Asia Pacific Aviation

Competitive Dynamics & Growth

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Overview

- Asia Pacific aviation
- Business trends
- Future growth
- Sustainability
- Regulatory challenges

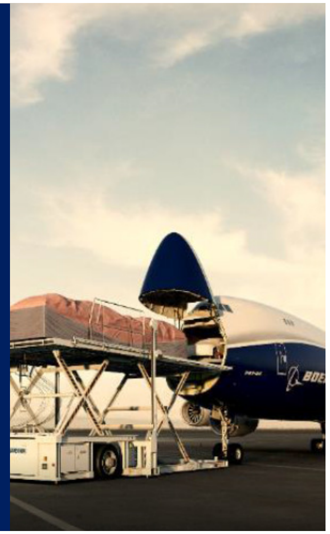
Aviation: delivering global mobility

4.1 billion passengers

11+ million daily

35% by value of global trade

Goods worth US$6 trillion



- Safely connecting people and business
- Wider social and economic benefits
- Outstanding safety record
- Committed to sustainable growth

Source: ICAO Preliminary Traffic Report, ATAG Benefits Beyond Borders

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Asia Pacific

- Diverse geographic region
- Home to more than 4 billion people
- Dynamic economies generate 35% of global GDP
- Aviation widely recognised as a key contributor to economic and social development
  - Supports 29 million jobs and US$626 billion in GDP
- Wide range of income levels, rapidly growing middle class

Source: IMF, ATAG Benefits Beyond Borders

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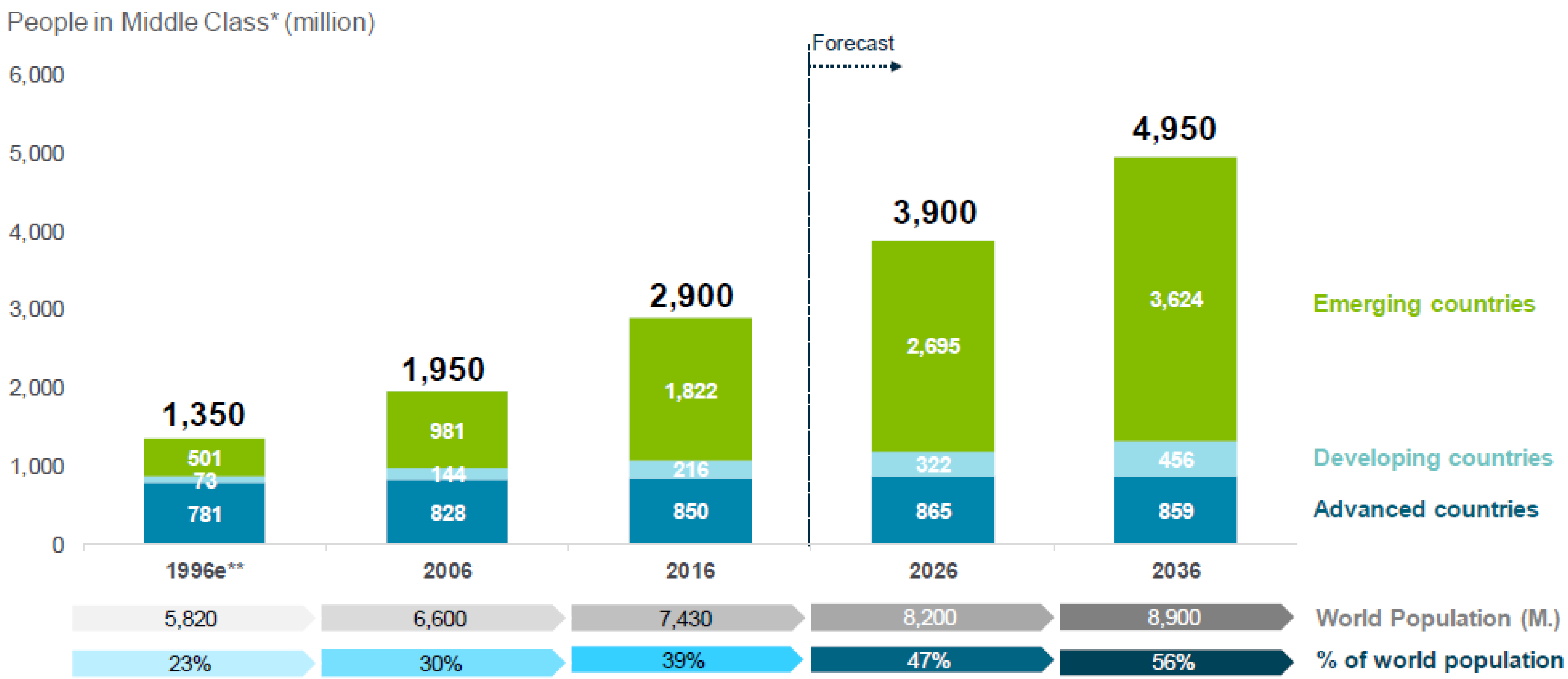
Growing middle class



* Households with yearly income between $20,000 and $150,000 at PPP in constant 2016 prices
** Estimate for 1996 split by region

Source: Airbus GMF 2017-2036

Rapid growth of emerging market consumers

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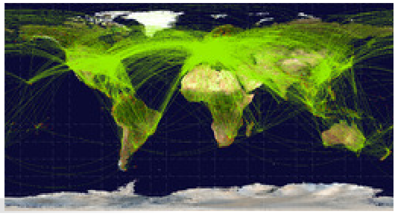

US$218 billion revenue

US$8 billion net profit

1,468 million passengers

1,054 million domestic

414 million international

23 million tonnes of cargo

7,867 aircraft

Asia Pacific carriers overall market share:

34% of global passenger traffic

37% of global cargo traffic

Data: Traffic: AAPA 2017 Estimates, Financials: IATA 2017 Estimates

Source: Combined AAPA + non-AAPA airlines GMT+5 to GMT+12

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World's ten busiest international/regional routes

Rank	Route	PAX (million)
1	Hong Kong - Taipei	5.2
2	Jakarta - Singapore	3.4
3	Dublin – London	3.4
4	Bangkok – Hong Kong	3.0
5	Kuala Lumpur – Singapore	2.8
6	Hong Kong – Seoul	2.8
7	London – New York	2.7
8	Hong Kong – Singapore	2.6
9	Osaka – Taipei	2.6
10	Tokyo – Taipei	2.5

Source: IATA WATS 2017, 2016 data

Key Asian air routes typically served by five or more airlines

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World’s ten busiest domestic routes

Rank	Route	PAX (million)
1	Jeju – Seoul	11.6
2	Sapporo – Tokyo	7.7
3	Fukuoka – Tokyo	7.3
4	Melbourne – Sydney	7.3
5	Hanoi – Ho Chi Minh City	6.3
6	Beijing – Shanghai	6.3
7	Delhi – Mumbai	5.5
8	Jakarta – Surabaya	4.5
9	Jeddah – Riyadh	4.4
10	Beijing - Chengdu	4.4

Source: IATA WATS 2017, 2016 data

… also mostly in Asia

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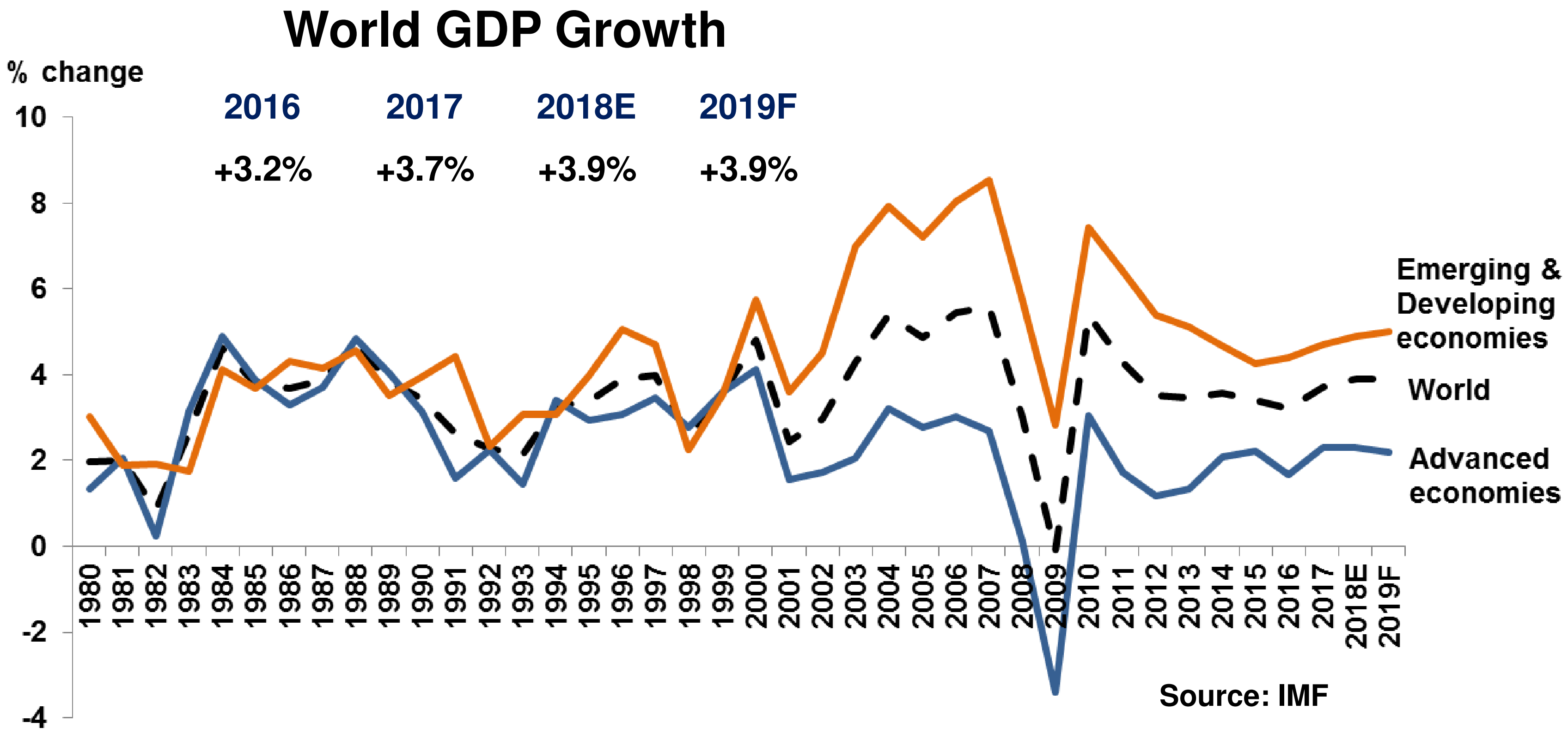
Global economic trends



Synchronized recovery & global economic growth

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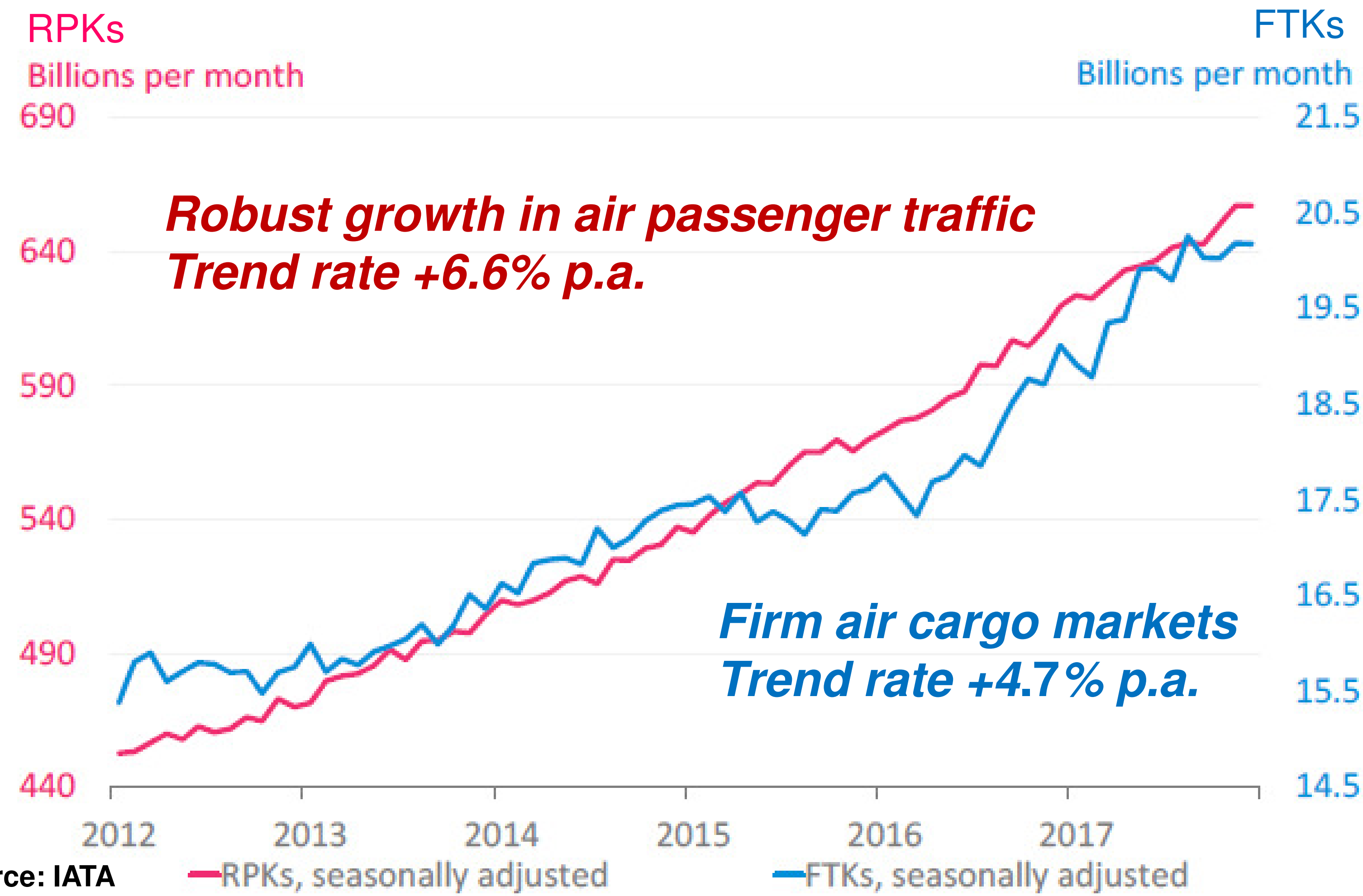
Global passenger and cargo traffic



Source: IATA

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Evolving airline business strategies

- **Business models continue to evolve, adapting to a dynamic marketplace**
- **Group structures & multiple brands**
- **Differentiated classes of service**
- **Unbundling ancillary services at a price**
- **Revenue optimisation through network connectivity & cooperative relationships**

Asia Pacific airlines at the forefront of global industry developments

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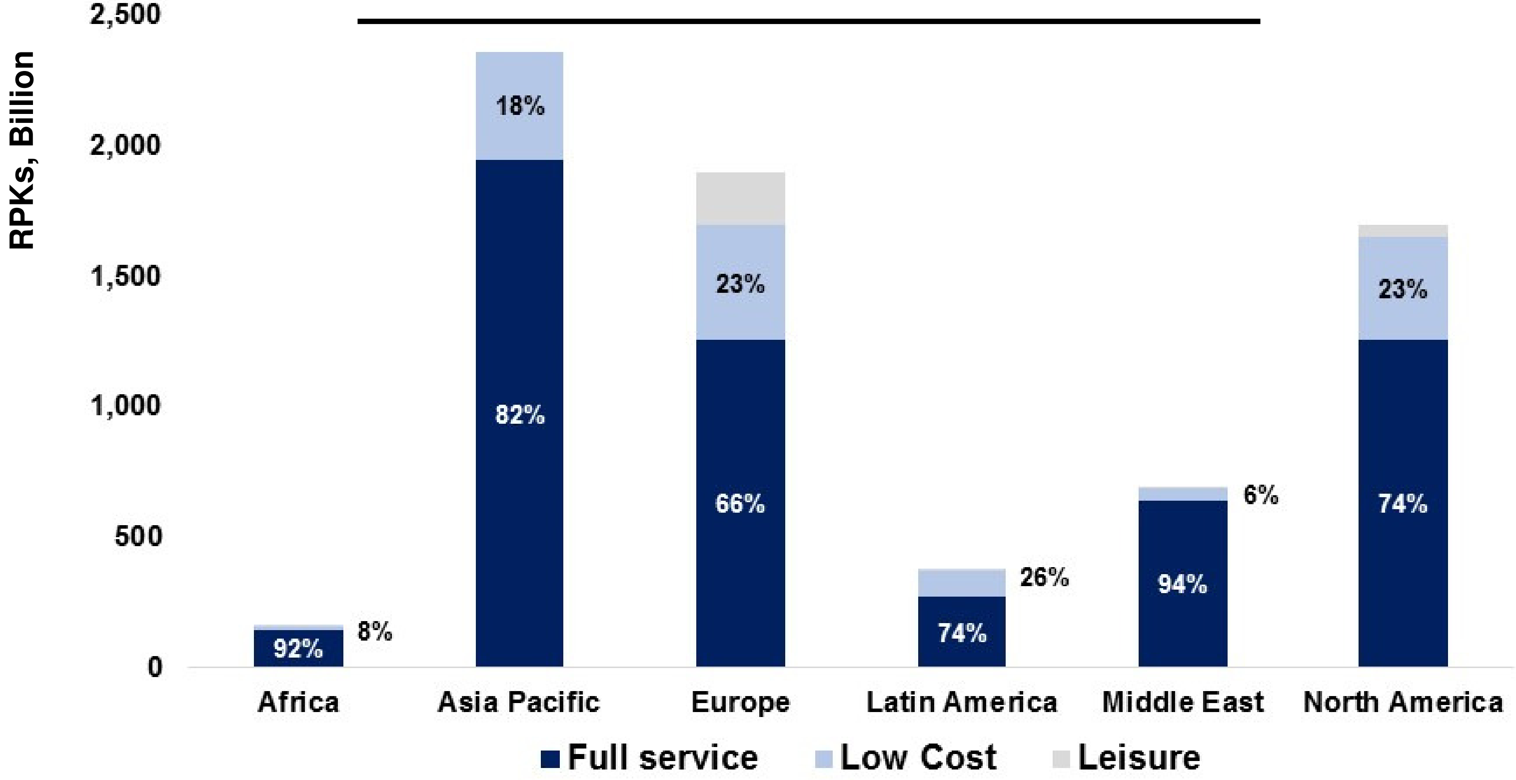
Airline business models: share by region

Global	Full Service	Low Cost
Market Share	77%	20%
Growth	+6%	+13%



Source: IATA WATS 2017, 2016 data

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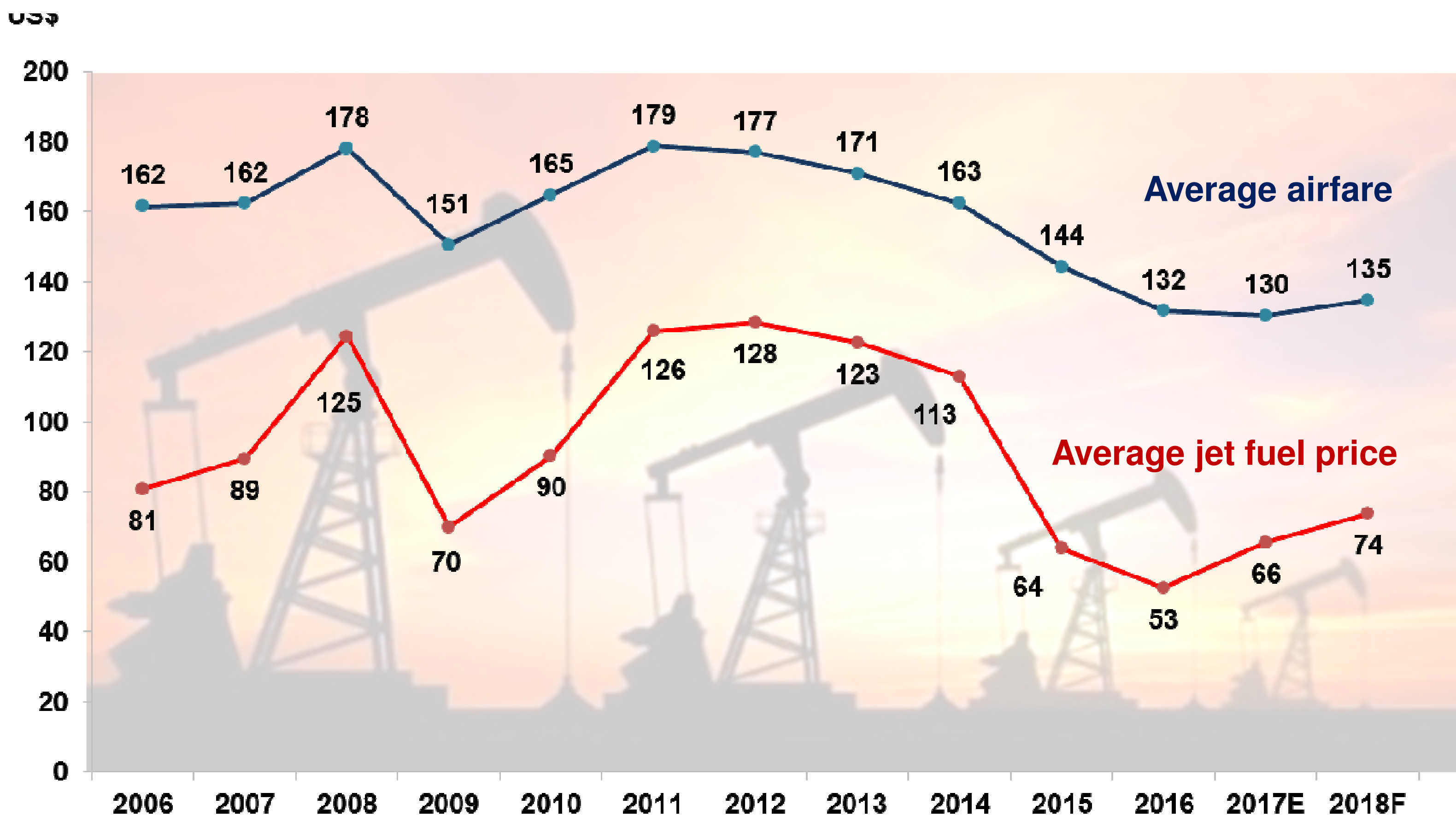
Air fares track changes in fuel costs



Fares remain competitive and very affordable, boosting growth

Source : IATA

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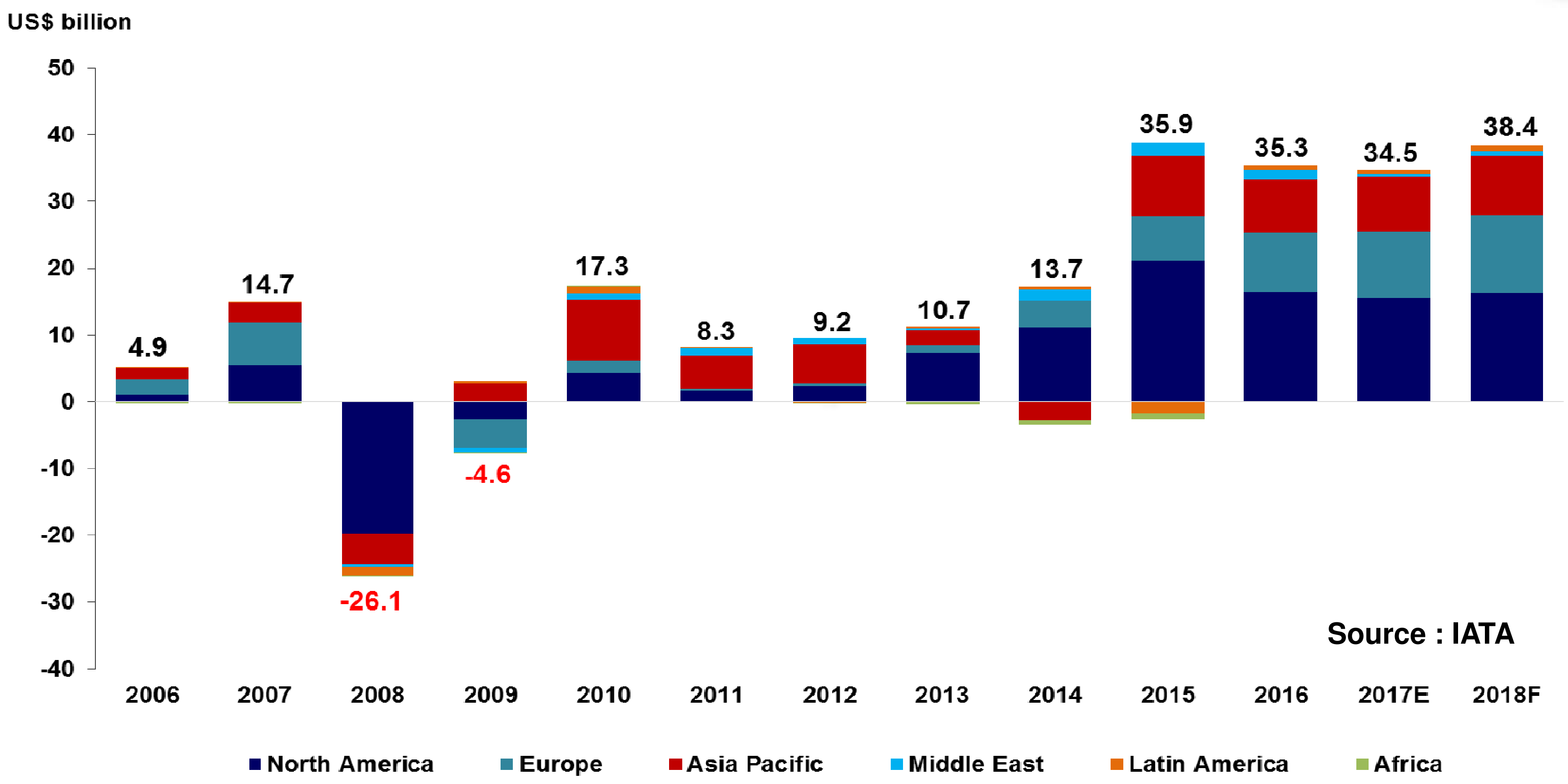
Global airline profitability trends



- ***Robust passenger and air cargo markets***
- ***Average profit margin only 4.6% or US$9 per passenger***

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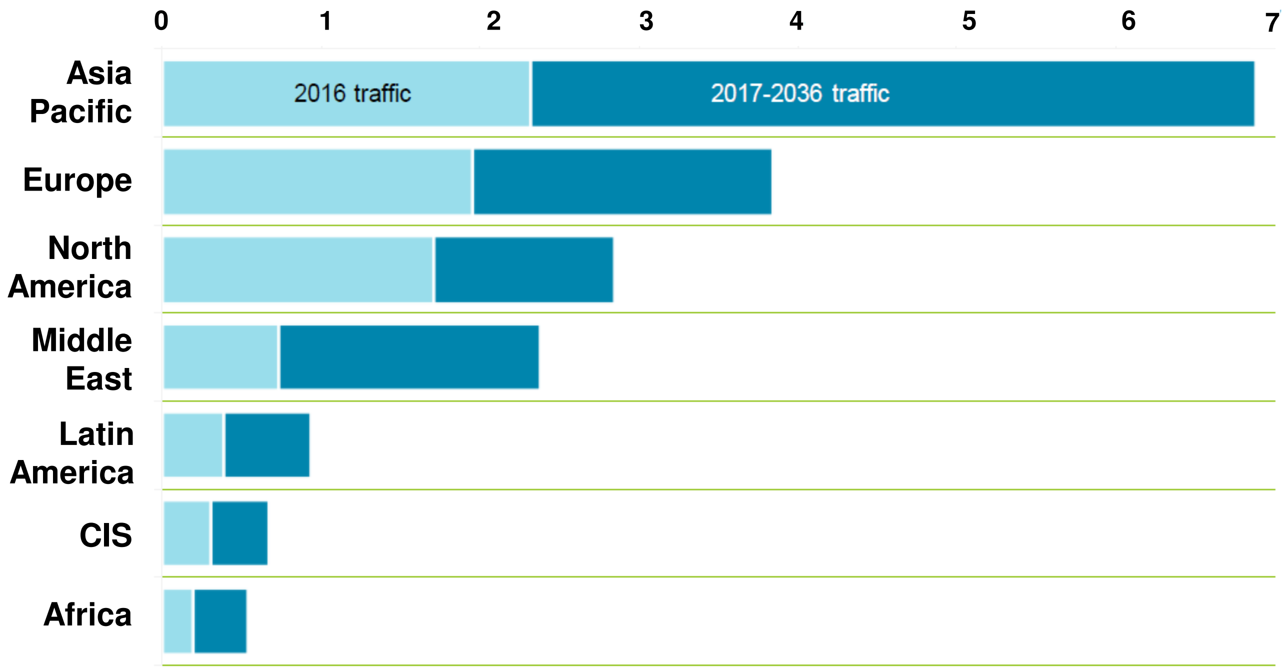
Asia Pacific markets to lead future growth

Traffic by airline domicile (trillion RPKs)



20-year CAGR	Share of 2016 RPKs	Share of 2036 RPKs
5.6%	30%	38%
3.4%	26%	21%
2.6%	22%	16%
6.1%	10%	13%
4.5%	5%	5%
4.0%	4%	4%
5.3%	3%	3%

Source: Airbus GMF 2017-2036

- ***Major capital investment required***
- ***Asia Pacific represents 40% of future aircraft orders & associated infrastructure requirements***

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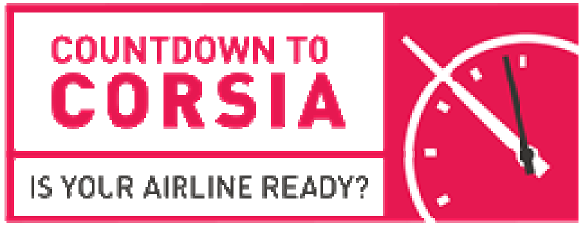
Aviation & Sustainable Development

- **Aviation pursuing multi-pillar strategy:**
  - **Fuel efficiency through technology**
  - **Operational enhancements**
  - **Infrastructure improvements**
  - **Sustainable alternative fuels**
  - **Supplementary carbon offsets through ICAO CORSIA**



- **Aviation is the first industry sector to implement a global market based measure**
  - **ICAO CORSIA technical guidelines - 2018**
  - **Airline international emissions reporting - 2019**
  - **ICAO CORSIA carbon offsetting obligations - 2020 onwards**

Aviation has set ambitious environmental targets and is delivering on its commitments

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Infrastructure

- **Airports and airspace modernisation must keep pace with rapid traffic growth to avoid congestion and delays**
- **Significant capital investment required**
- **Slots management is an interim measure, not a solution**
- **Governments need to think beyond national borders and develop regional air traffic flow management systems**

Government role to coordinate infrastructure planning and investment

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Global regulatory influences

- *Wider impact of US and EU regulations*
- *Asia Pacific needs a unified voice*
- *Need for harmonised global standards*

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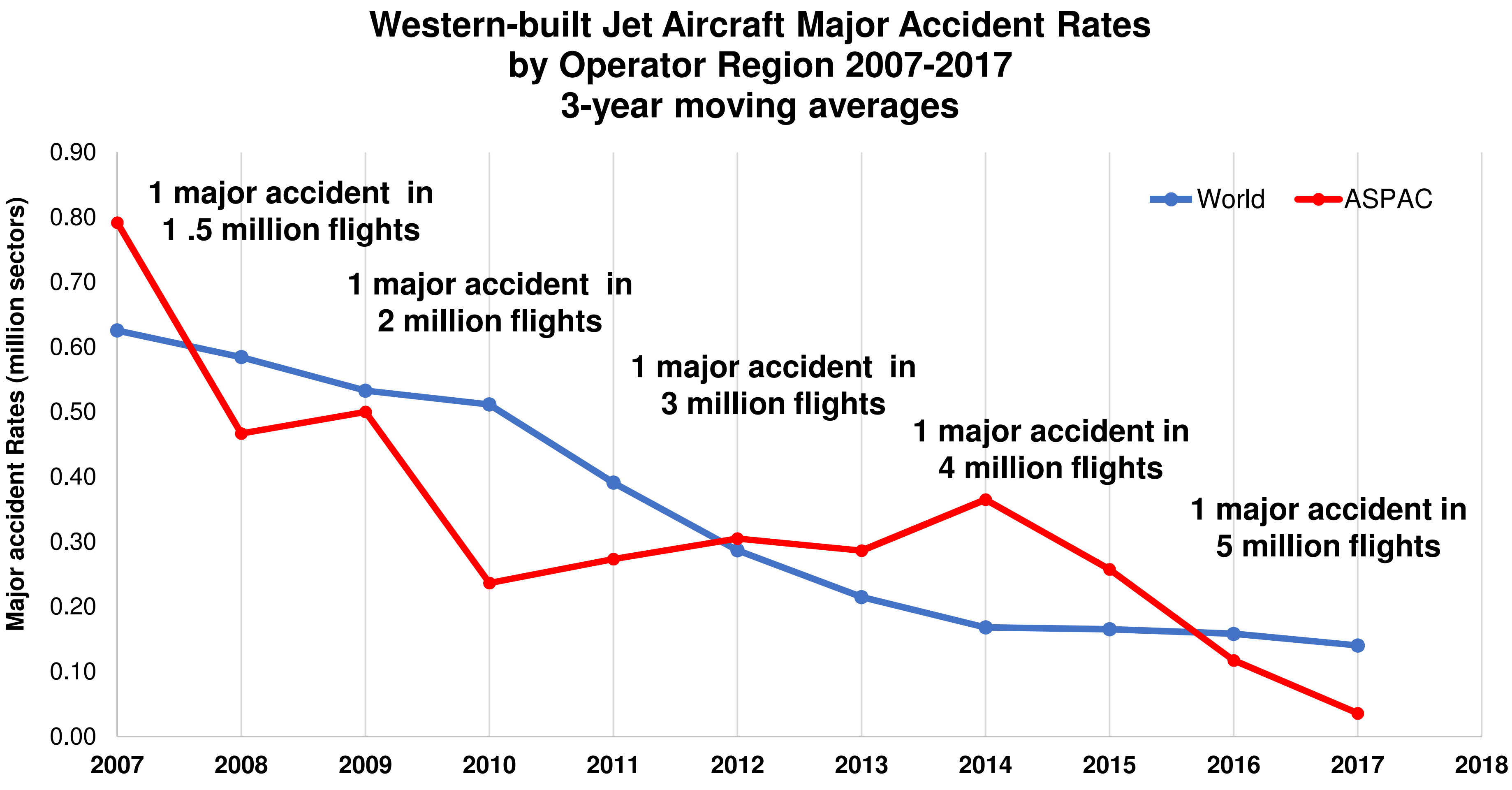
Aviation Safety Performance



Source: AAPA

Striving for continuous improvement

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Aviation Security

- Aviation remains highly secure despite perceived risks
- Threats and challenges evolving: no time for complacency
- Shared global concern requires close international coordination
- Mitigation measures need to be proportionate, focus on the probable threat, avoid unnecessary disruption
- Unilateral measures are inefficient and not sustainable
- Support ICAO leadership and multilateral cooperation involving trusted relationships between governments & industry

Cyber Security

- Aviation safety and security is built on a network of trusted relationships involving government & industry
- Growing digital connectivity brings with it increased challenges and vulnerabilities
- Wider regional understanding needed on the shared cyber risk environment
- Cyber security defences may be robust, but some system breaches and break-ins are inevitable
- Insurance as a risk management tool
- Building more resilient systems: focus on response and recovery & re-establishing business continuity

Regulatory Framework & Competition

- **Barriers to cross-border consolidation**
- **Emergence of complex group holding structures**
- **Varying interpretations of ownership & control restrictions, subsidies, fair competition**
- **Trade protectionist sentiments holding back some liberalisation efforts**
- **Cooperation, codeshares, joint ventures**
- **Competition authorities and antitrust immunity**

Global regulatory framework must keep pace with evolving market dynamics

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Variable quality of regulatory oversight

- **Safety culture is embedded throughout the aviation industry**
- **ICAO audits assess quality of national regulatory oversight**
- **Unnecessary duplication of oversight, multiple audits and sanctions add complexity**
- **ICAO 'No Country Left Behind' campaign aims to improve consistency and level of quality assurance**

Industry is supportive of good regulatory oversight as quality assurance measure

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Taxes & Charges

- Aviation users pay in full for related infrastructure
- Rising taxes and user charges increase overall cost of air travel
- User charges should be transparent, cost-related, non-discriminatory & for current use
- Economic regulation of monopoly service providers often lacking
- Opportunistic taxes hurt the wider economy and inhibit job creation

Passenger Facilitation

- Challenges of processing 11 million daily passengers
- Opportunities to streamline airline, security & border control processes using biometric technologies
- Personal information transfers raise privacy issues
- Border control is a government function and costs must be borne by government authorities

Balancing passenger facilitation and security needs

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Closing thoughts

- Aviation drives economic and social development
- Flying is safer than ever
- Governments need to rethink and apply collective risk-based approach to aviation security
- Future infrastructure planning is today's challenge
- Governments need to keep pace with changing market dynamics
- Asia Pacific airlines are shaping the future of global aviation

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