



Global Market Forecast

# Future Payloads

Freight forecast

2013 2032





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[www.airbus.com/  
company/market/gmf2013](http://www.airbus.com/company/market/gmf2013)



# Introduction

## Air freight essential to world trade

There is no disguising the difficulties faced by freight carriers in recent years. On a worldwide basis, freight traffic growth has been impacted in the years following the global financial crisis that struck in 2008. This had a direct impact on people's willingness to spend and hence on international trade growth, which grew at just two per cent from 2008, with much of this coming from the emerging markets.

The more mature markets, especially Europe, have been the most negatively impacted by on-going sovereign debt issues and resulting austerity measures. This has very clearly affected air freight, as these are the markets with the large numbers of consumers of high value products, which tend to use air freight. However, air transportation is, and will continue to be hugely important to world trade, carrying over 30% of all world trade by value.

These recent difficulties, combined with pressure from other modes of transport have caused some to question whether there has been a longer-term shift away from air freight. However, from an economic perspective, there are positive signs, with the world economy showing signs of improvement, and the risk from many of the previously identified potential economic risks having diminished somewhat. Therefore, it is expected more robust growth will return to the air freight industry over the coming 12 months.



E-mail:  
[market.forecast@airbus.com](mailto:market.forecast@airbus.com)

# Executive summary

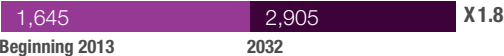


# Executive Summary

Freight traffic growth next 20 years

4.8% CAGR

Freighter fleet



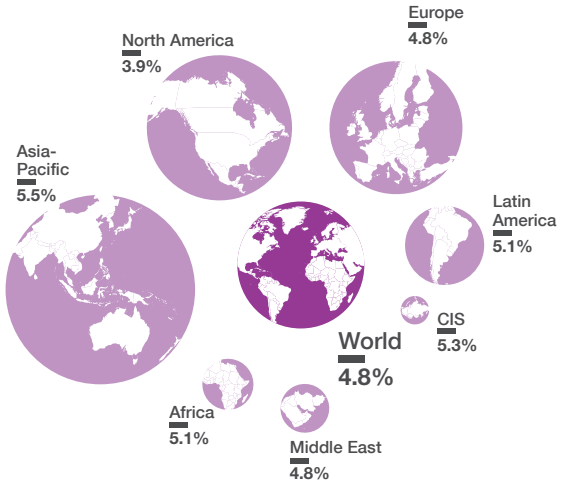
2013-2032



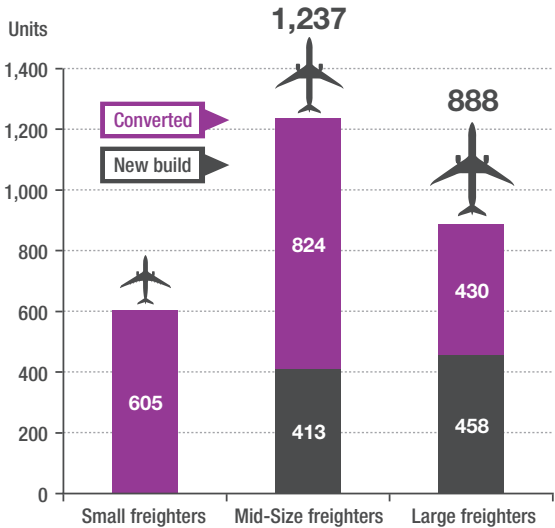
Business volume



## > FTK TRAFFIC GROWTH PER REGION [2012-2032]



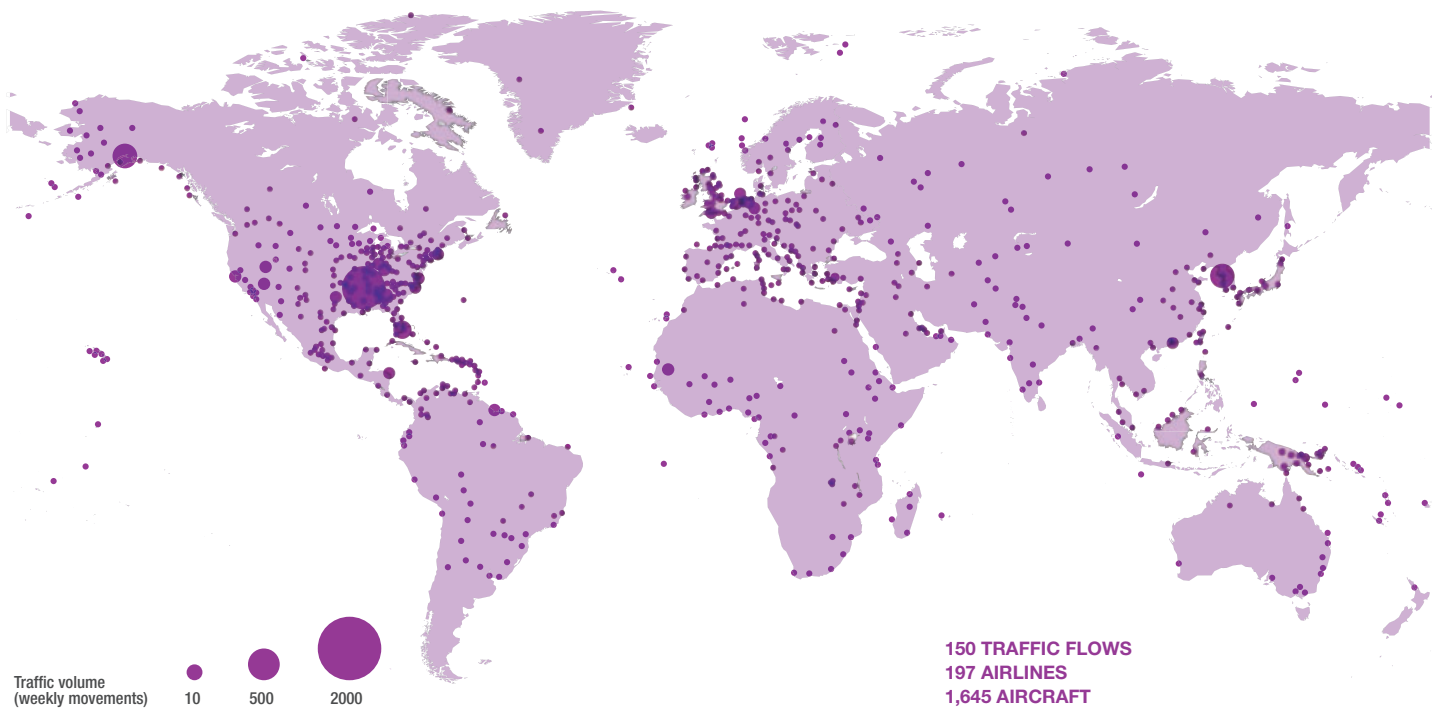
## > OVER 870 NEW-BUILD AIRCRAFT WILL BE REQUIRED OVER THE NEXT TWO DECADES



THE GLOBAL MARKET FORECAST COVERS THE WORLD

Source: OAG, DoT, Eurocontrol

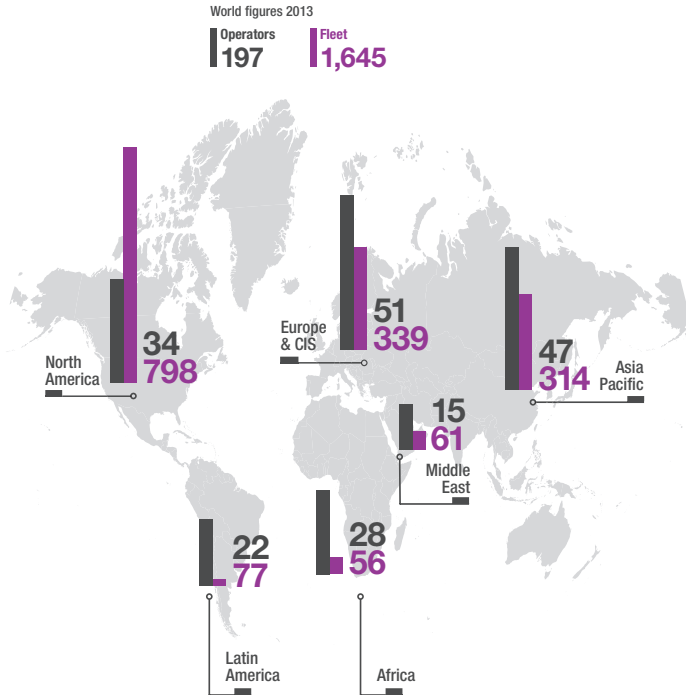
Dedicated cargo operations per airport, 2012



## Freighter fleet today

### > AIR FREIGHT INDUSTRY IN 2013

Source: ASCEND, Airbus



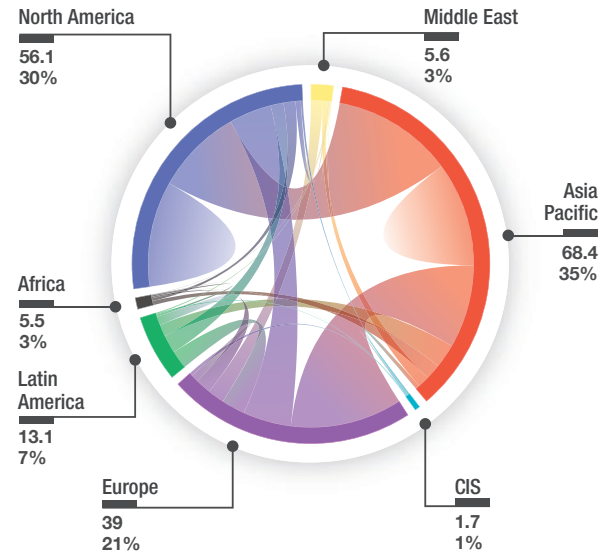
- 1,645 dedicated freighter aircraft are flying today over 10 tonnes.
- 197 carriers operate these aircraft.
- North American carriers operate 49% of the installed cargo fleet.
- 45% of freighters are mid-sized aircraft capable of carrying between 30 and 80 tonnes of goods.
- 61% of today's cargo fleet has been converted from passenger aircraft.
- Today, roughly 100 large freighters are parked as a result of the current industry situation.

## Freight traffic

### > NORTH AMERICA, ASIA-PACIFIC AND EUROPE COMBINED REPRESENTS 86% OF THE AIR CARGO TRAFFIC

Source: IATA, ATA, AEA, Airbus

Air cargo traffic wheel, FTKs (billions) in 2012



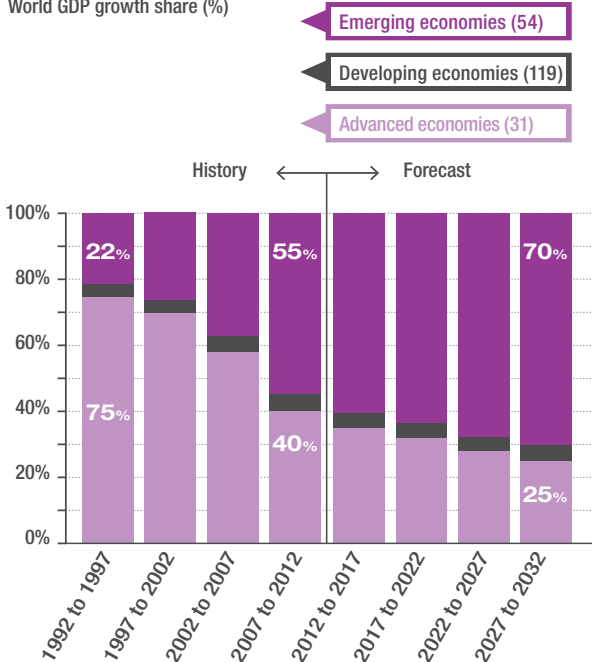
- Air freight remains key in the supply chain even during periods of crisis.
- Speed, reliability and security have real value for businesses.
- In 2012, the average value for each kilogram transported by air was \$127, while for ships it is approximately \$1.10.
- In 2012, FTKs decreased by 3% globally, but freight traffic has grown 7% since the crisis in 2008.
- Express services have proven more resilient through the economic difficulties.
- Today 70% of the traffic is from, to, or between emerging countries; up from 64% 10 years ago.

## Freight Growth Drivers

There is a high correlation between macro-economic drivers and the success of the air freight market.

- Several of the most important economic drivers are:
  - Economic activity.
  - World trade.
  - Private consumption.
  - Industrial production.
- Similar to the economy, much of the growth in the general air freight market is being driven by emerging markets.
- Within the mature markets, which have continued to struggle, economic growth is expected to return in late 2013.
- This return to economic growth will help to spur the air freight market into stronger growth in the near term.
- With an even higher correlation to air transportation, worldwide trade is expected to grow at 3.8% per year over the next 20 years.

World GDP growth share (%)



## Economic indicators

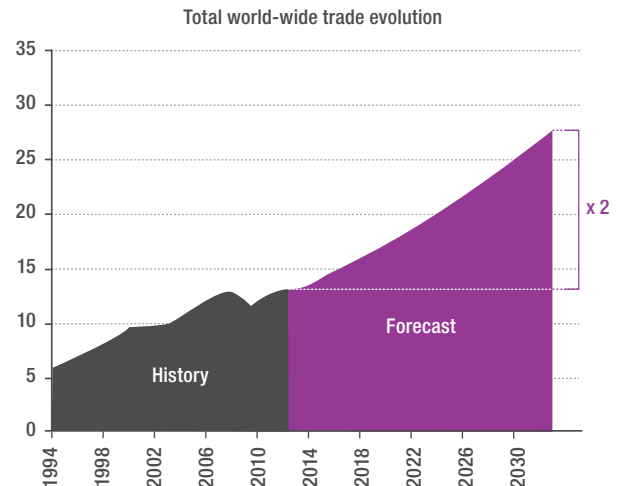
### WORLDWIDE ECONOMIC GROWTH IS EXPECTED TO STRENGTHEN THROUGH 2013

Source: IHS Global Insight, Airbus



### WORLDWIDE TRADE VOLUMES ARE EXPECTED TO MORE THAN DOUBLE IN THE NEXT 20 YEARS

Source: IHS Global Insight, Airbus





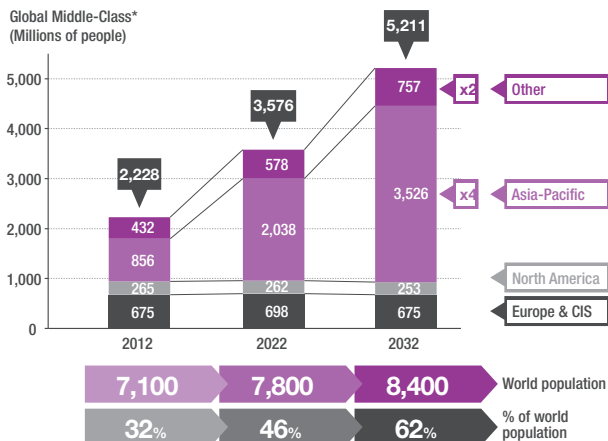
## Freight Growth Drivers

- Industrial production is expected to nearly double over the next 20 years.
- Industrial production in emerging markets has more than tripled in the last 20 years and will nearly triple again in the next 20 years.
- In advanced markets, industrial production has grown by 30% over the last 20 years and will grow by 50% in the next 20.
- The middle-class is expected to reach 5 billion people by 2030; 3.5 billion of them living in the Asia-Pacific region, which will boost private consumption within the region.
- Worldwide private consumption is expected to return more than 2% per annum growth, helping to further drive economic growth and therefore air freight demand.

### GLOBAL MIDDLE-CLASS\* EXPECTED TO RISE TO MORE THAN 5 BILLION PEOPLE BY 2032

Source: Kharas and Gertz, Airbus

\* Households with daily expenditures between \$10 and \$100 per person (at PPP)

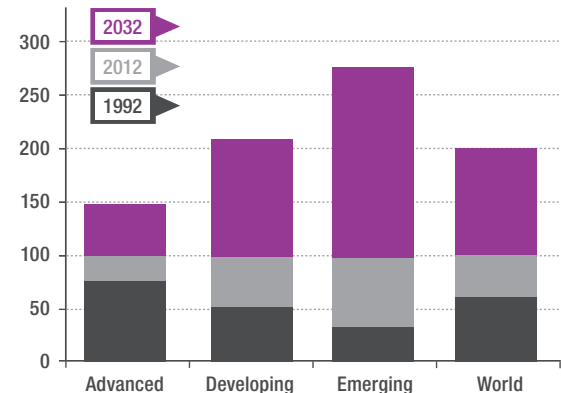


## Economic indicators

### INDUSTRIAL PRODUCTION DRIVEN BY EMERGING ECONOMIES

Source: IHS Global Insight, Airbus

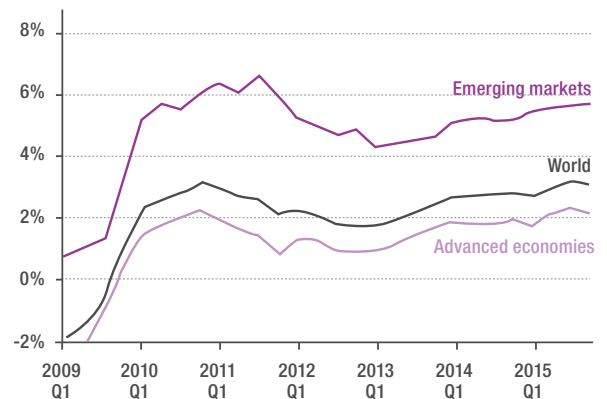
Industrial Production by market (base year 2012 = 100)



### PRIVATE CONSUMPTION TO GROW IN 2014

Source: IHS Global Insight, Airbus

Quarter-over-quarter evolution (%)

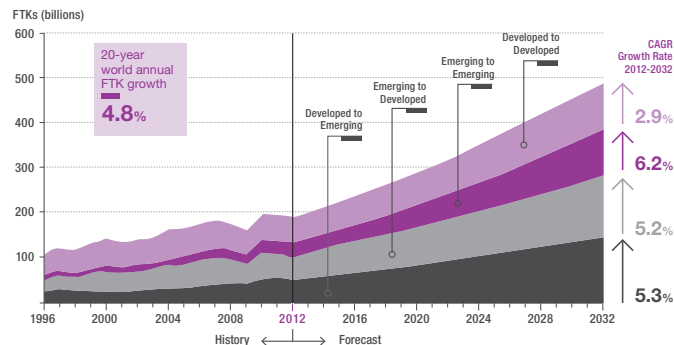


## Focus on Traffic Growth

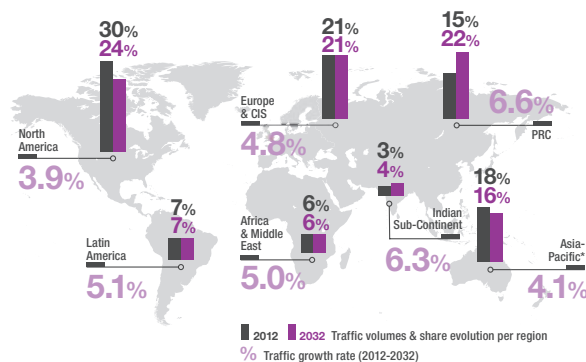
- Airbus' Freight GMF forecasts an average annual freight traffic growth rate of 4.8% over the next 20 years.
- Today, Asia Pacific (including India and the PRC) represents 36% of the world freight traffic and 42% by 2032.
- Europe/CIS and North America combined accounted for 51% of the total traffic in 2012, by 2032 although growing its share will be 45%.
- China is the largest driver of air cargo growth; today it represents 15%, by 2032 it will be 22% of the global market.
- Due in part to the expanding middle class in emerging countries, traffic from mature to emerging is the second fastest growing segment of the industry.

### FASTEST GROWTH FROM TRAFFIC BETWEEN AND WITHIN EMERGING REGIONS

Source: IATA, Seabury, US DOT, CAAC, Airbus



### THE CARGO MARKET CENTRE OF GRAVITY IS SLOWLY BUT CONSTANTLY MOVING TOWARD THE EAST

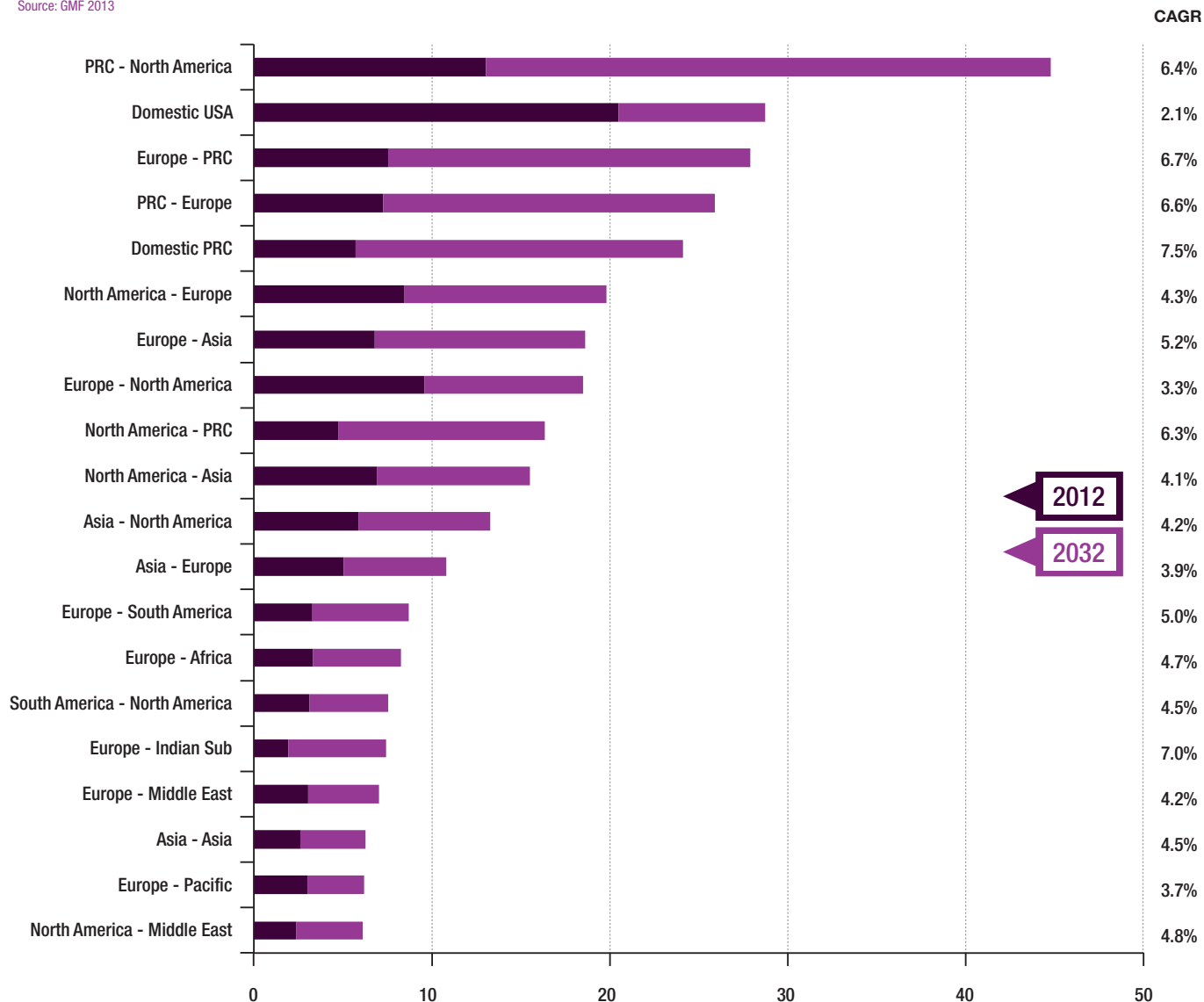


\* PRC and Indian Sub-Continent excluded

## Focus on Traffic Growth

### > TOP 20 LARGEST FLOWS IN 2032

Source: GMF 2013

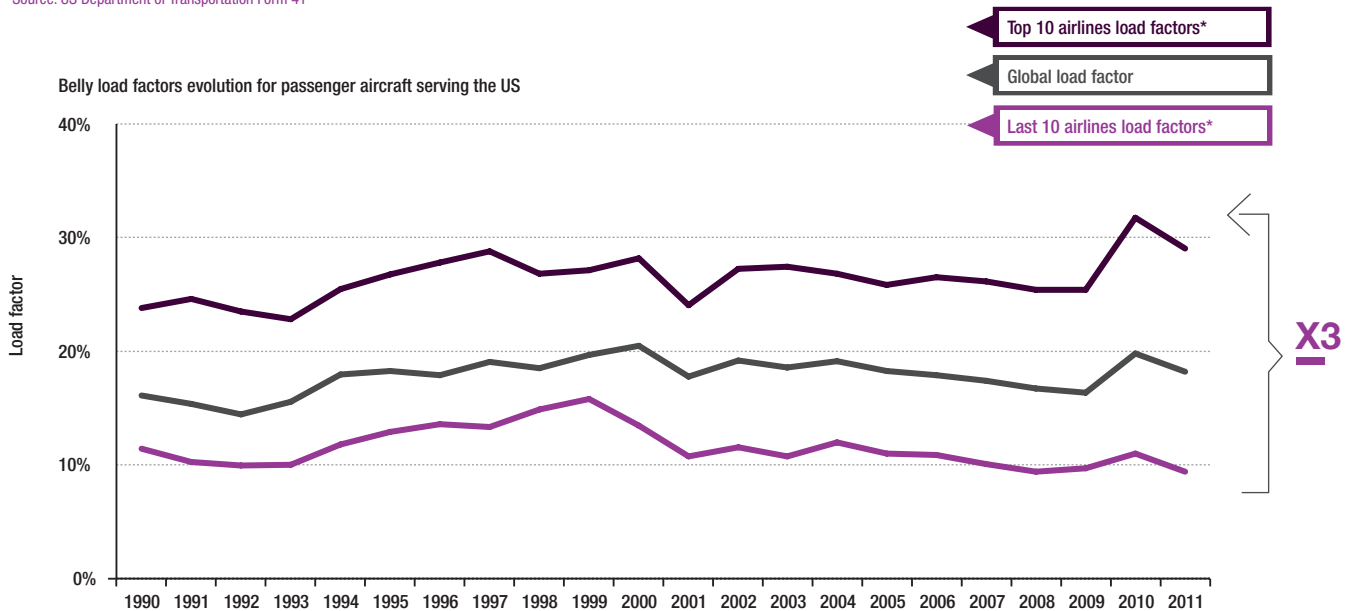


## Belly Capacity vs Main-deck

- According to IATA, air freight carried in the belly hold of passenger aircraft represents nearly 50% of all air freight traffic.
- Airlines' value the belly space capacity of their fleets as a complementary and/or opportunistic means of transporting cargo.
- Belly capacity, is and will remain, a key component of the air freight industry, allowing airlines to adjust capacity to demand. Going forward the air freight industry will require a capacity diversification similar to the passenger airlines.
- A trend towards larger passenger modules, such as the A350-900XWB/-1000XWB, will increase the available cargo capacity for mixed carriers.
- Over 8,000 twin-aisle passenger aircraft over 250 seats, with their associated belly cargo capacity, will be required over the next 20 years.
- However, because of the complexity, limitations and costs associated with managing belly space; load factors for example do not exceed 30% in twin aisle aircraft arriving or departing from the US.

### A HETEROGENEOUS BUT RELATIVELY LOW USE OF THE BELLY CAPACITY BY THE AIRLINES (US INTERNATIONAL MARKET)

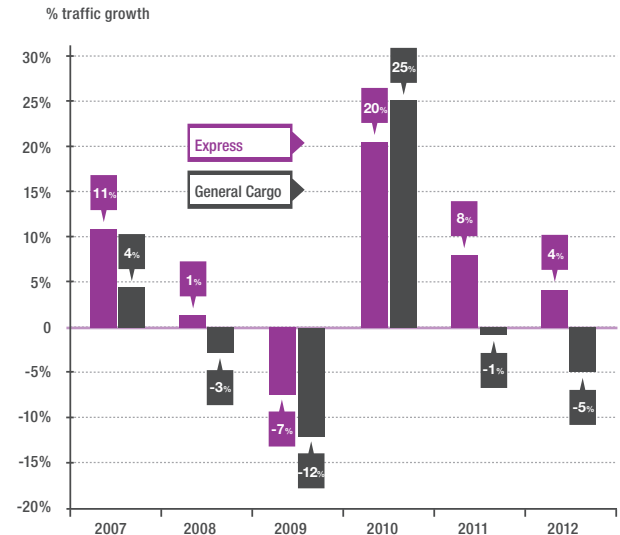
Source: US Department of Transportation Form 41



## Express freight

- Express services have proven resilient to the crisis, with 4% growth on international trade while general cargo declined 5% in 2012.
- In 2012, Express focused carrier fleets included 96 small freighters, 459 mid-size freighters and 145 large freighters; representing 43% of the world freighter fleet.
- China will become one of the largest domestic express markets in the world, similar to the development the US market experienced through the '70s, '80s and '90s.
- The growth rate of express traffic averaged 26% per year between 1977 and 1997 in the US.
- Airbus forecasts that Chinese domestic express will grow at 11% over the next 20 years, it will also grow at 9.3% in India.

### EXPRESS MARKET HAS PROVED MORE RESILIENT TO THE CRISIS Source: Seabury, Airbus

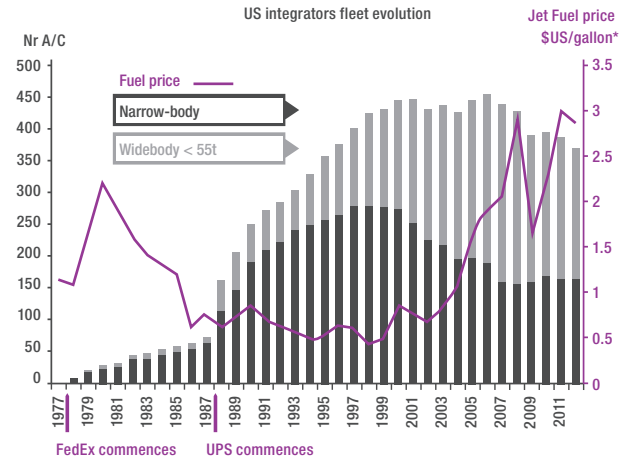


## Fleet Evolution

- The 2008-2013 crisis impact, magnified by high fuel prices, has prompted the retirement of numerous old cargo aircraft, which have been replaced by new and more efficient freighters. Today 26% of the installed cargo fleet is less than 15 years.
- To reduce unit costs, carriers are replacing narrow bodies with mid-size or large freighters; as in the US, small widebody aircraft are replacing the ageing fleets of 727s and DC9s.
- Higher flexibility and a good market fit often makes mid-size freighters the choice when serving intra-regional operations.
- On operations over 4,000 nm, the range advantages of large widebody aircraft are clear.
- Under 3,000nm, 61% of the wide-body operations are performed by mid/small widebody aircraft.
- With challenges in the market, mid-size freighters are increasingly seen as a lower risk option to larger freighter types on all operations.

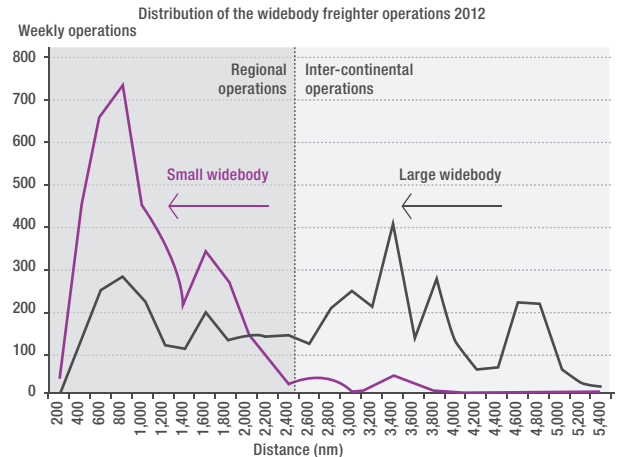
### THE INTEGRATORS FLEET FOR DOMESTIC PURPOSES IN THE US IS SHIFTING FOR BIGGER AND MORE FUEL EFFICIENT MODULES

Source: ASCEND, Airbus



### ~ 8500 WEEKLY SCHEDULED OPERATIONS ARE PERFORMED BY WIDE-BODY FREIGHTERS

Source: OAG, DoT, Airbus

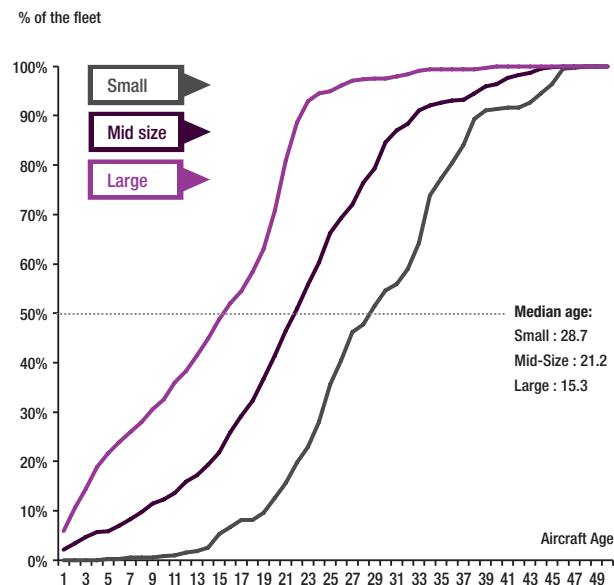


## Fleet Evolution

- The conversion business in the small jet freighter category is regaining momentum. Replacement wave began in 2012 with 16 conversions. A further 14 conversions have already been completed between January and July 2013.
- In the mid-size category, there is still a large amount of demand for further replacement, with more than 170 mid-size freighters flying today over 30 years of age.
- Even though many large segment aircraft, such as older 747 models, have already been removed from their fleets, a large replacement or retirement wave is expected to occur between 2020 and 2025.

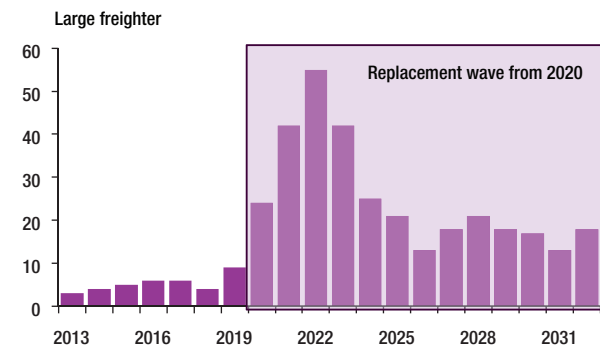
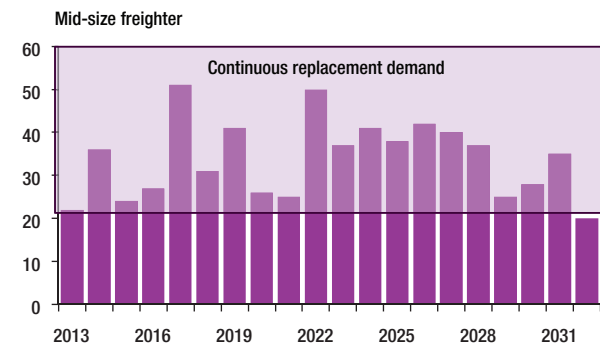
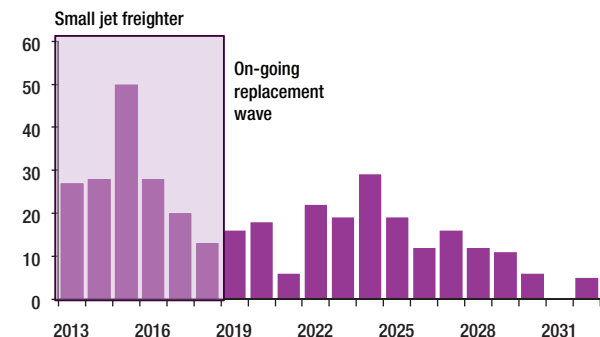
### AGE DISTRIBUTION OF CARGO AIRCRAFT FLYING IN 2013

Source: ASCEND



### HIGH REPLACEMENT REQUIREMENT IN THE COMING YEARS

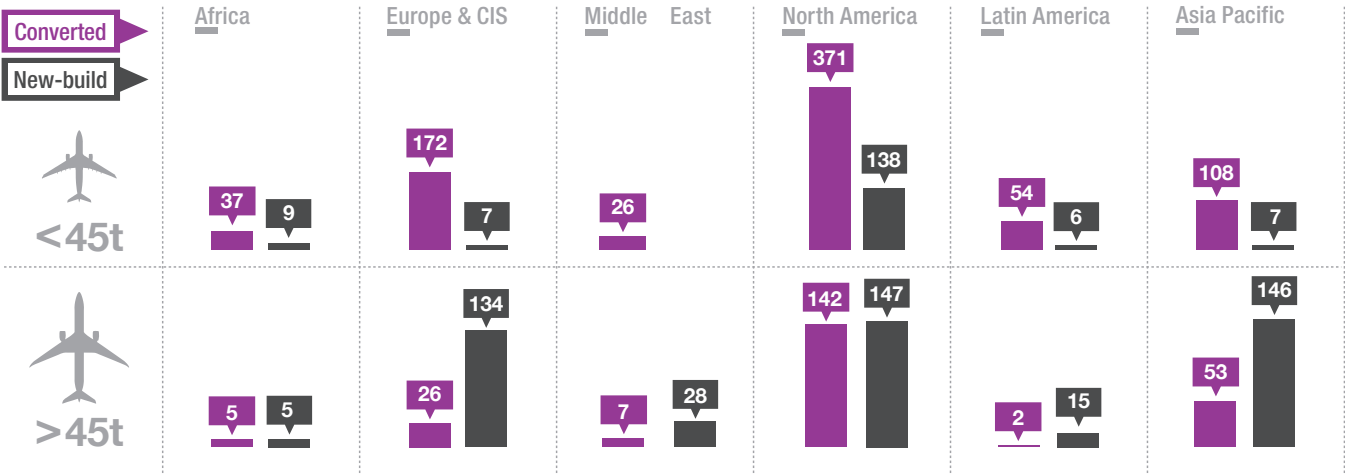
Source: ASCEND, Airbus



# Conversion vs. New build freighters

- Today, the freighter fleet includes 1,001 converted aircraft and 644 new-build aircraft.
  - A carrier will opt for a converted aircraft to serve markets subject to big seasonality effects due to their low capital costs and utilisation rates.
  - In more traffic intensive markets, airlines typically prefer more fuel efficient new build aircraft.
- Due to the lower demand and high fuel costs recently, the number of conversions has been negatively effected as airlines absorb new build freighter deliveries.
  - Over the next 20 years, the air cargo industry will require over 1,800 converted aircraft and over 870 new built freighters.
  - From our analysis the demand for converted aircraft can be supported by appropriate aircraft leaving the passenger fleet.

> FLEET IN SERVICE IN 2013: CONVERSION VS. NEW-BUILD.  
 39% OF THE FREIGHTERS ARE NEW-BUILD AIRCRAFT  
 Source: ASCEND, Airbus

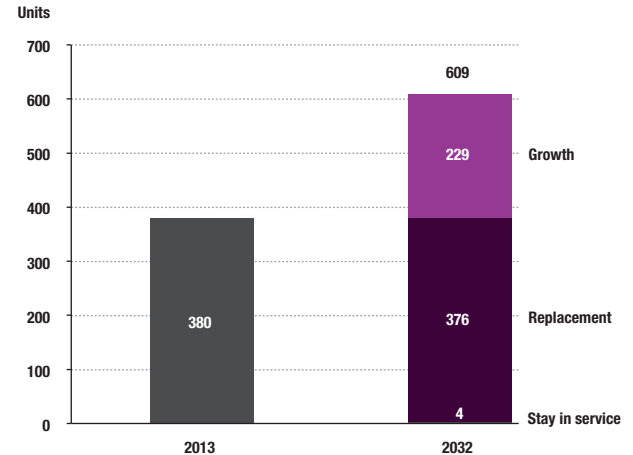




## Small Freighters

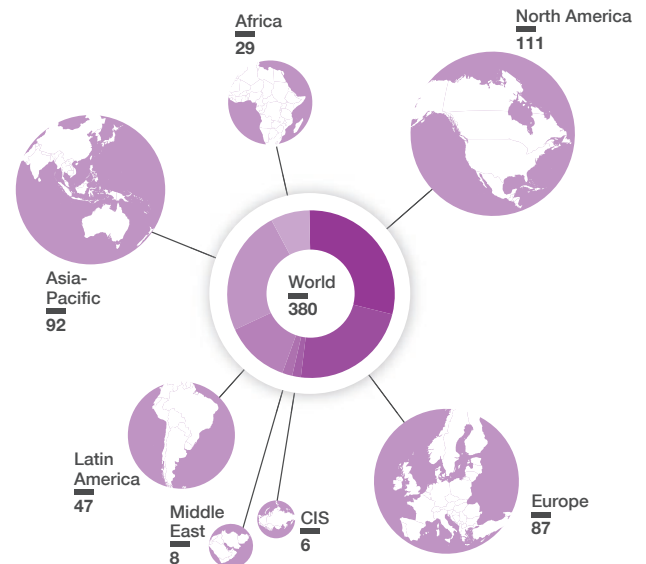
- In numbers:
  - 23% of today's fleet in service.
  - 1,180 hours per year in average utilisation.
- Thanks to their flexibility and versatility small freighters have a broad spectrum of uses:
  - Feeders for integrators.
  - Transport over terrain, where other forms of transport are difficult or impossible.
  - As a link for isolated populations.
- The express market boom in China and India will boost the number of small freighters from 380 to more than 600 aircraft by 2032.

### > FLEET IN SERVICE: SMALL FREIGHTERS



### > SMALL FREIGHTER FLEET REGIONAL DISTRIBUTION BEGINNING OF 2013

Source: ASCEND

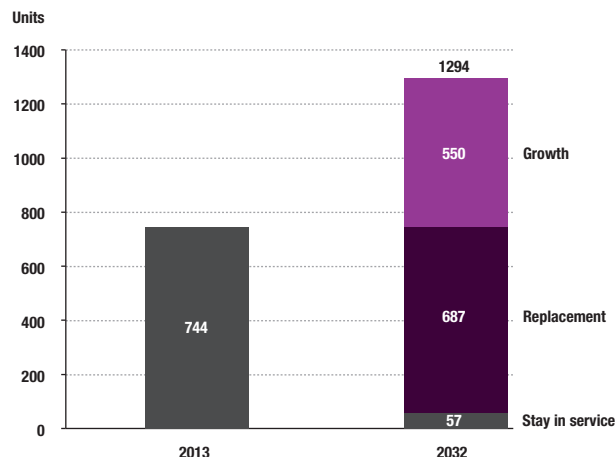


## Mid-sized Freighters

- In numbers:
  - 45% of the fleet in service.
  - 3,950 hours per year in average utilisation of new build mid-sized freighters.
  - 1,250 hours per year in average utilization of converted mid-sized freighters.
- Mid-sized freighters are used for both regional and inter-continental operations, with intra-regional markets expected to boom in the coming years. For example Intra-Asian traffic is expected to grow at 6.1% per year over the next 20 years.
- Mid-size freighters are used by integrators who typically need a broad spectrum of aircraft size to optimise their networks.
- This segment is expected to reach 1,294 units by 2032, from 744 units at the end of 2012.
- Mid-size aircraft are being used to open emerging flows with greater efficiency.

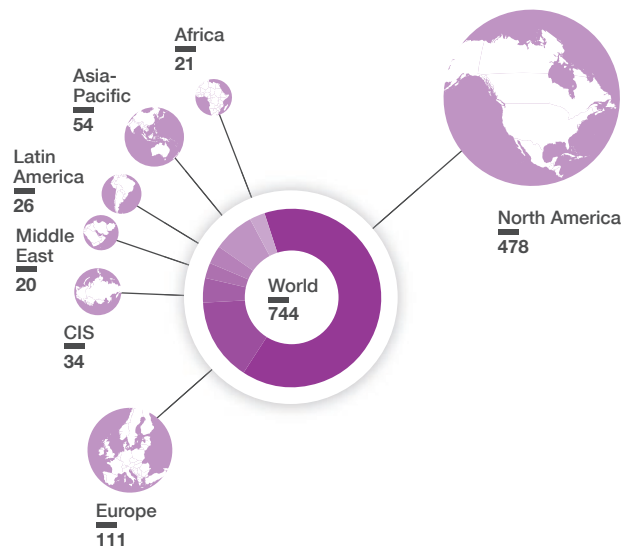


### > FLEET IN SERVICE: MID-SIZE FREIGHTERS



### > MID-SIZE FREIGHTERS FLEET REGIONAL DISTRIBUTION BEGINNING OF 2013

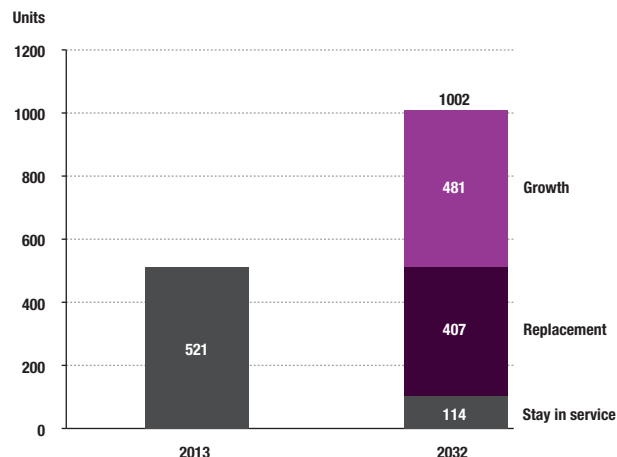
Source: ASCEND



## Large Freighters

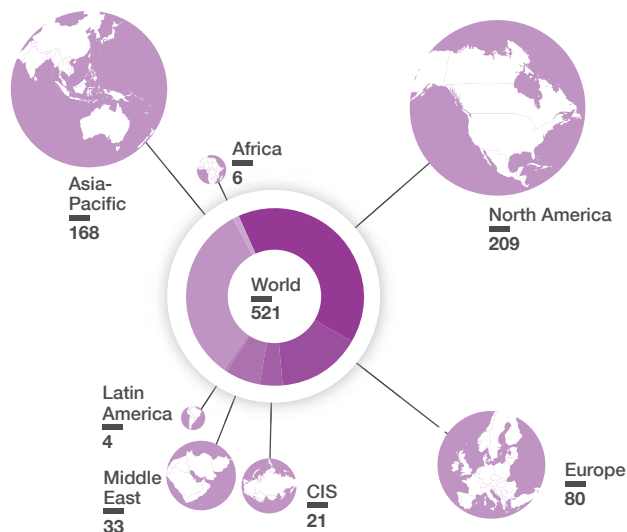
- In numbers:
  - 32% of today's fleet in service.
  - 3,850 hours per year in average utilisation of new build large freighters.
  - 2,900 hours per year in average utilisation of converted large freighters.
- Large freighters are mainly used on long haul operations between the three main markets: USA, Europe and Asia.
- Due to imbalances in the direction of freight traffic flows and high fuel prices, carriers are increasingly selecting freighters capable of carrying between 85 and 100t tonnes instead of even larger aircraft.
- The fleet of large aircraft will reach over 1,000 aircraft by 2032.

### > FLEET IN SERVICE: LARGE FREIGHTERS



### > LARGE FREIGHTER FLEET REGIONAL DISTRIBUTION BEGINNING OF 2013

Source: ASCEND



# North America

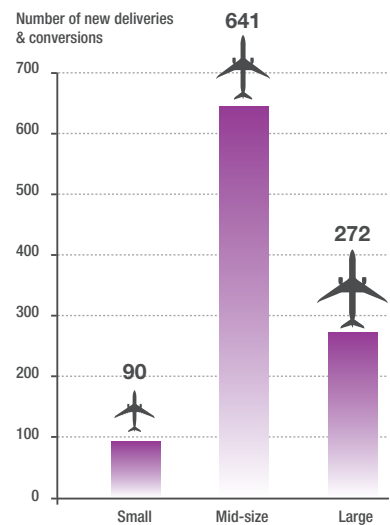
- \$28 billion in revenue from domestic operations in 2011.
- 90% of the US domestic market is absorbed by express carriers.
- Overall the US cargo market is expected to grow at 3.9% forecasted traffic growth over the next 20 years.

North America has the largest fleet today, and will in 20 years. Even though the domestic market has struggled in recent years, all of the signs point to a market that is beginning to stabilise. US citizens are still the number one consumer market in the world and rely heavily on the air transportation industry to deliver products fast and with a high level of reliability. The domestic market is relatively mature, but is expected to grow at 2.1% over the next 20 years mainly thanks to the continuous development of internet trade and sustained demand for air transportation in the manufacturing industry's supply chain as it strives for leaner operations. Overall the North American cargo market is expected to grow at 3.9% mainly driven by the trade with emerging economies with flexible mid-size freighters dominating demand in the region.



## Results

### NEW DELIVERIES & CONVERSIONS



### ECONOMY

Real  
GDP  
2.5%

### TRAFFIC

Traffic 2012-2032  
CAGR  
3.9%

### FLEET

Start fleet  
Beginning 2013  
798  
End  
Fleet  
1,062

# Asia-Pacific

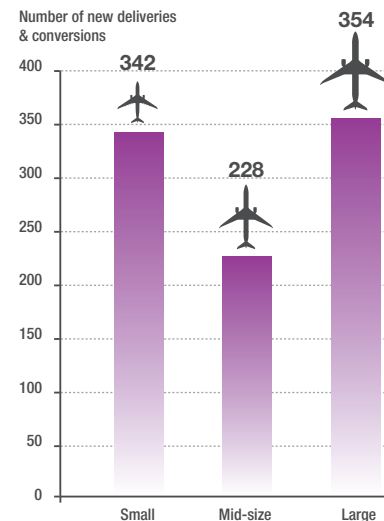
- Asia-Pacific air cargo traffic is expected to grow at 5.5% per annum over the next 20 years.
- 20% of world air freight traffic was to or from Asia-Pacific 10 years ago
- 30% of world air freight traffic will be to or from Asia-Pacific in 2032

Today, the Asia Pacific region is driving the growth of the air freight industry, averaging a 5% annual growth rate in the last 10 years. This has occurred despite the dramatic slowdown in trade with North America and Europe during the financial crisis. On top of continued growth expectations for general cargo, express cargo is forecast to boom in the region. According to the Economist Intelligence Unit, more than 250 million Chinese will earn more than \$15000/year making the Chinese middle class one of the biggest in the world. Simultaneously, e-commerce is growing at an incredible pace - Ali baba (China's biggest e-commerce site) is larger than eBay and Amazon combined, generating \$170 billion of revenue in 2012. As a result, the small freighter fleet in China reached 50 units in 2013 compared to just 2 units in 2002. Overall, Asia-Pacific will become the biggest region in terms of traffic by 2032, with 30% of the total traffic; this is thanks to a 5.5% annual growth rate over the next 20 years.



## Results

### NEW DELIVERIES & CONVERSIONS



### ECONOMY

Real  
GDP

4.5%

### TRAFFIC

Traffic 2012-2032  
CAGR

5.5%

### FLEET

Start fleet  
Beginning 2013

314

End  
Fleet

970

# Europe

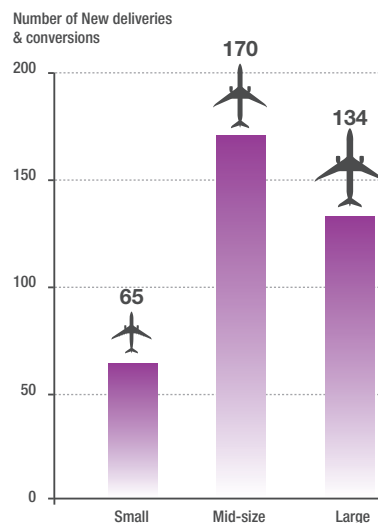
- 6 years worth of FTK growth have been lost due to the crisis
- Economic recovery forecast to accelerate through 2014, helping to drive air freight
- 4.8% annual growth expected over the next 20 years

The on-going debt crisis in Europe has continued to put downward pressure on the economy and consumption in the region, directly affecting the intra-regional market and imports. But, economic growth is expected to return in 2014. Illustrating these difficult times, FTK levels in 2012 from the European markets are at the same level as achieved in 2010 or even 2007 levels. However, European carriers are adapting, achieving relative success by adopting a more aggressive strategy through optimisation of their hubs and fleets. Despite the crisis, some countries have performed well, especially in eastern Europe. For example, Turkey's economy has grown by 8% between 2008 and 2012, while air trade increased by 31% in the same period. Overall, the Airbus forecast for Europe is for annual growth of 4.8%, driven mainly by trade with emerging regions, such as Africa and Asia.



## Results

### NEW DELIVERIES & CONVERSIONS



### ECONOMY

Real  
GDP  
1.8%

### TRAFFIC

Traffic 2012-2032  
CAGR  
4.8%

### FLEET

Start fleet  
Beginning 2013  
278  
End  
Fleet  
401

# Middle East

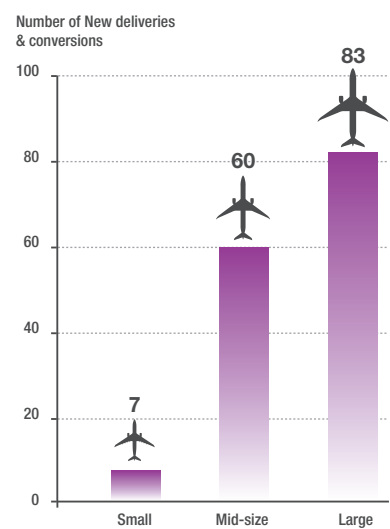
- Middle East's fleet will more than double in the next 20 years
- 11.4% growth rate in ATKs in 2012, against a world average of just 0.4%
- 2% of worldwide fleet 20 years ago; 4% today and 6% forecast by 2032

Middle East carriers are quickly becoming established as key players' in the freight market. The cargo carriers in the region are replicating the success of passenger carriers by utilising the Middle East's strategic position to its advantage through the development of key cities as hubs for global freight traffic. As such, their market share on traffic between Europe and Asia has significantly grown in recent years. According to IATA data on ATKs (Available Tonne Kilometres), Middle Eastern carriers achieved an impressive 11.4% growth rate in 2012, compared to 0.4% worldwide. This success is due to ambitious strategies developed around the hub concept. On top of the use of large freighters on established flows, Middle East carriers are efficiently using mid-size aircraft on emerging flows. The Middle East fleet will grow from 61 units to over 160 dedicated freighters by 2032.



## Results

### NEW DELIVERIES & CONVERSIONS



ECONOMY	TRAFFIC	FLEET	
Real GDP	Traffic 2012-2032 CAGR	Start fleet Beginning 2013	End Fleet
3.7%	4.8%	61	164



# Latin America

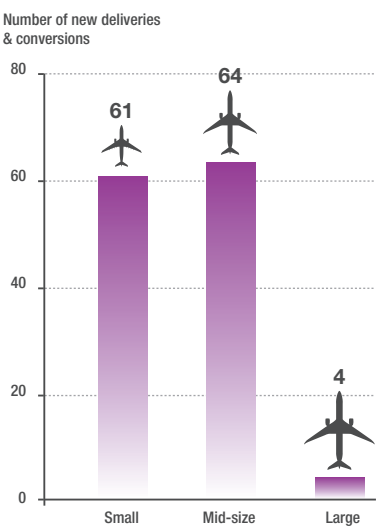
- 5.1% growth expected over the next 20 years

The region has generally avoided the large slumps created by the economic downturn of the last several years. Even with some difficulties, the region's carriers have experienced some signs of stabilisation in the first half of 2013. Longer term, Latin American cargo traffic is expected to grow at 5,1% per annum over the next 20 years. The main markets will still be the largest economies such as Brazil or Mexico. However, smaller countries will play a more and more significant role. For example, Peru is pushing to develop a multimodal hub that combines sea and air cargo. North America and Europe will remain the two biggest trade partners of Latin America accounting for 56% of the traffic by 2032. These markets, combining long-haul distances and relatively thin demand are well suited for mid-size aircraft, where a number of carriers are already operating aircraft, such as the A330-200F on routes linking South America to Miami.



## Results

### NEW DELIVERIES & CONVERSIONS



ECONOMY	TRAFFIC	FLEET	
Real GDP	Traffic 2012-2032 CAGR	Start fleet Beginning 2013	End Fleet
4.0%	5.1%	77	139



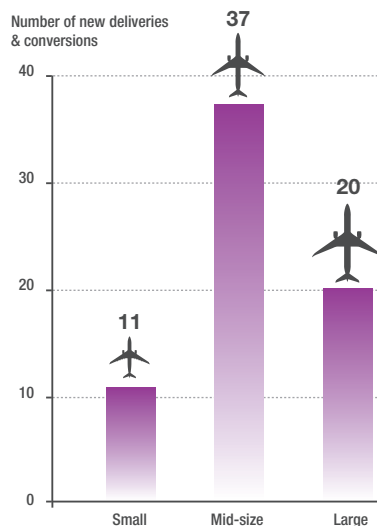
- 25% of the total air freight traffic was with Europe in 2012
- 70% of the CIS's GDP in 2012 came from Russia
- 5.3% per year expected growth in air freight traffic over the next 20 years

Despite promising growth perspectives in Russia and the rest of the CIS, cargo operations have been impacted by the economic situation in the EU zone. IHS Global Insight forecasts 2.9% GDP growth in the region for 2013, with countries such as Ukraine and Kazakhstan expected to be the highest performers. However Russia will still dominate the regions economy with almost 70% of GDP in 2012 and more than 65% by 2032. Links between China and Russia are strengthening along with trade between the two countries. In the space of 20 years the total bilateral exchanges have multiplied by 14. Its value surpassed 68 billion euros last year. Air freight between CIS and China by weight increased from 4.4% in 2002 to 11.1% in 2012. The Airbus forecast for CIS air freight traffic growth is 5.3% per annum over the next 20 years, highlighting the huge potential of this region.



## Results

### NEW DELIVERIES & CONVERSIONS



### ECONOMY

Real  
GDP  
3.3%

### TRAFFIC

Traffic 2012-2032  
CAGR  
5.3%

### FLEET

Start fleet  
Beginning 2013  
61  
End  
Fleet  
80

# Africa

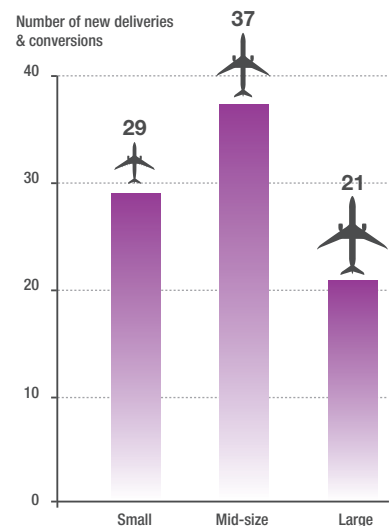
- 5.1% per annum growth in air freight over the next 20 years
- 6% growth in air freight traffic in 2012, according to IATA
- \$198.5 billion in trade between African countries and China in 2012

According to the IMF, Africa's economy is now growing faster than Asia. Africa is an expansive continent, with ground transportation difficult in many areas. It is therefore unsurprising that air is the best way to quickly transport goods from one country to another. In addition, African trade is diversifying. Europe accounted for 60% of the African trade 10 years ago, it accounts for only 52% today and is expected to decrease to less than 48% by 2032. Trade with PRC is one of the fastest growing trade links, with a forecast of over 6.5% growth rate over the next 20 years. China is investing heavily in Africa. Negligible in 2000, trade with China hit \$198.5 billion in 2012. By comparison, U.S.- African trade volume stood at \$108.9 billion. Research from Standard Chartered estimates that trade between China and Africa will hit \$385 billion by 2015. Overall, Airbus estimate African air cargo traffic to grow at 5.1% per annum, well above the world average over the next 20 years.



## Results

### NEW DELIVERIES & CONVERSIONS



### ECONOMY

Real  
GDP

4.4%

### TRAFFIC

Traffic 2012-2032  
CAGR

5.1%

### FLEET

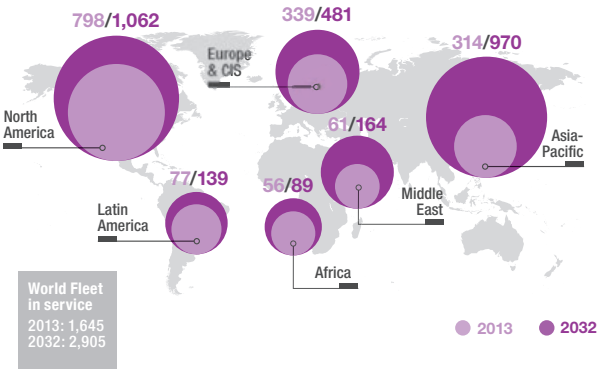
Start fleet  
Beginning 2013  
56

End  
Fleet  
89

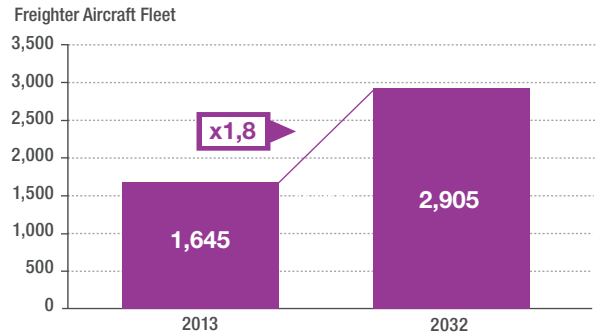
# Key Results

## > FREIGHTER FLEET IN SERVICE EVOLUTION (2013-2032)

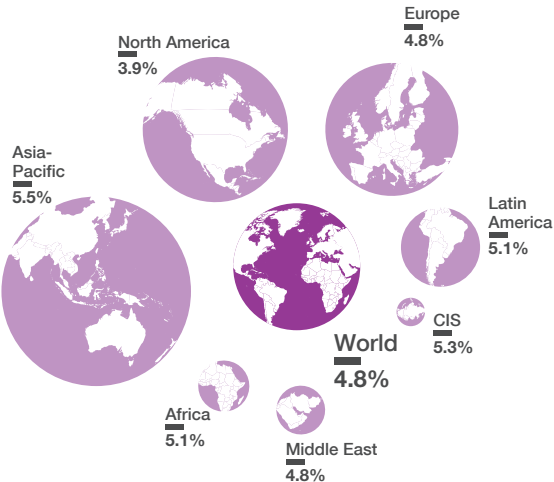
Source: ASCEND, Airbus



## > FREIGHTER FLEET TO NEARLY DOUBLE OVER THE NEXT 20 YEARS

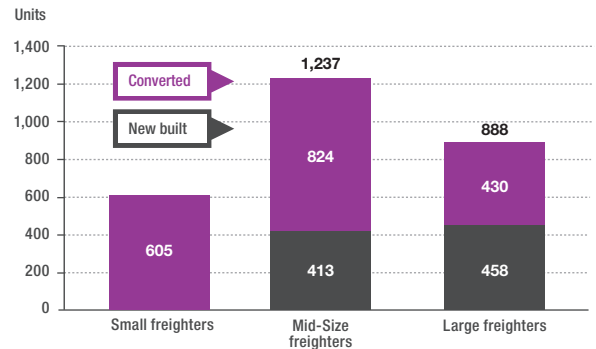


## > FTK TRAFFIC GROWTH PER REGION [2012-2032]



## > OVER 870 NEW BUILT AIRCRAFT WILL BE REQUIRED DURING THE NEXT TWO DECADES

Deliveries per region and aircraft size (2013-2032)



07

# Summary data





> **NEW FREIGHT AIRCRAFT DELIVERIES BY REGION**  
Freight aircraft ≥10 tonnes

	Small	Mid-size	Large	TOTAL
Africa	0	8	10	18
Asia/Pacific	0	81	196	277
CIS	0	13	8	21
Europe	0	47	78	125
Latin America	0	26	2	28
Middle East	0	21	55	76
North America	0	217	109	326
<b>TOTAL</b>	<b>0</b>	<b>413</b>	<b>458</b>	<b>871</b>

> **CONVERTED FREIGHT AIRCRAFT DELIVERIES BY REGION**  
Freight aircraft ≥10 tonnes

	Small	Mid-size	Large	TOTAL
Africa	29	29	11	69
Asia/Pacific	342	147	158	647
CIS	11	24	12	47
Europe	65	123	56	244
Latin America	61	38	2	101
Middle East	7	39	28	74
North America	90	424	163	677
<b>TOTAL</b>	<b>605</b>	<b>824</b>	<b>430</b>	<b>1,859</b>



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