



Ministry of Civil Aviation
Government of India



5th International Exhibition & Conference on Civil Aviation
INDIA AVIATION 2016

March 16 -20, 2016
Begumpet Airport, Hyderabad, India



Knowledge Partner



Background paper



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Executive Summary



1

Executive Summary

The civil aviation market in India grew rapidly in the past year. During April-December 2015, the throughput of international and domestic passengers stood at 164 million¹ which is an increase of 17% over the same period in the last financial year. India has a vision of becoming the third largest aviation market by 2020. Due to increase in disposable incomes, fall in prices of Aircraft Turbine Fuel (ATF), increase in tourism due to visa reforms and better marketing of Brand India, the India aviation market is on the upswing.

India is building new airports and expanding existing ones to meet the growing demand. A slew of new airports are in the anvil to be developed in public private partnership (PPP) mode. The concept of low-cost, no frills airports is taking hold. This highlights a mind set change that air travel is not a luxury or elitist product, but a necessity for the masses. Some state governments are offering viability gap funding (VGF) for airlines or non-scheduled carriers to operate on new routes.

However, there are significant challenges to be overcome. While some Indian air carriers are posting modest profits, this is due to the prevailing low prices of crude oil. High fuel taxes, rupee devaluation, high interest rates and competitive fares are some of the headwinds the industry has to contend with. Though world class airports have been developed by AAI and the private sector, there are significant challenges related to capacity expansion of airports, fixation of airport tariffs, land acquisition and various government approvals. Growth of other key areas like air cargo, maintenance, repair and overhaul (MRO), general aviation (GA) and human resource development have been constrained due to infrastructural limitations and lack of supportive policies.

The draft National Civil Aviation Policy (NCAP), released in October 2015, has presented many interesting proposals to promote growth in the aviation sector, and its vision to enable 300 million domestic ticketing by 2022, although ambitious, highlights the hidden potential of the Indian aviation sector.

For super-charging growth in the aviation sector, urgent remedial measures are required. India needs to be promoted as a trade and tourism hub in order to derive synergistic benefits for the aviation industry. Leading aviation hubs like USA, EU, UAE, Singapore, China etc have a robust industrial, trading, maritime and tourism ecosystem that both supports and benefits from their aviation sector. Close collaboration between the Ministry of Civil Aviation (MoCA), related ministries (finance, home, defence, external affairs, commerce and industry, tourism, environment, HRD etc), regulators and the industry is the need of the hour.

¹ Source: AAI



India would need to broaden the base of domestic flyers through greater air connectivity in Tier 2/3 cities. Establishment of the Regional Connectivity Fund (RCF), decision on the contentious 5/20 rule, gradual shifting of the Route Dispersal Guidelines (RDG) under the Regional Connectivity Scheme (RCS), opening up of Indian skies and brining in business friendly policies are imperative.

State governments have been persuaded for long regarding the need to reduce sales tax on inputs like ATF. Many have done it, while the larger states are holding back. One option before the government is to add ATF to the list of declared goods with a uniform levy of 5% across the country. The states may be compensated for the revenue loss for 3-5 years by way of a special fund created for the same. Whatever the states lose by way of the huge tax rates levied on ATF will be more than made up by the resultant increase in economic activity, tourism and jobs.

The government and industry need to work together to address the various opportunities and challenges in the Indian aviation sector. With the right policies and a relentless focus on quality, cost and passengers, India would be well placed to achieve its vision of becoming the third largest aviation market by 2020 and the largest by 2030.



Introduction





2 | Introduction



Aviation is an important part of the economy which enables global business and tourism. The demand for air transport has increased steadily over the last 50 years. Since 1990, global passenger numbers have grown by 4.7 per cent each year. The trend will continue with world air traffic expected to double in the next 15 years and passenger aircraft numbers to increase 106 per cent by 2034².

The key drivers for this phenomenal growth are:

- a) Increase in disposable incomes, living standards and value of time have raised the demand for air travel for both business and tourism
- b) The world today is truly a global village, with an increased propensity to travel to far-off locations for business deals and tourism
- c) Most leading countries have deregulated the air transport sector and have gone for open skies agreements with other leading countries.
- d) Air travel costs have remained nearly stable due to competition and technological advancements, and are now falling due to the dramatic fall in ATF prices.

2.1 Economic benefits of aviation industry

The linkage between growth in aviation and its impact on economic and social development is well recognized. According to the International Civil Aviation Organization (ICAO), every USD 100 expenditure in air transport produces benefits worth USD 325 for the local economy. In addition, every 100 additional jobs in air transport result in 610 new jobs created in the local economy.

Some of the key economic benefits of air transport sector are³:

- a) Over 3.7 billion passengers will fly this year. Thus, aviation is a key enabler for the global economy.
- b) Air transport facilitates world trade - each day USD 16 billion worth of goods are transported by air which is 1/3rd of all global trade by value.
- c) Air transport is indispensable for tourism, which is a major growth engine for developing economies like India. International Air Transport Association (IATA) estimates that over 53% of international tourists now travel by air.

² Source: Airbus Forecast

³ Source: IATA, ICAO

- d) The air transport industry is a major generator of employment and economic activity in a country. 3.4 per cent of the global economy relies on aviation. According to IATA, the aviation industry generates a total of almost 58 million livelihoods globally. The aviation industry directly employs 8.7 million people, creates 9.7 million indirect jobs through purchase of goods and services by companies in its supply chain, 4.6 million induced jobs through spending by aviation industry employees and 35 million direct and indirect jobs through catalytic impact of air transport on tourism sector.
- e) The contribution of air transport to the global economy is estimated at USD 2.4 trillion, including direct, indirect, induced and catalytic effects of tourism⁴.

2.2 Global trends in civil aviation

Generally, during good years, airline traffic grows around 1.5-2 times the rate of growth of GDP. During downturns, the ratio turns negative, with traffic falling faster than GDP as seen during 1991 and 2001 slowdown. This ratio did turn negative in 2009 again, as global revenue passenger kilometres (RPKM) shrank before staging a recovery in 2010.

IATA's global passenger traffic results for 2015 shows that demand in terms of RPKM rose 6.5% for the full year compared to 2014. This is the strongest result since the global financial crisis and well above the 10-year annual average growth rate of 5.5%. Economic fundamentals were weaker in 2015 due to the slowdown in China, continuing weakness in Europe etc., but these were nullified by the fall in oil prices.

Capacity of airlines in terms of Available Seat Kilometres (AKSM) grew by 5.6% last year. Load factors grew to a record annual high of 80.3%. While all regions in the world experienced positive traffic growth in 2015, carriers in the Asia-Pacific region accounted for one-third of the total annual increase in traffic.

Cargo grew by 2.2% in 2015 compared to 2014 which is a slower rate of growth compared to the 5% growth in 2014. This is due to the sluggish trade growth in Europe and Asia-Pacific. The various regions of the world performed as follows: Asia-Pacific, which accounts for around 39% of freight traffic, expanded by a moderate 2.3%; Europe and North America, which between them comprise around 43% of total cargo traffic, were flat in 2015; Latin America suffered a steep decline (-6.0%); Middle East grew strongly, up 11.3%; Africa also saw modest growth of 1.2%. The freight load factor (FLF) fell to an average of 44.1% which compares unfavourably with the average of 45.7% in 2014.

⁴Source: IATA, Oxford Economics



Table 1: Year-on-Year comparison of key parameters for global aviation industry in 2015

Routes	RPKM growth	ASKM growth	PLF	FTKM growth	ATKM growth	FLF
International	6.5%	5.9%	79.7%	2.5%	6.4%	47.6%
Domestic	6.3%	5.2%	81.5%	0.1%	4.6%	29.6%
Total	6.5%	5.6%	80.3%	2.2%	6.1%	44.1

Source: IATA

(All Figures are expressed in % change Year on Year except PLF and FLF which are the % load factors for the December 2015.)

Note: RPKM: Revenue-Passenger-Kilometers; ASKM: Available-Seat-Kilometers; PLF: Passenger-Load-Factor; FTKM: Freight-Tonne-Kilometers; ATKM: Available Tonne Kilometers; FLF: Freight Load Factor

2.3 Passenger market has grown in 2015

International

Passenger traffic on international routes showed an increase of 6.5% in 2015 compared to 2014 with a concomitant increase in capacity of 5.9% and load factor of 0.5 percentage points to 79.7%. All regions recorded year-over-year increases in demand.

- Asia Pacific** - there was a demand increase of 8.2% compared to 2014. Asia Pacific carriers recorded a demand increase of 8.2% compared to 2014 which was the largest increase among major regions. The number of direct airport connections in the region increased by 7.3%. The capacity on this sector rose by 6.4% which has increased load factor by 1.3 percentage points to 78.2%
- Europe** - international traffic climbed 5% in 2015 while capacity rose 3.8% and load factor increased 1.0 percentage point to 82.6%, highest among all the regions. This healthy result in part was attributable to a pick-up in consumer spending in the Eurozone as well as a moderate increase in flight frequencies.
- North America** - saw demand rise 3.2% in 2015, broadly unchanged from the growth achieved in 2014. Capacity rose 3.1%, edging up load factor 0.1 percentage points to 81.8%.
- Middle East** - had the strongest annual traffic growth at 10.5%. This has resulted in the share of international traffic carried by Middle East airlines to reach 14.2 with a capacity growth of 13.2% that exceeded the demand gains hence pushing down load factor 1.7 percentage points to 76.4%.
- Latin America** - traffic rose 9.3% in 2015, capacity rose 9.2% and load factor inched up 0.1 percentage points to 80.1%. While key regional economies, particularly Brazil, have been struggling, overall traffic has been robust.

- f) **Africa** - showed the slowest annual demand growth which only increased by 3.0%. With capacity up just half as much as traffic, load factor climbed 1 percentage point to 68.5%. International traffic rose strongly in the second half of 2015, in conjunction with a jump in trade activity to and from the region.

Domestic

Air travel on domestic routes increased 6.3% in 2015. India and China were leaders in growth but all other markets also showed growth. Capacity rose 5.2% and load factor was 81.5%, up 0.9 percentage points over 2014.

Total traffic

The combined traffic data for domestic and international traffic in 2015 is as follows:

Table 2: Year-on-Year comparison of key parameters for global aviation industry in 2015

Regions	RPKM Growth	ASKM Growth	PLF
Africa	2.9%	1.4%	69.3%
Asia/Pacific	8.6%	6.7%	78.6%
Europe	5.1%	3.9%	81.7%
Latin America	6.7%	6.4%	79.9%
Middle East	10.0%	12.6%	76.7%
North America	4.3%	3.8%	84.0%
Total	6.5%	5.6%	80.3%

Source: IATA

(All Figures are expressed in % change Year on Year except PLF and FLF which are the load factors for the December 2015.)

Aviation has shown robust growth in the last year with improvements in capacity and load factors. Going forward, it is expected that with low oil prices, this momentum will continue. However, low oil prices may mask the operational inefficiencies in the airlines. Airlines will have to watch out for complacency so that if and when oil prices bounce back, it doesn't catch one unawares.

2.4 Cargo Update

Cargo volumes have declined through 2015 due to weak global sentiment and the slowdown in China. Asia-Pacific accounted for 39% of cargo traffic which expanded by 2.3%.



Table 3: Region-wise year-on-year comparison of freight traffic on some key operating parameters

Regions	FTKM Growth	ATKM Growth	FLF
Africa	1.2%	5.3%	29.7%
Asia-Pacific	2.3%	5.7%	53.9%
Europe	(0.1%)	4.4%	44.9%
Latin America	(6.0%)	1.8%	38.3%
Middle East	11.3%	15.7%	42.8%
North America	0.1%	3.8%	34.3%
Total	2.2%	6.1%	44.1%

Source: IATA

2.5 Aviation growth in Asia Pacific

Asia Pacific is one of the largest aviation markets in the world and this is reflected in the rise of both full service and low cost airlines. Aviation generates 24 million jobs and USD 500 billion in business in the region. By 2034, it is expected that one in five air travellers will be travelling to, from or within China and Asia-Pacific will be the biggest market for global aviation.

Currently, 1.1 billion passengers from the Asia Pacific are air travellers and this has the potential to increase to 2.8 billion by 2034. This would increase pressure on the existing airport and air navigation infrastructure in the region.

Table 4: Growth rates for airports in Asia

Country	Airport	Pax Growth Rate
China	Shanghai Pudong	16.3%
India	Delhi	15.7%
	Mumbai	16.1%
	Bangalore	25.2%
	Hyderabad	22.0%
Thailand	Bangkok (Don Muaeng)	40.6%
	Kansai	19.9%
	Busan	19.6%
UAE	Dubai	10.7%
	Abu Dhabi	17.3%
Qatar	Doha	17.1%

Source: IATA

In cargo, the Asia-Pacific region reported a small increase of 1.5% in the year 2015. Subdued growth in major cargo centers such as Hong Kong (0.1%), Incheon (0.6%) and Narita (0.6%) contributed to an overall muted cargo traffic growth. However, in the Middle East, cargo traffic expanded with a strong growth of 10.7% for the year 2015. Doha was a stellar performer with an impressive growth of 47.3% for the year while Dubai grew by 13%.

Asia Pacific will be one of the largest aviation markets by 2025 with a forecast of 11,687 commercial aircraft as compared to 8,142 in North America and 8,096 in Europe. Hence, there will be a concomitant increase in the MRO market which is expected to grow to USD34.8 billion in 2025. The current global MRO market is USD67.1 billion of which the current market size of Asia Pacific is USD18.3 billion. While the North American and European markets which are mature will see continued re-fleeting, the same proportion in Asia Pacific market is limited due to the younger fleet.

Low cost carriers will expand in Asia Pacific where 100 million new passengers are projected to enter the market annually for the foreseeable future. Jet fleets of Asian airlines have nearly doubled, from 2,900 to 5,850. The number of Asian airlines with jet fleets has grown from 150 to 225. The capacity that these airlines provide has grown on average by 7 percent annually. Routes to, from, and within Asia have increased 57 percent, from 2,200 to 3,800.

LCCs in Asia Pac have grown over the past 10 years with a CAGR of 24.5 per cent which is more than the LCCs in Europe which grew by 13.4 per cent or of North America (2.2 per cent).



Indian Aviation Industry





3 | Indian Aviation Industry



India is the ninth largest civil aviation market in the world with a market size of USD16 billion and aims to become the 3rd largest market by 2020 and the largest by 2030. This is possible due to a host of factors including increased competition, low cost carriers, modern airports which are expanding, improved technology in both air side and city side operations, Foreign Direct Investment (FDI) and increased emphasis on regional connectivity.

International passengers grew by 7.6% during the period from Apr 2015 to Jan 2016 to 45.4 million. Domestic passengers grew by 20.6% over the same period last year to touch 138.8 million passengers. Cargo grew by 6.1% to 2.2 million tonnes while Air Traffic Movements (ATM) for the period were 1.48 million, an increase of 10.9% over the same period last year.

3.1 Key growth drivers

Civil aviation sector is vulnerable to economic cycles, oil price volatility, natural disasters, epidemics and political upheavals. The Indian civil aviation industry has managed to exhibit resilience to the recent global economic slowdown. Some of the key developments during the last decade, which aided the growth of the Indian aviation, include the following:

- a) Domestic 'open-skies policy', which allowed several new carriers to enter the market
- b) Arrival of Low Cost Carriers (LCC) in India with the launch of Air Deccan, and, subsequently by Spicejet, IndiGo and Go Air
- c) Airport modernization plans combined with encouragement of greenfield airport development
- d) Liberalization of the international sector with private players permitted to operate overseas, albeit with the 5/20 restriction i.e. 5 years of domestic operation and a fleet of 20 aircraft.
- e) Greater access of foreign carriers and opening up of international routes at regional airports
- f) Increased foreign direct investment limits for airlines and other sub-sectors of the industry like airports, air cargo, ground handling etc.

3.2 Government Initiatives

India would require over 250 brownfield and greenfield airports by 2020. The government is actively involving the private sector in the construction of airports via PPP with substantial state support in terms of financing, concessional land allotment, tax holidays and other incentives. The government plans to revive and operationalise around 160 airports in India to improve regional and remote air connectivity.

The Government of India, in its draft civil aviation policy released for inputs from stakeholders, has proposed raising Foreign Direct Investment (FDI) limit in domestic airlines from the current 49 per cent to above 50 per cent in future should India go for complete open skies. Other reforms include tax incentives for airlines, incentives for travellers to fly to small towns at affordable rates, and easing the norms for domestic carriers to operate abroad.

The Government of India has decided to provide Jaipur and Ahmedabad airports to Changi Group for Operations & Maintenance.

New airports on PPP mode would be coming up in Navi Mumbai, Mopa in Goa, Bhogapuram near Vizag, Dholera in Gujarat. Low cost no-frills-airports are expected in Singrauli, Nellore, Kurnool etc.

In order to enhance air travel penetration, India will need a business friendly policy environment, more airport, more aircraft, supporting infrastructure, finance and human resources. The subsequent chapters highlight the market dynamics, opportunities, challenges and the key enablers for different sub-sectors of the Indian civil aviation industry.



Airports





Arrivals

BARCLAYS
Banking reinvented.

4 | Airports



The Airports Authority of India (AAI) manages a total of 125 Airports, which include 11 International Airports, 08 Customs Airports, 81 Domestic Airports and 25 Civil Enclaves at Defence Airfields. AAI also provides Air Traffic Management Services (ATMS) over entire Indian Air Space and adjoining oceanic areas with ground installations at all Airports and 25 other locations to ensure safety of Aircraft operations.

AAI has entered into a Joint Venture at Mumbai, Delhi, Hyderabad, Bangalore and Nagpur Airports to upgrade these Airports and emulate the world standards. Cochin is run as a PPP airport albeit with significant involvement of the Government of Kerala in its day to day management. A new model is emerging wherein Changi Airport may take over the terminal and city-side operations of Jaipur and Ahmedabad airports.

However, India is investing less than is required for the expanding passenger and cargo traffic. Mumbai, Chennai, Pune and Goa airports are severely constrained. Delhi airport may get saturated in the next ten years. India's investment pipeline for airport upgrading and expansion is around USD5 billion which is inadequate for meeting the requirements of airport expansion in India. In comparison, China has a plan to invest USD130 billion in airports over the next 15 years while UAE plans to invest over USD46 billion.

It is estimated that among the 30 largest non-metro airports operated by AAI, 40 per cent are already estimated to be operating over their design capacity. This is despite the fact that the 12th Five Year Plan envisaged INR 70,000 crore of investments in airports.

Several Greenfield airport projects are at multiple stages of bidding and construction. The most anticipated one is the Navi Mumbai international airport. With CSIA getting increasingly congested during peak hours, it will provide much needed capacity to meet the growing demand for air transport in the Mumbai metropolitan region, which has seen a 13.7% growth in traffic the last year. The project has suffered from delays in the past on account of key approvals and land acquisition issues but is now on track. The selection of the private joint venture partner is expected to be completed by mid-2016.

The second airport for Goa at Mopa has also seen progress with four bidders being shortlisted for the RFP stage. Construction of a new airport in Kannur, Kerala is underway. Construction of the new international terminal at Cochin airport is understood to be progressing as per schedule and expected to be commissioned in May 2016. In Andhra Pradesh, a greenfield international airport is planned near Visakhapatnam at Bhogapuram, the bidding for which is expected to commence soon.

Several state governments are promoting the setting up of regional no-frills airports (NFA) to support hinterland connectivity, tourism and emergency services through renewed policies outlining institutional support and fiscal concessions. Greenfield airports under active consideration include Sindhudurg, Gulbarga, Shimoga, Gangtok, Kushinagar, Itanagar, Pakyong, Deoghar and Jharsuguda. No-frills airports being planned in 2016 at Singrauli (MP); Dagadarthi and Orvakal (AP), to which some more may be added by different state governments once the RCS is implemented. Expansion projects at Delhi, Bengaluru, Cochin, Vadodara and Pune are being planned in 2016.

As per the proposed union budget for FY 16-17, AAI would operationalize around 10 of its 25 non-functional airstrips to boost regional connectivity.

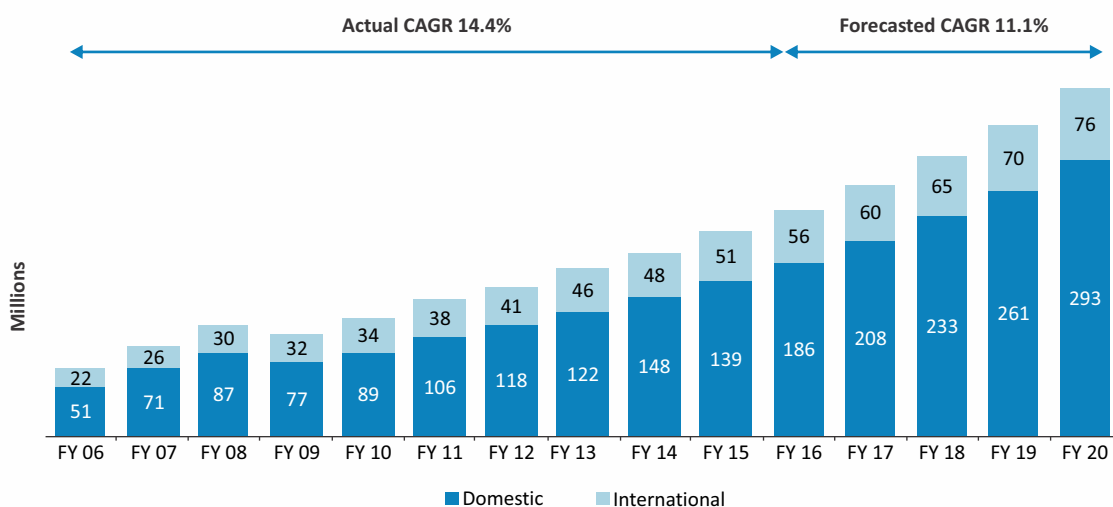
AAI is likely to invest up to INR 1,400 crore in further expansion of Chennai Airport and setting up an ATC tower at Kolkata Airport over the next few years. The aviation ministry had earlier dropped the plan for privatization of the Chennai, Kolkata, Jaipur and Ahmedabad airports. They may go for limited outsourcing of terminal operations and retail concessions.

4.1 Traffic handled by the Indian airports: Key trends

a) Passenger traffic

The total passenger throughput for FY 2015-16 till January 2016 stands at around 184 million, which is an impressive growth of 17.1% over the same period last year. Domestic through put has grown at a higher pace of 20.6% CAGR as compared to international throughput, which grew at 7.6% CAGR. Passenger throughput is expected to reach around 370 million by 2020, with domestic traffic constituting around 80% of the total. The figure below shows the past and the future trends in throughput.

Figure 1: Passengers carried by Indian airports in past and future forecast



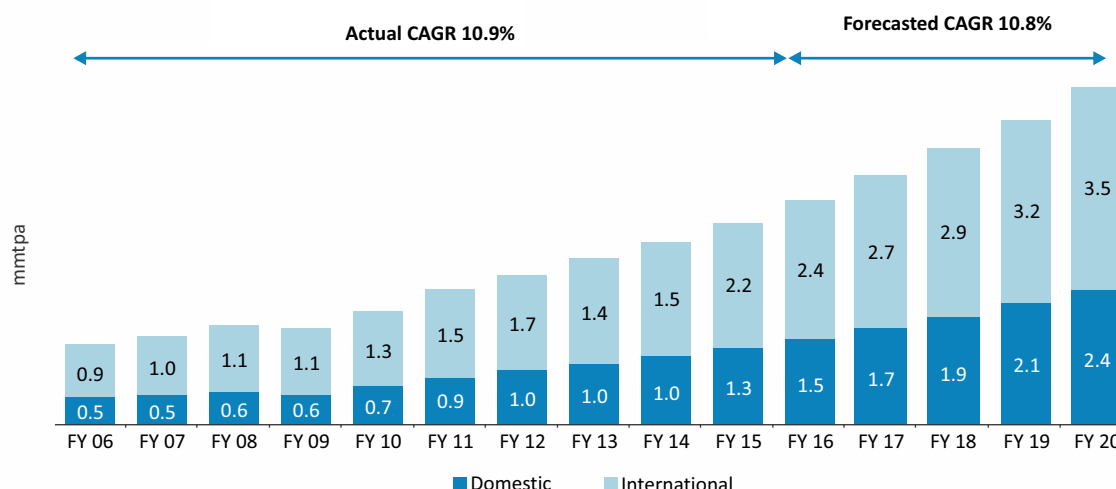
Source: AAI, MoCA, KPMG Analysis



b) Cargo traffic

Total cargo throughput has increased by more than 50% over the last five years. While the domestic cargo throughput has increased by 12.1 % CAGR, international cargo throughput has grown by 10.3%. International cargo tonnage is almost 64% of the total cargo handled. The international cargo is projected to reach around 3.5 million metric tonnes per annum (mmtpa) and domestic cargo to around 2.4 mmtpa by FY 2020.

Figure 2: Air cargo handled by Indian airports in past and its future forecast



Source: AAI, MoCA, KPMG Analysis

4.2 Private investment in Indian airports

The bid process for development of Greenfield airports at Navi Mumbai (NMIA) and Goa (Mopa) are underway while the RFP for Bhogapuram International Airport near Vizag is expected shortly. In addition, states such as Andhra Pradesh are looking at developing low-cost, "no-frills" airports at Nellore and Kurnool. Once realized, these airports would become the gateways to air travel for the majority of the population thus making aviation more accessible to the masses. Operations in Jaipur and Ahmedabad are expected to be handed over to Changi airport. These airports will entail an estimated investment of about INR 25,000 crore over the next 5 years.

PPP has been a success in terms of airport infrastructure and service quality. India's flagship airports at Delhi, Mumbai, Hyderabad and Bengaluru have been ranked consistently among the best in the world on service quality by leading global agencies like ACI and Skytrax.

The Indira Gandhi International Airport (IGIA) at New Delhi has been ranked the best airport (in the 25-40 million pax) by ACI for 2014. Kempegowda International

Airport Bengaluru(KIAB) has been ranked the best regional airport at the Skytrax World Airport Awards held in Paris recently. Mumbai (CSIA) and Hyderabad (RGIA) airports have consistently featured among the top ten airports in the ACI and Skytrax rankings over the last five years.

PPP in airports has shown the world that 'India can', helped bring in investments of over INR 30,000 crore, created world-class facilities to Indian and foreign travelers, helped the government unlock value especially in commercial revenue, generated lakhs of jobs and contributed to the economy through a positive impact on tourism, hospitality, manufacturing and global trade.

Surprisingly, PPPs are still being seen as a "means of financing" in India. The real benefits of PPP have less to do with financing and more to do with innovation in design and engineering, asset quality, risk management and operational efficiency. Well-structured PPP projects with adequate government support not only help in limiting the extent of government funding or subsidies but instead generate large cash inflow for the government, as has been seen in the case of Delhi and Mumbai airports.

The real challenge lies in making regional or small airports viable through PPP models. These are not only essential for making air travel accessible to the common man but also in getting the private sector to invest in asset development. The viability challenge has to be tackled on two fronts; (i) supporting development of low-cost airports and (ii) supporting airlines to operate regular services to these airports on a sustainable basis. Lack of policy support, high fixed cost of operations, multitude of taxes and low demand have made regional connectivity very difficult to create.

The draft National Civil Aviation Policy (NCAP 2016) has taken a step in the right direction. It proposes the setting up of a Regional Connectivity Fund (RCF) to provide direct subsidy to airlines on a reverse bidding basis. Many state governments have also proposed under-writing of a certain number of seats.

Monetization of airport's non-aeronautical assets and the land abutting the airports can generate reasonable cash flows to support infrastructure development. This has been successfully demonstrated in the larger airports. This may however not apply in the case of all regional airports.

4.3 Key action steps

- a) Hub airports like Atlanta, LA and Chicago in US; London, Paris, Frankfurt in EU; Beijing, Dubai, HK, Singapore etc are driven by their hinterland economy, hub carriers, efficient processes and relatively 'open skies'. India lost out on all counts - we have a weak national carrier, the hinterland economy around leading airports is small, Indian tourism traffic is negligible, the processes -



visa, immigration, customs and airport transfers are inefficient and we have no open skies agreement with any country other than USA. It is an urgent requirement that hubs be developed in India to leverage the benefits of aviation to the maximum.

- b) Given our inward looking economic policies, the political class and the bureaucracy never really took aviation seriously, despite its deep impact on GDP, infrastructure development, tourism and job creation. India's lack of global connectivity to India was never a talking point. It is the spectacular success of the city states like Singapore, Hong Kong and Dubai; and lately Qatar and Abu Dhabi, that woke up India. The arrival of the LCC boom and the airport privatisation around ten years back that made Indians realize the cost of our negligence. The aviation leadership has been passed on to our competitors in the Gulf and ASEAN region. It will be tough to take them on but the battle has to begin in the right earnest.
- c) ATF prices for international carriers at Indian airports is almost 30-35% costlier than at international hubs. It's a self-defeating policy. Many global carriers therefore tank up in their home locations and India loses out that revenue. High taxes on MRO have ensured that very little MRO is done at Indian airports. This will hopefully be addressed in NCAP 2016.
- d) For procedural efficiency at hub airports, mind-set changes are critical. Domestic to international terminal transfers in Delhi and Mumbai are still done through coaches moving through city traffic. It's important to carry out minimum connect time (MCT) analysis to ensure faster movement of passengers, luggage and cargo between connecting flights. Air-side terminal transfers, dynamic gate management, dedicated bag screening for ramp to ramp transfers, dedicated immigration counters for specific airlines at a fee, inexpensive dorm rooms for transfer passengers etc are some of the options. Central authorities like Customs, Immigration and CISF need to sign service level agreements with leading airports - they at times operate in silos and often lack the empathy that international travellers expect.
- e) The failure of the tourism sector in India has hurt our aviation hub status tremendously. This is despite being blessed with huge opportunities in terms of religious, cultural, historical and nature tourism. International visitors at India's best known attraction - the Taj Mahal at Agra have plummeted from 7.9 lakh in 2012 to 6.9 lakh in 2014, despite a huge ad spend by the government. Most global tourists bypass India for places like Bali, Phuket and Langkawi primarily because of the poor air connectivity, inadequate hotel facilities especially in non-metros, bad last-mile road connectivity, poor maintenance of monuments etc. Harassment, overcharging and molestation of tourists and terror incidents have hurt India's image.

In 2014, India's foreign tourist arrivals stood at an abysmal 7.4 million per annum, as compared to Singapore (12 million), Thailand (25 million), Malaysia



(27 million) and China (56 million). In today's times, one negative incident goes viral in a matter of hours on the social media. Every foreign tourist entering India spends around USD 800-1000 per trip - that's equivalent to around 7-8 months' salary for an unskilled worker. One can imagine the jobs created if we can take tourist arrivals from 7 million to close to China - say around 50 million. And that's eminently possible.

Making India a tourist hub is a monumental task and requires a complete clean-up of mind-set, policies and procedures. We need to start today.



Airlines





5 | Airlines



The airline landscape in India has transformed radically in recent years. In 2005, there were just 4 main carriers - Air India, Indian Airlines, Jet Airways and Air Sahara, all operating full service models - plus several small airlines. By 2015, there were 7 national air carriers namely - IndiGo, Jet Airways, Air India, SpiceJet, GoAir, Vistara and AirAsia India. In addition, regional carriers such as Air Costa, Air Pegasus and Trujet provide the much needed regional connectivity. In these two decades 17 airlines have shut down and accumulated losses of operating airlines are a staggering Rs 60,000 crore.

Indian domestic traffic grew by a whopping 20.3% during Jan-Dec 2015, the highest in the world. This is despite the fact that domestic ATF prices are still 60-70% higher than global prices. If the oil prices continue to be rationalised along with other measures, we may see 18-20% growth for the next three years. That may take India closer to its vision of becoming the third largest aviation market by 2020.

India's biggest strength is its population and not individual prosperity. Transportation is a volume game, with low margins. Anything that's high cost doesn't sell. The success of Indigo and the dramatic revival of SpiceJet from near-death proves that. Oil prices are expected to stay below USD 50 per barrel for the next three years. With per capita incomes rising, increasing value of time and the growing propensity for leisure and tourism will result in more and more Indians taking to flying.

Domestic airfares in India are currently low due to the low ATF prices, increase in seat capacity and cut-throat competition. Many airlines have now started reporting profits and that may help reduce their outstanding losses and liabilities. It also allows them to go for controlled expansion in fleet, routes and staff.

The biggest challenges to Indian aviation industry's growth story are safety, security and capacity constraints. These challenges are also inter-connected. The month of Dec 2015 saw four major incidents in one month alone - animal hits, ferry bus crashing into an aircraft, an engineer getting sucked into an aircraft engine, and a BSF aircraft crashing in Delhi. Security risks from organised terror strikes to lone wolf attacks to unruly passengers continue to exist.

In major airports, especially Mumbai, Chennai, Bengaluru, Goa, Pune etc, congestion in the airspace, runway, parking bays, passenger terminal and city-side infrastructure is likely to increase. There's also a risk that augmentation in manpower of central agencies like CISF, customs, immigration, etc may not keep pace with the growing traffic, especially at peak hours.

Other concerns include delays in the development of second airports in Mumbai, Goa, Chennai, Pune etc; formation of an independent Civil Aviation Authority (CAA), hive-off of Air Navigation Services (ANS) from AAI, market-listing of AAI and Pawan Hans, privatisation of Air India and revival of Juhu Airport in Mumbai.

Lack of manpower training facilities for pilots, engineers, technicians and air traffic controllers, is a key challenge. All the above need to be addressed on priority.

5.1 Industry dynamics

International geopolitics has created an unexpected bonanza for the Indian aviation industry. Global crude prices have crashed and are expected to stay low. On the negative side, not all savings from global crude price reduction are being passed on to the passengers. ATF in India is typically 70-80 percent costlier than global prices due to artificially high ex-refinery price and high taxes - both at the central and state level.

Many state governments look at the short term and keep levying local taxes at 25-30 percent level that is simply unjustified. The tax and non-tax benefits from travel, tourism and the resultant investments, infrastructure development and job creation will be multiples of the small tax foregone on the raw material ATF.

Countries in the gulf and ASEAN region understood this decades back and the results thereof are visible and measurable. Hopefully 2016 will see leading states like Delhi, Maharashtra, Karnataka, TN, WB, Gujarat, Kerala etc reduce the high VAT on ATF and that may act as a big traffic booster.

Some of the other key events are as follows:

- a) Listing of IndiGo: Listing of IndiGo on November 2015 and the share price appreciation thereof highlights the strength of Indigo's growth plans, improving market sentiments and the overall strength of the highly under-penetrated Indian aviation and tourism market.
- b) Mega-aircraft order by IndiGo: IndiGo's mega-order of 250 A320Neo aircraft reaffirms the faith in the highly under-penetrated Indian aviation sector and IndiGo's growth plans. The delay in delivery of the NEOs in Dec 2015 due to technical reasons is a concern but we hope it's a temporary one.
- c) Turnaround at SpiceJet: The biggest reason behind SpiceJet's revival is the hands-on approach of the new owner. The investor brought in a lot of confidence to passengers, employees, lenders and suppliers. Passengers cancelled bookings since they were not sure of flights actually taking off. The mood started changing within 4-5 weeks.
- d) Government support for SpiceJet revival: The government had seen the adverse fallout of the Kingfisher shutdown and clearly didn't want a repeat. DGCA removed the one month limit on forward bookings and that brought in much needed cash while investors brought in fresh capital. The oil companies and airports allowed further credit to the airline. To accomplish the turnaround in less than 12 months in a highly competitive and low-margin Indian airline industry shows the maturity of the industry, the Government and regulators.
- e) Air India finally making operational profits: Air India is expected to make a small operating profit in FY16 after several years, on account of low fuel prices and other operational improvements. Air India still has a long way to go to become a profitable entity but with projections of low fuel prices for the next

year, boom in air traffic growth and implementation of major reforms will provide the much required impetus to further improve its financials.

- f) Voices for privatization of Air India become louder: The airline business requires split second operational, commercial and financial decisions which is not possible in the government environment. The industry also requires significant empowerment of junior officers which again is difficult in the government environment where employees are often worried about a backlash in case a bonafide decision taken with good intent goes wrong. Air India needs to be privatised for its own benefit. The 30,000 crore bailout package for Air India is heavily criticised. This money can instead be used to reduce VAT on ATF and reimburse the states for their losses for 3-5 years.

5.2 High cost of Air Turbine Fuel (ATF) as a real spoiler

Despite being an input fuel (similar to coal and gas), ATF is subjected to sales tax as high as 28-30% in some states, as shown in the table below:

Table 5: ATF sales tax in different states

State	Sales tax on ATF
Karnataka	28%
Odisha	5%
Maharashtra	24%
Tamil Nadu	29%
Gujarat	30%
Delhi NCR	25%
Andhra Pradesh	1%

Source: Media reports

- a) As ATF in India is almost 60-70% costlier than global average due to policy apathy in the past, opaque pricing structure and multitude of taxes - excise, customs, VAT. Calling it a subsidised fuel for the well-off is misleading. ATF can be called 'subsidised' if it is sold cheaper than global prices.
- b) High ATF prices in the past have led to flying becoming the preserve of the well-off. Since international ATF prices are low, at times an all-expense paid trip flight to Thailand or Malaysia turns out cheaper than flying within India. India's skewed pricing policy on ATF has actually done more damage to Indian trade and tourism than good.
- c) Just like the telecom revolution, a drastic reduction in the airfares will help take flying to the masses and expand the national air grid. It would give a fillip to economic growth, tourism and job creation. The follow on taxes from the economic activity generated will be far in excess of the small tax foregone on the raw material ATF.
- d) Many progressive states like AP, Jharkhand, MP, Chhattisgarh, West Bengal etc have understood this and have drastically reduced taxes on ATF at all or most of their airports. Larger states like Delhi, Maharashtra, TN, Karnataka etc

continue to charge high rates. Once fuelling shifts to other states due to the tax differential, ATF taxes all over the country will come down gradually over time.

- e) Comparing taxes on ATF and other auto-fuels is unfair. Each has different utility and economic multiplier. A 20% reduction in bus and train fares may not create a revolution, but in aviation it can. If India has to grow, we need to gradually shift people from trains to aircraft. Imagine the loss of national productivity if corporate executives spend 18 hours to go from Delhi to Mumbai by Rajdhani Express - something they can do in 2 hours flat by flight.

5.3 Key action steps

The key actions required to make India a global aviation hub are as follows:

- a) Notify Aviation Turbine Fuel (ATF) as a 'declared good'. ATF should have a uniform levy of 5 per cent or less across India. ATF for aircraft weighing under 40 tons is already a 'declared good'. It is far wiser to generate tax from downstream goods and services than an industrial raw material - ATF. ATF in India is 60-70 percent costlier than global average. It should be brought within 10% of the global average price for a 10-year period to give a fillip to national air connectivity.
- b) Notify changes in tax structure for aviation sector as per the draft National Civil Aviation Policy (NCAP 2016). It proposes that MRO, ground handling, cargo and ATF infrastructure co-located at an airport will get the benefit of 'infrastructure' sector, with benefits under Section 80-IA of Income Tax Act. The restriction of being 'co-located at the airport' should be dropped since many of the facilities are also located off-airport. Among other things, the draft NCAP 2016 also proposes zero-rating of service tax on MRO and exemption from excise duty on ATF at airports covered under the Regional Connectivity Scheme (RCS).
- c) Allocate INR 1000 crores as a seed funding for the proposed Regional Connectivity Fund (RCF). RCF will provide VGF funding for air connectivity in Tier 3-4 locations based on a thorough feasibility analysis. This will complement the 2% levy to be applied on domestic and international flight tickets.
- d) Remove artificial constraints like FDI limit and bilateral quotas. Airlines are the last bastions of protectionism like defence and media. Far more risky sectors like telecom and banking have been opened up with no adverse impact on Indian companies. The whole sector boomed, and so did the fortunes of the Indian players. The consumers gained and so did India. The same may happen in aviation. Doomsday theories about cash-rich Gulf carriers killing Indian carriers is sheer propaganda. If they want, the Gulf carriers can collaborate with any willing Indian airline, with or without buying an equity stake, utilise the Indian part of the bilateral quotas, and get involved in the domestic sectors also.
- e) Announce a clear road-map for privatization of Air India. Else Air India may continue to bleed under increasing competition, falling market share and increasing costs. The taxpayers funds thus saved can be used to provide compensation to states for forgoing VAT on ATF and to fund the RCF.

Regional Connectivity





6 | Regional Connectivity

6.1 Background

- a) Aviation is a high fixed-cost, low margin business where nearly 85% of the airline costs are of a fixed nature - fuel, leases, salaries, interest, maintenance, airport and navigational charges etc. Airlines and airports need high traffic volumes to spread out the fixed cost and make airfares affordable. That's the reason nearly 72% of India's air traffic is restricted to just the top ten airports.
- b) Air India and Jet fly to around 50 domestic airports out of around 125. Market leader Indigo and SpiceJet fly to around 34 each. India's interiors will never be connected unless there're substantial tax breaks and cash subsidies provided to make the routes viable.
- c) The fall in ATF price augurs well. And so does the interest from Chief Ministers of many progressive states that realise the catalytic impact of air connectivity on regional development, investments, tourism and job creation.
- d) Regional airlines have flourished more in South India since that's where the bulk of the economic activity, tourism and white-collar migrant population is. As per norms, regional airlines in south can fly to all the major airports - Bengaluru, Chennai, Hyderabad, Cochin, Pune, Goa etc. The ones in the North have only Delhi as the major hub, with other state capitals like Lucknow, Jaipur, Patna, Chandigarh etc, yet to provide high traffic.
- e) North India has many places of high population and high tourism interest, especially religious and nature tourism but has yet to capitalize on this to increase air passenger traffic.

6.2 Key trends

In order to highlight the paucity of flights to non-metro routes, data from DGCA was analysed over the last 6 months to find the air passengers per day in metro to metro routes, metro to non-metro routes and non-metro to non-metro routes in order to find the dynamics of these markets.

a) Metro to metro routes

- i) A total of 30 metro to metro routes have been analysed, and in the 6 month period, except for Hyderabad - Mumbai sector all other metro to metro routes have shown a positive increase in number of passengers per day.

- ii) The highest month on month continuous growth rate has been recorded for the sector Chennai - Kolkata @ 6%
- iii) The top 10 sectors in terms of continued growth for the last 6 months are as below:

SN	SECTOR	JAN'16 PAX PER DAY
1	CHENNAI - KOLKATA	1088
2	BENGALURU - KOLKATA	1585
3	KOLKATA - CHENNAI	1118
4	KOLKATA - BENGALURU	1596
5	HYDERABAD - KOLKATA	689
6	KOLKATA - HYDERABAD	684
7	KOLKATA - DELHI	2948
8	DELHI - KOLKATA	3001
9	MUMBAI - DELHI	8934
10	HYDERABAD - BENGALURU	1618

b) Metro to non-metro routes

- i) A total of 196 metro to non-metro routes have been analysed for the 6 month period, of which 44 routes have shown a decrease in the number of passengers per day, 133 routes have shown an continuous month on month increase of upto 10% and 6 routes have shown an continuous month on month increase of more than 20%
- ii) The highest month on month continuous growth rate has been recorded for the sector Hyderabad - Varanasi @ 29%
- iii) The top 10 sectors in terms of continued growth for the last 6 months are as below:

SN	SECTOR	JAN'16 PAX PER DAY
1	HYDERABAD - VARANASI	229
2	DELHI - GAYA	111
3	DELHI - SURAT	177
4	DELHI - KHAJURAHO	30
5	BENGALURU - RAJKOT	17
6	DELHI - PORT BLAIR	134
7	MUMBAI - JAMMU	242
8	HYDERABAD - VADODARA	34
9	DELHI - AGARTALA	84
10	DELHI - VISAKHAPATNAM	526



c) Non Metro -Metro Routes

- i) A total of 196 non-metro to metro routes have been analyzed for the 6 month period, of which 42 routes have shown a decrease in the number of passengers per day, 139 routes have shown an continuous month on month increase of upto 10% and 6 routes have shown an continuous month on month increase of more than 20%
- ii) The highest month on month continuous growth rate has been recorded for the sector Varanasi - Hyderabad @ 35%
- iii) The top 10 sectors in terms of continued growth for the last 6 months are as below:

SN	SECTOR	JAN'16 PAX PER DAY
1	VARANASI - HYDERABAD	225
2	RAJKOT - BENGALURU	19
3	SURAT - DELHI	178
4	GAYA - DELHI	75
5	PORT BLAIR - DELHI	143
6	VADODARA - KOLKATA	24
7	VADODARA - HYDERABAD	35
8	AMRITSAR - CHENNAI	11
9	VISAKHAPATNAM - DELHI	573
10	UDAIPUR - DELHI	634

d) Non Metro -Non Metro Routes

- i) A total of 117 non-metro to non-metro routes have been analysed for the 6 month period, of which 28 routes have shown a decrease in the number of passengers per day, 69 routes have shown an continuous month on month increase of upto 10% and 9 routes have shown an continuous month on month increase of more than 20%
- ii) The highest month on month continuous growth rate has been recorded for the sector Varanasi - Agra @ 55%
- iii) The top 10 sectors in terms of continued growth for the last 6 months are as below:

SN	SECTOR	JAN'16 PAX PER DAY
1	VARANASI - AGRA	34
2	PUNE - TIRUPATI	12
3	GOA - LUCKNOW	15
4	AHMEDABAD - INDORE	94

SN	SECTOR	JAN'16 PAX PER DAY
5	GOA - TIRUPATI	2
6	INDORE - AHMEDABAD	112
7	VARANASI - KHAJURAHO	78
8	BAGDOGRA - GUWAHATI	149
9	GUWAHATI - GOA	47
10	GOA - GUWAHATI	47

6.3 Key action steps

Many Indian states have started taking pro-active measures to promote air connectivity in their states. Their initiatives are largely in the field of development of airports, reduction in sales tax rates on ATF, promotion of flying schools and direct subsidy to airlines for improvement of connectivity. States have gradually realized that reduction in airlines' operation costs is the only way to incentivize the airlines to serve their states.

The actions required to enhance regional connectivity are:

- State governments have to play a vital role: State governments need to take the initiative in the field of development of low cost airports, provision of multi-modal connectivity to the airport, promotion of flying schools etc.
- Reduction of sales tax on ATF: one of the most critical needs of the industry.
- Helipad development throughout the country: Helicopter operations are a cost effective mode of providing air connectivity. Efforts should be made to develop heliports in every district of the country. Heliports can come in handy during natural or man-made disasters. This may be done through a development of a joint scheme in collaboration with other ministries like home, defence, industry and tourism.
- Development of low cost airports: the next generation of aviation growth in India is being triggered by regional airports. At present, there are about 450 used/ un-used/abandoned airports and airstrips spread all over the country. About 225 of them are owned by State Governments or by private operators. Efforts must be undertaken to activate these airports, subject to their long term financial viability.
- Collaboration with MoCA regarding the Regional Connectivity Scheme (RCS) and direct cash subsidy to airlines plying on the RCS routes.



Air Cargo





7

Air Cargo



Air cargo, though just around 1-2% of the global cargo movement, contributes to around 32-35% by value of cargo shipped. It is critical for industries such as pharmaceuticals, electronics, marine exports, floriculture etc. where shipments are highly time-sensitive. Hence, the development of air cargo requires deep focus.

The Indian air cargo industry is a classic case of high potential but low achievement. This is despite the many advantages we enjoy in terms of economic growth, demographics and location.

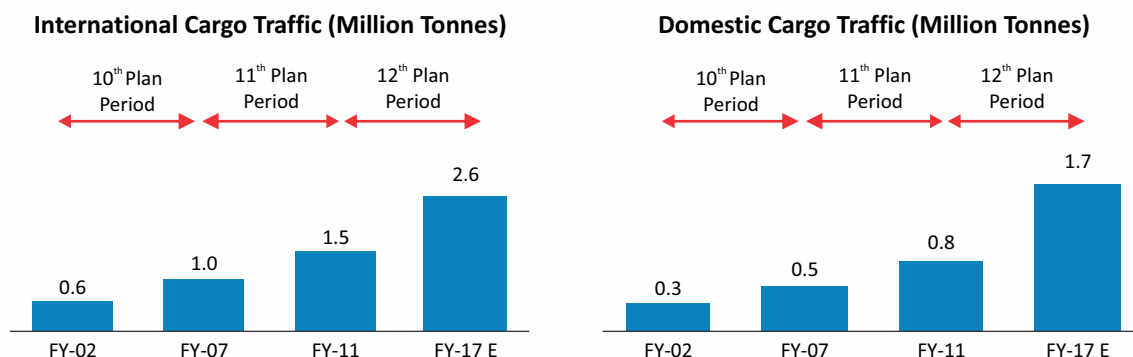
7.1 Air cargo traffic trends

Indian government adopted "Open Sky" policy for the air cargo sector in early 1990s, under which Indian or foreign carriers were allowed to operate scheduled and non-scheduled cargo services to/from any airport in India. The period since the adoption of open skies policy, has seen a strong growth in international air cargo traffic, which can be attributed to a sizeable growth in scheduled services operated by Indian and foreign airlines.

In FY 2014-15, India handled a total cargo throughput of 2.52 mmtpa. This pales in comparison with airports like Hong Kong, Memphis, Shanghai and Incheon which alone handle more throughput than ALL Indian airports combined.

In FY 2014-15, domestic air cargo sector grew 18% on the back of the e-commerce boom. This year, the cargo traffic during Apr 15 - Jan 16 has grown by 6.1%, with domestic cargo growth falling to just 5.4%. Surely there's something amiss here.

Figure 3: Air Cargo throughput for all Indian airports



Source: DGCA, MoCA, KPMG Analysis

7.2 Key challenges

The key challenges faced by the air cargo industry include policy apathy, procedural bottlenecks, poor infrastructure, costly finance and lack of skilled manpower

International cargo, which accounts for two-thirds of the total cargo handled, is mainly concentrated at metro airports of Mumbai, Delhi, Chennai, Bangalore and Hyderabad. Delhi and Mumbai airports alone handle around half of India's total air cargo.

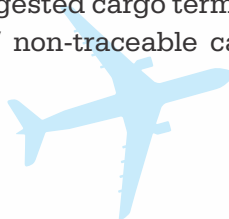
A much higher growth rate can be achieved if a concerted effort is made to unlock the true potential of air cargo through improved infrastructure, higher operational efficiencies and simplified procedures and regulations. The average freight load factor during the last 5 years was around 62%, reflecting significant unused capacity.

Air cargo has also not been able to grow at the same pace as some of the other transport modes, primarily marine cargo. The five year CAGR of air-cargo at 11% is lower than the growth rate of India's overall exports and imports which grew by around 15% and 18% over the same period.

In addition, the trans-shipment cargo which constitutes as high as 60-70% of total volumes handled by some of leading airports tends to be negligible for Indian airports. A significant potential lies for the Indian airports to become trans-shipment hub. Given its geographic location, and improving relation with SAARC countries, India is well placed to capitalize on this opportunity.

7.3 Key action steps

The Indian air cargo industry in the country faces a multitude of challenges. These include high dwell times, congested cargo terminals, inefficient use of belly cargo capacity, missing/ damaged/ non-traceable cargo, manual processing etc. Key



reasons include lack of enabling infrastructure, complicated procedures, inadequate use of technology and challenges on the human resource front.

A mix of short term and medium term actions are required, to make India an international cargo hub. These include:

- a) Strengthen the Air Cargo Logistics Promotion Board (ACLPB): ACLPB can help in the organized growth of this sector by enabling policies and facilitating planned development of air cargo hubs in the country.
- b) Air cargo to be afforded infrastructure status as per the draft NCAP 2016.
- c) Introduce the concept of Cargo Village at all hub airports. This would help consolidate all agencies, regulators, service providers and functionalities within the airport's cargo facility and decongest the cargo terminals.
- d) Assist in formulating the Quality of Service (QoS) parameters for various stakeholders in the air-cargo supply chain including ambitious objectives such as reduction of cargo dwell time to below 24 hours by December 2016 and 6 hours by December 2017.
- e) Facilitate development of Air Freight Stations (AFS) - AFS was conceived as a means to reduce congestion in the airport premises, by permitting transfer of cargo to customs notified freight Stations.
- f) Facilitate expansion of cargo fleet: Freightler aircrafts play a vital role in increasing the cargo throughput of the country. There is no consistent policy for allotment of dedicated facilities at any of the airports for dedicated cargo aircrafts. There is lack of dedicated terminal space and facilities for express airlines with limited scope for adequate expansion. Restriction on night operations and high lease rentals has made setting cargo aircraft operations a costly proposition. There is an urgent need for policy support and robust infrastructure to ensure efficient freighter operations in the country. Dedicated cargo airports can be developed to ensure that cargo gets priority. These airports would allow peak operation during night hours, have good connectivity with transport infrastructure and would be close to industrial areas to ensure a critical customer base for cargo.
- g) Extend Risk Management System (RMS) facility for exports: RMS has shown excellent results on the imports side. Customs authorities should consider introducing RMS for exports at the earliest possible, to minimize congestion on the apron and the resultant damage and/or pilferage.
- h) Simplify customs processes and documentation through full adoption of EDI (Electronic Data Interchange): Customs should go for full EDI adoption for import/export registration, clearance, drawback and e-payment of duty. This might release considerable manpower/ man-hours in the existing pool, which can contribute in part for 24x7 operations.
- i) Customs and security policies and procedures for transshipment differ at various airports. There is an urgent need for standardization of the same.



- j) A major thrust towards migrating to paperless environment can come from the proposed e-freight initiative of IATA being adopted in other countries. E-freight aims to take paperwork out of air cargo supply chain and replace it with cheaper, more accurate and reliable electronic messaging. Facilitated by IATA, the project is an industry-wide initiative involving carriers, freight forwarders, ground handlers, shippers and customs authorities. The government and industry should work together to ensure its rollout in India at the earliest.



Maintenance, Repair and Overhaul (MRO)

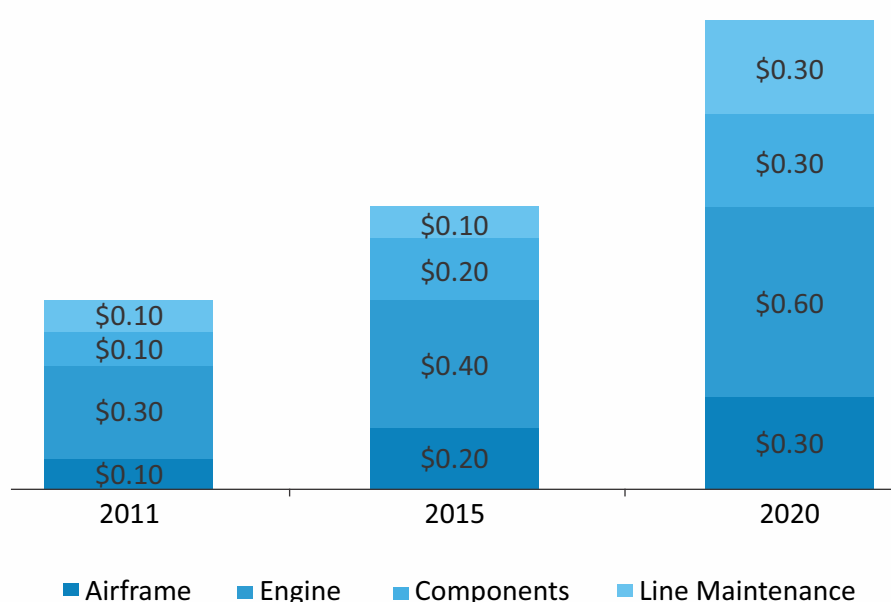




8 | Maintenance, Repair and Overhaul (MRO)

8.1 Background

Figure 4: MRO market Size in India (USD billion)



Source: MRO monitor, Ascend Database

The Indian MRO is an industry with huge potential but faces hurdles in becoming an effective value chain. Various MRO's have setup operations in India but the industry is still left wanting when it comes to getting a regular demand from airlines.

Although the hurdles are policy and procedure related, removing these hurdles will only solve one part of the problem. The downstream value chain for MRO support will still create significant challenges for MRO's to deliver value for money and a one stop service. There is a need for government and MRO players to educate and promote new investments in this long term sector with a view to develop downstream MRO support shops.

One of the basics of a downstream value chain in MRO is the availability and presence of aircraft spare parts warehousing and trading companies. Without the availability of such services, large inventory costs and frequent movement of parts outside India will keep the 'value for time and money' unpredictable.

India has a relatively young fleet which would require greater maintenance services going forward. However, the growth of the MRO industry in India is severely restricted due to challenges such as an extremely disadvantageous tax regime and lack of adequate space and infrastructure at airports. Several MRO projects have been announced in the past, but lack of enabling policies have resulted in many of them getting stalled. Some of the announced projects include⁵ :

Table 6: MRO projects in pipeline

S No	MoU/JV	Location	Year of announcement	Status
1	MAS-GMR	Hyderabad	2009	Operations launched in 2011.
2	Air India/Boeing	Nagpur	2005	Part work is an offset commitment for Air India's Boeing buy. Completed in 2015.
3	Air Works Engineering	Hosur	2007	The MRO is building a second hangar.
4	Lufthansa Technik/GHIAL	Hyderabad	2007	Shelved in 2008.
5	Timco/HAL	Bangalore	2009	Stalled
6	Airbus/Air India/Jupiter Aviation	Delhi	2007	Stalled
7	Airbus/HAL	Nashik	2006	Stalled
8	SIA Engg - GoAir		2006	Stalled
9	Taneja Aerospace/Sabena technics	Hosur	2007	Stalled
10	Duke Aviation Engineering	Nagpur	2009	Shelved in 2010
11	Indian Airlines/SIA Engineering Co.	Delhi	2005	Stalled
12	Hyderabad Aircraft Maint Co. (Hamco)	Hyderabad	2005	Stalled
13	Kingfisher/HAL/Gamco	Bangalore	2007	Stalled
14	Air India	Hyderabad	2009	Stalled

⁵ Sources: Industry sources, Aerospace news



S No	MoU/JV	Location	Year of announcement	Status
15	Air India (for Boeing 737-800s)	Thiruvana- thapuram		Stalled
16	Cochin Int'l Airport	Cochin	2006	Has not found investment partner yet
17	Sabena technics/Taneja Aerospace & Aviation	Bangalore	2007	Stalled

Source: Industry sources, Aerospace news
(Note: some information could be erroneous)

8.2 Key action steps

The actions required to make India a global MRO hub are as follows:

- a) Apply zero rate of VAT on MROs: VAT at the rate of 12.5 -15% is levied on aircraft parts imported by MRO service providers, whereas no such tax is levied on the airlines importing their own spares for self-consumption. Further, VAT is levied on selling price and not on cost price, which effectively makes the total tax component to be around 20-22%, when added with Service tax.

Today, there is miniscule VAT collection on aircraft spares since most of the high value spares are purchased by Indian carriers abroad. So there's no actual loss if VAT is zero-rated. Maharashtra is the first state to exempt VAT on MROs.

Zero rating of VAT would enable development of MRO infrastructure in India. The government would earn significantly larger revenues from the multiplier effect of MROs, generation of local employment spend and growth of ancillaries.

- b) Sale of aircrafts parts and consumables should be brought under 'Declared Goods' list. This would ensure uniformity of a low VAT rate across the country. If the size of the MRO pie is made ten times larger, a smaller percentage of VAT would yield much higher revenue for the State than by imposing a higher tax rate on a miniscule pie.
- c) Apply zero-rate of Service Tax on MROs. In case an MRO activity is undertaken in India, Service Tax is levied at the rate of 14.5%, which will now rise to 15% from 1 June 2016. However, in case such repairs are undertaken outside India,



Service tax is not charged which makes Indian MRO industry uncompetitive with respect to other neighbouring countries. Zero-rating of Service Tax would help create a level playing field for Indian MROs vis-a-vis foreign MROs.

- d) Increase the abatement on MRO services: Currently, MRO services qualify as 'Works Contract Service', which attracts Service tax @14.5% on 70% of the service portion of the work. The present rate of abatement should be increased from 30% to 90% to reduce the Service tax incidence.



General Aviation





9

General Aviation



India has witnessed a significant growth in the number of non-scheduled airline operators with total number of operators registered with DGCA reaching 126 in 2014-15 from 36 operators in 2000. The present ownership pattern indicates a fragmented sector with majority of the players owning less than 10 aircrafts.

As per DGCA, the General Aviation (GA) fleet in India comprises around 393 small aircrafts. Of the total 81 NSOP domestic operators, the top 15 operators accounted for more than half the total number of domestic flights operated in the year 2014-15. Of the total 27 non-scheduled international operators, the top 15 operators accounted for 90% of the total number of international flights operated in 2014-15.

The Government had announced 100% FDI in general aviation which was welcomed by the industry with caveats. The biggest challenge was inadequate parking and landing slots for general aviation in Delhi and Mumbai airports. Investment to the tune of USD 4 billion is required in General Aviation by 2017.

9.1 Key action steps

The key actions required to facilitate rapid growth of GA in India are as follows:

- a) **Regulatory framework for equitable treatment to GA operators:** With the current traffic load of scheduled flights at metro airports, many a time GA aircrafts get a lower priority as compared to scheduled operators. Delays in take-off and landing clearances defeat the purpose of investments in GA aircrafts. A joint review committee should be formed by MoCA and DGCA with representation from GA stakeholders to review the existing regulatory and operational framework.
- b) **Support infrastructure:** It is important to develop the supporting infrastructure at airports in Tier 2/3 cities including night-landing facilities, enhancement of passenger amenities and state support in statutory services, like security, to boost the GA industry. GA facilities at metro airports need an upgrade in terms of dedicated terminal, entry point, apron and parking space, etc.
- c) **Upgrading of non-operational air-strips:** Non-operational airstrips need to be upgraded in places of economic significance such as ports, mines, industrial clusters and tourist locations. These need to be done at the lowest possible cost without compromising on safety. The airstrip may attract a small number of GA flights initially and if it has a strong business case, it may ultimately lead to full scale operations in future, with significant benefits to the local economy.



- d) **Airfield information:** GA aircrafts and helicopters at times use airports and helipads that are not in general use. It is extremely important for MoCA to create a reliable and regularly updated database of all airports and airstrips in the country. It is also important to improve coordination with IAF airfields and introduce basic low-cost navigational aids in these small airports.
- e) **Development of heliports:** Development of heliports is important to support the growth of GA in India, especially in areas that cannot have runways due to financial constraints or terrain-related challenges. MoCA may consider developing a PPP policy for development of heliports. There is a need to develop standardized route operating procedures for helicopters. Draft NCAP 2016 has proposed a slew of reforms to support the helicopter industry. The same should be implemented in letter and spirit, especially for use in intra-city travel and medical evacuation.
- f) **Monitoring and oversight:** Monitoring of over 126 GA operators may be a mammoth responsibility for DGCA. The numbers are expected to increase in future. The option of a separate monitoring and facilitation agency for GA may be evaluated by MoCA.



Aerospace Manufacturing





10

Aerospace Manufacturing

10.1 Background

Global commercial aircraft fleet size is expected to grow at a CAGR of around 4% during 2015-2034. More than 35,000 new aircrafts will be delivered globally between 2015 and 2034. Demand for aircrafts has risen in Asia - with India, China, South East Asia and the Middle East being key markets for the global aircraft majors. As per recent industry estimates, India & other emerging markets would generate aircraft demand estimated at USD 5 trillion in next 20 years.

Many aircraft models are either entering the manufacturing stage or undergoing a production ramp up resulting in increased level of strain on the existing suppliers. This would provide significant opportunities for Indian companies to become part of the global supply chain

Global aerospace OEMs and Tier-1 suppliers source more than 70% of their systems from suppliers in US and EU. The system integrators and Tier-1s are keen to de-risk and diversify by developing their suppliers in Asian regions, especially India and China, which are closer to the consumption regions.

Hence, aircraft manufacturers have started looking at increasing their sourcing volume across components, sub-systems and assemblies from these emerging markets. Global majors such as UTC, Sirkosky, Lockheed Martin, Rolls Royce, Moog etc have set up manufacturing facilities in India and are developing the supply chain here for their global requirements.

Indian aerospace supply chain is in an interesting phase and undergoing gradual transformation due to growing opportunities. It would be ideal to compare the current state of Indian aerospace & defence sector to Indian auto sector 20 years back. The auto sector then had just a handful of players operating in India without any supporting eco-system and relying on imports. The industry was facing policy and infra-structure bottle necks thus preventing Indian players to serve the local demand as well as compete globally. The government then took series of reforms by opening the sector for global players with collaboration between Suzuki & Maruti being the game changer. Indian aerospace sector is in need of similar set of radical reforms to integrate into global supply chain.

10.2 Key challenges:

- a) Until recently, due to several challenges and strategic priorities aerospace OEMs and large suppliers did not have a focused sourcing strategy for India. This has resulted in very little aerospace components and systems sourcing being done out of India for global programs.
- b) India is still struggling to attract private aircraft manufacturers & Tier1s as anchor units resulting in India's isolation in global aircraft programs.
- c) We have only few Indian players who are large suppliers to aircraft programs. Indian companies hence fail to attract critical volume of work at Tier 1 & 2 systems level resulting in securing only low value added component manufacturing jobs
- d) India does not have an ambitious civil aircraft programs that can help the Indian players to build their capabilities. Brazil's aerospace sector success story is because of the government's push in developing their own transport aircraft. Our indigenous aircraft programs such as Regional Transport Aircraft are yet to take shape even a decade after its conceptualization
- e) The global aerospace supply chain is dominated by players from established economies. Clusters in Europe and North America contribute to 90% of the global sourcing volume. Indian suppliers are increasingly facing stiff competition for component level sourcing from low cost countries such as China, South Korea, Thailand and the Middle East.
- f) Stringent quality standards, required certifications, long gestation period to perfect production methods and qualifying the stringent qualification process are major challenges for new players. The payback period is long and with low production volumes the Indian suppliers are struggling to establish themselves globally.
- g) Non-availability of aerospace grade materials in India and heavy dependence on imports is eroding the cost competitiveness of Indian suppliers.
- h) Lack of skilled manpower, focussed skill development programs and demand driven attrition are other challenges the sector is facing in India. Nascent aerospace manufacturing ecosystem and supporting infrastructure in the country discourages global Tier1s as well as small suppliers to plan for larger investments in the country.



10.3 Key action steps

The draft NCAP lays special emphasis on promoting civil aerospace manufacturing. Incentivising civil aerospace sourcing through defence offsets, reaching out to global OEMs to set up their manufacturing facilities in India, promoting MRO facilities in India are some of the key policy incentives being planned.

Government and industry need to come out with more action steps to address the key challenges and integrate India to global aerospace production network. The include:

- a) MoCA, OEMs and HAL should work towards building an integrated word class skill development centre offering certification courses covering various aspects of aircraft building. These include assembly of systems and equipment, machining, wiring, surface treatments, composites, tooling R&D etc.
- b) Develop Aerospace & Defence clusters: MoD and MoCA should identify top 5 aerospace and defence commodities or sub-systems India wants to focus during next 10 years. We need to develop 3-4 focused clusters for the identified commodities, e.g. aero structures, landing gear, engine components, other defence systems etc., to attract global investments
- c) Central and state governments need to work with anchor OEMs to identify the right locations and facilitate its development through PPP, fast clearances and fiscal incentives. This will attract global Tier 1s & OEMs to set up their facilities in India which in turn will promote the growth of component manufacturing eco system
- d) Develop common infrastructure. Due to capital intensive nature of the sector, Indian SMEs/component players are not able to invest in the required infrastructure to compete globally. MoCA should take the lead in creating common infrastructure that can be shared by the component manufacturers. This may include special process and testing facilities, warehouse for inventory storage, training centres etc.
- e) Defence offsets should be wisely used as an enabler to promote civil aerospace manufacturing in the country. Higher offset multiplier should be provided for sourcing commercial aerospace components from Indian players & MSMEs.
- f) MoD should allow 100% FDI for investments by Tier-1s and OEMs for setting up their assembly facilities in India. No manufacturing unit can depend only on Indian orders. Removing the FDI limit will enable OEMs to set up global scale plants in India and use Indian output for their global supply chain



- g) Aerospace and defence R&D and manufacturing should be given 'infrastructure' status. This shall facilitate access to cheaper loans and incentives, a la sectors like, power, highways etc.
- h) Given the huge import dependence, government should provide many thanks exemptions and a 'deemed export' status for the industry for a ten year period, extendable in future.



Human resource development





11 | Human resource development

11.1 Background

The growth in Indian aviation has created significant employment opportunities. Unfortunately the supply of skilled human resources has not kept pace with the rapid growth in demand. With passengers and aircraft fleet likely to double by 2020, the need to strengthen the human resource development infrastructure is immediate.

As per KPMG estimates the total manpower requirement of airlines is estimated to rise to 120,000 by FY-2017. This includes the number of pilots, cabin crew, aircrafts engineers and technicians (MRO), ground handling staff, cargo handling staff, administrative and sales staff. This is based on benchmarks provided by ICAO for different classes of personnel (pilot, cabin crew, etc.) per aircraft.

In addition, aviation industry is typically estimated to generate indirect and induced employment of nearly six times the direct employment. With direct employment across airports and airlines to be around 200,000 by FY 2017, the aviation sector in India is expected to provide an indirect and induced employment to over 1.2 million people by FY 17.

11.2 Actions required

The key initiatives required to make India a training hub for aviation are as follows:

- a) Enhance pilot training infrastructure. India currently has over 5,000 commercial pilots. With the increase in fleet size due to large orders from Indian carriers, India will require a total of around 9,000 pilots by 2018.
- b) Shortage of pilots leads to an artificial increase in their salary levels which hurts the profit margins of airlines, especially the LCCs. Employee costs are around 9-10% of the operating costs of an airline. There is a need to increase the number of world class pilot training academies by way of capital subsidies. Gradually these academies can produce pilots for global markets also.
- c) Foreign investment in pilot training academies needs to be encouraged. The success of CAE at Rae Bareilly and Gondia should be replicated at other locations also. Certificates issued by leading flying academies in the developed world should be made acceptable in India and should be given faster clearances by DGCA.
- d) Many developed countries allow trainee pilots to get a Commercial Pilot

License (CPL) within 12-15 months of training vis-à-vis two years in India. DGCA should consider evaluating how the training duration in India can be brought at par with global norms without compromising on safety standards. DGCA should also consider increasing the frequency of exams from four per annum to at least one per month in the short term and on a weekly basis in the long term through use of modern fail-safe examination technologies used for GMAT, SAT, CAT etc.

- e) The Indian Air Force (IAF) has one of the finest pilot training infrastructures in the country. There is a need to collaborate with them to explore ways in which their facilities and staff can be used for producing civilian pilots without affecting IAF's operational requirements.
- f) ATC training academies: The number of Air Traffic Control Officers (ATCO) has grown to around 2,600 in 2015. There is still a shortage of around 1,500 ATCOs. Given the unique nature of this service - zero tolerance for error and high levels of technical skills required - this shortage is a cause for severe concern.

AAI runs ATC training facilities at the Civil Aviation Training College (CATC), Allahabad and at the Hyderabad Airport. Partnership options with international ATC training institutes should be explored to enhance capacity of CATC. The enhanced capacity can also help CATC earn additional revenue in the long run by training foreign ATCOs and providing consultancy services to global ATC service providers.

- g) MoCA may consider the option of allowing private players to set up ATCO training facilities, subject to adequate supervision by AAI. This may be started in a PPP mode first and thereafter be made fully open to private sector in the long run.
- h) More number of institutes offering courses related to aerospace engineering and cabin crew need to be opened. MoCA may consider fiscal and monetary support to these institutes for a period of ten years and then withdraw the same once they become self-sustainable.



Way forward





12



Way forward

The Indian civil aviation industry is on a high growth path. India has a vision of becoming the third largest aviation market by 2020 and the largest by 2030.

In order to become a global aviation hub, all round improvements are required - in airports, air navigation, cargo, MRO and human resource development. India would need to broaden the base of domestic flyers. Air connectivity in Tier 2/3 cities needs to be developed. Government policies and regulatory framework need to be futuristic, pro-active and aligned to stakeholder expectations.

In summary, the key action steps required to realize the vision is as follows:

- a) Finalise the long awaited National Civil Aviation Policy at the earliest. Implement it in letter and spirit.
- b) Ensure close collaboration between the Ministry of Civil Aviation, other related ministries (finance, home, defence, external affairs, commerce and industry, tourism, environment, HRD etc), regulators (DGCA and AERA) and the industry.
- c) Assist nodal ministries to promote India as an industrial and tourism hub in order to derive synergy benefits for the aviation industry. Leading aviation markets like UAE and Singapore have a robust industrial, trading, maritime and tourism infrastructure that feeds to and off their aviation sector.
- d) Encourage state governments to reduce sales tax on ATF. The long term benefits in terms of higher economic activity and employment generation would more than compensate for the notional loss of tax revenue in the short run.
- e) Establish the Regional Connectivity Fund to support air connectivity to Tier 2/3 locations. Over a period of 1-2 years, subsume Route Dispersal Guidelines under the Regional Connectivity Scheme.
- f) Consider going for open skies, 100% FDI in airlines and a final decision on the contentious 5/20 Rule. It may cause some pain initially, but will make the Indian carriers more efficient, quality conscious, passenger centric and global players.
- g) Develop investor friendly regulatory policies to encourage greater private sector investments in airports, MRO, cargo, ground handling, general aviation, helicopters and ATF infrastructure.



- h) Promote the domestic MRO industry by removing the anomalous tax structure and provide it a 'deemed export' status to help prevent the flight of business abroad.
- i) Indian aerospace manufacturing segment needs radical reforms to emerge as the central pillar of the government's 'Make in India' drive. We should facilitate greater investments from global OEMs and Tier-1s through reforms in FDI limits and 'ease of doing business'. We should collaborate with global players, innovate and then go one step ahead of them in certain critical technologies, over the next 20 years.

The government and industry need to work closely to address the various opportunities and challenges in the aviation sector. With the right policies and a relentless focus on quality, cost and passenger interest, India would be well placed to achieve its vision of becoming the third largest aviation market by 2020 and the largest by 2030.



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About FICCI

Established in 1927, FICCI is one of the largest and oldest apex business organizations in India. FICCI's history is closely interwoven with India's struggle for independence, industrialization and emergence as one of the most rapidly growing global economies. FICCI has contributed to this historical process by encouraging debate, articulating the private sector's views and influencing policy.

A not-for-profit organization, FICCI is the voice of India's business and industry.

FICCI draws its membership from the corporate sector, both private and public, including MNCs; FICCI enjoys direct and indirect membership of over 2,50,000 companies from various regional chambers of commerce and through its 70 industry association.

FICCI provides a platform for sector specific consensus building and networking and is the first port of call for Indian industry and the international business community.

Our Vision

To be the thought leader for industry, its voice for policy change and its guardian for effective implementation.

Our Mission

To carry forward our initiatives in support of rapid, inclusive and sustainable growth that encompasses health, education, livelihood, governance and skill development.

To enhance the efficiency and global competitiveness of the Indian industry and to expand business opportunities both in domestic and foreign markets through a range of specialized services and global linkages.



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