About this Report

Centre for Asia Pacific Aviation India ("CAPA India") was exclusively commissioned by Vistara to prepare this report on the need for urgent reforms in the Indian aviation industry. While CAPA agrees with the overall approach and content of the report, some of the recommendations have been structured to align with Vistara's objectives.

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Chapter 1: Executive Summary

Indian aviation has experienced transformational change since FY2004 when the last NDA government commenced the process of liberalising the sector. Reforms continued under the next administration and the result was one of the fastest metamorphoses of a national aviation industry in history.

The table below highlights how far the industry has come in the last few years. Between FY2004 and FY2015 the volume of passenger traffic has more than tripled, while freight has more than doubled.

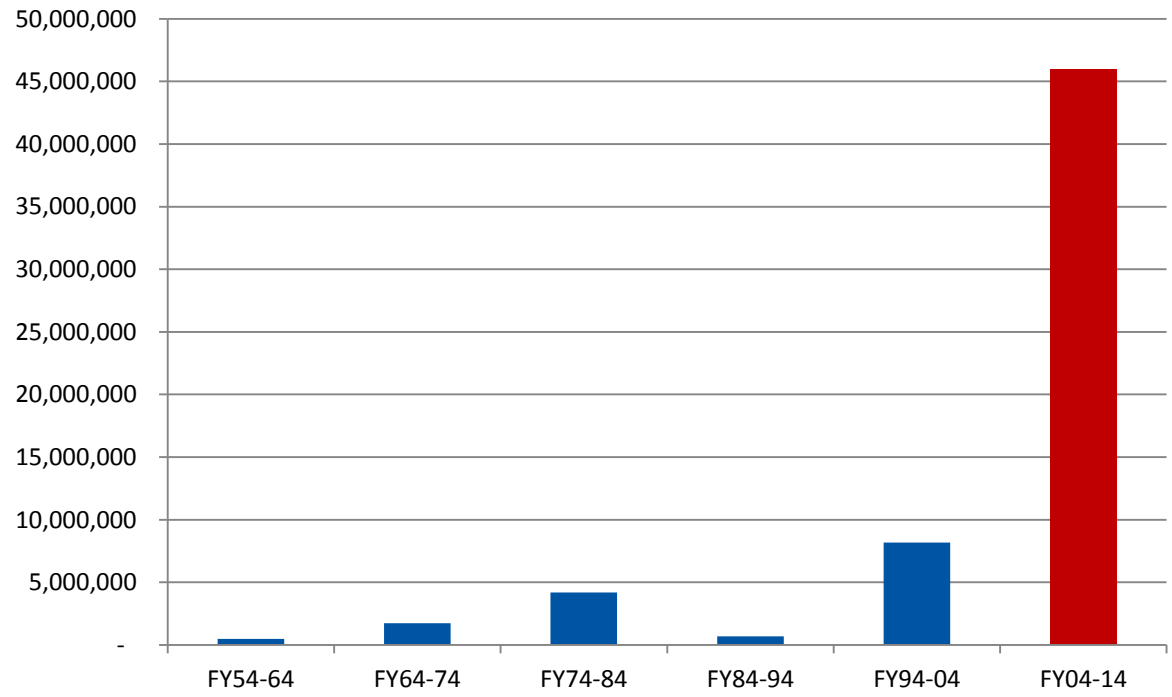
Figure 1: Growth in aviation activity in India between FY2004 and FY2015

	FY2004	FY2015	Growth Multiple
Domestic passengers	16.1 mn	70.1 mn	4.4x
International passengers	16.6 mn	50.8 mn	3.1x
Domestic freight	188,000 tonnes	493,000 tonnes	2.6x
International freight	693,000 tonnes	1,543,000 tonnes	2.2x
Commercial airline fleet	158	394	2.5x

Source: CAPA Research, DGCA, Airports Authority of India

To place this in context, the incremental domestic traffic handled between the start and the end of the ten year period from FY2004 to FY2014 was almost three times greater than in the previous 50 years combined.

Figure 2: Annual domestic air passengers added every 10 years in India



Source: CAPA Research, DGCA

However, it should be noted that this growth has been accompanied by significant red ink. Although aviation has made a significant positive contribution to the economy, the sector's own financials are in a dismal state, with India's airlines alone having lost more than USD10 billion since FY2009. Airline debt now exceeds airline revenue. High operating costs, inefficient infrastructure and distortionary regulations have virtually threatened the viability of the entire aviation value chain.

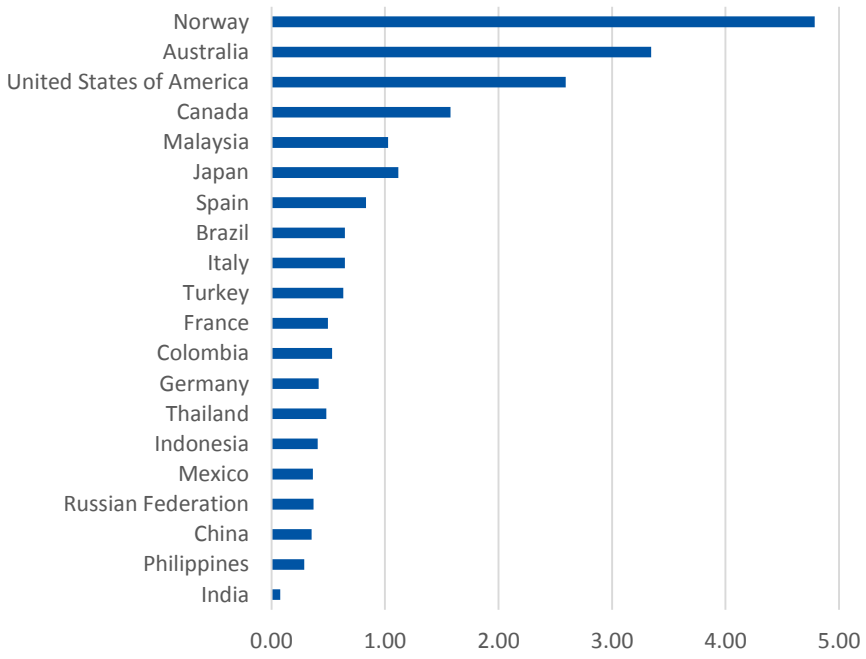
The recent improvement in financial performance is largely a function of lower fuel prices and there is a danger that the reprieve in costs may breed complacency about the need to take action. Meanwhile the underlying structural problems remain unaddressed and the longer they are neglected the more complex and challenging any solution becomes.

The source of many of the most critical issues facing the industry lies in the negative policy, regulatory and fiscal framework governing the sector. If India is to claim its rightful place as one of the world's leading aviation markets, the onus is now on the government to establish a clear vision and roadmap for the sector and create an enabling environment.

Indian aviation has massive upside potential if the industry is supported rather than strangled

Despite the pace of recent growth, we have barely arrived at the threshold of what Indian aviation could achieve. In any given year it is estimated that only 1-2% of the population travels by air. The penetration of domestic seats per capita remains very low even by the standards of other emerging markets, and stands at less than a quarter of that of China, Indonesia or Thailand. This indicates that the upside potential is massive.

Figure 3: Annualised domestic seats per capita in the 20 largest domestic markets in 2014



Source: CAPA Research, OAG, World Bank

Based on the projected growth of the Indian economy and the low levels of air penetration at present, the aviation sector has the potential to continue to expand robustly. CAPA has developed long term unconstrained forecasts for the growth of the aviation industry in India through to FY2050.

Figure 4: CAPA unconstrained forecasts for aviation activity in India to FY2050

	FY15	FY25	FY35	FY50
Domestic passengers (mn)	70	218	527	1175
International passengers (mn)	51	120	254	503
Inbound visitors (mn)	7.7	15.0	25.4	50.3
Outbound departures (mn)	17.3	45.1	101.4	201.0
Domestic freight ('000 tonnes)	493	1748	3688	9048
International freight ('000 tonnes)	1542	3484	6358	13092
Commercial airline fleet	394	1084	2564	5626
Aviation employees	199,000	521,000	1,144,000	2,344,000

Source: CAPA Research. Forecasts prepared exclusively for Vistara

The projected size of the industry in FY2050 may appear fantastic but it is not unrealistic. Although domestic traffic is forecast to be almost 17 times larger in 35 years than it is today, this implies a CAGR of 8.4% per annum (compared with almost 14% over the last decade). Air travel in emerging markets has historically grown at 1.5x GDP. On that basis a GDP growth rate of 5.6% per annum over the forecast period would deliver the projected traffic. This rate of economic expansion could be considered conservative.

Even accounting for the fact that as India's economy matures the traffic to GDP multiple may decline, these projections are not unreasonable. However, the forecasts have been developed on an unconstrained basis and assume that the supply side and regulatory framework will be supportive of and conducive to growth.

An efficient and competitive aviation sector is essential to delivering on the government's 'Make in India' initiative; its tourism objectives; trade competitiveness; and socio-economic development

An industry of the size projected has the potential to transform business, trade and tourism in India. Aviation is a critical component of economic infrastructure that drives the movement of people, products and ideas. As a result it has very strong multiplier impacts across the economy, facilitating activities that would otherwise simply not be possible.

For example, an efficient air cargo and logistics network, first and last mile connectivity and regional air services, will be essential to the success of the 'Make in India' initiative. Expanded air services will open up new markets not only to India's manufacturers but also its primary producers and service providers. The immature status of air freight in India is reflected in the fact that all airports in India combined handled a total of just 2.5 million tonnes of cargo last year. This compares with 4.4 million tonnes handled at Hong Kong Airport alone. And just the four largest airports in China, namely Beijing, Shanghai, Guangzhou and Shenzhen combined handled 8.6 million tonnes.

The government has also placed a very strong and welcome emphasis on the contribution that tourism can make to the economy. India has an abundance of natural, cultural and historical attractions. But the absence of a well-structured aviation policy designed to leverage the undeniable advantages that India possesses as a potential aviation hub given its geographic location and large domestic market, has had a negative impact on connectivity, infrastructure and competitiveness. As a result the country has failed to capitalise on potential tourist demand.

Although inbound visitor numbers to India have improved substantially in recent years, the country is a severe under-performer. In 2014 there were just 7.7 million foreign visitors, a substantial proportion of whom were of Indian origin. It is remarkable, and at the same time highly disappointing, that small city states such as Singapore (15 million visitors) and Dubai (12 million) are able to attract significantly higher tourist arrivals than India. Competing markets in Asia such as Thailand (28 million) receive almost four times as many visitors as India.

The government has taken the important step of liberalising visa procedures for 113 nationalities, including most of the key source markets. But with around 98% of tourists from non-neighbouring countries arriving by air, the tourism strategy is inextricably dependent upon convenient and competitive air connectivity.

Creating employment opportunities for India's youth is one of the most pressing challenges that the government faces. Aviation is a uniquely powerful generator of jobs

The opportunities in terms of GDP and employment growth are tremendous. In markets such as the United States aviation contributes an estimated 5.4% of GDP. The International Air Transport Association and the International Civil Aviation Organization estimate that at a global level the indirect and catalytic impact of aviation supports 5.8 jobs for every person employed directly in aviation. In India, where there is a greater reliance on labour rather than automation due to lower wages, this multiple may be even higher.

Positive outcomes are not a given. Aviation must be taken seriously and set-up to succeed if results are to be achieved

An enabling policy and regulatory framework is essential. India needs a long term vision and cohesive policy for the sector supported by regulations that are aligned with socio-economic objectives. Instead, sectoral policy has largely been formulated on an ad hoc basis, while regulation has become inertial and distortive.

The uncertainty and unpredictability of the policy and regulatory framework continues to deter serious investors. This is a major challenge for an industry which will require hundreds of billions of dollars of investment in aircraft equipment, airports, surface connectivity to airports, cargo and logistics infrastructure, air navigation services, maintenance facilities, and training centres, not to mention the catalytic investment in tourism.

The key challenges faced by Indian aviation are surmountable provided that there is the vision and the will to do so

Indian aviation is blessed with undeniably strong fundamentals which include:

- A large and fast growing domestic market with the potential for sustained long-term growth;
- A strategic geographic location at the crossroads of key intercontinental routes;
- A large global diaspora that continues to maintain strong ties to India;
- An abundance of natural, historical and cultural attractions to attract tourists and stopover traffic;
- A competitive and growing pool of English language speakers and engineers that could provide aviation services from maintenance to back-office functions and training to the global industry;
- A tradition of service and hospitality well-suited to delivering a high quality inflight or tourist experience.

The fact that India is not a global aviation power today despite these favourable characteristics is because of poor decisions that have actively hindered its growth and competitiveness. In contrast, governments in the UAE have leveraged a similar geographic location to effectively serve India's huge market, using a talent pool itself drawn largely from India. India had its back turned to the opportunities in global aviation in the 1990s and allowed competing hubs to move ahead. It cannot make this mistake again.

The positive in all of this is that most of the key challenges faced by Indian aviation are man-made or self-imposed. This means that they are surmountable, given the political will. India has the opportunity to become a global aviation power should it wish to become one. It is a choice, but it requires decisive and committed action.

As the world becomes increasingly globalised with integrated transport networks and access to markets, aviation will continue to play a critical role. Countries that recognise and leverage this can indeed put themselves on the world map and increase their global influence. India cannot afford to lose out on this opportunity.

The areas which need to be addressed in order for Indian aviation to fulfil its potential can be distilled into the following 5 categories

1.	**Reducing the cost of doing business**
2.	**Making it easier to do business**
3.	**Creating a liberal aviation regime**
4.	**Investing in capacity: airports, airspace and skills**
5.	**Focus on safety oversight by the DGCA**

1. Reducing the cost of doing business

Indian aviation faces a hostile operating environment due to a multiplicity of taxes as well as an industry structure that drives up costs, examples of which include:

- Aviation turbine fuel is subject to 10% import duty, 8.24% customs excise, and an average sales tax of 24% on domestic operations, all of which are further compounded by transportation fees, marketing fees and fuel throughput charges;
- Passengers are subject to a service tax of 8.4% on domestic and international air fares in premium cabins, and 5.6% on domestic economy travel;
- Aircraft leases are subject to a 10% withholding tax;
- 3rd party maintenance providers are required to levy a 14% service tax, which combined with other duties makes it more cost-effective for airlines to send their aircraft overseas for maintenance;
- Ground handling and MRO service providers have to pay a royalty on gross revenue of 18-20% at Delhi and Mumbai airports, and 30-36% at AAI airports, which is passed on to airline customers;
- High aeronautical charges, which at some large Indian airports are above the average for a sample of major global hubs (although this is partly due to the timing of the regulator's determination of tariffs).

Removing sales tax on ATF is the single greatest benefit that the government could deliver to the airline industry

Aviation turbine fuel (ATF) is the largest cost input for airlines and yet this is the item where the cost disadvantage faced by Indian carriers is by far the highest. In FY2015 ATF accounted for around 45-50% of operating costs for most Indian airlines. This compares with 32.3% globally. In an industry where net margins are at best in single digits, this additional cost is a heavy burden for Indian carriers.

ATF prices for domestic services in India are for example, some 45% higher than in the United States due to the combination of import duty, excise and sales taxation. Even fuel for international operations, which is exempt from sales tax, is 15-30% higher than at major global airports.

Figure 5: Aviation Turbine Fuel prices at key selected airports

Airport	Domestic Fuel price per litre	International Fuel price per litre
Singapore	n/a	USD 0.47
Hong Kong	n/a	USD 0.49
Dubai	n/a	USD 0.52
New York	USD 0.52	USD 0.50
Los Angeles	USD 0.54	USD 0.50
Sydney	USD 0.62	USD 0.53
Melbourne	USD 0.63	USD 0.54
London Heathrow	USD 0.64	USD 0.53
New Delhi	USD 0.77	USD 0.61

Source: CAPA Research. Data as on 01-Jul-2015

Fuel prices have declined by around 40% since the last quarter of 2014. At current levels fuel is expected to account for around 30-35% of Indian carrier's operating costs. The removal of sales taxation on ATF would bring its price down by around 20%, delivering a 6-7% drop in operating expenses.

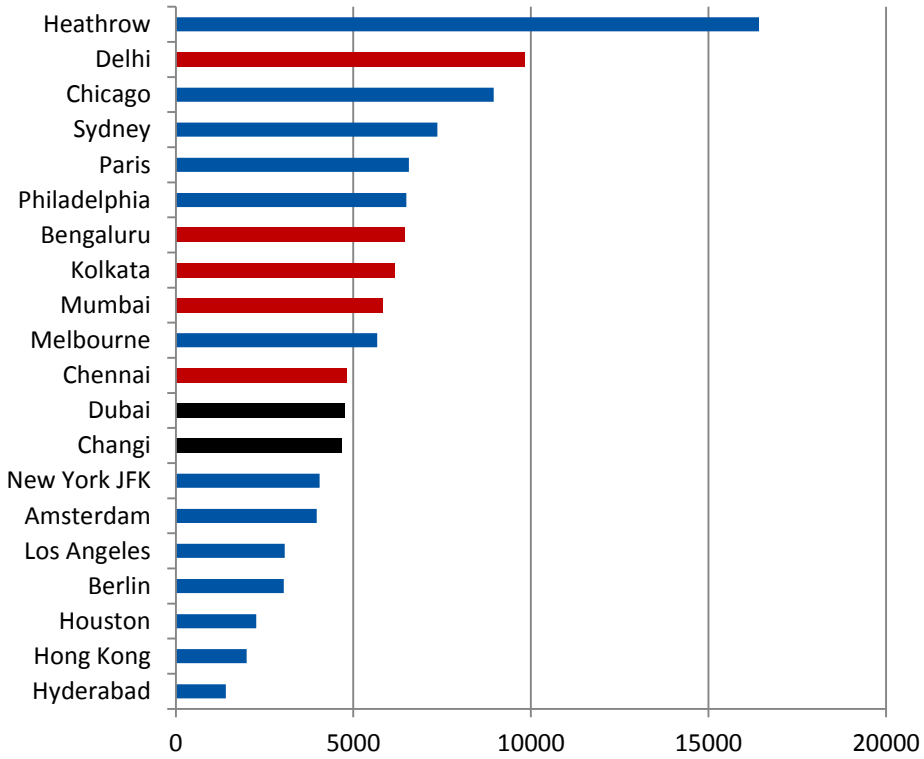
CAPA research indicates that domestic travel in India has a price elasticity of approximately -1.275 i.e. a 1% drop in fares stimulates traffic by 1.275%. If the 7% fall in operating costs was passed on entirely to consumers, which is quite possible in the competitive environment that exists, traffic will increase by 7.7 - 8.9%.

CAPA estimates that over the last seven years, India's airlines have spent USD12.5 billion on fuel for domestic operations. The sales tax paid by airlines on this level of consumption is estimated at USD2.5 billion, a huge burden for a sector that has been bleeding.

Several of the largest Indian airports are relatively expensive when benchmarked against leading global hubs

Indian airports need to remain competitive if they wish to promote themselves as hubs. However, analysis of the revenue generated by airport operators from landing charges and passenger fees reveals that some of India's metro airports are relatively expensive compared with major hubs in the region such as Singapore and Dubai, although this is in part reflective of the need for significant investment in airport infrastructure.

Figure 6: Aero revenue (USD) to airport from a single A330 international turnaround



Source: CAPA Research

CAPA analysis indicates that passenger charges can add up to 15-20% to domestic fares which reduces demand. Aside from having lower charges in many cases, many competing global airports seek to further encourage new services by offering incentives for airlines that are growing and launching new routes. This is an approach that is not actively and aggressively pursued by most Indian airports.

Figure 7: Examples of air service incentives at selected foreign airports

Airport	Air Service Incentive
Atlanta	▪ 100% discount on landing fees for new international destinations for one year (up to two years for priority emerging markets) ▪ Airport operator will provide marketing support, matching the airline dollar-for-dollar, up to USD50,000 for new international services
Dublin	▪ 100% rebate on passenger service charge for year-on-year incremental passengers ▪ EUR 6 incentive per passenger for year-on-year growth incremental transit passengers, declining to EUR 2 by Year 5 ▪ 100% discount on landing, parking and passenger fees in Year 1 for services to new long haul destinations, declining to 25% discount by Year 5 ▪ 100% discount on landing, parking and passenger fees in Year 1 for services to new short haul destinations, declining to 50% discount by Year 3
Frankfurt	▪ EUR 4 incentive for incremental short haul passengers above 1% year-on-year growth, increasing to EUR 8 above 6%. ▪ EUR 5 incentive for incremental long haul passengers above 1% year-on-year growth, increasing to EUR 10 above 6%. ▪ New entrants are eligible for lower incentives subject to meeting minimum traffic volumes and using low noise aircraft
Miami	▪ 100% discount on landing fees in Year 1 for new domestic and international services ▪ 100% discount on landing fees in Years 1 and 2 for new international services to Brazil, Russia, South Africa, India, China, or other Asia Pacific countries ▪ Airport operator will provide marketing support, matching the airline dollar-for-dollar, up to USD 50,000 for priority new international services
Singapore	▪ 50% discount on landing fees for long haul services >9 hours. ▪ SGD10 incentive per passenger for year-on-year growth in transit passengers

Source: CAPA Research

India is perhaps the only country that encourages its airlines to send their aircraft overseas for maintenance by penalising in-country MROs

Service tax on labour, VAT on materials, and import duties applied to in-country aircraft maintenance providers should be lifted. These taxes generate limited revenue in any case because they drive airlines to send their aircaft overseas to locations such as Sri Lanka, the UAE and Singapore. In addition, airport operators levy royalties of 18-36% of gross revenue which is passed on to the customer.

This structure encourages airlines to use foreign MROs – generating a negative balance of payments effect. Reducing the costs of domestic providers would enhance their competitiveness and create jobs in India. This would be consistent with the 'Make in India' initiative.

Apart from reducing costs for airlines, the substitution of business away from foreign MROs to domestic providers will increase their economic contribution and local employment generation.

Withholding tax on aircraft leases increases both costs and complexity due to the need to structure leases through certain jurisdictions to avoid it

India has relatively high withholding taxes on aircraft leases. Payments on cross-border operating leases are generally considered as royalty payments. Some countries impose withholding taxes on royalty payments. India has relatively high withholding taxes (10%), as compared to less than 6% in China, Singapore and Hong Kong and 0% in the US, UK, Germany, France, and UAE. Bilateral Double Taxation Avoidance Agreements (DTAA) between certain countries e.g. between India and Ireland, may allow for lower rates or waivers for aircraft leases.

Figure 8: Withholding tax on royalty payments in selected jurisdictions

Location of Airline	Withholding tax on royalty payments
India	10%
Australia	10%
China	6%
Singapore	5%
Hong Kong	3%
USA	0%
UK	0%
Germany	0%
France	0%
UAE	0%

Source: PwC

2. Making it easier to do business

India's airlines are subject to a multiplicity of regulations and requirements right from the time of establishment, that create distortions which increase costs, reduce efficiency and limit commercial flexibility while adding little or no value.

Applications by new entrants should be reviewed in a time-bound manner

In recent times start-up carriers have found that the application process for obtaining an Air Operator's Permit has changed without notification and there is no transparency on the criteria for approvals resulting in arbitrary interpretations and decisions. Visibility should be provided on the conditions under which new airline licences will be awarded and the licence application process and timelines. The decision to award or not award a licence should be based solely on the applicant's safety credentials and economic fitness.

Furthermore, single window clearances are, as of date, not available. For instance, to set up an airline or an airport up to 10 government agencies may have to be approached. With so many parties involved, none of whom are required to adhere to any specified timeline, the process can be subject to significant delays. The holding costs for delays to the approval of an airline or airport can quickly run into millions of dollars and as a result investors remain wary of new ventures.

CAPA examined the process of starting up an airline across different countries and found that the US tends to have better defined processes and faster timelines than other countries. This is a function of the nature of the economy, the regulatory framework and the strong legal system where delays can be appealed via legal action (though this also works in the opposite way where new ventures can be delayed by competitors filing legal appeals on various grounds).

Figure 9: Comparison of timelines for start-up airline approvals in the US, UAE and India

Particulars	USA	Dubai	India
Timeline of approvals for a start-up airline	The Department of Transport (DoT) requires a minimum of four months to process the application beginning from the time a complete application is filed. Additional time may be required if objections are filed or complex or unusual issues are raised by the application. This estimate does not take into account the time required for completion of the Presidential review period with respect to applications for foreign authority, or to complete any necessary FAA certification work.	To obtain an AOC in Dubai, an applicant has to complete five phases of certificate issuance process. The pre-application phase is completed in 30 days. An applicant may receive an AOC in 90 days if all five phases of the certification process is completed as per the stipulated guidelines and the GCAA is satisfied with all aspects of the proposal.	As per the Air Operator Certification Manual published by the DGCA an applicant may receive an AOP in 90 days if all phases of the certification process are completed as per stipulated guidelines. However, in practice, start-up airlines in India usually take much longer (sometimes more than a year) to obtain an AOP due to the lack of a robust regulatory and legal system where delays can be appealed

Route Dispersal Guidelines should be replaced with a more effective and equitable alternative

Air travel provides a means to ensure that remote regions of a country are connected. In the US, Canada, Europe and Australia airlines are incentivised to provide connectivity to remote and regional destinations by means of direct grants and subsidies which ensure that services are provided to the communities which need them.

In the United States, subsidies of around USD 260 million were awarded to airlines in FY2015 to operate services to around 163 regional communities that would not otherwise have been connected. Smaller markets such as Australia and the UK offered subsidies of USD 15 million and USD 30 million respectively. In the context of the overall size of the industry these are relatively small amounts that can be funded through marginal levies whilst delivering desired outcomes.

India on the other hand is unique in forcing airlines to operate unviable routes and effectively subsidise regional connectivity. This not only creates financial challenges for airlines but it has also failed to deliver the desired connectivity outcomes.

The current rules force carriers to serve particular markets without regard to whether the airline's fleet or business model is appropriate for such routes. In many cases the obligatory routes are too small to support narrow body equipment and would be better-suited to a regional aircraft. But most airlines in India do not have such equipment in their fleets. As a result some of the larger cities in remote regions have over-capacity while leaving many smaller communities without adequate service.

And since there is very limited demand for premium products on regional routes, this places full service carriers at a further disadvantage and takes capacity away from the key corporate routes for which their business model was designed.

The current RDG must be replaced with a policy that delivers better regional connectivity outcomes and does not burden airlines with the obligation to operate unviable routes. Route selection and capacity deployment should be left to market forces. Linking capacity on regional routes to that on metro routes is distortionary as this is unlikely to reflect market demand. Airlines should be permitted to deploy capacity at their discretion.

And in the case of remote locations where connectivity is an important national objective but air services are not viable, the government should establish a fund to underwrite capacity to incentivise airlines to operate, modelled on the policy currently operating in other leading markets. The Naresh Chandra Committee had recommended such an approach as far back as Dec-2003.

In addition, the process for determination of which routes should be eligible for subsidies should be based on much closer consultation with the airlines and communities affected rather than being dictated.

Figure 10: Comparison of regional and remote connectivity policy

Country	Connectivity policy	Mode of implementation
USA	Essential Air Services Program and the Small Community Air Service Development Program (SCASDP)	Direct subsidy to air carriers and grants to communities
UK	Public Service Obligations	Subsidy to carriers on non-viable routes
Australia	Regional Aviation Access Program (RAAP), Remote Airstrip Upgrade funding and Remote Air Services Subsidy Scheme	Assistance for remote airport works and upgrades. Subsidies to essential flights to remote communities.
Germany	Public Service Obligations	Subsidy to carriers on non-viable routes in addition to price ceilings on fare levels
France	Public Service Obligations	Subsidies in addition to the ability to grant monopoly status or have few airlines fly route
China	Subsidy for routes to remote areas	Direct subsidy
India	Route dispersal guidelines	Airlines forced to allocate capacity to remote regions

Restrictions on ancillary charges should be removed unambiguously

If the government is committed to making it easier to do business, restrictions on the ability for airlines to generate ancillary revenue e.g. fares with zero baggage allowance, should be lifted completely. This is a restriction that is unique to India.

Unbundling of fares is a potentially win-win situation. It provides airlines with greater commercial and marketing flexibility and the ability to generate higher average revenue per person whilst offering a lower base fare to stimulate traffic. Passengers meanwhile have greater control over their travel experience and how much they choose to spend.

In theory restrictions on ancillary charges have been lifted a couple of times in recent years. However, on each occasion the government has subsequently back-tracked and created confusion as to what is and is not permitted. Rather than forcing airlines to pursue workarounds to test the limits of the regulation, the restrictions should be removed entirely.

Airline pricing is a matter for management not regulators

Similarly, plans to introduce price ceilings and floors should be permanently shelved. During peak periods it is inevitable that fares will increase, just as is the case with hotels and other seasonal businesses.

The application of fare caps in Saudi Arabia has been highlighted as a primary driver of the failure of one of its domestic carriers and the limited expansion of others. As a result, these restrictions have now been relaxed. In Indonesia, the regulator used to routinely provide exemptions to the price floor recognizing that low fares were an important feature of the low cost carrier business model. Even in China the CAAC removed minimum pricing in the domestic market in 2013 in order to support the growth of LCCs.

The global trend is towards greater rather than less flexibility in pricing, with fares determined by supply and demand. Although price regulation is not in force in India, the government regularly raises the possibility.

Transparency in slot allocation is essential

Airlines currently have limited visibility regarding the availability of slots, particularly at constrained airports. Furthermore there is no transparency in the process by which they are allocated to carriers. This makes it extremely challenging for airlines to conduct network and schedule planning (which in turn feeds into capital investment decisions in aircraft). Airports must clearly communicate the available slot inventory and establish an equitable and open mechanism for awarding slots based on identified criteria.

Logistics inefficiency is hampering air freight and trade

An efficient air cargo and logistics sector is vital for competitive trade and investment. The fact that air cargo has a lower profile than passenger operations means that there should be fewer political obstacles to reform in this area.

Successful air cargo operations are based on global transport and logistics networks. If India is to integrate into the global supply chains, leading global operators must be allowed to establish their operations in the country either in terms of all-cargo air services or the establishment of infrastructure such as warehousing and high volume throughput systems.

However, if such infrastructure is to be developed it will require the support of dedicated air cargo capacity. The opportunity should therefore be taken to unilaterally dismantle barriers to entry, including 100% foreign direct investment.

The cooperation of other government agencies is also required – particularly quarantine, customs and excise to expedite cargo processing and to reduce dwell times at Indian airports which are significantly inferior to international benchmarks.

Figure 11: Customs inspections and clearance times for imports

Country	% of shipments meeting quality criteria	Clearance time (days)*		Physical inspection	Multiple inspection
	% of shipments	**Without physical inspection**	**With physical inspection**	**% of shipments physically inspected**	**% of shipments**
Australia	92	0	2	2	1
China	76	2	3	7	2
France	90	0	1	—	—
Germany	76	1	1	3	3
Hong Kong	95	0	1	1	1
India	67	1	2	22	8
Netherlands	94	0	1	3	2
Singapore	92	0	1	5	3
United Arab Emirates	88	1	1	5	2
United Kingdom	77	1	1	3	2
United States	87	1	2	4	2

Source: CAPA Research, Logistics Performance Index, 2014

**Clearance time - Time taken between the submission of an accepted customs declaration and notification of clearance.*

In India the lack of technology, prevalence of manual procedures and processes, and greater incidence of subjecting goods to multiple inspections means that the dwell time of air cargo at metro airports can be 1.5-2 days for exports and 2-4 days for imports, increasing costs and spoilage of perishable goods. At other global airports the dwell time for imports can be a matter of hours rather than days.

The DGCA, legal and regulatory framework must be made relevant to today

A modern aviation industry requires a legislative framework that is reflective of the current environment. Indian aviation is presently governed by the Aircraft Act of 1934 and the Aircraft Rules of 1937, albeit with subsequent amendments. This legislation should be revamped and brought up to date prior to the establishment of the proposed Civil Aviation Authority and subsequently supported by comprehensive modernisation of the legislation related to the sector.

In the short term, the rules and regulations must also be modernised to reflect the complexity of the industry today in both technical and commercial domains. Harmonising them with EASA/FAA standards should be a priority. This process will require Indian and foreign experts to work together to realign the Indian regulations with international standards. It would be appropriate to introduce separate regulations for scheduled airline and general aviation operators.

Security procedures should be modernised

The Bureau of Civil Aviation Security is in need of restructuring to reflect the security challenges and realities of the day. This includes better application of training and incorporation of modern technology. In addition, there should be a transition to a common security programme rather than requiring each airline to employ its own in-house security staff which increases costs.

3. Liberalisation and reforms

Due to the amplified effects that aviation can have in delivering economic output and employment, its role in policy settings must be considered. A liberal and open regime will deliver greater benefits that are in the national interest. This involves allowing airlines to operate with limited restrictions on access to licences, slots, routes, pricing, business models and bilateral entitlements in an environment with fair competition.

For instance Dubai, which as of date has 150 airlines connecting it to 220 destinations, has an aviation sector which contributes 27% of GDP. This has been possible due to a liberalised aviation policy that is aligned towards the entire aviation value chain; a supportive government that recognises the value of aviation; and a deliberate and decisive approach to infrastructure development.

5 year/20 aircraft rule should be abolished

The 5 year/20 aircraft rule should be abolished. This regulation is discriminatory against Indian carriers and serves no clear purpose. Since this restriction was introduced, numerous foreign carriers have been permitted to launch services to India prior to completing five years of operations and/or having a fleet size of 20 aircraft. This includes for example, Air Arabia, AirAsiaX, Air Austral, Air Seychelles, Bahrain Air, Bhutan Airlines, Etihad, flyDubai, flyNas, Jazeera Airways, Jetstar Asia, Maldivian, Malindo, Mihin Lanka, RAK Airways, Sama and Tigerair. Such carriers account for more than 20% of international capacity deployed by foreign carriers in India today.

The cruel irony is that the Ministry of Civil Aviation exhorts Indian carriers to increase their utilisation of bilateral entitlements to keep pace with foreign airlines, while at the same time denying rights to certain Indian carriers that are prepared to do exactly that.

Indian carriers are best placed to promote India as a tourism destination and should be encouraged to provide international connectivity if they wish to do so. Apart from Russia, which requires start-up airlines to operate on domestic routes for two years before being permitted to launch international routes, there are no other markets which impose such a regulation.

The ability to fly international services is an important strategic flexibility that all airlines should have access to in order to be able to respond appropriately to changes in demand and economic conditions. In an environment in which the Rupee is depreciating, the cost structure of Indian carriers increases as some of the largest cost items such as the purchase or lease of aircraft, fuel, and maintenance services are typically dollar-denominated. The ability to generate revenue in foreign currency from international services provides a valuable hedge against this negative impact. However, this important risk mitigation strategy is available to some carriers but denied to new airlines at the critical early stage of their life cycle.

In addition, by maintaining the 5 year/20 aircraft rule the government is providing incumbent carriers with two critical advantages with respect to their operating economics. Firstly, since there is limited demand for overnight services within India, domestic carriers typically have to park their aircraft between the hours of 11pm and 6am. However, airlines which are permitted to operate international services are able to continue to utilise their aircaft during this period, driving increased productivity from an expensive asset and thereby reducing their unit costs. And secondly, airlines flying overseas are able to purchase fuel at 30-40% less than in India providing another source of competitive advantage.

One justification posited for the 5/20 rule is that it is intended to allow airlines to demonstrate that they are capable of conducting safe operations before launching international services. This is a specious and worrying argument. Domestic operations are not a training ground. If there is any doubt about the safety credentials of a carrier it should not be granted a licence in the first place. Domestic safety standards should be exactly the same as international.

Change is not always easy nor equitable in the short-term and it is understandable that those affected will resist. But maintaining a regulation simply because the incumbents were subject to it is a protectionist logic which will forever consign the industry to negative regulation and has no place in a modern, competitive industry.

Bilateral policy should be clarified

India's bilateral policy stance should be clarified to provide transparency and predictability allowing carriers to better plan and to meet India's national interests and economic ambitions. Most countries have a policy which defines how bilateral entitlements are linked to the nation's trade, tourism and investment objectives and the competitiveness of its airlines.

The lack of clarity with respect to India's bilateral policy has been further compounded by the fact that decisions to alternatively open and freeze bilaterals are taken in the absence of a clear plan and without being communicated to the industry. Meanwhile, airlines are unable to engage in long term network and fleet planning and tourism arrivals under-perform.

Prior to 2004/05, India's international bilateral rights were granted very restrictively, ostensibly to protect Air India and other private carriers. With an under-funded and inefficient flag carrier, India was therefore unable to make use of any additional reciprocal bilateral rights, and consequently rejected greater access for others. The outcome was a stagnant and increasingly out-of-touch Indian industry, while elsewhere in the world airlines were exposed to challenges which drove them to become much more efficient.

Eventually, recognising that waiting for Air India to be transformed would only cause the country to fall even further behind, the doors were thrown open very quickly and India granted much more extensive access during the post-2004 liberalisation phase. This included signing an Open Skies agreement with the US and most major bilateral agreements were expanded significantly.

Contrary to popular belief, Indian carriers actually increased their international market share after the sector was opened up, from 29% in 2004/05 to 34% in 2009/10. But due to concerns raised about the growth of foreign carriers the government froze entitlements between 2010 and 2013. Since then, two significant expanded agreements have been signed, both with UAE government, but requests for additional seats from other key markets have not been granted. Going forward the government must establish a rule based regime for awarding bilaterals.

In a liberal regime the government must step back from being an operator of an airline and airports

A decision on the future of Air India and the Airports Authority of India is essential. The government's ownership of these two PSUs continues to have a negative impact on policy decisions and timing. And when the government has so many pressing social and economic priorities there is little justification for spending close to USD1 billion per annum of state funds on subsdising the national carrier when there are multiple, competent private operators available to provide air services.

In large, developed economies the concept of a state-owned national carrier has largely faded. In Western Europe and Australia, governments have largely withdrawn from operating airlines since the 1990s. Although the Chinese government (and some other provincial administrations) still retains interest in some of its major airlines, the airlines are mostly privatised and run on commercial lines, increasingly without subsidy. With the exception of smaller countries and city states, many governments are less inclined these days to use taxpayer funds to compete with private capital.

Despite the best intentions of Air India's management, the carrier has an almost insurmountable challenge. In this scenario the government will be faced with having to drip feed billions of dollars over the next few years to finance deficits with no meaningful improvement in the carrier's situation. Fleet modernisation alone could require USD12-14 billion over ten years, let alone operating losses.

If the carrier is to have any chance of success it must be radically restructured both financially and operationally. This will require a level of political will to take tough decisions, a feature which has been absent to date. For the process to be successful it must be led by an MD that has the full-backing of the government to make the necessary cuts, as was the case at Garuda Indonesia and currently at Malaysia Airlines.

Turning around a national carrier is a difficult and painful process. It is arguably more difficult today than it was 10 years ago because the global environment has changed so dramatically, but it is necessary.

The role of the Airports Authority of India also needs to be clarified. Following privatisation of its key assets and corporatisation of air navigation services the authority will be left with a portfolio of around 110 airports, virtually all loss-making, with almost half of them lying idle. And corporatisation of the air navigation services division would see it lose more than 25% of its revenue.

As the landlord of PPP airports the AAI has the potential to generate strong income as a result of the revenue share agreements entered into with the private operators. It is critical that an appropriate business model is developed such that these funds are used carefully and not squandered.

An Airports Approval Commission is required to assess capacity requirements and viability

An independent Airports Approval Commission should be set-up within the Ministry to review the business plans of proposed airports prior to granting clearance. At present the thresholds for clearance are largely technical in nature and do not take viability into consideration.

The Airports Approval Commission should also determine what kind of airports India requires, when they are required, how much capacity is necessary and the level of capex that should be invested.

4. Investing incapacity: airports, airspace and skills

A shortage of airport infrastructure is a looming crisis for Indian aviation

Unless airport operators have the capital to develop additional capacity, much of the existing metro airport infrastructure may become saturated in around 5 years. Even if additional terminal and runway capacity is developed to the maximum potential on each of the existing sites, every metro in India is expected to require a second airport by 2025-2030. Mumbai may require a third airport by 2030-2035.

Hence, it is essential that the government achieves clarity on the role of private capital and the applicable economic regulatory framework.

Several of the larger non-metro airports are approaching or have already exceeded their design capacity and have limited potential to expand at their current site due to non-availability of land. Airports in this situation include Ahmedabad, Pune, Lucknow, Patna, Jaipur, Nagpur, Srinagar, Bagdogra, Trichy, Mangalore, Bhubaneshwar and Jammu amongst others. No plans are evident at the Airports Authority of India to address the capacity constraints at non-metro airports.

Furthermore, 22 cities in India have airports that are civil enclaves within military airfields, which includes two relatively large airports, Pune and Goa, featuring amongst the top ten in the country. This status limits their expansion opportunities, reduces transparency about the availability and allocation of slots, and in some cases restricts their operating hours. For example, at Goa commercial airline operations are prohibited between 8.30am and 1.00pm on week days due to military training exercises. For an airport that serves one of India's premier tourist destinations such restrictions are a major impediment and have a serious impact on the local economy.

Sharing infrastructure between military and civilian operators made sense when traffic volumes were low, but the time is approaching when for many of these cities the development of dedicated civilian airports needs to be considered as part of long term planning.

There has been no serious and detailed study conducted on the structural capacity of Indian airports and the situation may be even more challenging than presumed. This issue has the potential to be a major bottleneck for the growth of aviation in India. And it is a challenge which cannot be addressed overnight. Aside from the time involved in construction of airport infrastructure, this needs to be preceded by several years of urban planning involving land acquisition and development of surface connectivity to the airport.

Figure 12: Metro airport capacity in India

	Current Capacity (mn)	Potential Capacity by 2025 (mn)	Notes
Delhi	45	85	Current capacity at Delhi consists of 35 million passengers at T3 and 10 million at T1D. T1D is already operating at above its design capacity and faces serious challenges, especially during peak hours. Further expansion could see the current airport site handle 85-90 million passengers. Based on expected growth this could be saturated within 5-7 years and a second airport may be required within this timeframe but there has been no concrete progress on this issue.
Mumbai	48	48	The new T2 plus the existing domestic terminal can handle up to 55 million passengers. However, airside constraints related to runway throughput and apron infrastructure mean that the airport is unlikely to be able to handle more than 48 million passengers. The airport is expected to become saturated within the next 3 years.
Navi Mumbai	n/a	25*	Navi Mumbai is unlikely to open before 2020 and may even be later than that, by which time the current airport will be saturated. The site for the second airport is expected to be able to handle 60 million passengers. But even with this capacity Mumbai is likely to require a third airport by 2030-2035.
Chennai	23	23	The current airport can in theory handle up to 23 million passengers but airside constraints may limit this to 18 million which would see the airport saturate in 2-3 years. Land at Sriperumbudur has been earmarked for development but as of now there are no confirmed plans for the airport.

Bangalore	20	40	Given the strength of the market in Bangalore the current terminal is expected to be saturated within the next 2-3 years. A second terminal and runway are urgently needed but will require capex of USD1.6 billion. The current airport site was earlier understood to have the potential to handle up to 40 million passengers but with appropriate configuration it may be possible to accommodate a further 15 million passengers. A second airport will be required by 2025-2030.
Hyderabad	12-15	40	Current traffic is already approaching the design capacity of 12 million passengers. The master plan envisages an investment of USD 400-500 million in the expansion of the terminal to handle up to 20 million passengers. However, even this may only be sufficient for the next five years. Further expansion will be required to increase capacity to 40 million.
Kolkata	24	24	Kolkata is expected to be saturated within the next 5-7 years.
6 Metros	175	285	The six metro airports currently have capacity to handle approximately 175 million passengers per annum.

Source: CAPA India Airport Capacity Report (to be released Sep-2015)

**The Navi Mumbai site has an eventual design capacity of 60 million passengers. However, we have estimated 25 million capacity by 2025, equivalent to Phase 2 of the Master Plan.*

The required investment in expansion at Delhi, Bangalore and at Hyderabad is largely subject to the operators having access to the necessary capital, which is dependent upon the economic regulatory framework.

By 2030 India's airport traffic is expected to cross 900 million as per CAPA's unconstrained forecast. Annual growth of 10% from this level means that there will be a need for additional airport capacity of 90 million annually i.e. the equivalent of airports the size of Delhi and Mumbai today combined, being constructed every year.

However, India does not have a good track record with respect to the speed of large scale infrastructure development. The repeated delays to Navi Mumbai Airport are indicative of the challenges faced by major projects.

With population growth and rapid urbanisation, acquiring land on the scale required for long term airport development is going to become increasingly challenging and costly, which will impact the viability and speed of such projects. If existing airports become choked this would have a devastating impact on the local and national economies.

If new airport sites are not developed, by FY2025 up to 40% of the unconstrained traffic forecast could be displaced. Even allowing for some catch-up over the following 25 years, a failure to take this issue seriously from now could potentially lead to aviation supporting 4.85 million fewer direct and indirect jobs by FY2050.

Figure 13: CAPA constrained forecasts for aviation in India to FY2050

	FY25	FY35	FY50
Domestic passengers (mn) without investment in airport capacity	133	314	733
Domestic passengers (mn) with implementation of top 10 reforms	218	527	1175
Domestic fleet without investment in airport capacity	480	1134	2647
Domestic fleet with implementation of top 10 reforms	786	1902	4245
International passengers (mn) without investment in airport capacity	75	157	367
International passengers (mn) with implementation of top 10 reforms	120	254	503
International fleet without investment in airport capacity	185	410	1008
International fleet with implementation of top 10 reforms	297	662	1381
Airline and airport employees without investment in airport capacity	325,000	693,000	1,515,000
Airline and airport employees with implementation of top 10 reforms	521,000	1,144,000	2,344,000

Source: CAPA Research. Forecasts prepared exclusively for Vistara

Investment in airspace is as critical as on the ground

Airspace planning has historically been accorded lower priority to infrastructure on the ground but this must change going forward to avoid airside bottlenecks being created. Managing the expected growth of the sector will require a focus on transformational change in governance, technology, processes and people involved in air navigation services. This will require huge amounts of investment as well as a fresh approach.

Availability of skills is fundamental for a safe and efficient industry

Skills development is a critical and often neglected area. Historically, when GDP growth has exceeded 6% skills shortages have emerged. Operational crew such as pilots and engineers, or air traffic controllers, require several years of training and supply cannot be created overnight. Airlines with insufficient resources literally have to ground aircraft as was the case during the period 2006-2008 when the industry experienced unprecendented growth. Indian aviation could again be headed towards a period of sustained double-digit growth which will intensify pressure on the availability of personnel. Based on the unconstrained forecasts, India's airlines and airports will need to increase their workforce by 322,000 people over the next 10 years. The aviation sector will be competing with operators in the Gulf for these resources as well as other industries in India. Because of the viability challenges in the aviation sector in recent years it is seen as an unstable industry which deters many from pursuing a career within it, choosing instead to apply for jobs in sectors which are seen as more secure.

And the low priority accorded to skills development by the industry means that education and training providers have not been able to develop a viable business model. Consequently, there is no serious investment taking place in capacity building in terms of training infrastructure. This may require financial incentives to be provided to investors in the form of soft interest rates and viability gap funding.

But if India succeeds in this mission, it will in the process create a massive export opportunity. There exists the potential for India to become a provider of low cost, outsourced aviation training as well as manpower to emerging markets across Asia, the Middle East and Africa, provided that international quality standards can be established.

The government took a positive step in January 2008 when the foreign direct investment cap in flying schools and training institutes was increased to 100%. However, international training providers still report frustration with the very slow and ambiguous approval processes. The government must adopt a more pro-active, fast-tracked and encouraging stance with respect to the establishment of new institutes. Furthermore, although the foreign university bill is beyond the purview of MoCA, an initiative could be taken to convince the Ministry of Human Resource Development that aviation is a new and specialist discipline of national interest which warrants exemptions for the participation of foreign universities as there are no established Indian centres of excellence in the subject.

5. Focus on safety oversight by the DGCA

Ensuring that the DGCA has the resources and expertise to manage the rapid growth and increasing complexity of the sector is critical for safe and sustainable growth. Failure to do so could represent a key structural barrier. As is the case with airport capacity, trained resources and expertise cannot be created overnight.

The DGCA faces a shortage of 700 technical staff at present. With both the scheduled and non-scheduled fleet forecast to expand rapidly (the commercial fleet is projected to grow from 394 in FY15 to 2564 aircraft by FY35 on an unconstrained basis, while the active general aviation fleet is expected to grow from 330 to 1775 aircraft, excluding piston engine aircraft) the challenge is immense.

Access to expertise and trained, fit-for-purpose resources running into thousands of staff will be critical over the coming years in order to maintain the necessary safety oversight. The appropriate talent, technology and training must be deployed but the relevant institutions are not prepared for the coming growth. CAPA views this as a very serious challenge and critical bottleneck.

Chapter 1: Contribution of aviation to the global economy

Aviation and economic development

Background

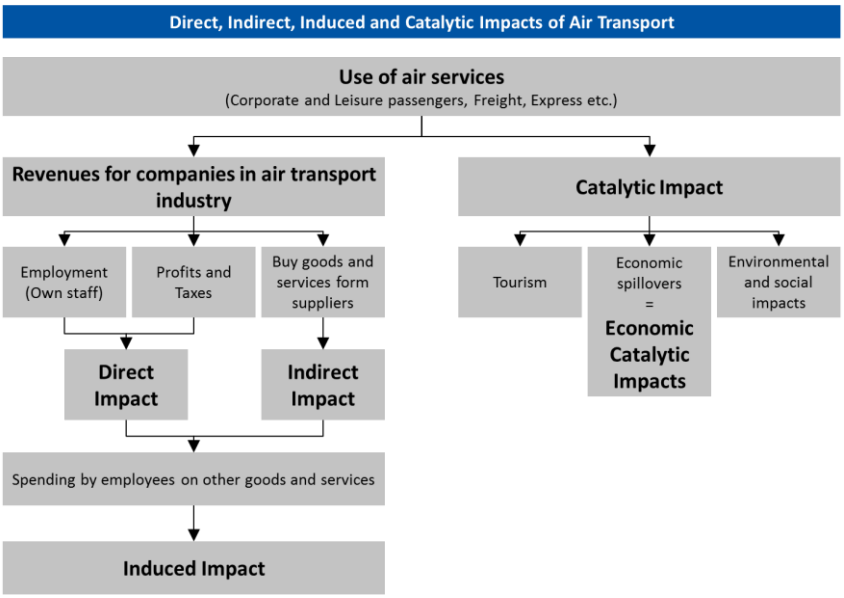
In 2015 commercial airlines are expected to carry more than three billion passengers. This volume of traffic is equivalent to nearly 40% of the world's population (7.3 billion). Air transport has made it convenient for people and goods to travel distances in the shortest possible time and has been integral to the growth and development of nations worldwide. Aviation connectivity has a direct influence on tourism, trade, commerce, social interaction and the ability to access human capital, new ideas and new markets.

Contribution of aviation to GDP and employment

One of the ways to measure the importance of aviation to the global economy is to quantify its contribution to GDP[1] and employment generation. There are four channels by which this contribution can be measured—direct, indirect, induced, and catalytic.

- **Direct Impact:** the value and output of direct expenditure by airlines, airports, ground services and aerospace;
- **Indirect Impact:** the value and output of suppliers to the aviation industry;
- **Multiplier Impact:** expenditure by the employees of businesses which are directly or indirectly linked to aviation spending their incomes on general retail, food and beverage, housing and personal services which creates a multiplier effect on the local economy;
- **Catalytic Impact:** this relates to economic activity which is facilitated by the connectivity offered by aviation e.g. tourism, investment, manufacturing supply chains.

Figure 14: Economic Impact of Aviation on the Economy



Source: CAPA Research

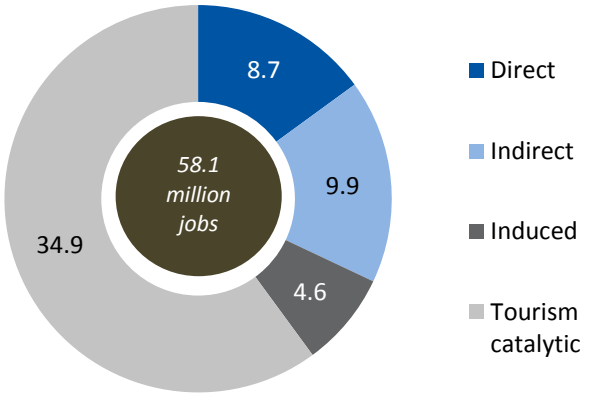
The aviation sector is estimated to have contributed 3.4% to global GDP. This is inclusive of the direct, indirect, induced and catalytic (tourism) impact as described in the image above. The catalytic tourism

[1] *According to Oxford Economics.*

impact alone is estimated at USD 807 billion. Aviation plays a critical role in supporting the tourism industry as the Air Transport Action Group estimates that 52% of international tourists travel by air.

Figure 15: Economic and employment impact of aviation

Employment supported by aviation (millions)

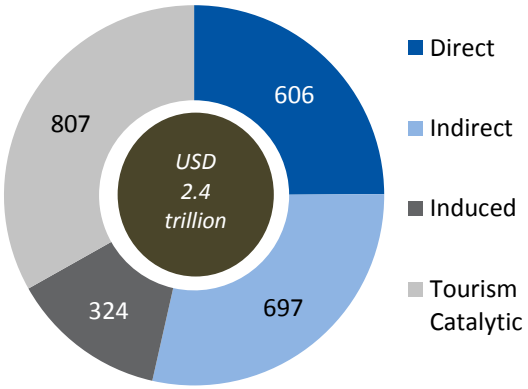


Source: CAPA Research, ATAG Report 2014,
Note: Data pertains to 2012

Remarks

- Aviation supports an estimated 58.1 million jobs worldwide. It is hard to find a comparable industry in terms of job creation.
- Nearly 40% of these jobs were created by three channels (direct, indirect and induced). Direct employment in the aviation industry is estimated at 8.7 million worldwide.
- More than 60% of jobs were created due to the catalytic impact that aviation has on the tourism.

Global economic impact of aviation (USD billion)



Source: CAPA Research, ATAG Report 2014,
Note: Data pertains to 2012

Remarks

- Aviation's contribution to the global economy is estimated at USD 2.4 trillion, higher than the entire GDP of India (USD 1.85 trillion[2]).
- Almost a quarter of the economic contribution was direct, whilst 36% was a catalytic impact of tourism.

An examination of the economic impact of aviation on the GDP of the countries under study, reveals that if aviation is leveraged the indirect, induced and tourism impacts can be significant. For instance in the UAE, the direct impact of aviation accounts for 22% of the sector's total contribution to GDP while the catalytic tourism impact accounts for 62%. In Singapore the corresponding figures are 32% and 47% respectively. This tourism impact has been achieved despite the fact that both are relatively small states with limited natural and historical attractions relative to competing destinations. And yet a robust aviation industry, combined with a focus on delivering high quality man-made attractions and experiences, has facilitated strong tourism growth. And both Dubai and Singapore airports have emerged as leading transit hubs in their regions.

[2]*GDP at current prices for year 2013, World Bank*

Figure 16: Contribution of aviation to GDP by impact (US billions)

Rank	Country	Direct	Indirect	Induced	Tourism (Catalytic)	Total	Tourism as % of total
1	United States	181.9	149.4	112.3	118.1	561.7	21.0%
2	UK	27.2	20.8	15.3	33.6	96.9	34.7%
3	France	30.2	24.4	15.3	20.0	89.9	22.2%
4	Germany	29.5	20.7	13.5	22.7	86.3	26.3%
5	China	26.3	28.2	14.4	12.0	80.9	14.8%
6	Australia	13.9	11.4	7.7	28.3	61.2	46.2%
7	UAE	7.7	3.2	2.5	21.9	35.3	62.1%
8	Singapore	10.7	3.9	3.0	15.9	33.5	47.4%
9	Netherlands	8.8	5.7	4.6	9.3	28.3	32.8%
10	Hong Kong	9.0	4.1	2.6	12.5	28.2	44.1%
11	India	1.9	1.4	1.0	19.1	23.3	82.0%

Source: CAPA Research, ATAG Report 2014
Note: Data pertains to 2012

In India the catalytic tourism contribution to GDP is a significant 82%, however this is largely due to low productivity and wages. In fact 90% of the total jobs created by aviation were as a result of catalytic impacts. But in absolute terms the contribution of catalytic tourism to GDP in India is even less than Dubai, a very disappointing result for a country with the wealth and diversity of attractions that India has to offer. This is in large part due to the fact that India's aviation industry is relatively small given the size and has yet to develop its direct impact.

Figure 17: Contribution of aviation to employment creation ('000)

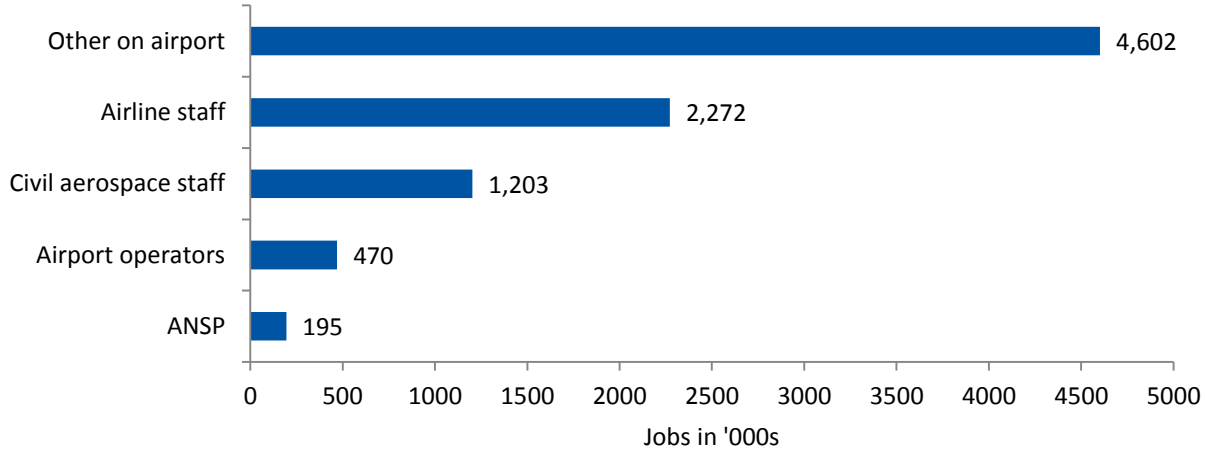
Rank	Country	Direct	Indirect	Induced	Tourism (Catalytic)	Total	Tourism as % of total
1	India	121.6	334.2	240.2	5,998.7	6694.7	89.6%
2	China	900.8	2,624.1	1,335.4	993.5	5,853.8	14.8%
3	United States	2,227.2	1,309.8	985.2	1,209.1	5,731.3	18.1%
4	UK	319.8	266.7	195.7	507.7	1,290.0	7.6%
5	Germany	411.0	251.2	163.5	291.1	1,116.8	4.3%
6	France	229.1	252.3	158.2	231.0	870.6	3.5%
7	Australia	118.1	84.3	56.8	253.9	513.1	3.8%
8	UAE	97.6	43.1	34.6	325.7	500.9	4.9%
9	Netherlands	107.2	54.3	43.8	157.3	362.5	2.3%
10	Hong Kong	91.3	57.2	36.6	150.2	335.2	2.2%
11	Singapore	94.5	46.4	35.5	148.5	324.8	2.2%

Source: CAPA Research, ATAG Report 2014
Note: Data pertains to 2012

For a country such as India, which has world's largest population of young people who will need to be absorbed into the workforce each year, aviation can play a critical role as its catalytic impact is very significant with each direct job in the sector creating more than 5.5 in the wider economy.

Of the 8.7 million people working directly in the aviation sector globally, just over a quarter are employed by airlines, while close to 60% are employed by the airport or airport service providers.

Figure 18: Breakdown of direct employment in aviation globally



Source: Aviation Benefits beyond Borders, ATAG
Note: Airport operators (work for the airport operator)
Other on-airport (retail, car rental, government agencies such as customs and immigration, freight forwarders and some catering)
Airline staff (flight and cabin crews, executives, ground services, check-in, training, maintenance staff)
Civil aerospace staff (engineers and designers of civil aircraft, engines and components)
Air navigation service providers (air traffic controllers, executives)

IATA forecasts rising demand. There exists a unique opportunity for India to capitalise on this growth.

According to the International Air Transport Association (IATA), 1% of global GDP or USD 829 billion will be spent on air transport in 2015. The size of the global market is expected to more than double over the next 20 years, but fast growing emerging markets such as China and India are expected to grow several times larger. Countries that provide an enabling framework for the success of this sector can reap significant economic rewards.

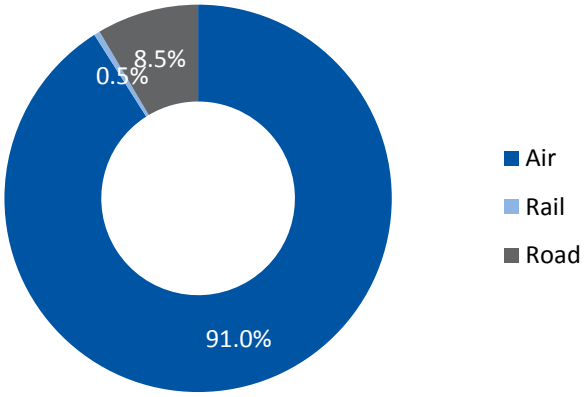
Aviation an enabler for tourism

Aviation is an enabler for tourism and key for India to capture global tourist demand and showcase its rich history and culture to the word. More than 90% of foreign tourists (and around 98% of tourists from non-neighbouring countries) use air transport to reach India.

According to the World Tourism Organization, as of the end 2014 global tourism was set to exceed 1.1 billion tourists, with 52% of them travelling by air. With a growing propensity to travel, higher disposable incomes and easier access to countries as a result of liberalisation of visa policies, this trend is likely to continue.

Figure 19: Mode of transport used by foreign tourists arriving in India, 2013

FTAs to India as per mode of transport%



Remarks

- In 2013, foreign tourist arrivals (FTAs) stood at 6.97 million and 91.0% used air transport to reach India.
- In the case of most non-neighbouring countries, arrivals by air accounted for 98-100% of foreign tourists.

Source: CAPA Research, Ministry of Tourism India
Note: Data pertains to 2013

India has an abundance of natural, cultural and historical attractions. But the absence of a well-structured aviation policy designed to leverage the undeniable advantages that India possesses as a potential aviation hub given its geographic location and large domestic market, has had a negative impact on connectivity, infrastructure and competitiveness. As a result the country has failed to capitalise on potential tourist demand as reflected in the table below.

Indeed it is remarkable and at the same time highly disappointing that small city states such as Singapore and Dubai are able to attract significantly higher tourist arrivals than India. Competing markets in Asia such as Thailand receive almost four times as many visitors as India.

Figure 20: Foreign tourist arrivals in key markets

Country	Year	Number of tourists
China	2014	26,360,800
France	2013	84,700,000
United States	2014	74,728,706
Hong Kong	2014	60,838,836
United Kingdom	2014	34,377,000
Germany	2013	31,545,132
Singapore	2014	15,095,152
Dubai	2014	11,950,000
India	2014	7,703,386
Australia	2014	7,070,000

Source: CAPA Research

India's foreign tourist arrivals are relatively low compared with other leading markets. However, visitor numbers are expected to almost double over the next 10 years. The Government of India's decision to simplify entry requirements by offering electronic visa facilities to citizens of almost 80 countries is expected to provide a boost to inbound traffic. CAPA's forecasts for visitor arrivals to India are presented in the table below.

Table 10: CAPA forecast for inbound arrivals by foreign nationals (millions)

Year	Low	Medium	High
FY2015 (actual)		**7.7**	
FY2025F	13.5	**15.0**	16.5
FY2035F	22.9	**25.4**	27.9
FY2050F	45.2	**50.3**	55.3

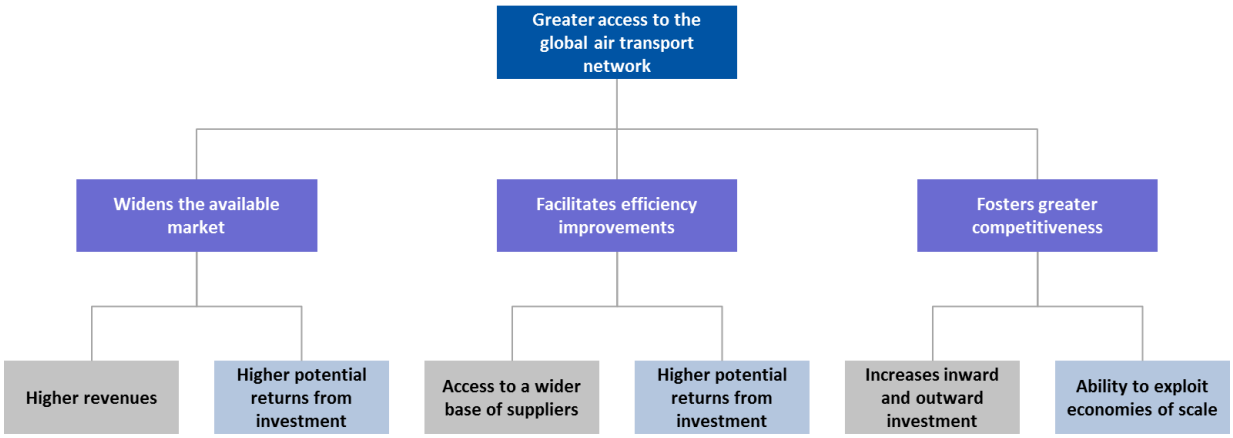
Source: CAPA Research

Aviation an enabler for trade

Air transport is a key enabler and facilitator for trade, providing access to global markets

As emerging economies like India become larger there is a need for investment, talent, ideas, innovation and new markets – all of which are possible only through increased connectivity which can have both direct and indirect impacts.

Figure 21: Economic benefits of aviation



Source: CAPA Research, IATA Briefing, Aviation Economic Benefits

Increased connectivity brings people together facilitating business, investment, tourism and trade. A recent report by the World Economic Forum listed the estimated gains that could be achieved through increased trade by 2020.

A list of key countries highlighted indicates that India could increase its exports by 9.5% and GDP by 1% through improved trade facilitation. Aviation connectivity is one of the key drivers of this.

Figure 22: GDP and export gains[3] by 2020 as a result of increased trade

	GDP gains[4]		Export gains	
Country/Region	**%**	**USD billions**	**%**	**USD billions**
Australia and New Zealand	1.29	7	8.00	8
China	1.45	124	8.83	187
European Union	2.04	348	10.60	629
India	0.91	21	9.56	35
Middle East	5.66	30	13.66	22
Other Asia	7.97	283	16.18	211
Other Europe and Turkey	3.75	36	15.04	49
United States	0.55	90	3.90	61
Total	**1.78**	**1,177**	**8.23**	**1,488**

Source: The World Economic Forum, Enabling Global Trade Report, 2014

Overall, aviation can have significant impact on a nation as a result of its contribution to GDP, employment, tourism and trade; however the alignment of aviation policy and strong institutional frameworks is necessary.

Aviation can indeed provide a boost to India in the context of several of the government's key agenda items which include Trade, Talent and Tourism. Yet this can only be achieved if there are decisive and defined policy measures which take the sector seriously and establish long term objectives. Ad hoc measures and a piece meal approach cannot work. A failure to take action will likely result in missed opportunities allowing other countries to capture India's potential. And a visionary policy and regulatory framework must be supported by strong institutions.

Policy and regulatory framework

Background

In any country the policy and regulatory framework plays a critical role in defining the fate of a sector. If the regulations are well defined and the process of drafting policies is transparent and consultative, then the chances of attracting investment into that sector increase substantially.

Policy lays down a vision for the direction which the government envisages for the sector. And accordingly regulatory structures should assist towards executing that vision. The aviation sector is still highly controlled in many countries, but some markets such as the US, European Union and Singapore have deregulated many aspects with a goal of moving towards market-based mechanisms.

[3] *All USD amounts expressed in 2005 prices.*
Zaki (2014) reports welfare gains, which include net income transfers, rather than GDP gains. The two are close for most countries. Dollar export gains are calculated based on 2012 merchandise exports to GDP ratios from the World Development Indicators. The figures include intra–regional exports, where applicable.

However, due to the complexity of the industry and the fact that many facets of aviation are tied to highly emotive issues such as national pride, national security, and public safety, governments continue to remain involved. As a result liberalisation is unlikely to proceed quickly, especially as the benefits of deregulation vary from country.

Government investment in aviation

An examination of government investment in aviation was limited to the countries of US, UK, Australia and India. These countries were selected as they have multiple airports across their land mass which makes them more appropriate for comparison with India than city states e.g. Singapore or Dubai.

Indian Government investment in transportation and aviation

In India responsibility for transportation infrastructure is split across four separate ministries, for Civil Aviation, Shipping, Road Transport and Railways. These ministries receive annual support from the Government of India to meet their annual expenditure.

Figure 23: Plan Outlay of Indian government on transportation: INR crores

Ministry	FY06	FY07*	FY08*	FY09*	FY10	FY11	FY12	FY13	FY14*	FY15#
Ministry of Civil Aviation	2356	2346	11,238	7496	11,798	6222	3866	8394	8502	9474
Ministry of Shipping	Combined with roads			2986	2605	4846	3997	4235	4615	4543
Ministry of Road Transport and Highways	16,198	17,817	17,670	17,150	14,933	20,030	32,252	18,700	30,478	35,238
Ministry of Railways	18,265	24,936	29,893	38,807	38,866	39,837	47,001	49,280	58,257	63,949

Source: CAPA Research, Indian Budget.nic.in
*Note1: *Revised budget; # Budget;*
Note2: All numbers are actual spend or otherwise specified
Note3: Plan Outlay includes budgetary support and Internal and Extra Budgetary Resources (IEBR). IEBR is an important part of the Central plan of the Government of India and constitutes the resources raised by PSUs through profits, loans and equity.
Note4: During FY06-08 the plan outlay of the Ministry of Road Transport and Highways also included the Ministry of Shipping

US Government investment in transportation and aviation

In the United States, the Department of Transport (DoT) is responsible for ensuring that the country has a robust transportation infrastructure. Accordingly, the policy direction is towards an integrated transport network with federal and state governments spending billions of dollars every year to improve public infrastructure.

Figure 24: Federal, State and Local Government Spend on Transportation: USD billion

Transport	FY05	FY06	FY07	FY08	FY09	FY10	FY11	FY12	FY13	FY14
Highways	190.3	189.3	183.2	179.4	176.2	173.8	167.0	165.3	161.7	164.7
Mass Transit	59.7	57.7	55.8	57.6	63.9	63.7	61.2	61.4	63.7	65.4
Rail	2.0	2.0	1.8	1.7	2.1	3.0	2.7	2.6	2.7	3.0
Aviation	**40.7**	**38.7**	**37.7**	**37.9**	**39.7**	**40.3**	**37.8**	**36.2**	**36.3**	**36.0**
Water Transport	9.1	9.2	9.7	9.7	10.2	10.1	9.8	9.9	10.1	9.8
Water Resources	25.9	26.4	27.2	26.9	27.7	29.8	29.1	27.7	26.9	28.2
Water Utilities	103.9	105.3	110.1	110.7	118.2	118.3	114.8	108.8	110.0	108.9
Total	431.5	428.6	425.5	424.0	438.0	438.8	422.5	412.0	411.4	416.0

Source: CAPA Research, Congress Budget Office

Note: Data pertains to Federal Fiscal Year which runs from 01-Oct through 30-Sep and is designated by the calendar year in which it ends.

Note: Dollar amounts are adjusted to remove the effects of inflation using price indices for government spending that measure the prices of materials and other inputs used to build, operate, and maintain transportation and water infrastructure.

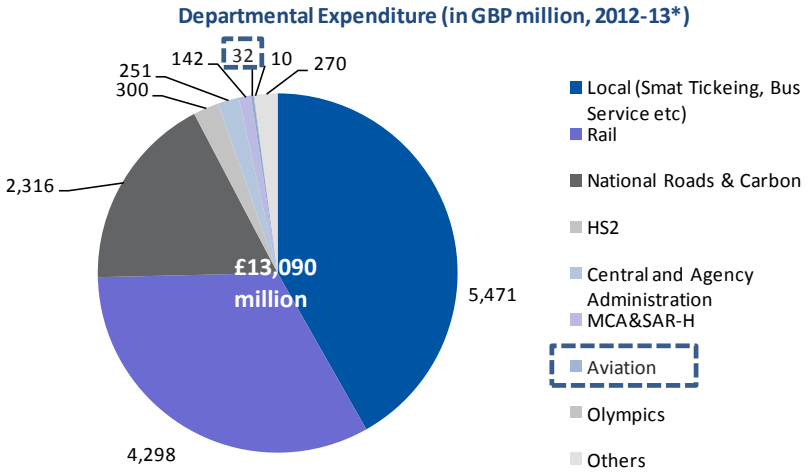
Highways receive the largest share of spending, followed by mass transit and then aviation. In FY2014, the government spending on aviation accounted for 8.7% of the total spent.

The predefined spending and investment in aviation helps the country maintain infrastructure, conduct research and development, and hone talent all of which then act as contributors to the entire ecosystem.

UK Government investment in transportation and aviation

In the case of the United Kingdom, the Department for Transport (DfT) prepares a business plan every three years. Promoting sustainable aviation is one of the priorities for the department. The Department plans its budget allocation across its key programmes and initiatives. Below is the indicative budget allocation for the financial year 2012-13 which included GBP 32 million for aviation.

Figure 25: Budget allocation for UK Department for Transport



Source: The Department for Transport Business Plan 2012-15

Australian Government investment in transportation and aviation

The Australian government has constituted the Department of Infrastructure and Regional Development (DIRD) with responsibility for the design and implementation of policies and programs which focuses on an efficient, sustainable, competitive, safe and secure transport system in Australia. DIRD gets its funding from the Australian government. The below table shows the total new funds allocated to the department in the 2014-15 budget year by agency

Figure 26: Budget allocation for Australian DIRD (AUD)

Name of Agency	2013-14	2014-15	2015-16 (Proposed)	% change
Department of Infrastructure and Regional Development	2,161.2	4,636.0	7,007.2	51.1%
Australian Maritime Safety Authority	196.0	196.1	200.8	2.4%
Australian Transport Safety Bureau	23.9	71.0	70.3	-1.0%
Civil Aviation Safety Authority	185.7	187.5	180.1	-3.9%
Infrastructure Australia	NA	NA	11.8	NA
National Capital Authority	NA	36.5	36.9	1.1%
National Transport Commission	9.1	9.3	9.5	2.2%
Portfolio Total	**2,575.8**	**5,136.3**	**7,516.5**	**46.3%**
Less amounts transferred within portfolio	247.9	245.1	239.9	-2.1%
Resources available within portfolio:	**2,327.9**	**4,891.2**	**7,276.6**	**48.8%**

Source: Department of Infrastructure and Regional Development

Chapter 2: Projected Growth of Indian Aviation to 2050

Figure 27: CAPA Forecast for domestic air passengers in India (millions)

Year	Low	Medium	High
FY2015 (actual)		**70**	
FY2025F	196	**218**	239
FY2035F	474	**527**	579
FY2050F	1,058	**1,175**	1,293

Source: CAPA Research

Figure 28: CAPA Forecast for international air passengers in India (millions)

Year	Low	Medium	High
FY2015 (actual)		**51**	
FY2025F	108	**120**	132
FY2035F	228	**254**	279
FY2050F	452	**503**	553

Source: CAPA Research

Figure 29: CAPA Forecast for outbound departures by Indian nationals (millions)

Year	Low	Medium	High
FY2015 (actual)		**17.7**	
FY2025F	40.6	**45.1**	49.6
FY2035F	91.3	**101.4**	111.5
FY2050F	180.9	**201.0**	221.1

Source: CAPA Research

Figure 30: CAPA Forecast for inbound arrivals by foreign nationals (millions)

Year	Low	Medium	High
FY2015 (actual)		**7.7**	
FY2025F	13.5	**15.0**	16.5
FY2035F	22.9	**25.4**	27.9
FY2050F	45.2	**50.3**	55.3

Source: CAPA Research

Figure 31: CAPA Forecast for domestic air freight in India (thousand tonnes)

Year	Low	Medium	High
FY2015 (actual)		493	
FY2025F	1,573	1,748	1,923
FY2035F	3,319	3,688	4,056
FY2050F	8,144	9,048	9,953

Source: CAPA Research

Figure 32: CAPA Forecast for international air freight in India (thousand tonnes)

Year	Low	Medium	High
FY2015 (actual)		**1,542**	
FY2025F	3,136	**3,484**	3,833
FY2035F	5,722	**6,358**	6,994
FY2050F	11,783	**13,092**	14,402

Source: CAPA Research

Figure 33: CAPA Forecast for aircraft fleet deployed on domestic services

Year	Low	Medium	High
FY2015 (actual)		**266**	
FY2025F	708	**786**	865
FY2035F	1712	**1902**	2092
FY2050F	3821	**4245**	4670

Source: CAPA Research

Figure 34: CAPA Forecast for aircraft fleet deployed on international services

Year	Low	Medium	High
FY2015 (actual)		**128**	
FY2025F	268	**297**	327
FY2035F	596	**662**	728
FY2050F	1243	**1381**	1519

Source: CAPA Research

Chapter 3: Realising Indian aviation's potential

India's Civil Aviation Policy (still in draft format after 20 years)

Indian aviation is presently governed by the Aircraft Act of 1934 and the Aircraft Rules of 1937, albeit with subsequent amendments. Policy announcements have been ad hoc in nature and are often formulated without inter-ministerial inputs. The absence of a structured, cohesive aviation policy creates uncertainty and is a deterrent to serious investment.

CAPA believes that a comprehensive and well defined Civil Aviation policy must be the starting point for the sector.

It is important to differentiate between a law, an act and a policy so as to alleviate confusion.

- Law: In a wider sense, it includes Acts passed by the Parliament or rules, regulations, etc. framed under such an Act. The expanse and scope of the word 'law 'differs depending upon the context.
- Regulation: This is a step lower than an Act passed by Parliament. It is in the nature of a subordinate legislation and is generally bound by the provisions of an Act under which it is framed. If a regulation is in violation of the law it can be challenged.
- Policy/Cabinet-approved policy: Article 77 of the Constitution extends the powers of the executive (that is the elected government) to all areas in which the parliament can make laws subject to such laws already made. If in a particular area Parliament has not passed any Act, the Government can frame a policy under article 77. These policies are enforceable in a court of law unless they are contrary to the constitution or any Act made either by the parliament or the state legislature.

Currently the sector lacks any comprehensive civil aviation policy rather has a series of acts. The acts governing the civil aviation sector as below:

These acts include rules and regulations that are confusing and outdated and not in keeping with modern best practices. Indian aviation requires a legislative and policy framework that is reflective of the current environment. This legislation should be modernised and brought up to date alongside the establishment of a strong regulator.

CAPA has advocated for the last 12 years the need to create a long term sectoral policy and one that should be viewed as a Government of India policy with substantive inputs and engagement from the Ministries of Finance, Commerce, Petroleum and Tourism; the *NITI Aayog* (former Planning Commission); state agencies such as immigration, customs and excise; and State Governments.

The ultimate objective must be a policy that promotes a safe, viable and sustainable industry; the policy must be practical and implementable

Combined with an open and competitive framework a safe and sustainable aviation industry will play a key role in supporting national economic development and will benefit the consumer. If India is to achieve its target of double digit GDP growth, a vibrant aviation sector will be essential.

However, a new policy must be practical and implementable, with agreed milestones towards achieving a viable industry. There are so many dysfunctionalities in Indian aviation today that moving directly to this new order is not feasible. A staged approach will likely work best with the government addressing immediate needs first to stabilise losses across the sector, followed by medium and long term needs that include upgrading existing infrastructure, creating new infrastructure, developing human capital, rationalising tax policy, and developing a long term vision for aviation.

Policy design and enforcement

Ideally the policy outcomes should define regulatory structures. This is not the case for India as illustrated by key policies and outcomes below:

Figure 35: Status of Indian aviation policy

Policy/Regulation	Does a definitive policy exist	Outcome
Foreign direct investment in airlines	Yes	Investment in existing and new airlines
Clear process and timelines for licensing of new airlines	No	Investors wary of new ventures
Bilaterals	No	Uncertainty drives away potential investors leading to loss of jobs. Airlines are unable to engage in long term network and fleet planning. Tourism arrivals under-perform.
Regional Connectivity	Yes (Route Dispersal Guidelines)	The structure of the policy has a negative impact on aviation viability
Airport Economic Policy	No definitive policy. The regulatory authority AERA has created current policy	Uncertainty drives away potential investors leading to loss of jobs
Public Private Partnership in Airports (PPP)	No government policy	Slow progress on infrastructure development
Slot Allocation	Yes, however not clear and transparent	Lack of transparency essentially means businesses cannot plan and spend significant resources lobbying
Environment	Yes	Lack of transparency

Policy/Regulation	Does a definitive policy exist	Outcome
Safety	Yes	Policy not aligned with aviation viability
Security	Yes	Policy not aligned with aviation viability
Cargo and Express	Yes	Policy not aligned with aviation viability
Aerospace	No	Poor policy decisions have led to a lack of in-country aerospace manufacturing and skills development capability
Business and general aviation	No	Poor policy decisions have led to a weak business and general aviation sector

Source: CAPA Research

In addition to policy shortcomings, there is insufficient regular engagement with stakeholders. While inputs have been sought on issues such as route dispersal guidelines or the draft aviation policy, there is no institutionalised framework of engagement and independent reviews into the state of aviation are largely ignored (if undertaken at all).

Policy design and implementation should be transparent and strong engagement with stakeholders including passengers is essential

In CAPA's interaction with various ministries, it emerged that quantitative benchmarking of policies is not a practice. For several policies there seems to be no benchmark that can be defined. Policy impacts often differ from intent. Single window clearances are, as of date, not available. For instance, to set up an airport or an airline multiple agencies are involved, including (but not limited to):

- Ministry of Finance;
- Ministry of Environment;
- Ministry of Home Affairs;
- Ministry of External Affairs;
- Ministry of Civil Aviation;
- Respective state governments;
- Directorate General of Civil Aviation;
- State agencies for coastal regulations;
- Departments of land use planning;
- Competition Commission of India;
- Customs and local law enforcement agencies.

Additionally, the inability of talent to flow from the private to the public sector and vice-versa leads to very few experts that have the ability to comprehend the complexity of issues and to take a macro perspective that is beneficial for aviation and for the country.

Policy benchmarking

CAPA has benchmarked policies across countries to better highlight India's position. The following table defines each of the benchmarking parameters.

Figure 36: Definition of Policy Benchmarking Parameters

Benchmarking Parameters	Definition/Understanding (✓= Yes and ✗=No)
FDI in Airline	**Foreign Direct Investment** - An investment made by a company or entity based in one country, into a company or entity based in another country. ✓If a government regulation/ policy document has been identified defining the type and amount (%) of FDI allowed in an airline i.e., as part of the policy or regulation, any criteria/restriction on modes/routes of foreign investment (FIIs, corporate, sovereigns etc.) e.g., in some countries a foreign airline is not allowed to buy a controlling stake in a domestic airline. ✗If no such policy or regulation has been identified in the country
Licensing of airlines in terms of timelines	Any person or a company that wants to provide commercial air services must obtain a safety and operating permit from the relevant department (Ministry/Department of Transport) of a particular country. As per the stipulated regulations of a particular country, an undertaking may have to follow a multi-layer process of certification from, usually, the aviation authority of the country ✓If a government regulation/policy document exists clearly stating the **timeline for each step** ✗If the process is not time bound
Bilateral policy	A bilateral air service agreement (ASA) is an agreement between the two countries to grant a right to the designated air carriers to provide commercial air services as defined in the ASA. ASAs cover the basic framework under which airlines are granted economic bilateral rights to fly two countries (these agreements cover frequency, origin and intermediate points, traffic rights, type of aircraft and tax issues). ASAs can be multilateral also (more than two countries are a party to the agreement), such as Multilateral Agreement on the Liberalization of International Air Transportation (MALIAT). ✓If a government regulation/ policy document is in place containing guidelines on ASAs (bilateral and multilateral) including entitlements and restrictions (seat capacity, aircraft type, pricing). The document should define steps/procedure to follow while entering into ASAs in future. ✗If no such policy or regulation exists in the country
Regional/ Remote Connectivity	Government initiatives to ensure air connectivity to regional and remote area with other cities and key places so that the people from these areas have adequate access to air services. The government provides support for aerodrome infrastructure and air services to the areas where such services are not commercially viable. ✓If there is a government regulation/policy document stating the guidelines for the Regional and Remote Area Connectivity programme. Where applicable, the document should clearly define reimbursement/payment procedure, selection process for airlines, eligibility criteria for communities, funding source, total funding available for the program etc.

	✗If no such policy or regulation exists in the country
Economic regulation of airports	Airport economic regulator monitors the charges, which the airport operator charges from the airlines and passengers for providing airport related services. Few countries have an independent economic regulator to draft such regulations, determine and approve aeronautical charges. Based on the stipulated guidelines the regulator selects a till (Single, Double, Hybrid) to determine aeronautical charges and regulate airports. As per IATA, economic regulation should involve detailed cost-efficiency targets and service quality standards. It should be preferably based upon price-cap regulation with single-till procedures. ✓If there is a government regulation/policy document defining a clear and transparent process of determining the prices for aero services at airports, development fees and passenger service fees. The document may also cover guidelines on capex required for improvement of airports and non-aero revenues. ✗If no such policy or regulation exists in the country.
Slot Allocation	Airport slots are specific time periods allotted for an aircraft to land or take off at an airport. Per IATA World Slot Guidelines (WSJ), *an airport slot (or 'slot') is a permission given by a coordinator for a planned operation to use the full range of airport infrastructure necessary to arrive or depart at a Level 3 airport on a specific date and time.* ✓If a country's slot policy has a clearly laid out mechanism for assessing the available slots and making that information available in public domain, tracking the slot utilisation and returning ✗If a country (follows IATA WSG guidelines or has an independent policy) with no such clarity around the assessing, publishing and monitoring mechanism
Environmental Policy	Policy to address and mitigate environmental impacts through aviation in the areas of climate change, emissions, noise and local air. ✓If a government regulation/policy document has been identified defining the measures required to mitigate the aviation's environmental impact ✗If no such policy or regulation has been identified in the country
Safety Policy	Safety policy provides a framework within which the service providers are required to establish Safety Management Systems. Safety policy addresses approvals of individual certificate of airworthiness, certification of pilots, production organisation approvals, maintenance organisation approvals, individual maintenance engineer licenses etc. ✓If a government regulation/policy document has been identified clearly defining the instructions on how to perform safe air operations ✗If no such policy or regulation has been identified in the country
Security Policy	Security policy addresses and promotes a safe, efficient, and secure aviation transportation system and protection of aircraft, aerodromes and air navigation installations against acts of violence and terror attacks. ✓If a government regulation/policy document has been identified defining the measures required for secure air operations ✗If no such policy or regulation has been identified in the country
Security Regulations for Staff	Countries have defined the security regulations and responsibilities that each stakeholder has to follow. Some countries allow airlines to sub-contract their

	security staff whereas others require them to recruit staff in-house, as in India, which becomes a cost and administrative burden. ✓ If the country allows sub-contracting of its security staff ✗ If the country does not allow sub-contracting of security staff
Public Private Partnership (PPP) in Airports	A Public Private Partnership (PPP) is typically an agreement where the private sector utilises its capital and expertise to provide a service or facility to a public agency. In return the public agency will share in the risk (and sometimes the benefits of the project). PPP enables the public sector to access the discipline, skills and expertise of the private sector. ✓ If there is a government regulation/policy document defining the procedure/guidelines to follow while entering into a PPP ✗ If no such policy or regulation has been identified in the country
Cargo and Express	Cargo airlines are airlines dedicated to the transport of cargo by air. Some cargo airlines are divisions or subsidiaries of larger passenger airlines. ✓ If there is a government regulation/policy document defining the guidelines for Cargo operations including the licensing requirements (aircraft and personnel), FDI policy, safety, security and environment policy, etc. ✗ If no such policy or regulation has been identified in the country
General and business Aviation	General aviation (GA) is all civil aviation operations other than scheduled air services and non-scheduled air transport operations for remuneration or hire. GA operations consist of business, sightseeing, search and rescue, training, recreational, survey, aerial ambulance etc. ✓ If there is a government regulation/policy document defining the guidelines for GA operations including the licensing requirements (aircraft and personnel), FDI policy, safety, security and environment policy, etc. ✗ If no such policy or regulation has been identified in the country
Aerospace	Aerospace organisations are involved in the design, development, manufacture and maintenance of the full range of aircraft products. Aerospace activity is very diverse, with a multitude of commercial, industrial and military applications. ✓ If there is a government regulation/policy document defining the guidelines for Aerospace industry including the licensing requirements, FDI policy, incentives, ownership restrictions etc. ✗ If no such policy or regulation has been identified in the country

Based on a comprehensive review, CAPA believes that India's position compared to other countries is as follows:

Figure 37: Benchmarking of India's aviation policy and regulations

Policy/Regulation for the Following	India	US	UK	Australia	Singapore	Germany	France	Hong Kong	Dubai
FDI in airlines	✓	✓	✓	✓	✗	✓	✓	✗	✗
Licensing of airline in terms of timelines	✗[5]	✓	✓	✓[6]	✓	✓	✓	✓	✓
Bilateral	✗	✓	✓[7]	✓	✓	✓	✓	✗	✗

[5] *Registration and permit given by DGCA, however there no time bound clear /transparent communication process*
[6] *Although there are no timelines defined but the communication process/steps with the applicant are well defined*
[7] *Follows EU guidelines*

Regional connectivity	✓	✓	✓	✓	✗	✓	✓	✗	✗
Airport economic policy	✗	✓	✓	✗	✓	✗[8]	✓	✗	✗
Public-Private Partnership in airports	✗	✗	✗	✓[9]	✗	✗	✗	✗	✗
Slot allocation	✗	✓	✗	✓	✗	✓[10]	✓	✓	✗
Environment	✓	✓	✓	✓	✓	✓	✓	✓	✓
Safety	✓	✓	✓	✓	✓	✓	✓	✓	✓
Security	✓	✓	✓	✓	✓	✓	✓	✓	✓
Security Regulatory Requirements for the Staff	✗	✗	✓	✓	✗	✓	✗	✗	✗
Cargo and express	✓	✓	✗	✓	✗	✓	✗	✗	✗
Aerospace	✗	✓	✓	✗	✗	✗	✗	✓	✗
General Aviation and Business Aviation	✗	✓	✓	✓[11]	✓[12]	✗	✗	✗	✗

** NA = Not applicable*

Regulatory distortions

Regulatory distortions exist in the current policy. These include but are not limited to the process of setting up airlines, navigation procedures, restrictions on additional sources of revenues, route dispersal guidelines and minimum fleet size mandates to name a few.

CAPA believes that some of the key distortions in the sector are:

- The negative fiscal framework (e.g. excessive taxation on aviation turbine fuel, and unhelpful tax on third party maintenance and aircraft lease payments);
- Availability of bilateral seat entitlements to destination cities in India and domestic capacity and slot issues;
- The 5/20 rule which has no clear rationale for why it was instituted in the first place;
- Route dispersal guidelines which effectively forces all airlines to fly certain routes leading to unviable routes and depressed yields on the routes;
- Subsidising the national carrier which is unable to compete on a free market scenario based on product alone;
- A lack of transparency and engagement across the sector which then has an effect on safety and efficiency.

[8] In Germany, the regulation of charges does not – with some notable exceptions like Düsseldorf – cover the central infrastructure fee, so that some airports which were not able to raise their charges found an easy way out by shifting costs to their users.

[9] There is a National PPP policy in Australia, issued in 2008, for infrastructure projects. The policy applies to airports also, but there is no separate/dedicated PPP policy for airports

[10] Airport Coordination Germany (Fluko) is an independent non-profit organisation, financed by German airlines and airports and responsible for slot allocation, schedules facilitation and slot monitoring at 16 airports in Germany.

[11] No separate policy exists, however GA & BA regulations have been covered as part of the overall regulations and policies for each segment under aviation

[12] No separate policy exists, however GA & BA regulations have been covered as part of the overall regulations and policies for each segment under aviation

Strategic role of aviation in the country's economic policy settings

Background

As the world becomes increasingly globalised with integrated transport networks and access to markets, aviation will continue to play a critical role. Countries that recognise this and leverage this can indeed put themselves on the world map and increase their global influence. India cannot to afford to lose out on this opportunity.

Time has come to emphasise aviation while drafting national policy

Due to the amplified effects aviation can have in delivering economic output and employment its role in policy settings must be considered.

For instance Dubai which as of date has 150 airlines connecting it to 220 destinations has an aviation sector which contributes 27% towards GDP. This has been possible due to a liberalised aviation policy that is aligned towards the entire aviation value chain; a supportive government that recognises the value of aviation; and a deliberate and decisive approach to infrastructure development. Another example is Singapore where aviation supports close to 2% of direct employment (measured against the total population) and has a total impact of close to 6% for jobs created.

Way forward for India

Policy measures that enable a robust aviation sector can highlight a country's ability to successfully leverage its human capital and while India has a clear advantage it has failed to exploit the full potential

The major components of the aviation value have varying requirements for talent and the key advantages that India has are highlighted below.

Figure 38: Talent requirements across the aviation value chain

Particulars	Key requirements of talent	India's advantage
Travel Agents	English language, communication	English language, large talent pool
Catering	Labour	Large labour pool
Computerised Reservation System (CRS)	Programming, communication	Expertise in IT
MRO	Technical talent	Expert talent, engineering talent and expertise in sector but not leveraged due to policy failures
Ground Handlers	Labour intensive business	Large labour pool
Freight Forwarders	Communication	Large talent pool
ANSPs	Technical talent	Expert talent, engineering talent and expertise in sector but not leveraged due to bureaucratic setup

Manufacturers	Technical talent	Expert talent, engineering talent and expertise in sector but not leveraged due to a lack of focus and bureaucratic setup
Lessors	Financial acumen	Sector has not been developed due to prohibitive tax policies
Airports	Labour intensive to highly skilled technical talent	Airports have seen remarkable growth but much remains to be done especially at non-metro airports
Airlines	Range of talent from labour to highly skilled and technical talent	Sector has not been developed to its full potential due to no clear policies

Source: CAPA Research

Policy measures must be aimed at the viability of the entire sector and this is inextricably linked to viability of airlines due to their apex location in the value chain

Profitability across the value chain varies as highlighted below but CAPA contends that it is airlines that bind together the entire value chain. Indeed in the absence of airlines all other elements of the value chain would not be able to function and policy measures should address this fact.

Figure 39: Global investment across the aviation value chain

Invested Capital and Revenue in the Aviation Value Chain

Components of Value Chain	Revenue (billion USD)	Invested Capital (billion USD)
Travel Agents	45.0	3.0
Catering	10.0	3.0
Computerised Reservation System (CRS)	8.0	6.0
Maintenance Repair Overhaul (MRO)	21.0	11.0
Ground Handlers	39.0	13.0
Freight Forwarders	76.0	19.0
ANSPs	27.0	35.0
Manufacturers	82.0	35.0
Lessors	36.0	71.0
Airports	111.0	436.0
Airlines	597.0	587.0

Source: IATA, Jun-2013

Thus the viability of airlines must be a key focus for policy measures because they are enablers for a large part of the value chain even though their revenue against invested capital is low compared to other elements.

For India, while airlines and airports have shown tremendous growth other components of the value chain are yet to be developed. For instance, manufacturing capability continues to be low. Policy measures make Maintenance Repair and Overhaul (MRO) facilities financially unviable with several airlines opting to send their aircraft to neighbouring countries such as Sri Lanka, Singapore and the UAE for MRO work. Air traffic controllers are often poached by the Middle East and the leasing business is non-existent.

Aviation policy cannot be enacted on a standalone basis and best practices from other countries indicate that policy measures are taken with a view to integrating transportation networks; India is sorely lacking in this regard.

An examination of the setup in other countries reveals that India is the only nation where the aviation ministry is functioning on a standalone basis and not a part of a larger transport ministry which ensures coordination and collaboration in policy while also making policy that looks at the transportation system as a whole.

Figure 40: Status of aviation ministry in the government

Country	Supervisory ministry	Areas under purview
USA	Department of Transport	Oversees Highways, Maritime, Rail and Air
UK	Department for Transport	Oversees Highways, Maritime, Rail and Air
Australia	Department of Infrastructure & Regional Development	Oversees Highways, Maritime, Rail and Air
Germany	Federal Ministry for Transport and Digital Infrastructure	Oversees Highways, Maritime, Rail and Air and Urban Planning
France	Ministry of Ecology, Sustainable Development and Energy	Oversees Environmental policy, Highways, Maritime, Rail and Air and Housing
Singapore	Ministry of Transport	Oversees Land, Maritime, Air and Public Transport
China	Ministry of Transport	Oversees Land, Maritime, Air and Public Transport
Hong Kong	Transport and Housing Bureau	Oversees Land, Maritime, Air and Public Transport
India	**Ministry of Civil Aviation**	**Only oversees aviation matters**

Source: CAPA Research

"India requires policy measures that address the critical importance of civil aviation to the country and which have support across relevant ministries"

CAPA has repeatedly advocated the need to have an Aviation Policy that should be viewed as a Government of India policy not just a Ministry of Civil Aviation policy (MoCA policy). That is, to recognise that many issues that affect aviation are in fact beyond the purview of MOCA alone, they touch upon the Ministries of Finance, Commerce, Petroleum and Tourism, the *NITI Aayog* (former Planning Commission), government agencies such as Immigration, Customs and Excise, and State Governments.

In order to develop an effective policy MoCA must seek and coordinate inputs from across this diverse group. Broad-based agreement including engagement with stakeholders is necessary to break the ad hoc decision making that has increased the structural challenges in the industry. A consistency of vision is required.

Chapter 4: Benchmarking of Indian aviation

Airport infrastructure

Overview

Indian airports handled 190 million passengers in FY15 which was more than three times the number of 59 million handled a decade earlier. Yet challenges remain especially the lack of an airport infrastructure policy which addresses the development of new and existing airports. The management and development of airports is with the Airports Authority of India (AAI) which as of now manages 125 airports across the country but new airport infrastructure including upgrades to runways, capacity enhancements, land allocation, approach paths and civil military co-ordination is not addressed in a comprehensive manner. India's consistent failure to develop a hub airport is reflective of the same.

Comparison of peak hour movements

With existing airport infrastructure, peak hour capacity continues to be a challenge. This was alleviated at Delhi with the construction of a third runway (though alarmingly there has been talk of restricting one of the older runways for defence movements only which would significantly reduce capacity); however capacity challenges at other airports remain, most significantly at Mumbai.

Figure 41: Number of runways, ATM handled and peak hour movements

Country	Airport	Runways	Peak hour movements[13]
United States	Chicago O'Hare	8	158
United States	Houston George Bush Intercontinental	5	104
United States	Los Angeles (LAX)	4	124
United States	Philadelphia International Airport	4	82
Germany	Munich Airport	2	89
Germany	Frankfurt Airport	3	100
France	Paris Charles De Gaulle	4	94
Netherlands	Amsterdam Schiphol	6	105
United States	New York JFK	4	89
India	Delhi International Airport	3	58
Australia	Sydney Kingsford Smith	3	79
Australia	Melbourne Tullamarine	2	57
China	Shanghai Pudong	4	77
Hong Kong	Hong Kong Airport	2	66
China	Beijing Capital International	3	95
Singapore	Singapore Changi	2	57
United Kingdom	London Gatwick	1	53
United Kingdom	London Heathrow	2	88
Dubai	Dubai International	2	55
India	Mumbai International Airport	2*	46
India	Kolkata Airport	2	22

[13] *As on: 06-Jul-2015*

Country	Airport	Runways	Peak hour movements[13]
India	Hyderabad International Airport	2*	22
India	Chennai International Airport	2*	24

Source: CAPA Research, Data pertains to 06-Jul-2015 to 12-Jul-2015, peak hour for Monday (all terminals)
**though these airports have two runways, they have essentially been functioning as single runway airports due to operational procedures and policies*

The lack of peak hour capacity consequently leads to slot issues which are further complicated by the fact that there is a lack of transparency in how these are allocated.

Air connectivity from airports

In terms of connectivity to destinations, Indian airports have much ground to cover.

Excluding Delhi and Mumbai which act as gateways to the country, the other airports in the country are lagging in terms of connectivity. Even Delhi and Mumbai compared to global counterparts are not as competitive and this is largely due to the failure of policy that enables a strong hub carrier.

Figure 42: Non-stop passenger destinations

Country	Airport	Destinations (Domestic)	Destinations (International)	Passenger Destinations
Germany	Frankfurt Airport	14	265	279
Netherlands	Amsterdam Schiphol	1	262	263
France	Paris Charles De Gaulle	16	237	253
China	Beijing Capital International	120	105	225
USA	Chicago O'Hare	160	60	220
Germany	Munich Airport	16	194	210
Dubai	Dubai International	1	208	209
USA	Houston Intercontinental	113	74	187
UK	London Gatwick	7	176	183
USA	New York JFK	59	120	179
China	Shanghai Pudong	94	88	182
UK	London Heathrow	7	169	176
USA	Los Angeles (LAX)	97	71	168
Hong Kong	Hong Kong Airport	0	142	142
USA	Philadelphia	92	37	129
Singapore	Singapore Changi	0	127	127
India	Delhi International Airport	43	59	102
Australia	Sydney Kingsford Smith	46	41	87
India	Mumbai International Airport	45	39	84
Australia	Melbourne Tullamarine	31	28	59
India	Chennai International Airport	19	22	41
India	Kolkata Airport	25	14	39
India	Hyderabad Airport	20	13	33

Source: CAPA Research, Note: Data pertains to 06-Jul-2015

Leveraging an aviation hub

India has failed to develop a hub and this is reflected in loss of passengers and cargo to other hub airports in the region like Singapore and Dubai

An examination of aircraft movements, passenger and cargo flow indicates that India lags behind several countries and has failed to capitalise on its geo-strategic location and growing traveller base. Increasingly, Indian passengers travelling abroad are connecting via hubs outside of India leading to loss of revenue, employment and output for the country. As a result Indian airports remain relatively small compared with other global hubs.

Figure 43: Airport performance

Country	Airport	ATM	Passengers	Cargo (tonnes)
United States	Chicago O'Hare	881,933	70,075,204	1,578,331
United States	Los Angeles (LAX)	636,706	70,662,212	2,001,152
China	Beijing Capital International	581,950	86,128,000	1,848,251
United States	Houston George Bush Intercontinental	508,935	41,251,015	461,491
United Kingdom	London Heathrow	470,695	73,374,825	1,499,081
Germany	Frankfurt Airport	469,026	59,566,132	2,132,132
France	Paris Charles De Gaulle	465,240	63,813,756	2,086,487
Netherlands	Amsterdam Schiphol	438,296	54,978,023	1,670,676
United States	New York JFK	422,509	53,254,362	1,432,845
United States	Philadelphia International Airport	419,253	30,740,180	432,752
China	Shanghai Pudong	402,106	51,652,000	3,181,200
Hong Kong	Hong Kong Airport	390,811	63,232,521	4,375,145
Germany	Munich Airport	376,678	39,716,877	309,361
Dubai	Dubai International	357,339	70,475,636	2,367,574
Singapore	Singapore Changi	341,386	54,093,070	1,843,799
Australia	Sydney Kingsford Smith	300,467	38,496,000	444,419
India	Delhi International Airport	300,460	39,752,819	679,841
India	Mumbai International Airport	266,201	34,993,738	685,872
United Kingdom	London Gatwick	256,350	38,122,800	88,737
Australia	Melbourne Tullamarine	227,697	31,386,794	-
India	Chennai International Airport	124,712	13,811,191	300,507
India	Kolkata Airport	96,146	10,735,531	135,789
India	Hyderabad International Airport	93,430	9,786,914	95,677

Source: CAPA Research, Annual reports, Note: Data pertains to 2014

The aviation fiscal regime

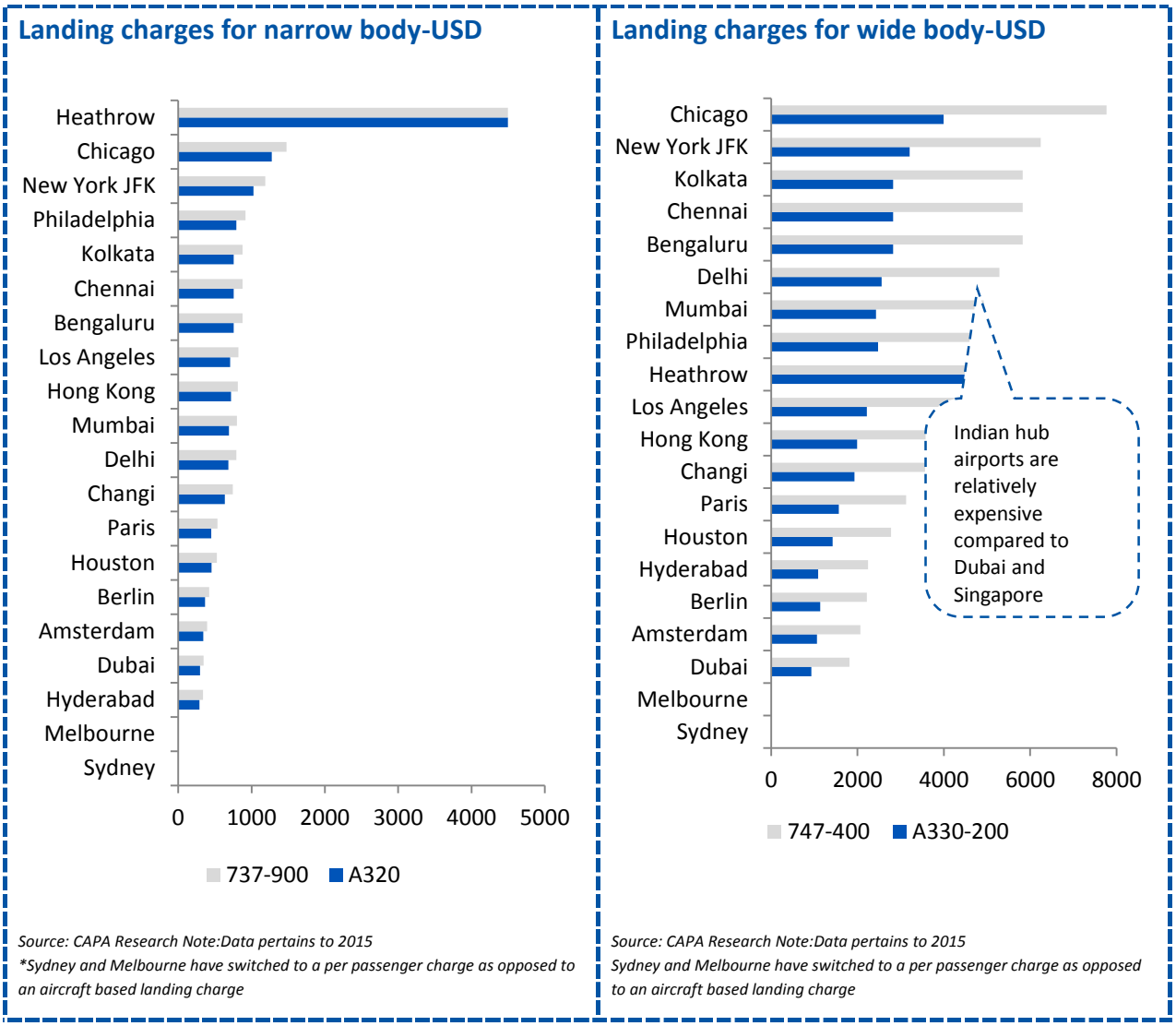
For India the fiscal regime, we believe, is not set up in an enabling manner. Broadly defined the fiscal regime falls into two categories namely taxation and charges. Taxation levels are high and the structure of charges in the manner in which they are passed through to consumers act as inhibitors to demand which is lost (either completely or to other modes). CAPA examined airport charges, ATF

prices, MRO, withholding taxes and the security charges separately which are presented in the following sections.

Airport landing charges

Pricing across the aviation value chain continues to be a concern and high airport charges, levy of development fees and intervention in pricing by the regulator hamper airline success. A free market system for pricing is not quite feasible due to lack of competition between airports and hence airport charges at most of the airports are regulated. India is an extremely price sensitive market with price being the main determinant of demand. In such a scenario, high airport charges limit passenger demand which is then captured by other modes of transport.

Figure 44: Aircraft-based landing charges at selected airports



A comparison of landing charges reveals that Indian hub airports (Delhi, Mumbai) and some other metros are expensive when compared with neighbouring hub airports.

High airport charges for wide body aircraft reduce an airport's ability to project itself as a hub airport. Delhi and Mumbai are the gateway airports for India for both inbound and outbound traffic and hence need to keep a check on these charges to remain competitive with Dubai and Changi airports.

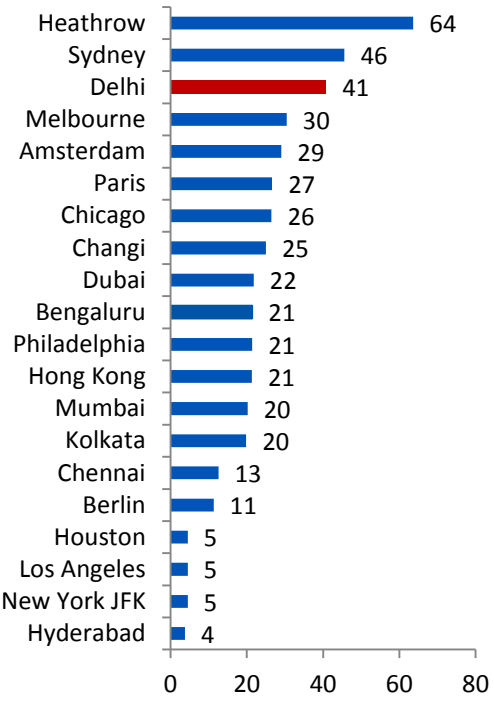
Passenger fees

Fees such as the Airport Development Fee (ADF) and User Development Fee (UDF), Security fee etc. continue to hamper passenger growth. CAPA analysis indicate that these charges increase domestic fare levels by 15-20%.

Airports under study impose various kinds of fees and charges such as development fees, aviation levies, security etc. on embarking passengers. A few airports also impose fees on disembarking passengers (e.g. Delhi, Sydney airports). These charges may vary as per the sector length and nature of flight (domestic or international).These fees and charges are passed-through and hence get reflected in the ticket price.

Figure 45: Passenger fees for international passengers

Passengers charges per turnaround for international flights-USD



Source: CAPA Research,Note:Data pertains to 2015. For Delhi airport the average fee for medium and long haul international flights has been used.

Remarks

- Globally airport operators impose passenger fees and security charges on embarking passengers.
- The primary objective of these charges is to fund passenger facilitation and to ensure the required level of security at the airport.
- Over the years many airports have started to charge airport development fees—a tool to finance airport development— which is a pass through to passenger and has a direct impact on fares.
- In a price sensitive market like India, high passenger charges have a material impact on demand.
- In FY15, the User Development Fee at Hyderabad airport was abolished—it was INR430 for domestic and INR1700 for international departures —and the airport reported strong growth of 21% and 13% on domestic and international passengers respectively

Figure 46: Passenger fees for international flights at metro airports in India

Airport	Passenger Service Fee	User Development Fee	Airport Development Fee	Total-INR	USD
Chennai	130	667	0	797	13
Mumbai	130	548	600	1278	20
Kolkata	130	1124	0	1254	20

Delhi[14]*	130	1850	600	2580	41
Bengaluru	130	1226	0	1356	21
Hyderabad	130	0	0	130	2

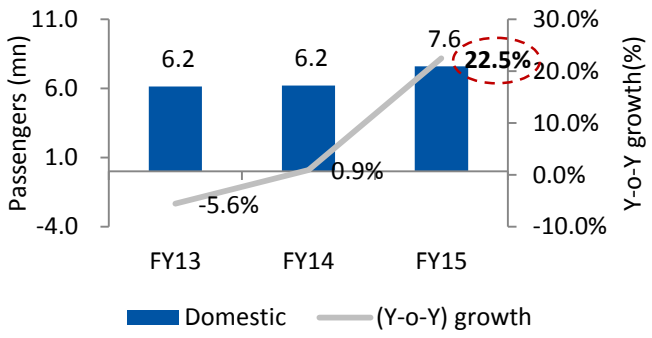
Source: CAPA Research, AERA

Note: Data pertains to 2015

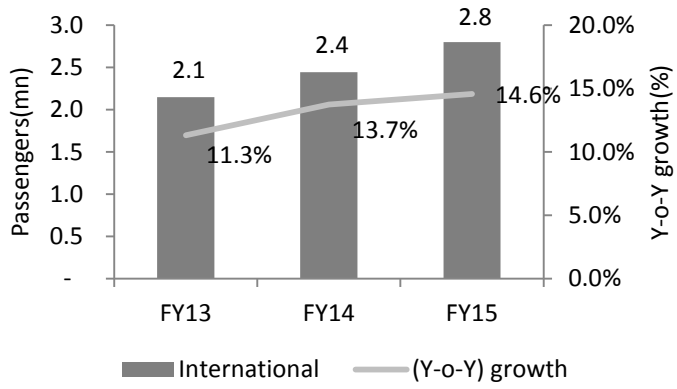
Among Indian airports, Delhi has the highest level of passenger fees. High fees increase fares which leads to some passengers preferring other modes of transport.

In FY2015, Hyderabad airport abolished UDF resulting in 22% growth in domestic traffic, compared with a national average of 13.8%.

Domestic Passenger traffic performance at Hyderabad airport



Source: CAPA Research, AAI



Source: CAPA Research, AAI

Remarks

- Domestic passenger traffic (Y-o-Y) during FY13 was negative and during FY14 grew marginally. But FY15 witnessed very strong growth.
- The user development fee (UDF) was abolished in FY15. Until FY15, UDF at Hyderabad airport was INR 430 per embarking passenger on domestic services—and this could be a reason for the strong growth.
- The growth of international traffic was also well above the national average which could be attributed to the abolition of UDF which was INR 1700 per embarking passenger at the airport.

Other Indian airports can consider Hyderabad airport as a test case to understand the benefit of bringing down user charges and fees to support passenger growth. Other airports in the region seek to gain traffic by offering competitive charges for the services offered.

[14]*Delhi airport imposes UDF based on length of haul (For short, medium and long haul UDF is INR565, INR895, INR1,130 respectively, hence average has been taken. Delhi airport also imposes UDF on disembarking passenger of INR311(Dom) and INR712 (Intl))*

Note3: For currency exchange Jan-Sep 2015 average exchange rate is considered

Note4:Passenger service fee is excluding taxes

Figure 47: Passenger charges at Singapore, Dubai and Hong Kong

Passengers charges per embarking for international flight-USD

Airport	Passenger Service Charge (SGD)	Aviation Levy (SGD)	Passenger Security Service Charge (SGD)	Total (SGD)	Total (USD)
Changi airport terminal 1,2,3	20	6	8	34	25

Airport	Passenger Service Charge (AED)	Passenger Security and Safety Fee (AED)	Total (AED)	Total (USD)
Dubai International Airport	75	5	80	22

Airport	Air Passenger Departure Tax (HKD)	Passenger Security Fee (HKD)	Total (HKD)	Total (USD)
Hong Kong International Airport	120	45	165	21

Source: CAPA Research
Note1: Data pertains to 2015,
Note2: For currency exchange Jan-Sep-2015 average exchange rate is considered

Indian airports need to remain competitive if they wish to project themselves as hubs. And they must also seek to rein in capex costs in order to reduce the revenue requirements. Other airports further seek to encourage new services by offering incentives for airlines that are growing and launching new routes.

Figure 48: Air service incentives at selected airports

Airport	Air Service Incentive
Miami	▪ 100% discount on landing fees in Year 1 for new domestic and international services ▪ 100% discount on landing fees in Years 1 and 2 for new international services to Brazil, Russia, South Africa, India, China, or other Asia Pacific countries ▪ Airport operator will provide marketing support, matching the airline dollar-for-dollar, up to USD50,000 for priority new international services
Houston	▪ Marketing support of USD 250k for a daily service to a new domestic destination and USD 400k for a new international destination. ▪ 100% discount on landing fees and inspection charges for 2 years for new international destinations.
Atlanta	▪ 100% discount on landing fees for new international destinations for one year (up to two years for priority emerging markets) ▪ Airport operator will provide marketing support, matching the airline dollar-for-dollar, up to USD 50,000 for new international services
Aena Spain	▪ 100% rebate on passenger service charge for new routes, declining to 25% in Year 3 ▪ 75% rebate on passenger service charge for year-on-year incremental passengers, declining to 25% in Year 3

	▪ 35% rebate on passenger service charge for year-on-year incremental transit passengers
Dublin	▪ 100% rebate on passenger service charge for year-on-year incremental passengers ▪ EUR 6 incentive per passenger for year-on-year growth incremental transit passengers, declining to EUR 2 by Year 5 ▪ 100% discount on landing, parking and passenger fees in Year 1 for services to new long haul destinations, declining to 25% discount by Year 5 ▪ 100% discount on landing, parking and passenger fees in Year 1 for services to new short haul destinations, declining to 50% discount by Year 3
Fraport	▪ EUR 4 incentive for incremental short haul passengers above 1% year-on-year growth, increasing to EUR 8 above 6%. ▪ EUR 5 incentive for incremental long haul passengers above 1% year-on-year growth, increasing to EUR 10 above 6%. ▪ New entrants are eligible for lower incentives subject to meeting minimum traffic volumes and using low noise aircraft
Helsinki	▪ 70% discount on landing fees in Year 1 for services to new long haul destinations, declining to 50% discount by Year 5 ▪ 70% discount on landing fees in Year 1 for services to new short haul destinations, declining to 50% discount by Year 3 ▪ 70% discount on passenger fees in Year 1, declining to 50% discount by Year 2
Paris	▪ 30% discount on passenger fees on incremental traffic growth above 6.4%
Vienna	▪ 100% discount on landing fees in Year 1 for services to new long haul destinations, declining to 40% discount by Year 4 ▪ 80% discount on landing fees in Year 1 for services to new European destinations, declining to 40% discount by Year 3 ▪ 80% discount on landing fees in Year 1 for additional frequencies to long haul destinations, declining to 40% discount by Year 3 ▪ 60% discount on landing fees in Year 1 for additional frequencies to Eastern European destinations, declining to 40% discount by Year 2 ▪ EUR 12.50 incentive per passenger for year-on-year growth in transit passengers
Singapore	▪ 50% discount on landing fees for long haul services >9 hours. ▪ SGD 10 incentive per passenger for year-on-year growth in transit passengers
Tokyo	▪ 50% discount on landing fees for new routes ▪ 50% discount on incremental year-on-year landing charges

Source: CAPA Research

ATF pricing continues to be prohibitive and the differential on domestic fuel can be 50-60% higher than overseas airports

Airport	Domestic Fuel price per litre	International Fuel price per litre
Singapore	n/a	USD 0.47
Hong Kong	n/a	USD 0.49
Dubai	n/a	USD 0.52
New York	USD 0.52	USD 0.50
Los Angeles	USD 0.54	USD 0.50
Sydney	USD 0.62	USD 0.53
Melbourne	USD 0.63	USD 0.54
London Heathrow	USD 0.64	USD 0.53
New Delhi	USD 0.77	USD 0.61

Source: CAPA Research

India has relatively high withholding taxes on aircraft leases

Payments on cross-border operating leases are generally considered as royalty payments. Some countries impose withholding taxes on royalty payments. Example of such taxes are presented below. However, this is for indicative purposes only as bilateral Double Taxation Avoidance Agreements (DTAA) between certain countries may allow for lower rates or waivers for aircraft leases. Ireland for example has a network of favourable DTAAs in this regard which may make it beneficial to structure aircraft leases through there.

Location of Airline	Withholding tax on royalty payments
India	10%
Australia	10%
China	6%
Singapore	5%
Hong Kong	3%
USA	0%
UK	0%
Germany	0%
France	0%
UAE	0%

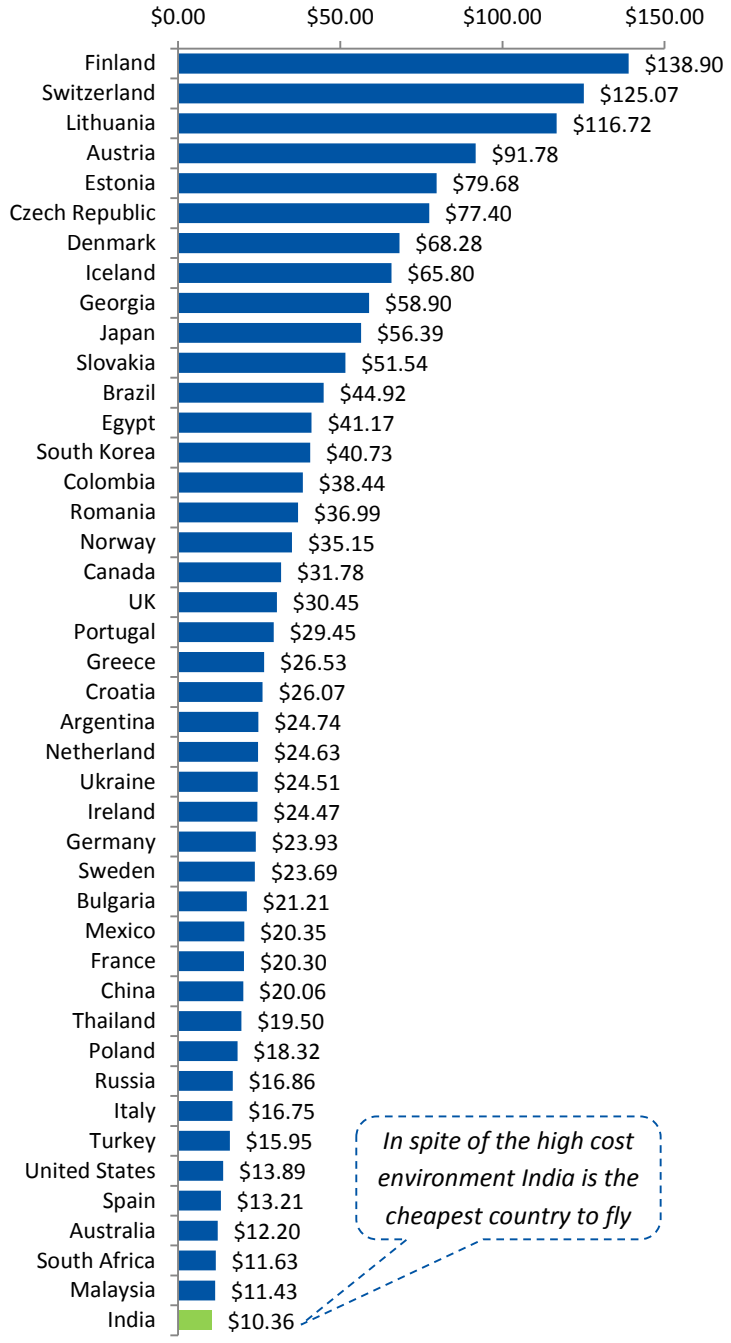
Source: PwC

Comparison of airfares

India is the cheapest country to fly 100 km amongst 43 countries sampled from across the globe. For other modes of transport (train, bus) fares in India were cheap but not the cheapest amongst other countries considered under the study.

Figure 49: Benchmarking of airfares in selected global markets

Average air fare for 100 km (USD)



Remarks

- India's ranking on lowest fares for 100 km by mode of transport:

Mode of transport	Rank
Air	1st
Bus	5th
Train	30th

Source: CAPA Research,GoEuro,

Note: Data pertains to Jul-2014

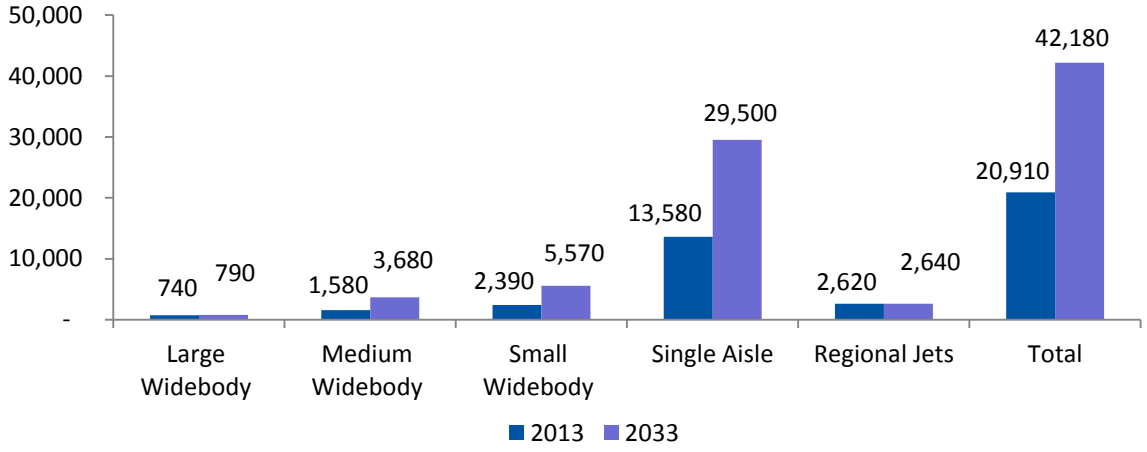
Airlines fare are dynamic in nature and a function of season, city pair, time of day, day of week, service etc. Seasonality and cyclicality plays a critical role in airline pricing.

In India, airline prices are extremely competitive throughout the year. At times, the difference between full service and low cost fares in economy class is in the range of just INR 200-400. Carriers have been offering fares below their costs and incurring heavy losses. India has seen strong traffic growth but this has largely been profitless volume.

Fleet comparisons

While commercial passenger aviation will always remain at the apex of the value chain a mature aviation ecosystem is also likely to have a diverse mix of aircraft including general aviation and freighters.

Figure 50: Global commercial airline fleet, 2013 and 2033 forecast



Source: CAPA Research, Boeing Global Forecast

The total fleet size is projected to almost double over the next 20 years after taking into account replacement of ageing aircraft

The small fleet size in India has an impact on the entire aviation value chain

The relatively small commercial airline fleet in India has an impact on the availability of manpower, expertise and training facilities.

Figure 51: Country wise active fleet size

Type of aircraft	Australia	China	Hong Kong	India	Singapore	UAE	UK	USA
Narrow body Jet	244	2036	42	302	71	122	534	3540
Regional Jet	93	123		8		3	61	1807
Turboprop	155	24		43		10	107	296
Wide body Jet	72	287	193	47	121	321	203	1063
Grand Total	**564**	**2,470**	**235**	**400**	**192**	**456**	**905**	**6,706**

Source: CAPA Fleets database
Note: Data pertains to 2015

To capture the demand that will be generated by initiatives such as 'Make in India' and the rise of manufacturing, the country must focus on developing its airfreight capability

The potential of the cargo market has also not been leveraged and this is reflected in the negligible Indian freighter capacity. While an argument could be made that most air cargo travels in the belly hold of passenger aircraft, India's passenger fleet is dominated by narrow bodies and regionals (88%) which do not have significant belly capacity.

As India develops its manufacturing capacity in areas such as pharmaceuticals, perishables and high-tech goods, freighter capacity will be critical. If Indian carriers are unable to operate freighters viably this demand will again be captured outside the country to the detriment of employment and economic output.

Figure 52: Country wise freighter aircraft

Type of aircraft	Australia	China	Hong Kong	India	Singapore	UAE	UK	USA
Freighters	30	110	40	7	8	37	41	1496
Passenger	586	2388	195	395	184	425	875	6076
Freighters/total fleet	4.8%	4.4%	17.0%	1.7%	4.1%	8.0%	4.5%	19.8%

Source: CAPA fleets database
Note: Data pertains to 2015

Aviation Security Practices and Regulations

Security has been a matter of concern for the industry for decades. Countries have defined the security regulations and responsibilities that each stakeholder has to follow. Some countries allow operators to sub-contract their security staff requirements whereas others require them to recruit staff in-house, as in India, which becomes a cost and administrative burden.

Policy/Regulation for the Following	India	US	UK	Australia	Singapore	Germany	France	Hong Kong	Dubai
Outsourcing of security personnel permitted	✗	✗	✓	✓	✗	✓	✗	✗	✗

Below are the requirements for each country covered in the study:

Country/Region	Allows sub-contracting of the security staff	Requirements
India	No	*Screening shall be performed by such officer who has been certified by the Commissioner. Every aircraft operator shall, with the approval of the Commissioner, make and comply with the aircraft operator security programme in accordance with the national civil aviation security programme and any amendment to such programme shall be made after the approval of the Commissioner. The airport and airline have to recruit their own security personnel and they cannot outsource it to a third private party.*
Australia	Yes	*Currently, no national licensing exists for the security industry. Eight different state and territory licence requirements are regulated by up to 17 agencies and there is no effective mutual recognition across all jurisdictions. A proposal to harmonise security licensing through the introduction of minimum licensing requirements across state jurisdictions was considered by the Council of Australian Governments (COAG) in July 2008. This proposal has been referred to a COAG working group, with recommendations expected in coming years.*

US	No	*Each aircraft operator must designate and use an Aircraft Operator Security Coordinator (AOSC). The AOSC and any alternates must be appointed at the corporate level and must serve as the aircraft operator's primary contact for security-related activities and communications with TSA, as set forth in the security program. Either the AOSC, or an alternate AOSC, must be available on a 24-hour basis.*
UK	Yes	*The security screening services are allowed to be outsourced to third party and private security service providers. The Government of UK publishes a list of approved security providers for each airport in UK and they are regulated by the Department of Transport (DfT).*
China	No	*Security protection in civil aviation shall be conducted under the principle of unified administration and responsibility assumed by each department for its own work.* *The public security organs of civil aviation shall be responsible for the unified administration, inspection and supervision of the work for security protection in civil aviation.*
Hong Kong	No	*Security screening services are provided by the company called AVSECO which is jointly owned by the Airport Authority Hong Kong (AAHK) and the Hong Kong Special Administrative Region (HKSAR) Government and is led by their Executive Director, who reports directly to the Company's Board of Directors.*
Germany	Yes	*Though it is outsourced to a third party, Germany uses a centralised system where the responsibility for all screening activities lies with the regional departments of the German Border Police (BGS), part of the Ministry of Interior (BMI) which inherited the primary responsibility of security activity from the German government. The BMI issues tenders while the German Federal Police is responsible for preventing security breaches at airports.*
Singapore	No	*Regulated by the National Civil Aviation Security Authority which is responsible for the development, implementation and maintenance of the National Civil Aviation Security Programme in Singapore to safeguard civil aviation operations against acts of unlawful interference.*
Dubai	No	*Airport Operators, Aircraft Operators and other required entities shall nominate a person in their respective organisation responsible for coordination and implementation of security measures in accordance with national requirements.*

Source: CAPA Research

Efficiency through optimum use of Airspace

Airspace is a finite resource and must be used efficiently to sustain traffic growth.

Figure 53: Airspace constraints need to be addressed so as to ensure adequate capacity for growth

Country	% Airspace used for civilian movements
India	65%
USA	75%
China	34%
UK	97% - 98%
UAE	47%
Singapore	>95% (less over land)
Australia	94%

Source: CAPA Research

- Currently, 65% of Indian airspace is controlled by the Airports Authority of India with the balance being with the military. This poses some unique challenges especially with regards to routings where certain direct routes cannot be used

Routes selected for Flexi use of airspace

- Delhi-Mumbai
- Delhi-Kolkata
- Delhi-Chennai
- Delhi-Hyderabad
- Delhi-Bengaluru
- Kolkata-Chennai
- Chennai-Mumbai

- Flexible use of airspace can have immediate positive impacts for airlines. For instance, fuel savings of 2,029,380 kg/year and CO2 reduction of 6,394 tonnes/year are estimated due to direct routing on seven city pairs.
- On international routes, fuel savings of 80,233,570 kg/year and CO2 reduction of 25,277 tonnes/year are expected due to re-alignment and re-routing of routes through reserved airspace.

Airspace in a country is segregated between civil and defence operators. In India there are multiple restrictions on the use of airspace which results in longer routes between two city pairs. Lately, the Indian government has proposed the flexible use of airspace with the consent of defence authorities.

Figure 54: Flexible use of airspace in other countries

Country	Flexible use of Airspace Initiatives
USA	High level of coordination. Restricted areas only up to certain flight levels. Due to constant engagement industry feedback incorporated as and when possible.
China	In 2013, due to temporary routings as part of the FUA development in China, 77,800 tonnes of fuel was saved from 416,270 movements. That corresponds to 245,070 tons of CO2. The distance saved due to these routes was 1.44 million km. As of Jan-2015, there are about 140 temporary routes.
UAE	Airway M318 opened for Summer 2014 within military area OMR54 enabling 3-12 minute reduction in flying time (airport dependent). Size of OMR50 and OMR 51 reduced leading to greater civilian capacity and efficiency.
Singapore	Operational trials over Paya Lebar are ongoing. Benefits are yet to be realised.
Australia	Due to the FUA program, Australia reduced its restricted areas from 81 to 15.

Source: CAPA Research

India can perhaps borrow best practices from other countries to make efficient use of available airspace.

Efficiency through better procedures of approach

A focus on performance based navigation procedures including design and implementation is critical to ensuring capacity and performance enhancements.

Efficiency in the aviation system can be achieved through implementing Performance based Navigation Procedures for en-route, landing, and take-off stages of flight that permit more direct routings. These will indeed reduce the airport congestion and makes air traffic flow much safer and efficient.

Figure 55: Implementation of performance based navigation

Country	Performance Based Navigation					
	Approach - RNAV-1 and RNP-1	**RNP AR, RNP APCH**	**En-route - RNAV 5**	**En-route - RNP 10**	**En-route - RNP 0.1**	**APV 1**
India	RNAV-1/RNP-1 SIDS and STARS have been implemented at 10 international airports	RNP - APCH has been implemented at Cochin	13 city pair routes comprising of separate arrival and departure routes have been implemented resulting in increased airspace capacity at preferred flight level	Operations on RNP 10 are conducted on 16 routes and 50 NM longitudinal separation minima will be applied on specific segments in these routes.	GAGAN SBAS has been made available for RNP 0.1 operations over the entire Indian FIR from 14-Feb-2014	Approach path with vertical guidance (APV-1) is expected soon
USA	Used widely					As of April 2015, there are 3534 WAAS LPV approach procedures serving 1725 airports in the US
China	In the TMA, among the 202 airports, PBN procedure has been completed in 116 airports accounting for over 70% of the airports. 83 airports have completed PBN procedures by the end of 2014. For the en-route area, there are 20 RNAV routes accounting for 21% of the total mileage of air routes in China. Current PBN routes contain: 3 RNAV-2, 3 RNAV-5, 1 RNP-1, 10 RNP-4 and 3 RNP-10 routes. In 2013, China commenced PBN operations on 6 major trunk routes. Subsequently, from the experience gathered, in Feb-2015, PBN operations on 40 routes in the Xinjiang Province including 11 RNAV and 29 RNP-4 routes were launched.					
UK	RNAV 5 compliant en-route					
UAE	Other than Ras Al Khaimah, all other airports have RNAV-1 STARs and SIDs. All instrument runway ends for LNAV/VNAV approaches by 2018. 80% was implemented by Nov 2013					
Singapore	En-route airspace at RNP 10. RNAV 5 for areas within surveillance. For approach, PBN procedures are in place as back-up for conventional ground based instrument procedures since 2007 on 2 runway ends at Changi runway					

	1. At runway 2, Baro-VNAV approaches were introduced as backup procedures at Changi, RNAV SID and STARs are available since 2006.
Australia	Oceanic - RNP4, En-route - RNP2, Terminal - RNP1, Approach - RNP-APCH (Baro VNAV preferred)

Source: CAPA Research

Efficiency through better Air Traffic Flow Management

Better Air Traffic Flow management (ATFM) can help free up capacity limitations while accommodating additional demand

The time has come to move away from controlling air traffic to better managing it. India has itself pursued a number of initiatives in this area but much can be learned from other countries.

Figure 56: Air traffic flow management initiatives

Country	Air Traffic Flow management initiatives
India	India is still in the process of setting up its C-ATFM. Phase 1 involving setting up of a Central Control and Command Centre (CCC) at Delhi and Traffic Management Units (TMUs) at Delhi, Mumbai, Chennai, Bengaluru, Kolkata and Hyderabad to be completed by Sep-2015. Phase 2, a nation-wide ATFM system is expected to be in place by 2016 and phase 3, the capability of the C-ATFM to expand as a regional ATFM would be in place by 2018.
USA	Has established ATFM in place for demand/capacity balancing. Priority is on tactical flow management, in the gate-to-gate phase rather than in the strategic phase to maximise system throughput. Tactical methods like alternate routings, ground delay programs, and severe weather avoidance programs are utilised in favour of strategic initiatives like demand capping.
China	China has established A-CDM at 23 airports in phase 1. Phase 2 is to establish CDM at 44 airports. The 3rd phase is to establish CDMs at all the remaining airports. Then the central ATFM will be established. In 2013, ATMB (Air Traffic Management Bureau) introduced flow management capabilities at the Beijing ACC.
UK	NATS is trialling Cross Border Arrival Management (XMAN). Based on delay prediction in Heathrow, ATC in Netherlands, France, Scotland and Ireland will be asked to slow down aircraft up to 350 miles from London to minimise delays.
UAE	Complete ATFM study conducted in 2012 and 2013 suggested 53 recommendations for improvement and will result in operational trials and concept of operations.
Singapore	Singapore, along with Hong Kong and Bangkok, is involved in setting up tripartite ATFM/CDM nodes aiming to provide predictability of operations through common situational awareness between the three ANSPs. Phase 1 of the operational trial is due in Jun-2015
Australia	Australia has an automated ATFM system where projected demand and capacity are balanced through Traffic Management Initiatives (TMIs), mostly ground delay programs (GDP) and through assignment of ATFM slots. In 2014, the ATFM program has resulted in 8,700 hours of airborne delay time or an average of 1.1 minutes per flight, estimated at AUD18.2 million.

Regional connectivity policy

While the Indian government forces airlines to fly unviable routes to connect remote regions, government in other aviation markets tend to incentivise airlines to fly unviable routes

The ability for airlines to connect far flung regions is unsurpassed. Several countries leverage this feature to ensure that remote regions of a country are connected. However, the difference in overall thinking towards policy is highlighted below:

Figure 57: Comparison of regional and remote connectivity policy

Country	Connectivity policy	Mode of implementation
USA	Essential Air Services Program and the Small Community Air Service Development Program (SCASDP)	Direct subsidy to air carriers and grants to communities
UK	Public Service Obligations	Subsidy to carriers on non-viable routes
Australia	Regional Aviation Access Program (RAAP), Remote Airstrip Upgrade funding and Remote Air Services Subsidy Scheme	Assistance for remote airport works and upgrades. Subsidies to essential flights to remote communities.
Germany	Public Service Obligations	Subsidy to carriers on non-viable routes in addition to price ceilings on fare levels
France	Public Service Obligations	Subsidies in addition to the ability to grant monopoly status or have few airlines fly route
China	Subsidy for routes to remote areas	Direct subsidy
India	Route dispersal guidelines	Airlines forced to allocate capacity to remote regions

Source: CAPA Research

In addition, the process for determination of the routes is based on much closer stakeholder engagement in other markets.

Figure 58: Process of determining routes for regional and remote connectivity

Country	Engagement with stakeholders	Procedure
USA	Yes	Routes determined via consistent engagement
UK	Yes	Routes tendered out. Subsidy amount only determined after a cost benefit analysis conducted
Australia	Yes	Routes determined via engagement with communities. For specific flights navigation fees may also be waived or refunded
Germany	Yes	Routes tendered out and subsidies allocated
France	Yes	Routes tendered out
China	Yes	Routes determined
India	No	Routes determined by government; all airlines forced to fly routes; no subsidies

Source: CAPA Research

Bilateral policy

There is no structured framework for a bilateral policy, and in fact generous bilateral agreements have been entered into with countries that have developed hubs with far better connectivity and several sources of competitive advantage, thereby effectively resulting in leakage of traffic (defined as traffic that is originating in India but connected to a final destination via a hub outside of India).

Bilateral agreements with the UAE offer around 135,000 weekly seats to its airlines, which is much higher than other key markets such as Singapore (28,600 seats per week), Qatar (24,292), Thailand (23,609), Malaysia (22,531). India's most liberal bilateral agreement is with the U.S. where Indian carriers are afforded the right to have "any number of services with full traffic rights from/to any intermediate/beyond point." This excludes domestic U.S. routes.

CAPA believes that the allocation of bilateral entitlements must be transparent and give consideration to the overall national interest.

Logistics and Transport

The logistics and transport sector is often overlooked in the context of aviation. This represents both a challenge and an opportunity given the increasingly complex supply chains globally and the emerging "on demand" e-commerce consumer model.

For India, the logistics infrastructure though improving gradually still has a way to go and additional investment and focus in this sector and integration with aviation can spur this growth momentum. Intermodal connectivity is challenged at best and overall the policy must be towards an integrated network and not standalone components.

In India the lack of technology and prevalence of manual procedures and processes also impacts clearance times. Multiple inspections again add to clearance times in addition to administrative and storage overhead for shippers, transporters and airlines. The inspections and clearance times were detailed by the World Bank Logistics Performance Index report as highlighted in the table below.

Figure 59: Customs inspections and clearance times for imports

Country	% of shipments meeting quality criteria	Clearance time (days)*		Physical inspection	Multiple inspection
	% of shipments	**Without physical inspection**	**With physical inspection**	**% of shipments physically inspected**	**% of shipments**
Australia	92	0	2	2	1
China	76	2	3	7	2
France	90	0	1	—	—
Germany	76	1	1	3	3
Hong Kong	95	0	1	1	1
India	67	1	2	22	8
Netherlands	94	0	1	3	2
Singapore	92	0	1	5	3

United Arab Emirates	88	1	1	5	2
United Kingdom	77	1	1	3	2
United States	87	1	2	4	2

Source: CAPA Research, Logistics Performance Index, 2014

**Clearance time - Time taken between the submission of an accepted customs declaration and notification of clearance.*

The result of multiple custom inspections coupled with infrastructure constraints at Indian airports is an increase in the dwell time of air cargo in the terminals.

Figure 60: Air cargo dwell time at Indian airports

Airport	Export – hours	Import - hours
Delhi	36	119
Mumbai	48	96
Bengaluru	36	48
Hyderabad	12	36
Kolkata	48	72
Chennai	48	72

Source: CAPA Research

At other global airports the dwell time for imports can be a matter of hours rather than days. India needs to invest in infrastructure, technology and training, as well as streamline processes to improve the efficiency of the system.

Chapter 5: Recommendations

Indian aviation is blessed with undeniably strong fundamentals which include:

- A large and fast growing domestic market with the potential for sustained long-term growth;
- A strategic geographic location at the crossroads of the key intercontinental routes;
- A large global diaspora that continues to maintain strong ties to India;
- An abundance of natural, historical and cultural attractions to attract tourists and stopover traffic;
- A competitive and growing pool of English language speakers and engineers that could provide aviation services from maintenance to back-office functions and training to the global industry;
- A tradition of service and hospitality well-suited to delivering a high quality inflight or tourist experience.

The fact that India is not a global aviation power today despite these favourable characteristics is because it has chosen not to be by creating an environment that has actively hindered its growth and competitiveness. In contrast, governments in the UAE have leveraged a similar geographic location to effectively serve India's huge market, using a talent pool itself drawn largely from India. India had its back turned to the opportunities in global aviation in the 1990s and allowed competing hubs to move ahead. It cannot make that mistake again.

The good news is that most of the key challenges faced by Indian aviation are man-made or self-imposed. This means that they are surmountable. India has the opportunity to become a global aviation power should it wish to become one. It is a choice, but it requires decisive and committed action.

We believe that three steps are involved:

1. **Recognition of the role of aviation:** Only when the very highest levels of government recognise and declare that aviation is a sector of strategic importance that is essential to delivering on the administration's economic objectives, can we address the distortions that are holding back the industry.
2. **Removal of current distortions in the policy and regulatory framework:** There are a number of issues in the aviation industry today which have remained unresolved for many years and which continue to weigh down on the sector. Addressing the following matters will provide for a clean slate on which to build a new strategic architecture for the industry:
    - Strengthening of the institutional framework of the Ministry of Civil Aviation to be able to formulate, implement and monitor a new policy which is reflective of a modern, sophisticated aviation sector;
    - Ensuring that the DGCA has the resources and expertise to manage the rapid growth and increasing complexity of the sector. This is critical for safe and sustainable growth and failure to do so could represent a key structural barrier. The appropriate talent, technology and training must be deployed. Rules and regulation must be modernised to reflect the complexity of the industry today in both technical and commercial domains, a process which may require the assistance of experts. Steps must be taken

to move towards the establishment of an independent and professional regulator funded by the industry;

- A new legal framework should be established to replace the archaic Aircraft Acts which date from the 1930s and are increasingly unsuited to a modern aviation system;
- The Bureau of Civil Aviation Security must be recast with a new focus on upgrading management, technology, training and intelligence, conforming to international standards;
- A decision on the future of Air India and the Airports Authority of India is essential. The government's ownership of these two PSUs continues to have a negative impact on policy decisions and timing. And when the government has so many pressing social and economic priorities there is little justification for spending close to USD1 billion per annum of state funds on subsdising the national carrier when there are multiple, competent private operators available to provide air services;
- The old Route Dispersal Guidelines must be replaced with a policy that delivers better regional connectivity outcomes and does not burden airlines with the obligation to operate unviable routes;
- India's bilateral policy settings should be clarified to provide transparency and predictability allowing carriers to better plan and meet India's national interests and economic ambitions;
- The 5 year/20 aircraft rule should be abolished. This regulation is discriminatory against Indian carriers and serves no clear purpose. Indian carriers are likely to be the best placed to promote India as a tourism destination and should instead be encouraged to provide international connectivity if they wish to do so;
- Visibility should be provided on the conditions under which new airline licences will be awarded and the licence application process and timelines should be made transparent;
- Restrictions on the ability for airlines to generate ancillary revenue e.g. the ability to offer fares with zero baggage allowance, should be lifted completely;
- There should be closer engagement with state and local governments on aviation matters such as sales taxation on aviation turbine fuel, and urban planning and land acquisition for airports and surface connectivity to airports. All levels of government should be educated on the positive contribution that aviation can deliver to state and local economies;
- Taxation on in-country aircraft maintenance facilities should be lifted. The tax is generating limited revenue in any case because it is driving airlines to send their aircaft overseas. Reducing the fiscal burden on domestic providers would enhance their competitiveness and create jobs in India. This would be consistent with the 'Make in India' initiative;

- Tax incentives should be provided for investors in infrastructure and training. Skills development is a critical and often overlooked area. Historically when GDP growth has exceeded 6% skills shortages have emerged. Operational crew such as pilots and engineers, or air traffic controllers, require several years of training and supply cannot be created overnight. Airlines with insufficient resources literally have to ground aircraft.

The number of issues to be addressed is not insignificant. In order to develop momentum it would be advisable to focus on areas where quick wins can be achieved. These could possibly include:

- Harmonisation and modernisation of rules and regulations at the DGCA;
- Lifting all restrictions on ancillary revenues, includes fares with zero baggage allowance;
- Abolition of the 5 year / 20 aircraft rule;
- Reducing or removing taxation on aviation turbine fuel and 3rd party maintenance facilities.

3. **Formulation of a new and comprehensive civil aviation policy:** Having addressed the key distortions in the market, India will have an open, efficient and liberal aviation sector. The next step will be to support this with a clear, formalised long-term vision and policy, which is professionally and independently regulated and where competitive dynamics will determine market outcomes.

   By this stage Indian aviation will be set-up to be a privatised industry in which the government's role is limited to safety and competition oversight and long term planning towards achieving a stated vision for how aviation can provide connectivity and support national economic development.

   The Ministry should develop a long term plan for the sector through to 2050 and beyond with milestone objectives for 5, 10, 20 and 35 years. This plan should not be developed in isolation but should link with India's national transport policy within a multi-modal framework as well as support India's tourism strategy.