

**CURRENT  
MARKET  
OUTLOOK**  
2016–2035





# PILOT & TECHNICIAN OUTLOOK





# PILOT & TECHNICIAN OUTLOOK

## EXTRAORDINARY DEMAND FOR PILOTS, TECHNICIANS, AND CABIN CREW

As global economies expand and airlines take delivery of tens of thousands of new commercial jetliners over the next 20 years, there is extraordinary demand for people to fly and maintain these airplanes. To meet this tremendous growth, the 2016 Boeing Pilot and Technician Outlook forecasts that between now and 2035, the aviation industry will need to supply more than two million new aviation personnel—617,000 commercial airline pilots, 679,000 maintenance technicians, and 814,000 cabin crew.

Meeting this demand will require innovative solutions – focused on educational outreach and career pipeline programs – to inspire the next generation of pilots, technicians, and cabin crew. New technologies, devices, and training methods will be needed to meet a wide range of learning styles. The growing diversity of aviation personnel will also require instructors to have cross-cultural and cross-generational skills to engage tomorrow’s workforce.

## ECONOMIC EXPANSION FUELING AVIATION GROWTH

Airlines across the globe are expanding their fleets and flight schedules to satisfy demand generated by global economic expansion. The aviation industry continues to address these challenges by creating balanced, sustainable solutions to fill future pilot pipelines.

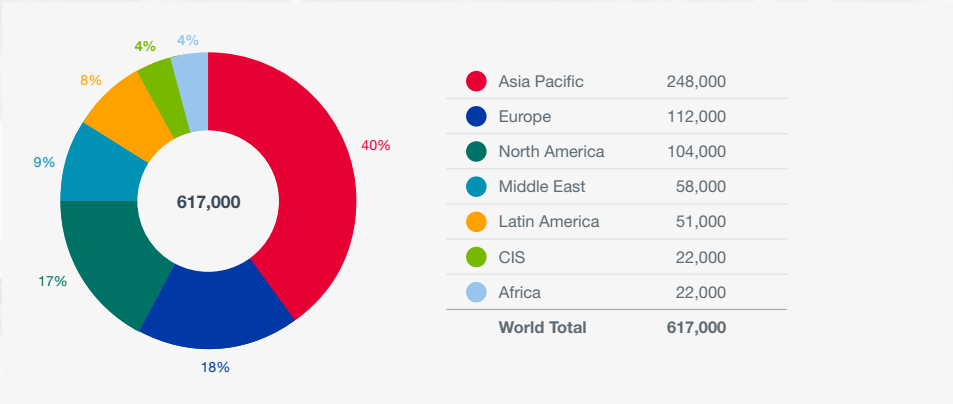
Although Asia Pacific remains the region with the highest overall demand, there has been a significant increase in the expected number of skilled resources required in other parts of the world. New market opportunities, such as the opening of Cuba for the North American market and increased intra-Europe travel for the European market, have strengthened demand.

## DEMAND FOR LOCALLY SOURCED AND QUALIFIED PILOTS

Regional markets that have relied heavily on recruiting pilots from outside their home locations are increasingly seeking to recruit, train, and develop locally sourced pilots. New market opportunities are creating an increased demand for qualified, skilled, and experienced pilots.

Over the next 20 years, the Asia Pacific region will lead the worldwide growth in demand for pilots, with a requirement for 248,000 new pilots. North America will require 112,000, Europe 104,000, the Middle East 58,000, Latin America 51,000, the Commonwealth of Independent States (CIS) / Russia 22,000, and Africa 22,000.

New Pilots by Region: 2016–2035

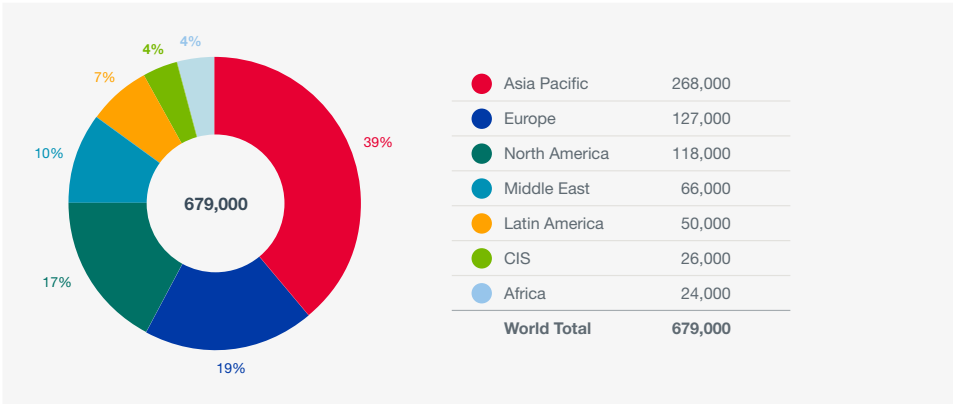


**AIRPLANE RELIABILITY AFFECTING MAINTENANCE**

As newer generation airplanes become more prevalent in worldwide fleets over the next 20 years, airplane reliability will improve, and maintenance check intervals will lengthen. Although this trend will moderate demand for maintenance personnel somewhat, the global need for technicians will remain strong. Global fleet growth, along with the increasing trend for operators to outsource maintenance, repair, and overhaul activities to third-party providers, will drive an increased need for qualified technicians.

The need for vmaintenance personnel is largest in the Asia Pacific region, which will require 268,000 new technical personnel. Airlines in North America will require 127,000, Europe 118,000, the Middle East 66,000, Latin America 50,000, CIS / Russia 26,000, and Africa 24,000.

**New Technicians by Region: 2016–2035**

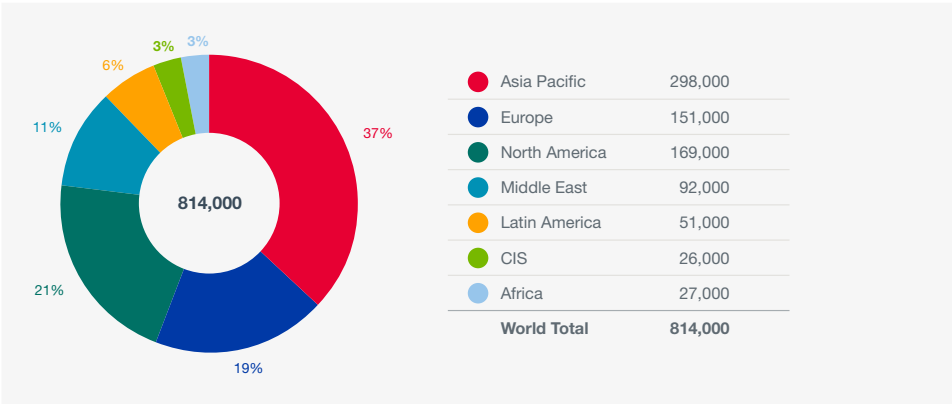


**OPERATIONAL IMPROVEMENTS EXPAND CABIN CREW DEMAND**

As airlines continue to expand flight routes, grow their fleet, and transition to airplanes with higher seat capacity, an increasing number of cabin crew personnel will be needed to ensure the safety and comfort of passengers. With a focus on operational improvements, many regional markets have also updated regulations to require a greater number of cabin crew per aircraft.

Over the next 20 years, the largest projected growth in cabin crew demand is in the Asia Pacific region, with a requirement for 298,000 new cabin crew. Europe will require 169,000, North America 151,000, Middle East 92,000, Latin America 51,000, Africa 27,00, and CIS / Russia 26,000.

New Cabin Crew by Region: 2016–2035





# DATA



# PASSENGER TRAFFIC

## AIRLINE PASSENGER TRAFFIC, GROWTH BY REGIONAL FLOW

RPKS in billions	2008	2009	2010	2011	2012	2013	2014	2015	2035	2015 - 2035
Africa - Africa	41.6	43.9	48.7	51.1	54.5	53.7	56.6	59.2	223.3	6.9%
<b>Africa - Europe</b>	<b>125.6</b>	<b>128.2</b>	<b>135.5</b>	<b>134.1</b>	<b>140.4</b>	<b>140.4</b>	<b>146.5</b>	<b>153.2</b>	<b>387.5</b>	<b>4.7%</b>
Africa - Middle East	24.9	32.9	36.4	39.4	48.6	50.8	53.7	59.5	235.9	7.1%
<b>Africa - North America</b>	<b>6.3</b>	<b>8.8</b>	<b>11.3</b>	<b>11.4</b>	<b>12.6</b>	<b>12.2</b>	<b>12.5</b>	<b>12.7</b>	<b>41.7</b>	<b>6.1%</b>
Africa - Southeast Asia	5.4	4.1	5.6	5.9	4.6	4.2	3.7	3.7	13.0	6.5%
<b>Central America - Central America</b>	<b>32.3</b>	<b>29.8</b>	<b>31.3</b>	<b>32.2</b>	<b>33.8</b>	<b>36.5</b>	<b>38.7</b>	<b>42.5</b>	<b>99.3</b>	<b>4.3%</b>
Central America - Europe	83.3	77.1	73.8	73.7	78.3	82.1	87.4	95.3	213.8	4.1%
<b>Central America - North America</b>	<b>115.8</b>	<b>104.7</b>	<b>112.7</b>	<b>114.5</b>	<b>132.0</b>	<b>138.3</b>	<b>153.0</b>	<b>170.1</b>	<b>478.1</b>	<b>5.3%</b>
Central America - South America	13.1	14.0	18.3	19.2	23.2	28.5	30.8	34.2	98.5	5.4%
<b>China - China</b>	<b>236.5</b>	<b>287.4</b>	<b>335.4</b>	<b>380.1</b>	<b>411.3</b>	<b>460.8</b>	<b>509.2</b>	<b>564.7</b>	<b>1897.4</b>	<b>6.2%</b>
China - Europe	82.5	77.3	82.1	94.2	96.7	96.9	105.2	121.1	356.7	5.5%
<b>China - North America</b>	<b>62.7</b>	<b>60.9</b>	<b>71.4</b>	<b>85.4</b>	<b>87.1</b>	<b>89.5</b>	<b>98.1</b>	<b>107.5</b>	<b>394.6</b>	<b>6.7%</b>
China - Northeast Asia	48.4	43.2	51.8	51.5	60.9	60.7	66.2	73.0	180.7	4.6%
<b>China - Oceania</b>	<b>21.4</b>	<b>22.8</b>	<b>27.4</b>	<b>31.4</b>	<b>34.1</b>	<b>35.0</b>	<b>37.7</b>	<b>44.3</b>	<b>131.1</b>	<b>5.6%</b>
China - Southeast Asia	50.6	45.3	54.7	63.0	73.8	82.5	89.4	109.9	422.1	7.0%
<b>CIS Region - CIS Region</b>	<b>88.9</b>	<b>76.9</b>	<b>87.6</b>	<b>103.1</b>	<b>107.1</b>	<b>118.3</b>	<b>125.3</b>	<b>138.1</b>	<b>256.8</b>	<b>3.2%</b>
CIS Region - International	77.7	83.6	101.6	124.1	139.4	157.9	164.9	151.9	389.1	4.8%
<b>Europe - Europe</b>	<b>660.5</b>	<b>624.9</b>	<b>640.2</b>	<b>659.5</b>	<b>676.6</b>	<b>714.0</b>	<b>760.3</b>	<b>796.8</b>	<b>1482.1</b>	<b>3.2%</b>
Europe - Middle East	115.2	131.2	143.8	153.3	178.0	196.8	210.9	242.5	690.2	5.4%
<b>Europe - North America</b>	<b>432.4</b>	<b>405.4</b>	<b>418.6</b>	<b>430.2</b>	<b>432.9</b>	<b>441.8</b>	<b>462.7</b>	<b>475.0</b>	<b>840.2</b>	<b>2.9%</b>
Europe - Northeast Asia	69.0	59.4	64.3	63.8	75.9	74.3	77.8	81.3	139.9	2.7%
<b>Europe - South America</b>	<b>75.2</b>	<b>79.3</b>	<b>82.9</b>	<b>89.8</b>	<b>99.6</b>	<b>102.4</b>	<b>102.1</b>	<b>104.4</b>	<b>293.1</b>	<b>5.3%</b>
Europe - South Asia	55.5	51.3	53.8	54.1	53.9	56.4	57.2	57.5	176.7	5.8%
<b>Europe - Southeast Asia</b>	<b>101.5</b>	<b>95.9</b>	<b>97.1</b>	<b>100.4</b>	<b>106.6</b>	<b>105.3</b>	<b>108.0</b>	<b>111.3</b>	<b>254.1</b>	<b>4.2%</b>
Middle East - Middle East	63.4	68.6	77.9	82.4	76.5	86.3	91.7	102.2	253.6	4.6%
<b>Middle East - North America</b>	<b>29.5</b>	<b>41.6</b>	<b>45.7</b>	<b>50.3</b>	<b>57.1</b>	<b>63.2</b>	<b>73.7</b>	<b>88.3</b>	<b>259.0</b>	<b>5.5%</b>
Middle East - South Asia	49.5	64.8	75.1	83.0	87.3	95.1	100.5	114.4	485.8	7.5%
<b>Middle East - Southeast Asia</b>	<b>45.4</b>	<b>46.7</b>	<b>56.3</b>	<b>61.3</b>	<b>66.4</b>	<b>79.0</b>	<b>89.4</b>	<b>97.6</b>	<b>281.0</b>	<b>5.4%</b>
North America - North America	974.1	915.1	946.3	976.3	984.7	998.4	1029.9	1077.7	1808.7	2.6%
<b>North America - Northeast Asia</b>	<b>139.4</b>	<b>120.2</b>	<b>128.4</b>	<b>135.4</b>	<b>149.0</b>	<b>150.4</b>	<b>154.0</b>	<b>160.5</b>	<b>231.1</b>	<b>1.8%</b>
North America - Oceania	32.3	34.8	34.9	38.3	40.3	43.1	43.3	48.3	105.5	4.0%
<b>North America - South America</b>	<b>52.7</b>	<b>56.9</b>	<b>60.9</b>	<b>66.7</b>	<b>72.0</b>	<b>79.2</b>	<b>82.7</b>	<b>86.9</b>	<b>263.9</b>	<b>5.7%</b>
North America - Southeast Asia	9.3	10.3	10.3	11.3	10.7	9.8	9.6	10.8	38.8	6.6%
<b>Northeast Asia - Northeast Asia</b>	<b>84.9</b>	<b>81.9</b>	<b>84.6</b>	<b>81.9</b>	<b>92.6</b>	<b>103.9</b>	<b>107.6</b>	<b>112.5</b>	<b>155.9</b>	<b>1.6%</b>
Northeast Asia - Oceania	20.8	15.1	18.1	16.6	17.1	15.9	15.9	17.2	34.4	3.5%
<b>Northeast Asia - Southeast Asia</b>	<b>87.7</b>	<b>74.3</b>	<b>79.6</b>	<b>92.3</b>	<b>104.9</b>	<b>113.3</b>	<b>124.2</b>	<b>134.6</b>	<b>283.0</b>	<b>3.8%</b>
Oceania - Oceania	72.0	73.3	78.4	83.8	92.0	99.0	100.0	102.8	257.4	4.7%
<b>Oceania - Southeast Asia</b>	<b>57.4</b>	<b>54.7</b>	<b>61.1</b>	<b>66.9</b>	<b>71.5</b>	<b>77.8</b>	<b>83.2</b>	<b>80.0</b>	<b>219.7</b>	<b>5.2%</b>
South America - South America	81.6	86.9	115.8	134.4	141.9	147.4	155.7	159.1	509.7	6.0%
<b>South Asia - South Asia</b>	<b>40.1</b>	<b>43.8</b>	<b>49.5</b>	<b>58.6</b>	<b>63.8</b>	<b>68.1</b>	<b>71.4</b>	<b>79.2</b>	<b>487.6</b>	<b>9.5%</b>
Southeast Asia - South Asia	24.3	21.9	28.5	29.2	34.0	36.2	38.4	40.4	222.7	8.9%
<b>Southeast Asia - Southeast Asia</b>	<b>93.2</b>	<b>96.0</b>	<b>113.1</b>	<b>130.7</b>	<b>145.1</b>	<b>166.6</b>	<b>176.9</b>	<b>194.0</b>	<b>848.1</b>	<b>7.7%</b>
Rest of World	55.5	69.3	87.9	97.4	116.0	126.1	140.0	148.2	651.7	7.7%
<b>Grand Total</b>	<b>4,639.2</b>	<b>4,564.2</b>	<b>4,938.7</b>	<b>5,262.2</b>	<b>5,585.0</b>	<b>5,898.0</b>	<b>6,246.0</b>	<b>6,664.5</b>	<b>17,093.0</b>	<b>4.82%</b>

# AIRPLANES REQUIRED

## PASSENGER AND FREIGHTER AIRPLANES

Market value and demand by region

### DEMAND AND VALUE BY REGION

Region	\$B	Airplanes
Asia	\$2,350	15,130
Europe	\$1,120	7,570
North America	\$1,030	8,330
Latin America	\$350	2,960
Middle East	\$770	3,310
C.I.S.	\$140	1,170
Africa	\$170	1,150
<b>World</b>	<b>\$5,930</b>	<b>39,620</b>

### DELIVERIES BY AIRPLANE SIZE AND REGION

Region	Regional jets	Single aisle	Small widebody	Medium widebody	Large widebody	Total deliveries
Asia	290	11,160	2,060	1,490	130	15,130
North America	1,520	5,440	930	420	20	8,330
Europe	130	5,880	960	570	30	7,570
Middle East	70	1,510	560	850	320	3,310
Latin America	140	2,530	260	30	0	2,960
C.I.S.	190	810	90	50	30	1,170
Africa	40	810	240	60	0	1,150
<b>World</b>	<b>2,380</b>	<b>28,140</b>	<b>5,100</b>	<b>3,470</b>	<b>530</b>	<b>39,620</b>

### MARKET VALUE BY AIRPLANE SIZE AND REGION\*

Region	Regional jets	Single aisle	Small widebody	Medium widebody	Large widebody	Total deliveries
Asia	\$10	\$1,210	\$560	\$520	\$50	\$2,350
North America	\$70	\$570	\$220	\$160	\$10	\$1,030
Europe	\$10	\$640	\$260	\$200	\$10	\$1,120
Middle East	\$0	\$160	\$150	\$320	\$140	\$770
Latin America	\$10	\$270	\$60	\$10	\$0	\$350
Africa	\$0	\$80	\$70	\$20	\$0	\$170
C.I.S.	\$10	\$70	\$30	\$20	\$10	\$140
<b>World</b>	<b>\$110</b>	<b>\$3,000</b>	<b>\$1,350</b>	<b>\$1,250</b>	<b>\$220</b>	<b>\$5,930</b>

\* 2015 \$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	2015	2035
Regional jet	2,600	2,510
Single aisle	14,870	32,280
Small widebody	2,660	6,060
Medium widebody	1,640	3,690
Large widebody	740	700
<b>Total</b>	<b>22,510</b>	<b>45,240</b>

#### PASSENGER AIRPLANES IN SERVICE

Size	2015	2035
Regional jet	2,550	2,480
Single aisle	14,280	31,050
Small widebody	2,080	5,140
Medium widebody	1,390	3,090
Large widebody	440	470
<b>Total</b>	<b>20,740</b>	<b>42,230</b>

#### FREIGHTER AIRPLANES IN SERVICE

Size	2015	2035
Widebody	1,130	1,750
Standard	640	1,260
<b>Total</b>	<b>1,770</b>	<b>3,010</b>

#### AIRPLANE DEMAND

Size	\$B	Airplanes
Regional jet	\$110	2,380
Single aisle	\$3,000	28,140
Small widebody	\$1,350	5,100
Medium widebody	\$1,250	3,470
Large widebody	\$220	530
<b>Grand total</b>	<b>\$5,930</b>	<b>39,620</b>

#### PASSENGER AIRPLANE DEMAND

Size	\$B	Airplanes
Regional jet	\$110	2,380
Single aisle	\$3,000	28,140
Small widebody	\$1,270	4,720
Medium widebody	\$1,100	3,020
Large widebody	\$180	430
<b>Grand total</b>	<b>\$5,660</b>	<b>38,690</b>

#### FREIGHTER AIRPLANE DEMAND

Size	\$B	Airplanes
Large*	\$190	550
Medium widebody	\$80	380
<b>Grand total</b>	<b>\$270</b>	<b>930</b>

\* Large passenger and large freighter categories differ

# FLEET DEVELOPMENT

## PASSENGER AND FREIGHTER AIRPLANES

Market value and fleet development

### MARKET BY AIRPLANE SIZE

Size	Market value 2015, \$B	Market share value	New airplane deliveries	Market share units
Large*	\$220	4%	530	1%
Medium	\$1,250	22%	3,470	9%
Small	\$1,350	23%	5,100	13%
<b>Total widebody</b>	<b>\$2,820</b>	<b>48%</b>	<b>9,100</b>	<b>24%</b>
<b>Total single aisle</b>	<b>\$3,000</b>	<b>51%</b>	<b>28,140</b>	<b>71%</b>
<b>Total regional jets</b>	<b>\$110</b>	<b>2%</b>	<b>2,380</b>	<b>6%</b>
<b>Total fleet</b>	<b>\$5,930</b>	<b>100%</b>	<b>39,620</b>	<b>100%</b>

### PASSENGER FLEET DEVELOPMENT

Size	End of year 2015	Removed from service	Converted to freighter	New deliveries 2016 - 2035	End of year 2035
Large*	440	400		430	470
Medium	1,390	1,320		3,020	3,090
Small	2,080	1,660		4,720	5,140
<b>Total widebody</b>	<b>3,910</b>	<b>3,380</b>		<b>8,170</b>	<b>8,700</b>
<b>Total single aisle</b>	<b>14,280</b>	<b>11,370</b>		<b>28,140</b>	<b>31,050</b>
<b>Total regional jets</b>	<b>2,550</b>	<b>2,450</b>		<b>2,380</b>	<b>2,480</b>
<b>Total fleet</b>	<b>20,740</b>	<b>17,200</b>	<b>1,440</b>	<b>38,690</b>	<b>42,230</b>

### FREIGHTER FLEET DEVELOPMENT

Size	End of year 2015	Removed from service	Converted to freighter	New deliveries 2016 - 2035	End of year 2035
Widebody	1,130	710		930	1,750
Standard body	640	420		0	1,260
<b>Total freighter fleet</b>	<b>1,770</b>	<b>1,130</b>	<b>1,440</b>	<b>930</b>	<b>3,010</b>

### TOTAL FLEET

Size	End of year 2015	Removed from service	Converted to freighter	New deliveries 2016 - 2035	End of year 2035
Passenger fleet	20,740	17,200	1,440	38,690	42,230
Freighter fleet	1,770	1,130	1,440	930	3,010
<b>Total fleet</b>	<b>22,510</b>	<b>18,330</b>	<b>1,440</b>	<b>39,620</b>	<b>45,240</b>

\* Large passenger and larger freighter categories differ



# FLEET BY REGION

## FLEET GROWTH by size and region

### FLEET BY AIRPLANE SIZE

Size	Airplanes in service 2015	Fleet share 2015	Airplanes in service 2035	Fleet share 2035
Large	740	3%	700	2%
Medium	1,640	7%	3,690	8%
Small	2,660	12%	6,060	13%
<b>Total widebody</b>	<b>5,040</b>	<b>22%</b>	<b>10,450</b>	<b>23%</b>
<b>Total single aisle</b>	<b>14,870</b>	<b>66%</b>	<b>32,280</b>	<b>71%</b>
<b>Total regional jets</b>	<b>2,600</b>	<b>12%</b>	<b>2,510</b>	<b>6%</b>
<b>Total fleet</b>	<b>22,510</b>	<b>100%</b>	<b>45,240</b>	<b>100%</b>

### FLEET BY REGION IN 2015

Region	Regional jets	Single aisle	Small widebody	Medium widebody	Large widebody	Total fleet
Asia	140	4,540	860	540	270	6,350
North America	1,730	4,010	750	320	100	6,910
Europe	270	3,370	440	360	170	4,610
Latin America	110	1,280	140	20	0	1,550
Middle East	70	590	250	320	140	1,370
C.I.S.	170	650	140	20	50	1,030
Africa	110	430	80	60	10	690
<b>World</b>	<b>2,600</b>	<b>14,870</b>	<b>2,660</b>	<b>1,640</b>	<b>740</b>	<b>22,510</b>

### FLEET BY REGION IN 2035

Region	Regional jets	Single aisle	Small widebody	Medium widebody	Large widebody	Total fleet
Asia	310	12,560	2,340	1,590	170	16,970
North America	1,520	6,630	1,150	460	60	9,820
Europe	150	5,920	1,140	610	100	7,920
Latin America	160	3,110	350	40	0	3,660
Middle East	80	1,660	610	840	320	3,510
C.I.S.	230	1,380	170	70	50	1,900
Africa	60	1,020	300	80	0	1,460
<b>World</b>	<b>2,510</b>	<b>32,280</b>	<b>6,060</b>	<b>3,690</b>	<b>700</b>	<b>45,240</b>

# MAJOR TRAFFIC FLOWS

## AIRLINE TRAFFIC FLOWS by region

### TRAFFIC IN 2015

RPKs	Asia	North America	Europe	Middle East	Latin America	Africa
Asia	<b>60%</b>	15%	16%	37%	1%	7%
North America	13%	<b>48%</b>	21%	11%	37%	4%
Europe	14%	21%	<b>34%</b>	30%	28%	49%
Middle East	11%	4%	10%	<b>13%</b>	-	19%
Latin America	0%	11%	9%	-	<b>34%</b>	1%
Africa	1%	1%	7%	7%	0%	<b>19%</b>
Total traffic to and from region	100%	100%	100%	100%	100%	100%

### TRAFFIC IN 2035

RPKs	Asia	North America	Europe	Middle East	Latin America	Africa
Asia	<b>63%</b>	18%	19%	43%	1%	9%
North America	10%	<b>40%</b>	17%	10%	37%	4%
Europe	11%	19%	<b>30%</b>	26%	25%	39%
Middle East	14%	6%	14%	<b>10%</b>	-	24%
Latin America	0%	16%	10%	-	<b>35%</b>	2%
Africa	1%	1%	8%	9%	1%	<b>22%</b>
Total traffic to and from region	100%	100%	100%	100%	100%	100%

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

How to read the tables:  
Read down the selected column; for example:

*In 2015, traffic within North America accounted for 48% of all the total traffic to, from and within North America.*

*In 2035, traffic within North America will account for 40% of all the total traffic to, from and within North America.*



# MAJOR TRAFFIC FLOWS

## AIRLINE TRAFFIC FLOWS by region

### AIRLINE PASSENGER GROWTH RATES 2015–2035

RPKs	Africa	Latin America	Middle East	Europe	North America	Asia
Asia	7.2%	6.4%	6.9%	4.7%	4.5%	6.2%
North America	6.1%	5.4%	5.5%	2.9%	2.6%	
Europe	4.7%	4.8%	5.4%	3.2%		
Middle East	7.1%	-	4.6%			
Latin America	9.1%	5.6%				
Africa	6.9%					

### AIRLINE PASSENGER TRAFFIC IN 2015

RPKs in billions	Africa	Latin America	Middle East	Europe	North America	Asia
Asia	21.2	4.0	298.2	371.3	338.0	1573.5
North America	12.7	257.0	88.3	475.0	1077.7	
Europe	153.2	199.7	242.5	796.8		
Middle East	59.5	-	102.2			
Latin America	4.0	235.9				
Africa	59.2					

### AIRLINE PASSENGER TRAFFIC IN 2035

RPKs in billions	Africa	Latin America	Middle East	Europe	North America	Asia
Asia	85.0	13.7	1141.4	927.4	819.4	5225.9
North America	41.7	742.0	259.0	840.2	1808.7	
Europe	387.5	506.9	690.2	1482.1		
Middle East	235.9	-	253.6			
Latin America	13.7	707.5				
Africa	223.3					

# AIRPLANE MARKET SECTOR DEFINITIONS

Bold: Airplanes in production or launched.

## SINGLE AISLE PASSENGER AIRPLANES

	Single Aisle	Regional Jets
Boeing 707, 757	<b>AVIC ARJ-900</b>	<b>Antonov An-148, -158</b>
Boeing 717, 727	BAe 146-300, Avro RJ100	<b>AVIC ARJ-700</b>
Boeing 737-100 through -500	<b>Bombardier CRJ-1000</b>	Avro RJ70, RJ85
<b>Boeing 737-600, -700, -800, -900ER</b>	<b>Bombardier CS100, CS300</b>	BAe 146-100, -200
<b>Boeing 737-MAX7, MAX8, MAX9</b>	<b>Embraer 190, 195</b>	<b>Bombardier CRJ</b>
<b>Airbus A318, A319, A320, A321</b>	<b>Comac C919</b>	Dornier 328JET
<b>Airbus A319neo, A320neo, A321neo</b>	Fokker 100	<b>Embraer 170, 175</b>
Boeing/MDC DC-9, MD-80, -90	UAC MS 21-200/300	Embraer ERJ-135/140/145
	Illyushin IL-62	Fokker 70, F28
	Tupolev TU-154, <b>TU-204, TU-214</b>	<b>Mitsubishi MRJ</b>
	Yakovlev Yak-42	<b>Sukhoi Superjet 100</b>

## WIDEBODY PASSENGER AIRPLANES

### LARGE

Three class: more than 400 seats

### MEDIUM

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

### SMALL

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

<b>Boeing 747-8</b>	<b>Boeing 777, 777X</b>	<b>Boeing 767, 787-8, -9</b>
Boeing 747-100 through -400	<b>Boeing 787-10</b>	Boeing/MDC DC-10
<b>Airbus A380</b>	Boeing/MDC MD-11	Airbus A300, A310
	Airbus A340	<b>Airbus A330-200, -300, -800, -900</b>
	<b>Airbus A350-1000</b>	<b>Airbus A350-800, -900</b>
	Illyushin IL-86	Lockheed L-1011
		<b>Illyushin IL-96</b>

## FREIGHTER AIRPLANES

### LARGE FREIGHTER

More than 80 tonnes

### MEDIUM FREIGHTER

40 to 80 tonnes

### SMALL FREIGHTER

Less than 45 tonnes

Boeing/ MDC MD-11	Boeing 767	BAe 146
Boeing 747-100 through -400	Lockheed L-1011SF	Boeing/MDC DC-8/9
Boeing 777	Boeing /MDC DC-10	Boeing 737
Airbus A350	Boeing 787	Boeing 727
Illyushin IL-96T	Airbus A300	Tupolev Tu-204
Antonov An-124	Airbus A330	Boeing 707
747-8F	Illyushin IL-76TD	Boeing/MDC MD-80
		Boeing 757-200

Airbus A320, A321

Production and conversion (SF) models assumed for each type unless otherwise specified



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