Single aisle	9,540	71
Regional jet	350	3
Total	**13,460**	

Market size	
Deliveries	13,460
Market value	$2,020B
Average value	$150M

	2013 fleet	2033 fleet
Large widebody	290	270
Medium widebody	520	1,500
Small widebody	710	2,250
Single aisle	3,820	10,850
Regional jet	130	350
Total	**5,470**	**15,220**

China



China continues to be one of the fastest growing aviation markets

China's aviation market, one of the world's fastest growing, is going through dramatic changes. Regulatory and policy reforms, low-cost carrier (LCC) and other innovative business models, new technology airplanes, and evolving consumer behaviors are driving airlines to launch additional direct flights and develop more point-to-point networks.

We project that the current growth trend will continue over the next 20 years, with passenger traffic increasing 6.9 percent and air cargo traffic increasing 6.7 percent annually. The majority of the growth, approximately 65 percent, will be within China. About 16 percent of the growth will be international traffic to destinations within the Asia Pacific region. The remaining 19 percent will be long-haul international traffic. To support this growth in demand, China will need 6,020 new airplanes valued at $870 billion.

Domestic markets shifting toward single-aisle airplanes

Over the past 20 years, airlines in North America and other aviation markets have moved from flying widebody airplanes to flying single-aisle airplanes on domestic routes. In 1993, widebody airplanes supplied approximately 20 percent of capacity in North America. Today, that number has dwindled to 5 percent. We have also seen this trend in China, where almost 30 percent of capacity was on widebody airplanes in 1993, compared with 9 percent today.

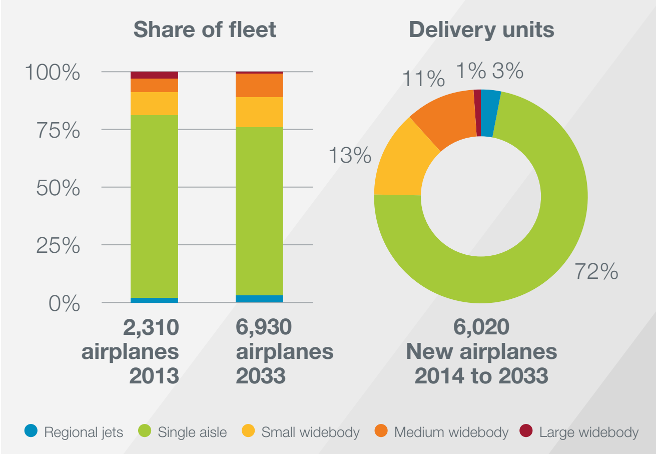
Single-aisle airplanes, such as the 737-800, provide the efficiency and network flexibility airlines need to be competitive in short-to-medium-haul markets, where quick turnaround and airplane utilization are essential. LCCs and new entrants will stimulate traffic growth in China, as they have around the world. The LCC business model depends heavily on passenger demand for point-to-point service, which avoids connections at hubs and shortens travel time. Point-to-point service will help alleviate congestion at major hubs, such as Beijing, Shanghai, and Guangzhou. New LCCs, coupled with increased growth in established airlines, will drive a need for 4,340 new single-aisle airplanes.

New widebody airplanes opening new markets

New-technology widebody airplanes, such as the 787 and 777, are helping Chinese airlines expand their global networks and compete more effectively with international carriers. In 2013, Chinese airlines opened 10 new long-haul markets. Over the next 20 years, this expansion is expected to continue as traffic to Europe grows 6.1 percent; to North America, 6.3 percent; to Oceania, 6.6 percent; and to Africa, 7.4 percent. China will need 1,480 new widebody airplanes to support this market growth.

China
Traffic varies by market

China
Market value: $870 billion



China
Key indicators and new airplane markets

Growth measures (%)	
Economy (GDP)	6.2
Traffic (RPK)	6.9
Cargo (RTK)	6.7
Airplane fleet	5.6

	New airplanes	**Share by size** (%)
Large widebody	60	1
Medium widebody	640	11
Small widebody	780	13
Single aisle	4,340	72
Regional jet	200	3
Total	**6,020**	

Market size	
Deliveries	6,020
Market value	$870B
Average value	$140M

	2013 fleet	**2033 fleet**
Large widebody	60	80
Medium widebody	130	660
Small widebody	230	910
Single aisle	1,840	5,080
Regional jet	50	200
Total	**2,310**	**6,930**

Northeast Asia

Economic forecasts project modest growth

The Northeast Asia region encompasses Japan, North and South Korea, and Taiwan. The region's GDP is forecast to grow 1.5 percent over the next 20 years. Japan will grow moderately as it recovers from long-term stagnation. However, an aging and declining population will challenge that growth over the long term. Although Japan will remain the dominant economy in the region, South Korea and Taiwan currently provide almost one-third of the base and will generate much of the projected economic dynamism.

Fleet growth and modernization continues

Despite modest economic growth, air travel in Northeast Asia is forecast to grow 2.5 percent annually over the next 20 years. The region's major airline fleets are among the world's most modern and efficient. To maintain the resulting competitive edge, the region's airlines will require 1,340 new airplanes, valued at $280 billion. About 64 percent of these (860 airplanes) will be for replacement and 36 percent (490 airplanes) will be for growth.

Small and medium widebody airplanes will account for just under half of all deliveries. Single-aisle airplanes will account for 40 percent. Both the number of new regional jets and the number of large airplanes are projected to decline slightly. The requirement for new cargo airplanes is flat.

Low-cost carriers thrive

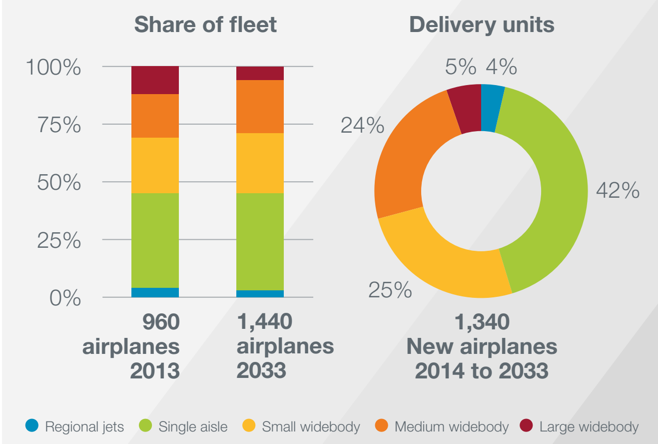
Northeast Asia was initially slow to adopt the low-cost model, but the emergence of low-cost carriers (LCC) is now a major driver of growth in the region. Whether as subsidiaries of the major network carriers or as independent startups, LCCs are competing with the established airlines and among themselves to provide new, affordable opportunities for air travel. The strength and popularity of these new carriers are forcing the major international airlines of the region to reconsider their domestic strategies. The short distances between many of the destinations in the Asia Pacific region give the LCCs access not only to markets within Northeast Asia but also to locations in China and Southeast Asia.

Major airport expansion is proceeding

All the region's major airports have been modernized recently. Tokyo's Haneda has been upgraded to support expanded international operations and Narita to accommodate the new LCCs. Seoul's Incheon is being redesigned to create a major international hub that will serve all of Asia Pacific. Taiwan is improving its major airports to facilitate traffic across the straits in anticipation of relaxed travel restrictions with mainland China.

Northeast Asia
Airline fleets will grow by more than a third

Northeast Asia
Market value: $280 billion



Northeast Asia
Key indicators and new airplane markets

Growth measures (%)	
Economy (GDP)	1.5
Traffic (RPK)	2.7
Cargo (RTK)	4.3
Airplane fleet	2.0

	New airplanes	Share by size (%)
Large widebody	70	5
Medium widebody	320	24
Small widebody	340	25
Single aisle	560	42
Regional jet	50	4
Total	**1,340**	

Market size	
Deliveries	1,340
Market value	$2,80B
Average value	$210M

	2013 fleet	2033 fleet
Large widebody	120	90
Medium widebody	180	330
Small widebody	230	370
Single aisle	390	600
Regional jet	40	50
Total	**960**	**1,440**

South Asia

Robust traffic growth projected

South Asian air travel is expected to grow 8.3 percent per year over the next 20 years. Domestic, regional, and interregional travel to the Middle East and Southeast Asia will be the largest flows.

South Asia's demographics are favorable to air transportation growth. The region's population totaled 1.6 billion in 2013, and a growing share of this population is entering the workforce. The region's real GDP is forecast to grow an average 6.5 percent per year through 2033.

The 2014 elections of business-friendly candidates raised optimistic expectations for India's economy. If current economic policy liberalization, market reform, and investment trends continue, India's economy is projected to become the world's fourth largest.

New partnerships abound

Reform of foreign direct investment rules in 2012 allowed foreign airlines to acquire up to 49 percent of an Indian airline. Abu Dhabi's Etihad Airways promptly acquired 24 percent of Jet Airways. The partnership immediately strengthened the Jet Airways balance sheet and promises long-term benefits from network synergies with Etihad and its equity partners.

Air India joined Star Alliance in June 2014, becoming the first Indian airline to enter a global alliance. Air India's membership adds more than 400 daily flights connecting more than 50 destinations to the alliance's network. Increased global connectivity could boost Air India's revenue by about 5 to 6 percent in the near term.

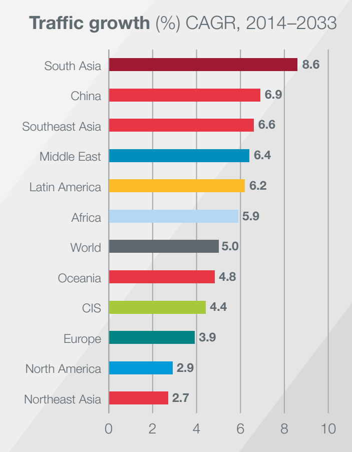
The Tata Group also moved swiftly to partner with foreign airlines, announcing tie-ups with AirAsia and SIA. Both links are structured as joint ventures, with the foreign airlines owning 49 percent and Indian partners owning 51 percent. AirAsia started India operations in June 2014; the venture with SIA, named Vistara, is expected to launch in the third or fourth quarter.

Market reforms support further growth

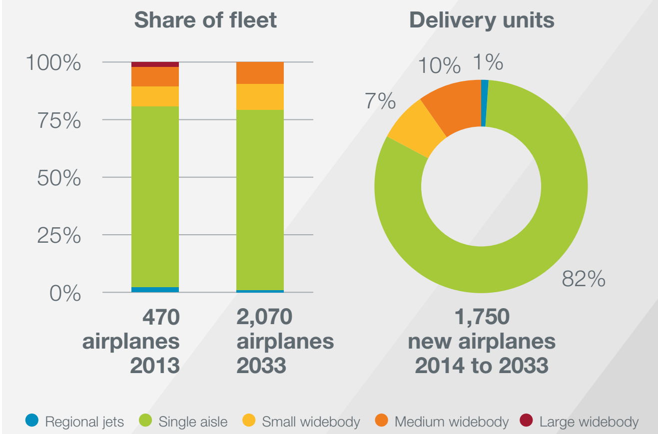
The Directorate General of Civil Aviation recently moved toward easing regulation of the Indian aviation market. A new startup airline (Air Costa) was approved in 2013 and several new operators gained Air Operators Permits and No Objection Certificates in 2014.

Also helpful is the expansion in 2014 of the visa-on-arrival program from 11 countries to 180, offering 30-day visas at 26 ports of entry. Under consideration are taxation reforms, including rationalization of aviation fuel taxes, which can currently reach 35 percent; reduction of taxes on maintenance, repair, and overhaul, which encourage Indian airlines to outsource MRO to neighboring regions; and reduction of duties on engine spare parts.

South Asia
Airlines are forecast to have world-leading growth



South Asia
Market value: $230 billion



South Asia
Key indicators and new airplane markets

Growth measures (%)	
Economy (GDP)	6.5
Traffic (RPK)	8.6
Cargo (RTK)	8.3
Airplane fleet	7.7

	New airplanes	**Share by size** (%)
Large widebody	—	—
Medium widebody	170	10
Small widebody	130	7
Single aisle	1,430	82
Regional jet	20	1
Total	**1,750**	

Market size	
Deliveries	1,750
Market value	$230B
Average value	$130M

	2013 fleet	**2033 fleet**
Large widebody	10	
Medium widebody	40	200
Small widebody	40	230
Single aisle	370	1,620
Regional jet	10	20
Total	**470**	**2,070**

Southeast Asia

Airlines expand operations

Southeast Asia's airlines are growing rapidly as the region continues to develop economically. Low-cost carriers (LCC) are expanding and gaining market share, stimulating passenger demand with attractive fares and new routes. Some Southeast Asia LCCs have launched subsidiaries or franchises to expand their operations into other countries or regions. A few LCCs have even ventured beyond single-aisle operations to provide widebody services that connect to destinations that exceed the range capabilities of single-aisle airplane. Network carriers have restructured to expand their product offerings for growth and increased competitiveness 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 ties within the Association of Southeast Asian Nations (ASEAN) strengthen, stimulating business and leisure travel. New, efficient airplanes with improved capabilities and lower operating costs are integral to carriers' business strategies. Southeast Asian airlines have dramatically increased their airplane orders to meet growing demand and to open new, direct, long-range markets. In fact, more than half of the region's forecast 2,460 single-aisle airplane deliveries over the next 20 years are already on order.

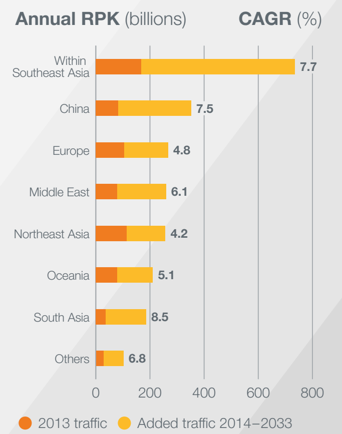
Liberalization opens routes

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. And flights among ASEAN capital cities have 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.

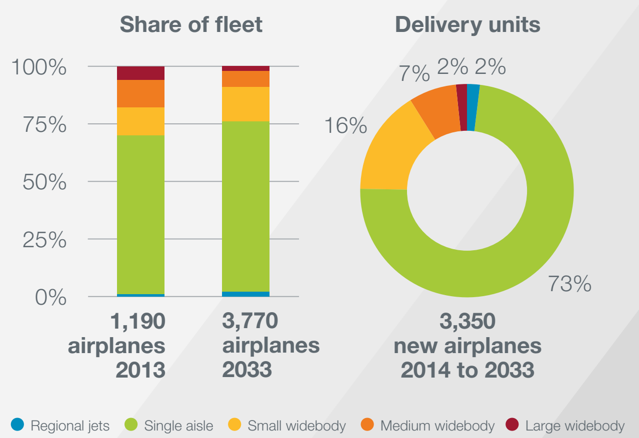
Airlines bolster economic growth

International economic relationships and collaboration within the region continue to strengthen. Air transportation plays a vital role in the region's projected 4.7 percent annual GDP growth over the next 20 years. For example, affordable air travel options have stimulated growth in 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 an average 6.6 percent annually over the next 20 years. Air travel within the region will lead with 7.7 percent annual growth, driving single-aisle airplane deliveries to reach 73 percent of total deliveries within the region.

Southeast Asia
Traffic varies by market



Southeast Asia
Market value: $500 billion



Southeast Asia
Key indicators and new airplane markets

Growth measures (%)	
Economy (GDP)	4.7
Traffic (RPK)	6.6
Cargo (RTK)	5.0
Airplane fleet	5.9

	New airplanes	Share by size (%)
Large widebody	50	2
Medium widebody	240	7
Small widebody	530	16
Single aisle	2,460	73
Regional jet	70	2
Total	**3,350**	

Market size	
Deliveries	3,350
Market value	$500B
Average value	$150M

	2013 fleet	2033 fleet
Large widebody	70	60
Medium widebody	140	250
Small widebody	140	580
Single aisle	830	2,810
Regional jet	10	70
Total	**1,190**	**3,770**

Oceania

The market continues to thrive

Oceania is a dynamic region of roughly 40 million people. Total air traffic is forecast to continue to grow at the 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 4.7 percent. Capacity between Oceania and Southeast Asia, the primary gateway to other world regions, is forecast to increase 5.1 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 the Middle East traffic flow to increase 6.5 percent. Traffic between China and Oceania will grow a robust 6.6 percent per year.

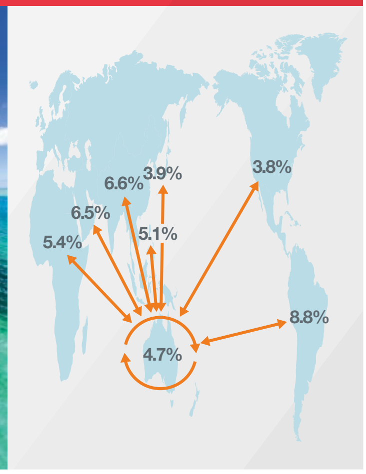
The region's airlines continue to evolve

Airlines within Oceania continue to evolve in response to economic conditions and competition. Airlines based in the Middle East, China, and Southeast Asia continue to rapidly increase their capacity to and from Oceania. The Qantas-owned low-cost carrier (LCC), Jetstar, continues to expand its cobranded subsidiaries throughout Asia. In 2013, 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 arrived at Jetstar in 2013, allowing the airline to begin medium-haul LCC operations.

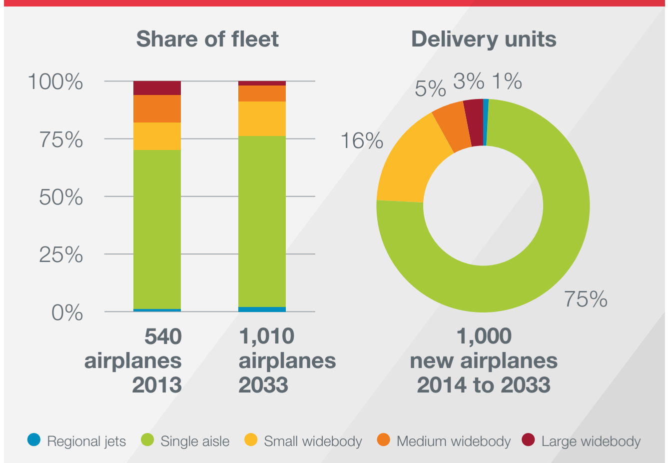
New airplanes are needed in the region

There will be a continual need for new airplanes in the region as traffic increases and airlines evolve. Over the next 20 years, Oceania is expected to need 1,000 new airplane deliveries, of which 760 will be single-aisle airplanes to transport people within the region or to nearby Southeast Asia. To meet demand for travel across the globe, 240 widebody airplanes will be required, of which approximately 160 will be small widebodies, 50 will be medium widebodies, and 30 will be large widebodies.

Oceania
Strong annual capacity growth on traffic flows



Oceania
Market value: $140 billion



Oceania
Key indicators and new airplane markets

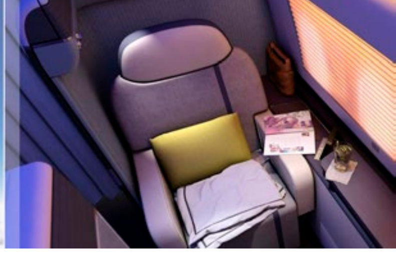
Growth measures (%)	
Economy (GDP)	2.7
Traffic (RPK)	4.8
Cargo (RTK)	4.5
Airplane fleet	3.2

	New airplanes	Share by size (%)
Large widebody	30	3
Medium widebody	50	5
Small widebody	160	16
Single aisle	750	75
Regional jet	10	1
Total	**1,000**	

Market size	
Deliveries	1,000
Market value	$140B
Average value	$140M

	2013 fleet	2033 fleet
Large widebody	30	40
Medium widebody	30	60
Small widebody	70	160
Single aisle	390	740
Regional jet	20	10
Total	**540**	**1,010**

Europe

Strong growth despite uncertainty

The European aviation market remained strong in 2013 despite recessions in some economies and sluggish recovery in others. Europe's GDP grew 0.4 percent in 2013 and is forecast to grow 1.9 percent annually through 2033. The Association of European Airlines reports that member airlines carried 0.2 percent more passengers in 2013 than in the previous year. Members of the European Low Fares Airline Association reported a 6.7 percent increase in passengers over 2012 levels. European airlines acquired more than 180 new airplanes in 2013, of which 78 percent were single aisle.

Aviation growth is expected to continue over the next 20 years, with European airlines forecast to acquire 7,450 new airplanes valued at $1,040 billion. Single-aisle airplanes will account for the majority of deliveries, representing a 79 percent share of total deliveries.

Although European aviation growth is not as rapid as aviation growth in the world's emerging economies, the region's large installed base of more than 4,300 airplanes supports a substantial demand for replacement airplanes. Replacement demand will account for 54 percent of Europe's total market for new airplanes.

Continued strategic change

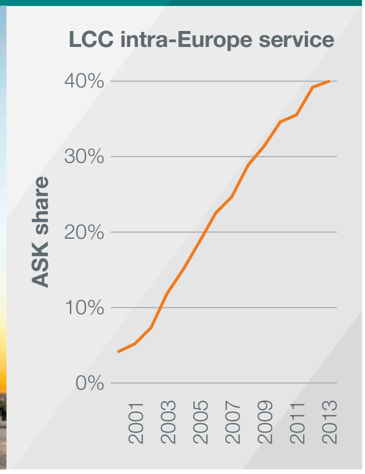
Airline operations continue to evolve with the launch of new ventures and new business models. Long-haul service by European low-cost carriers (LCC) became a reality in 2013 with the delivery of the 787 to Norwegian Air Shuttle. The next 20 years are expected to bring additional mergers and acquisitions, 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 airline entered a global alliance, another acquired an equity stake in a European carrier, and another formalized a cooperative agreement with a non-European partner.

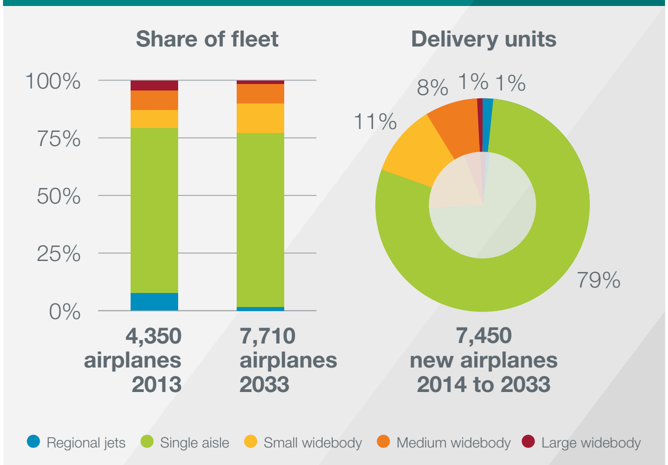
Large network airlines are tending to shift away from short-haul traffic, which is targeted by LCCs, and toward flowing passengers through their hubs on longer itineraries. LCCs have continued to add service in short-haul markets, with LCCs providing 40 percent of capacity on intra-Europe flights in 2013. 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 megahubs for long-haul traffic.

Europe
LCC share continues to grow

Source: OAG

Europe
Market value: $1.04 trillion



Europe
Key indicators and new airplane markets

Growth measures (%)	
Economy (GDP)	1.9
Traffic (RPK)	3.9
Cargo (RTK)	3.5
Airplane fleet	2.9

	New airplanes	**Share by size** (%)
Large widebody	60	1
Medium widebody	590	8
Small widebody	810	11
Single aisle	5,870	79
Regional jet	120	1
Total	**7,450**	

Market size	
Deliveries	7,450
Market value	$1,040B
Average value	$140M

	2013 fleet	**2033 fleet**
Large widebody	180	110
Medium widebody	360	640
Small widebody	350	980
Single aisle	3,120	5,830
Regional jet	340	150
Total	**4,350**	**7,710**

North America

Continued traffic growth and financial stability
Passenger traffic, as measured in revenue passenger-miles, continues to rebound from the lows of the 2008/2009 downturn. Overall US passenger traffic has averaged 2 percent growth per year since 2009, ahead of capacity growth, which ranged from 1 to 2 percent per year over the same period. Capacity growth of the low-cost carriers (LCC) continues to outpace network carriers, averaging 4 percent in 2013, compared with 1 percent for network carriers. Total fleet capacity increased 2 percent in 2013, rebounding to pre-2008 levels. The average passenger load factor for 2013 was 83 percent, an all-time high for the US airline industry. Canada's two largest airlines outpaced the US airline traffic and capacity growth, posting 5 percent and 4 percent growth, respectively.

With the consolidation of the US airline industry over the past six years, a commanding 75 percent of both traffic and capacity is concentrated with the Big 3 network carriers: American, United, and Delta. Consequently, capacity growth slowed as the recently merged airlines continued to impose capacity discipline and to realign their networks to maximize profitability. LCCs accounted for a 20 percent share of traffic and capacity, a gain of half a percentage point compared with 2012.

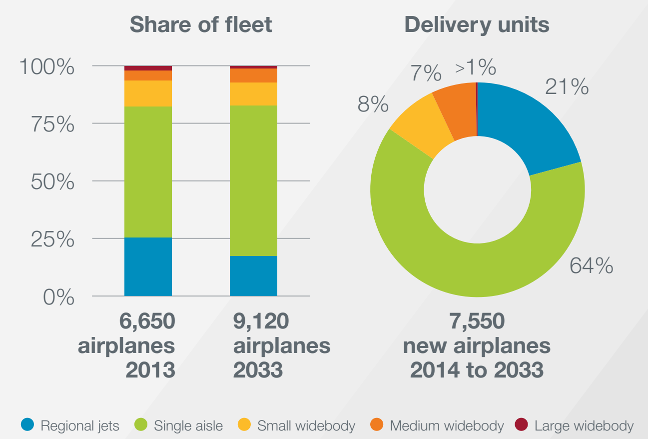
Capacity growth rates varied by regional flow. For the Big 3 US airlines, capacity growth within North America increased 1 percent during 2013. When regional jet operations are included, network-carrier capacity growth drops to 0.5 percent per year, as available seat-miles on regional jets declined 1 percent. Regional jet operators continue to replace smaller regional jets with larger regional jets or small single-aisle commercial airplanes with better fuel economy and lower trip costs. Among individual flows, the Latin America flow grew the fastest, with capacity and traffic up 5 percent and 6 percent, respectively. Load factor remained constant at 81 percent. The transatlantic flow recorded the largest load-factor increase, rising 2 percentage points to 83 percent as traffic grew 1 percent and capacity declined 0.5 percent.

Five major airline mergers since 2008 have made the US airline industry the beacon of profitability for the global airline industry. US airlines are expected to report record net income of $5.5 billion for 2013, and IATA forecasts net income of $8 billion for 2014. Profit margins before interest and taxes are also forecast to increase 1.5 percentage points to slightly more than 6 percent.

North America
US Airline industry profitability: 1968-2012

Source: airlines.org

North America
Market value: $870 billion



North America
Key indicators and new airplane markets

Growth measures (%)	
Economy (GDP)	2.5
Traffic (RPK)	2.9
Cargo (RTK)	3.4
Airplane fleet	1.6

	New airplanes	Share by size (%)
Large widebody	20	>1
Medium widebody	510	7
Small widebody	630	8
Single aisle	4,820	64
Regional jet	1,570	21
Total	**7,550**	

Market size	
Deliveries	7,550
Market value	$870B
Average value	$120M

	2013 fleet	2033 fleet
Large widebody	100	80
Medium widebody	320	560
Small widebody	730	920
Single aisle	3,790	5,950
Regional jet	1,710	1,610
Total	**6,650**	**9,120**

Latin America

Economic growth slow but improving

The economic outlook for Latin America and the Caribbean is fairly upbeat. The World Bank predicts that growth in the region will strengthen steadily from 2.9 percent in 2014, to 3.2 percent in 2015 and to 3.7 percent in 2016. The region's expected growth is up significantly from last year's modest 2.5 percent growth. The top growth performers for 2014 are expected to be Panama (7.3 percent) and Peru (5.5 percent), while the region's economic powerhouses, Brazil and Mexico, are projected to grow 2.4 and 3.4 percent, respectively. Other countries in the region are also expecting robust growth rates, likely between 3 percent and 5 percent in 2014.

Air traffic growing with middle class

Political and macroeconomic stability, solid growth, poverty reduction, and a fairer income distribution buoyed regional growth in the 2000s. According to the World Bank, the region's middle-class population now outnumbers the poor population for the first time, a sign that Latin America is becoming a middle-class region. A robust aviation sector is crucial to sustaining this growth. Brazil, the world's seventh-largest economy, has the fourth-largest domestic aviation industry. By 2017, Brazil's total domestic passenger load will grow to 122 million (from 90 million in 2012), which will make Brazil the world's third-largest market.

Airline industry stabilizing

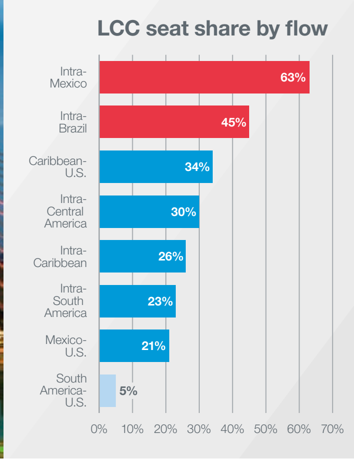
On the heels of significant consolidation, including the mergers of LAN with TAM, Avianca with TACA Airlines, GOL with Webjet, and Azul with TRIP, the region's airline industry is focusing on growth and profitability. By 2033, the region's airlines will need 2,950 new airplanes with a value of $340 billion. Although some of these airplanes will replace retiring jets, more than 70 percent will be for fleet growth, pushing the region's fleet to 3,530 airplanes, compared with 1,380 today. As airlines added new airplanes over the past decade, the average age of the region's fleet has plummeted from 14.8 years to 9.7 years. In addition, major carriers are cutting unprofitable routes and reducing capacity to achieve a more sustainable business environment.

LCC opportunities continuing

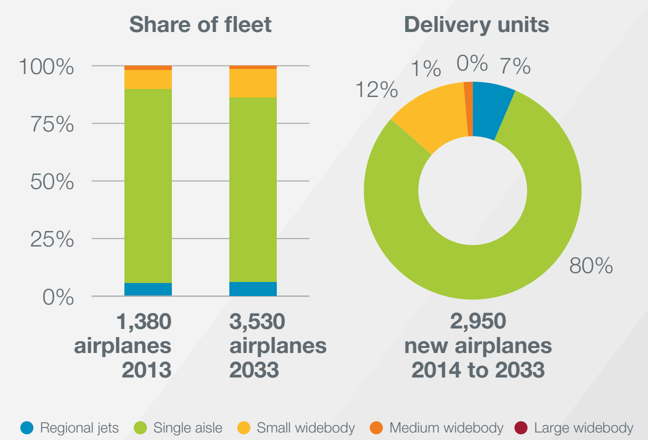
LLCs have seen rapid growth in Latin America's two largest markets, Brazil and Mexico, where they now have penetration rates of 46 and 63 percent, respectively. Significant opportunities still exist for LCCs to penetrate the markets of the other countries in the region. Existing LLCs are accordingly planning for growth, through expansion and through partnerships.

Latin America
LCC seat share is mixed across regional flows

Source: Innovata



Latin America
Market value: $340 billion



Latin America
Key indicators and new airplane markets

Growth measures (%)	
Economy (GDP)	3.9
Traffic (RPK)	6.2
Cargo (RTK)	5.3
Airplane fleet	4.8

	New airplanes	**Share by size** (%)
Large widebody	0	-
Medium widebody	40	1
Small widebody	360	12
Single aisle	2,360	80
Regional jet	190	7
Total	**2,950**	

Market size	
Deliveries	2,590
Market value	$340B
Average value	$120M

	2013 fleet	**2033 fleet**
Large widebody	0	0
Medium widebody	20	50
Small widebody	120	430
Single aisle	1,160	2,840
Regional jet	80	210
Total	**1,380**	**3,530**

Middle East

Growth strategies

At the crossroads between Asia, Africa, and Europe, the Middle East is well positioned to compete for traffic connecting these regions. Total airline capacity in the Middle East grew 11 percent in 2013, led by Emirates, Qatar Airways, Etihad Airways, Saudia, and the region's low-cost carriers (LCC).

Booming demand in neighboring regions, plus local demand development, work together to drive the Middle East market. Hub aggregation is a key to enabling growth, because the region's central hubs allow carriers to serve hundreds of routes that have insufficient traffic to warrant point-to-point service. Alliances, partnerships, and equity stakes in airlines of neighboring regions also feed the Middle East hubs.

Business model innovation supports growth in the region as LCCs reduce short-haul fares, set up cross-border subsidiaries, and institute mobile booking portals to improve access to air transport services. Some LCCs are expanding their networks into previously underserved areas, such as the Commonwealth of Independent States. The LCC business model is evolving as carriers such as flydubai develop hybrid concepts that combine low-fare operations with business-class offerings.

Liberalization advances

There remains significant untapped potential for liberalization within the region. The Kingdom of Saudi Arabia is taking steps toward opening its underserved domestic markets. Two new airlines are expected to begin operations in 2014: SaudiGulf, an independent based in Dammam, and Al Maha, an offshoot of Qatar Airways. State-owned Saudia is expected to be privatized, although perhaps not quickly. Commentators note the opportunity for the relaxation of price controls on domestic flights in Saudi Arabia, which would support industry health and service quality.

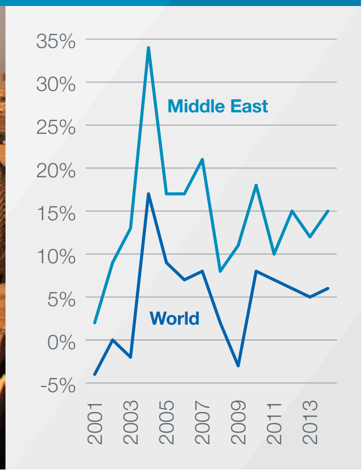
Infrastructure and airspace development

Infrastructure investment tends to target new runways and terminals, focusing on the region's main hubs. New airports opened in Jebel Ali (Dubai) and Doha, runways were refurbished and upgraded at Dubai International, and construction started on a new terminal at Abu Dhabi International. Airport expansion is also underway at King Abdulaziz International (Jeddah) and King Khalid International (Riyadh).

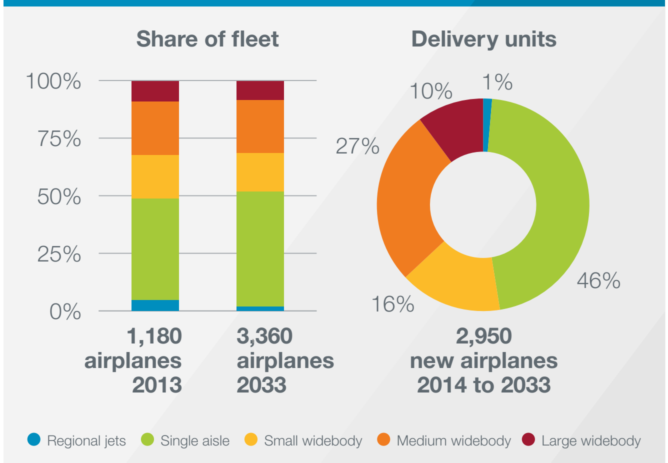
Other challenges remain: Large sections of airspace remain under military control, reducing the airspace available for commercial traffic; and the region's air traffic control (ATC) systems are not centralized, leaving operators to contend with a patchwork of rules, agencies, and processes. Regional authorities are working to address these needs, and recent discussions of ATC coordination between the Gulf Cooperation Council countries and their neighbors serve as a sign of progress.

Middle East
Outpaces the World in international traffic growth

Source: IATA



Middle East
Market value: $640 billion



Middle East
Key indicators and new airplane markets

Growth measures (%)	
Economy (GDP)	3.8
Traffic (RPK)	6.4
Cargo (RTK)	5.9
Airplane fleet	5.4

	New airplanes	Share by size (%)
Large widebody	300	10
Medium widebody	790	27
Small widebody	460	16
Single aisle	1,360	46
Regional jet	40	1
Total	**2,950**	

Market size	
Deliveries	2,950
Market value	$640B
Average value	$220M

	2013 fleet	2033 fleet
Large widebody	100	270
Medium widebody	280	770
Small widebody	220	570
Single aisle	520	1,680
Regional jet	60	70
Total	**1,180**	**3,360**

Commonwealth of Independent States

Strong travel growth

The commercial aviation outlook for the Commonwealth of Independent States (CIS) foresees continued growth. The region's geographical size and diverse terrain make airline travel an attractive transportation option. Air travel will increase over the coming 20 years as personal incomes rise and air transport regulations are liberalized to make aviation services more available and affordable. The region's demand for new airplanes is increasing. Over the next 20 years, airlines in CIS will need 1,330 airplanes, valued at $150 billion.

The economies of the CIS are expected to continue to expand, with GDP growing 3.3 percent annually over the next 20 years. Russia's economy continues to be the region's largest, accounting for nearly 75 percent of the region's GDP in 2013. The economies of Ukraine and Kazakhstan follow that of Russia in size.

The Russian Transport Ministry's Federal Air Transport Agency reported that the number of passengers carried by Russian airlines rose to nearly 85 million in 2013, an increase of 14.2 percent compared with 2012.

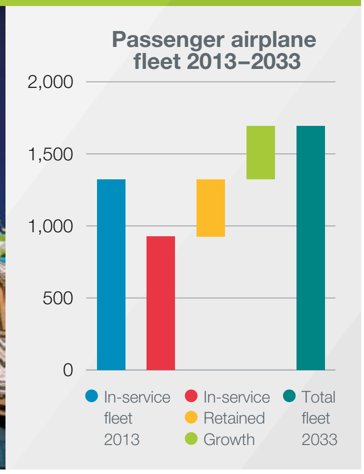
Developing fleet

International traffic is expected to grow at an annual rate of 4.6 percent, nearly doubling over the next 20 years, as market regulation liberalizes. Airlines will need 180 widebody airplanes to handle the increased traffic. The new airplanes will help the region's airlines increase their international footprint. Within the region, traffic is expected to grow 4.3 percent, creating a need for 990 single-aisle airplanes. Although the region's fleet continues to grow, 52 percent of new airplane deliveries will be to replace older airplanes as they retire from the fleet. New airplanes, such as the 737 MAX and the 787 Dreamliner, are more efficient than the airplanes they replace, so overall fleet efficiency will improve.

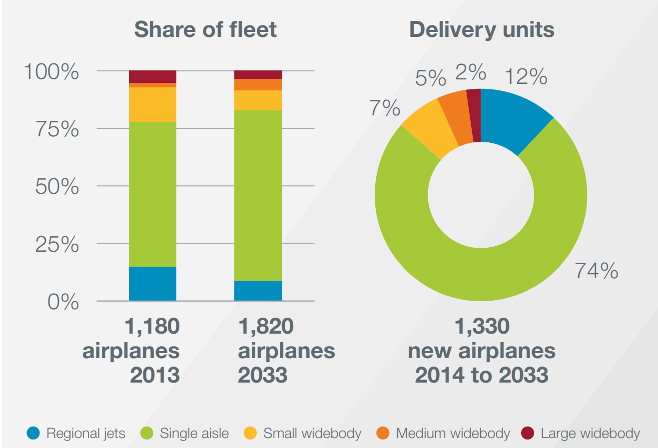
Shifting business models

The low-cost carrier (LCC) business model has been expanding throughout the globe, though with limited success in the CIS. This may be changing, as recent increases in the number of LCC flights from neighboring regions and Aeroflot's intention to launch a low-cost subsidiary could signal the market's readiness for airline business model innovation. Rail transportation is still very popular in the region, but LCCs operating with competitive airfares and faster travel time may capture traffic from the rails.

CIS
1,330 new passenger airplanes required



CIS
Market value: $150 billion



CIS
Key indicators and new airplane markets

Growth measures (%)	
Economy (GDP)	3.3
Traffic (RPK)	4.4
Cargo (RTK)	4.0
Airplane fleet	2.2

	New airplanes	Share by size (%)
Large widebody	30	2
Medium widebody	60	5
Small widebody	90	7
Single aisle	990	74
Regional jet	160	12
Total	**1,330**	

Market size	
Deliveries	1,330
Market value	$150B
Average value	$110M

	2013 fleet	2033 fleet
Large widebody	60	60
Medium widebody	20	90
Small widebody	180	160
Single aisle	740	1,350
Regional jet	180	160
Total	**1,180**	**1,820**

Africa

Economic growth prospects rival Asia's

Growth of Africa's economies has accelerated. Despite the global recession and political unrest in North Africa, gross domestic product has increased 4 percent annually over the past decade, compared with an average 2.2 percent rise during the 1990s. Rising demand for natural resources, particularly from emerging economies in Asia and the Middle East, contribute to this growth. Consequently, Africa conducts half its trade with developing economic regions.

Africa's acceleration is more than a natural resources story. Its economies are diversifying as telecommunications, banking, and retail flourish. An economy based on rising incomes, consumption, employment, and productivity is emerging, and these trends are forecast to continue.

Twenty-five African countries have attained middle-income status as defined by the World Bank. The emergence of a middle class equal in size to India's makes consumption a major driver of economic growth. Africa's labor force is forecast to grow by 122 million people by 2020, and a total workforce that will surpass that of China or India by 2035.

Strong economic prospects lead to robust demand for air travel

Traffic to, from, and within Africa is projected to grow about 6 percent per year for the next 20 years, driven by the economic outlook, increasing trade links, and the growing middle class.

Although air travel to and from Europe is Africa's largest market, stronger growth to and from emerging markets and within Africa indicatesmore blance in the future. Today, flows to Europe account for half of all Africa traffic. In 20 years, that share is projected to fall to one-third, owing to growth in emerging markets.

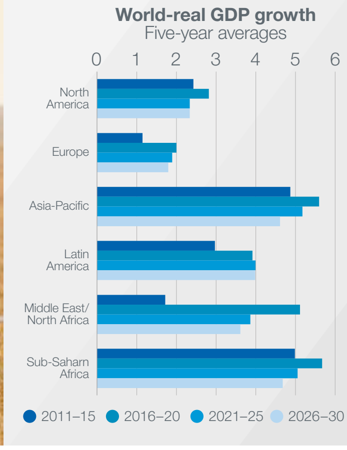
Growth and replacement drive delivery projections

Africa is forecast to require about 1,100 new airplanes over the next 20 years, approximately two-thirds of which will expand the region's fleet. Replacing the aging fleet is also an important component of demand. Although the average in-service age of Africa's mainline fleet has declined by approximately 25 percent over the past decade, it remains higher than the world average.

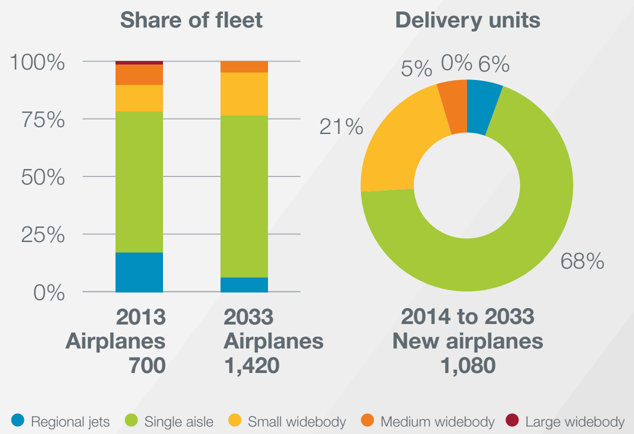
Single-aisle airplanes will continue to be the largest segment of African airline deliveries. They can serve the majority of routes in Africa's top three markets, where their versatility and ability to provide higher service levels make them attractive. Widebody airplanes, purchased by airlines that fly high-density and long-range routes, will account for almost half of the total delivery value to African airlines.

Africa
Economic growth prospects rival Asia's

Source: IHS Ecomomics



Africa
Market value: $140 billion



Africa
Key indicators and new airplane markets

Growth measures (%)	
Economy (GDP)	4.7
Traffic (RPK)	5.9
Cargo (RTK)	6.1
Airplane fleet	3.6

	New airplanes	**Share by size** (%)
Large widebody	-	-
Medium widebody	50	5
Small widebody	230	21
Single aisle	740	68
Regional jet	60	6
Total	**1,080**	

Market size	
Deliveries	1,080
Market value	$140B
Average value	$130M

	2013 fleet	**2033 fleet**
Large widebody	10	-
Medium widebody	60	70
Small widebody	80	260
Single aisle	430	1,000
Regional jet	120	90
Total	**700**	**1,420**

Pilot and technician outlook

Pilot and Technician Outlook
The 2014 Boeing Pilot and Technician Outlook projects that 533,000 new commercial airline pilots and 584,000 new maintenance technicians will be needed to fly and maintain the world fleet over the next 20 years.

Meeting this exponential increase in demand 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 also require instructors to have cross-cultural and cross-generational skills in order to engage tomorrow's workforce. Training providers will be more focused on enabling airplane operators to gain optimal advantage of the advanced features of the latest generation of airplanes, such as the 787 Dreamliner and 737 MAX.

Asia Pacific demand for pilots remains greatest
Although Asia Pacific remains the region with the highest overall demand, the anticipated number of pilots and technicians required in the Middle East has increased significantly, reflecting expected fleet expansion plans by the region's airlines.

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.

Emerging markets that have relied heavily on recruitment of pilots from outside their home markets will increasingly need a strong local foundation for developing and training qualified pilots.

Over the next 20 years, the Asia Pacific region, with a requirement for 216,000 new pilots, will see the largest growth in pilot demand. Europe will require 94,000; North America, 88,000; the Middle East, 55,000; Latin America, 45,000; the Commonwealth of Independent States (CIS), 18,000; and Africa, 17,000.

The need for technicians will remain strong
As new-generation airplanes come to dominate the world fleet over the next 20 years, airplane reliability will improve, and maintenance check intervals will lengthen. Although this trend will moderate growth in the demand for technicians, the global requirement remains significant.

The combination of global fleet growth and an increasing trend to outsource maintenance, repair, and overhaul activities to third-party providers in emerging markets will drive the need for the number of qualified technicians to increase and the number of geographical sources of trained technicians to expand.

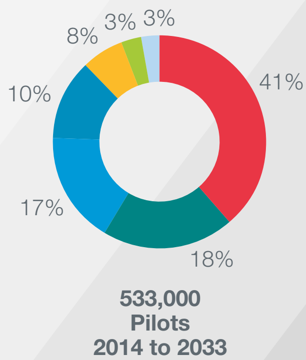
The need for maintenance personnel is greatest in the Asia Pacific region, which will require 224,000 new technical personnel. Airlines in Europe will require 102,000; North America, 109,000; the Middle East, 62,000; Latin America, 44,000; the CIS, 24,000; and Africa, 19,000.

Pilot and technician outlook
20-year demand for aviation personnel

Demand drives need for **a diverse and growing workforce**

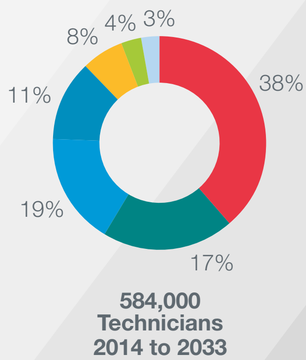
Pilot and technician outlook
New pilots by region 2014–2033

Region	Pilots
Asia Pacific	216,000
Europe	94,000
North America	88,000
Middle East	55,000
Latin America	45,000
CIS	18,000
Africa	17,000
Total	**533,000**



Pilot and technician outlook
New technicians by region 2014–2033

Region	Technicians
Asia Pacific	224,000
Europe	102,000
North America	109,000
Middle East	62,000
Latin America	44,000
CIS	24,000
Africa	19,000
Total	**584,000**



Airline passenger traffic
Growth by regional flow

Regions RPKs in billions	2006	2007	2008	2009	2010	2011	2012	2013	2033	Annual growth 2013 to 2033 (%)
Africa– Africa	35.6	37.3	41.6	43.9	48.7	51.1	54.5	53.7	197.6	6.7
Africa–Europe	**121.9**	**125.3**	**125.6**	**128.2**	**135.5**	**134.1**	**140.4**	**140.4**	**368.6**	**4.9**
Africa–Middle East	20.9	23.1	24.9	32.9	36.4	39.4	48.6	50.8	206.0	7.3
Africa–North America	**4.3**	**4.9**	**6.3**	**8.8**	**11.3**	**11.4**	**12.6**	**12.2**	**40.1**	**6.1**
Africa–Southeast Asia	4.1	5.2	5.4	4.1	5.6	5.9	4.6	4.2	15.0	6.6
Central America–Central America	**28.2**	**29.7**	**32.3**	**29.8**	**31.3**	**32.2**	**33.8**	**36.5**	**88.5**	**4.5**
Central America–Europe	74.1	80.7	83.3	77.1	73.8	73.7	78.3	82.1	198.9	4.5
Central America–North America	**105.0**	**106.8**	**115.8**	**104.7**	**112.7**	**114.5**	**132.0**	**138.3**	**310.5**	**4.1**
Central America–South America	10.3	11.0	13.1	14.0	18.3	19.2	23.2	28.5	88.8	5.8
China–China	**189.8**	**223.1**	**236.5**	**287.4**	**335.4**	**380.1**	**411.3**	**460.8**	**1,669.7**	**6.6**
China–Europe	75.3	91.0	82.5	77.3	82.1	94.2	96.7	96.9	317.4	6.1
China–North America	**51.4**	**54.5**	**62.7**	**60.9**	**71.4**	**85.4**	**87.1**	**89.5**	**305.3**	**6.3**
China–Northeast Asia	42.4	49.3	48.4	43.2	51.8	51.5	60.9	60.7	162.4	5.0
China–Oceania	**19.3**	**19.4**	**21.4**	**22.8**	**27.4**	**31.4**	**34.1**	**35.0**	**125.3**	**6.6**
China–Southeast Asia	44.6	49.3	50.6	45.3	54.7	63.0	73.8	82.5	352.0	7.5
CIS Region–CIS Region	**77.3**	**80.8**	**88.9**	**76.9**	**87.6**	**103.1**	**107.1**	**118.3**	**273.7**	**4.3**
CIS Region–International	63.6	81.6	77.7	83.6	101.6	124.1	139.4	157.9	388.5	4.6
Europe–Europe	**593.3**	**634.2**	**660.5**	**624.9**	**640.2**	**659.5**	**676.6**	**714.0**	**1,411.4**	**3.5**
Europe–Middle East	99.2	106.6	115.2	131.2	143.8	153.3	178.0	196.8	561.6	5.4
Europe–North America	**403.4**	**420.6**	**432.4**	**405.4**	**418.6**	**430.2**	**432.9**	**441.8**	**817.9**	**3.1**
Europe–Northeast Asia	60.6	67.9	69.0	59.4	64.3	63.8	75.9	74.3	132.9	2.9
Europe–South America	**67.4**	**70.7**	**75.2**	**79.3**	**82.9**	**89.8**	**99.6**	**102.4**	**278.3**	**5.1**
Europe–South Asia	53.3	58.5	55.5	51.3	53.8	54.1	53.9	56.4	212.3	6.8
Europe–Southeast Asia	**95.9**	**96.8**	**101.5**	**95.9**	**97.1**	**100.4**	**106.6**	**105.3**	**266.7**	**4.8**
Middle East–Middle East	53.7	60.3	63.4	68.6	77.9	82.4	76.5	86.3	239.9	5.2
Middle East–North America	**20.6**	**23.4**	**29.5**	**41.6**	**45.7**	**50.3**	**57.1**	**63.2**	**214.6**	**6.3**
Middle East–South Asia	42.0	46.5	49.5	64.8	75.1	83.0	87.3	95.1	445.1	8.0
Middle East–Southeast Asia	**33.4**	**41.1**	**45.4**	**46.7**	**56.3**	**61.3**	**66.4**	**79.0**	**259.2**	**6.1**
North America–North America	977.4	1,022.4	974.1	915.1	946.3	976.3	984.7	998.4	1,565.8	2.3
North America–Northeast Asia	**140.7**	**143.7**	**139.4**	**120.2**	**128.4**	**135.4**	**149.0**	**150.4**	**211.4**	**1.7**
North America–Oceania	30.6	32.1	32.3	34.8	34.9	38.3	40.3	43.1	90.5	3.8
North America–South America	**50.7**	**52.1**	**52.7**	**56.9**	**60.9**	**66.7**	**72.0**	**79.2**	**238.6**	**5.7**
North America–Southeast Asia	9.4	11.3	9.3	10.3	10.3	11.3	10.7	9.8	34.0	6.4
Northeast Asia–Northeast Asia	**87.4**	**88.8**	**84.9**	**81.9**	**84.6**	**81.9**	**92.6**	**103.9**	**152.9**	**1.9**
Northeast Asia–Oceania	21.5	21.0	20.8	15.1	18.1	16.6	17.1	15.9	34.0	3.9
Northeast Asia–Southeast Asia	**80.1**	**86.3**	**87.7**	**74.3**	**79.6**	**92.3**	**104.9**	**113.3**	**256.8**	**4.2**
Oceania–Oceania	70.8	74.4	72.0	73.3	78.4	83.8	92.0	99.0	247.0	4.7
Oceania–Southeast Asia	**51.9**	**52.4**	**57.4**	**54.7**	**61.1**	**66.9**	**71.5**	**77.8**	**210.3**	**5.1**
South America–South America	74.2	83.1	81.6	86.9	115.8	134.4	141.9	147.4	633.4	7.6
South Asia–South Asia	**31.3**	**36.3**	**40.1**	**43.8**	**49.5**	**58.6**	**63.8**	**68.1**	**421.3**	**9.5**
Southeast Asia–South Asia	19.4	20.6	24.3	21.9	28.5	29.2	34.0	36.2	185.8	8.5
Southeast Asia–Southeast Asia	**78.8**	**93.4**	**93.2**	**96.0**	**113.1**	**130.7**	**145.1**	**166.6**	**734.7**	**7.7**
Rest of World	38.6	44.3	55.5	69.3	87.9	97.4	116.0	126.1	572.9	7.9
Grand Total	4,253.6	4,561.9	4,639.2	4,564.2	4,938.7	5,262.2	5,585.0	5,898.0	15,537.6	5.0

*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	$2,020	13,460
Europe	$1,040	7,450
North America	$870	7,550
Latin America	$340	2,950
Middle East	$640	2,950
CIS	$150	1,330
Africa	$140	1,080
World	**$5,200**	**36,770**

Deliveries by airplane size and region

Region	Regional jets	Single aisle	Small widebody	Medium widebody	Large widebody	Total deliveries
Asia Pacific	350	9,540	1,940	1,420	210	13,460
Europe	120	5,870	810	590	60	7,450
North America	1,570	4,820	630	510	20	7,550
Latin America	190	2,360	360	40	-	2,950
Middle East	40	1,360	460	790	300	2,950
C.I.S.	160	990	90	60	30	1,330
Africa	60	740	230	50	-	1,080
World	**2,490**	**25,680**	**4,520**	**3,460**	**620**	**36,770**

Market value by airplane size and region*

Region	Regional jets	Single aisle	Small widebody	Medium widebody	Large widebody	Total deliveries
Asia Pacific	$10	$960	$490	$480	$80	$2,020
Europe	$10	$600	$220	$190	$20	$1,040
North America	$60	$490	$140	$170	$10	$870
Latin America	$10	$230	$90	$10	-	$340
Middle East	<$5	$130	$120	$270	$120	$640
CIS	$10	$80	$30	$20	$10	$150
Africa	<$5	$70	$50	$20	-	$140
World	**$100**	**$2,560**	**$1,140**	**$1,160**	**$240**	**$5,200**

*2013 $B catalog prices. Values above 10 have been rounded to nearest 10.

Passenger and freighter airplanes
In service and future fleet

Total airplanes in service

Size	2013	2033
Regional jet	2,620	2,640
Single aisle	13,580	29,500
Small widebody	2,390	5,570
Medium widebody	1,580	3,680
Large widebody	740	790
Total	**20,910**	**42,180**

Passenger airplanes in service

Size	2013	2033
Regional jet	2,570	2,600
Single aisle	13,040	28,440
Small widebody	1,810	4,760
Medium widebody	1,340	3,120
Large widebody	460	530
Total	**19,220**	**39,450**

Freighter airplanes in service

Size	2013	2033
Widebody	1,100	1,630
Standard	590	1,100
Total	**1,690**	**2,730**

Airplane demand

Size	$B	Airplanes
Regional jet	$100	2,490
Single aisle	$2,560	25,680
Small widebody	$1,140	4,520
Medium widebody	$1,160	3,460
Large widebody	$240	620
Grand total	**$5,200**	**36,770**

Passenger airplane demand

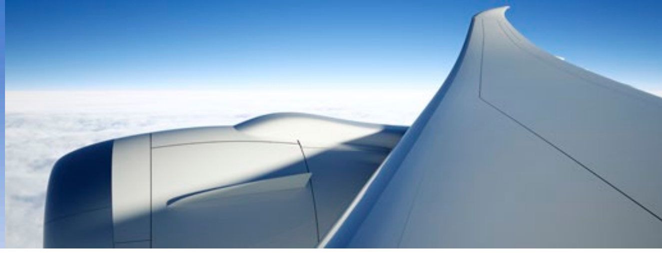
Size	$B	Airplanes
Regional jet	$100	2,490
Single aisle	$2,560	25,680
Small widebody	$1,090	4,270
Medium widebody	$1,010	2,990
Large widebody	$200	500
Grand total	**$4,960**	**35,930**

Freighter airplane demand

Size	$B	Airplanes
Large*	$190	590
Medium widebody	$50	250
Standard	-	0
Grand total	**$240**	**840**

*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 2013 ($B)	Market share value (%)	New airplane deliveries	Market share units (%)
Large*	$240	5	620	5
Medium	$1,160	22	3,460	22
Small	$1,140	22	4,520	22
Total twin aisle	**$2,540**	**49**	**8,600**	**49**
More than 175 seats	$730	14	6,380	14
90 to 175 seats	$1,830	35	19,300	35
Total single aisle	**$2,560**	**49**	**25,680**	**49**
Total regional jets	**$100**	**2**	**2,490**	**2**
Total fleet	**$5,200**	**100**	**36,770**	**100**

Passenger fleet development

Size	End of year 2013	Removed from service	Converted to freighter	New deliveries 2014 to 2033	End of year 2033
Large*	460	430		500	530
Medium	1,340	1,210		2,990	3,120
Small	1,810	1,320		4,270	4,760
Total Wide-body	**3,610**	**2,960**		**7,760**	**8,410**
More than 175 seats	1,720	1,270		6,380	6,830
90 to 175 seats	11,320	9,010		19,300	21,610
Total single aisle	**13,040**	**10,280**		**25,680**	**28,440**
Total regional jets	**2,570**	**2,460**		**2,490**	**2,600**
Total fleet	**19,220**	**15,700**	**1,330**	**35,930**	**39,450**

Freighter fleet development

Size	End of year 2013	Removed from service	Converted to freighter	New deliveries 2014 to 2033	End of year 2033
Widebody	1,100	680		840	1,630
Standard body	590	450		-	1,100
Total freighter fleet	**1,690**	**1,130**	**1,330**	**840**	**2,730**

Total fleet

Size	End of year 2013	Removed from service	Converted to freighter	New deliveries 2014 to 2033	End of year 2033
Passenger fleet	19,220	15,700	1,330	35,930	39,450
Freighter fleet	1,690	1,130	1,330	840	2,730
Total fleet	**20,910**	**16,830**	**1,330**	**36,770**	**42,180**

*Large passenger and Larger Freighter categories differ

Fleet by region

Fleet growth
by size and region

Fleet by airplane size

Size	Airplanes in service 2013	Fleet share 2013%	Airplanes in service 2033	Fleet share 2033%
Large*	740	4	790	2
Medium	1,580	8	3,680	9
Small	2,390	11	5,570	13
Total widebody	**4,710**	**23**	**10,040**	**24**
More than 175 seats	1,960	9	7,250	17
90 to 175 seats	11,620	56	22,250	53
Total single aisle	**13,580**	**65**	**29,500**	**70**
Total regional jets	**2,620**	**13**	**2,640**	**6**
Total fleet	**20,910**	**100**	**42,180**	**100**

Fleet by region in 2013

Region	Regional jets	Single aisle	Small widebody	Medium widebody	Large widebody	Total
Asia Pacific	130	3,820	710	520	290	5,470
North America	1,710	3,790	730	320	100	6,650
Europe	340	3,120	350	360	180	4,350
Latin America	80	1,160	120	20	-	1,380
Middle East	60	520	220	280	100	1,180
CIS	180	740	180	20	60	1,180
Africa	120	430	80	60	10	700
World	**2,620**	**13,580**	**2,390**	**1,580**	**740**	**20,910**

Fleet by region in 2033

Region	Regional jets	Single aisle	Small widebody	Medium widebody	Large widebody	Total
Asia Pacific	350	10,850	2,250	1,500	270	15,220
North America	1,610	5,950	920	560	80	9,120
Europe	150	5,830	980	640	110	7,710
Latin America	210	2,840	430	50	-	3,530
Middle East	70	1,680	570	770	270	3,360
CIS	160	1,350	160	90	60	1,820
Africa	90	1,000	260	70	-	1,420
World	**2,640**	**29,500**	**5,570**	**3,680**	**790**	**42,180**

Major traffic flows

Airline traffic flows
by region

Airline passenger growth rates 2013–2033

RPKs in percentages	Africa	Latin America	Middle East	Europe	North America	Asia Pacific
Asia Pacific	7.1	8.8	7.4	5.3	4.3	**6.4**
North America	6.1	4.7	6.3	3.1	**2.3**	
Europe	4.9	4.9	5.4	**3.5**		
Middle East	7.3	-	**5.2**			
Latin America	8.0	**6.9**				
Africa	**6.7**					

Airline passenger traffic in 2013

RPKs in billions	Africa	Latin America	Middle East	Europe	North America	Asia Pacific
Asia Pacific	19.8	2.3	244.9	332.9	303.3	**1,334.2**
North America	12.2	217.5	63.2	441.8	**998.4**	
Europe	140.4	184.4	196.8	**714.0**		
Middle East	50.8	-	**86.3**			
Latin America	3.0	**212.5**				
Africa	**53.7**					

Airline passenger traffic in 2033

RPKs in billions	Africa	Latin America	Middle East	Europe	North America	Asia Pacific
Asia Pacific	78.5	12.2	1,021.0	929.3	700.3	**4,616.6**
North America	40.1	549.0	214.6	817.9	**1,565.8**	
Europe	368.6	477.2	561.6	**1411.4**		
Middle East	206.0	-	**239.9**			
Latin America	14.0	**810.7**				
Africa	**197.6**					

Bold: Share within region.

Flow of airplanes

Airplane fleet

How the fleet develops as airplanes are added and removed

19,220
Passenger fleet in 2013

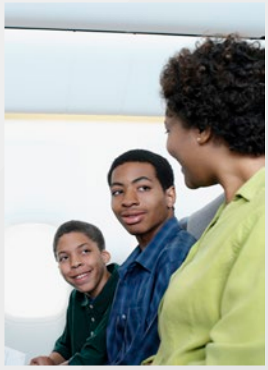
In service — Parked

Used

\+ **35,930** New airplanes

− **15,700** Removed airplanes

14,370 Permanently retired



39,450
Passenger fleet in 2033

1,330 Converted to freighter

1,690
Freighter fleet in 2013

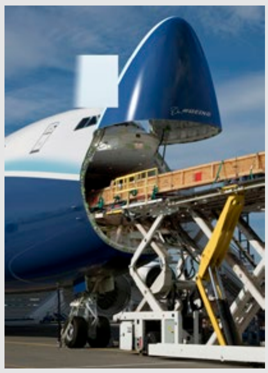
In service — Parked

Used

\+ **840** New freighters

− **1,130** Removed freighters

1,130 Permanently retired



2,730
Freighter fleet in 2033

Traffic by region

Airline traffic flows
by region

Airline passenger growth rates 2013–2033

RPKs in percentages	Africa	Latin America	Middle East	Europe	North America	Asia Pacific
Asia Pacific	7.1	8.8	7.4	5.3	4.3	**6.4**
North America	6.1	4.7	6.3	3.1	**2.3**	
Europe	4.9	4.9	5.4	**3.5**		
Middle East	7.3	-	**5.2**			
Latin America	8.0	**6.9**				
Africa	**6.7**					

Airline passenger traffic in 2013

RPKs in billions	Africa	Latin America	Middle East	Europe	North America	Asia Pacific
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Airline passenger traffic in 2033

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Middle East	206.0	-	**239.9**			
Latin America	14.0	**810.7**				
Africa	**197.6**					

Bold: Share within region.

Airplane categories

Passenger and freighter
Airplane market sector definitions

Single-aisle passenger airplanes

Regional jets	90 to 175 seats	More than 175 seats
Antonov An-148	Boeing 717, 727	Boeing 707, 757
AVIC ARJ-700	Boeing 737-100 through -500	**Boeing 737-900ER**
Avro RJ70, RJ85	**Boeing 737-600, -700, -800**	**Boeing 737 MAX 9**
BAe 146-100, -200	**Boeing 737 MAX 7, MAX 8**	**Airbus A321**
Bombardier CRJ	**Airbus A318, A319, A320**	**Airbus A321neo**
Dornier 328JET	**Airbus A319neo, A320neo**	**Tupolev TU-204, TU-214**
Embraer 170, 175	Boeing-MDC DC-9, MD-80, -90	
Embraer ERJ-135, -140, -145	**AVIC ARJ-900**	
Fokker 70, F28	BAe 146-300, Avro RJ100	
Mitsubishi MRJ	**Bombardier CRJ-1000**	
Sukhoi Superjet 100	**Bombardier CS100, CS300**	
Yakovlev Yak-40	**Embraer 190, 195**	
	COMAC C919	
	Fokker 100	
	UAC MS 21-200 -300	
	Ilyushin IL-62	
	Tupolev TU-154	
	Yakovlev Yak-42	

Widebody passenger airplanes

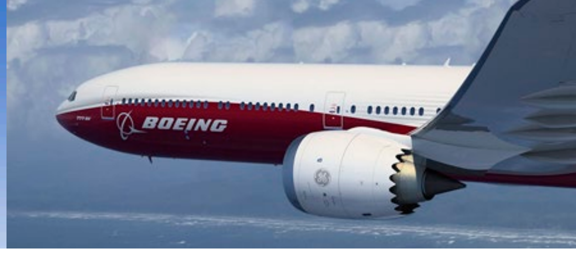
Small Two class: 230 to 340 seats Three class: 200 to 300 seats	**Medium** Two class: 340 to 450 seats Three class: 300 to 400 seats	**Large*** Three class: more than 400 seats
Boeing 767, 787	**Boeing 777, 777X**	**Boeing 747-8**
Boeing-MDC DC-10	Boeing-MDC MD-11	Boeing 747-100 through -400
Airbus A300, A310	**Airbus A340**	**Airbus A380**
Airbus A330-200, -300	**Airbus A350-1000**	
Airbus A350-800, -900	Ilyushin IL-86	
Lockheed L-1011	**Boeing 787-10**	
Ilyushin IL-96		

Freighter airplanes

Standard body Less than 45 tonnes	**Medium widebody** 40 to 80 tonnes	**Large*** More than 80 tonnes
BAe 146	Boeing 767	Boeing-MDC MD-11
Boeing-MDC DC-8, -9	Lockheed L-1011SF	Boeing 747-100 through -400
Boeing 737	Boeing-MDC DC-10	Boeing 777
Boeing 727	Boeing 787	Airbus A350
Tupolev TU-204	Airbus A300	Ilyushin IL-96T
Boeing 707	Ilyushin IL-76TD	Antonov An-124
Boeing-MDC MD-80		747-8F
Boeing 757-200		
Airbus A320, A321		

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.

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
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