Deloitte.

Ministry of Civil Aviation
Government of India

International Exhibition & Conference on Civil Aviation
WINGS INDIA 2018

FICCI



Indian aviation:
Bracing to ride out headwinds

"Establish an integrated eco-system which will lead to significant growth of civil aviation sector, which in turn would promote tourism, increase employment and lead to a balanced regional growth."

National Civil Aviation Policy



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Foreword – HMCA



Shri Suresh P Prabhu
Honourable Minister of Civil Aviation

India's strength is its numbers. The growing middle class and the consequent demand for air travel have helped place Indian aviation among the markets that have grown the most in the last few years.

A number of triggers have helped boost this unprecedented demand–low-cost carriers, increased competition, liberalized and friendlier operating climate, technology, and above all, a regional market, which is off to a good start. UDAN is on its way to expanding the overall aviation network, benefiting passengers with enhanced air services and affordable flying across the country.

The second phase of UDAN seeks to go further and address the problem of air connectivity in even more difficult, or 'priority' areas through helicopter services in the North-East, J&K, Uttarakhand, and Himachal. Air travel is now a necessity rather than a product of elite consumption.

When Pakyong in Sikkim commissioned its new airport, in June this year, it was important not just, because a state without an air link was being connected to the nearest major airport at Kolkata – otherwise hours-long ride by road. It was equally significant because, in the process, the people and industries of Sikkim would also find connectivity with the rest of the country as a whole. The benefits are not just incremental!

Improved air connectivity will further boost spending on travel and tourism. With enhanced regional air connectivity, the next spurt of growth could come from air cargo. The idea of hub airports in every state holds great promise in this regard. While there are challenges for undertaking freighter operations immediately, sizeable volumes can move as belly cargo. Emerging multi-skill development centres like the one set up at Chandigarh airport would help boost further employment opportunities in the sector.

WINGS India 2018, Ministry of Civil Aviation (MoCA)'s plenary event for Indian aviation, was centred on the theme of positioning India as a global aviation hub. As this knowledge paper suggests, the industry should focus on being robust enough to withstand any headwinds that might slow it down from becoming a global hub. I congratulate MoCA, FICCI, and Deloitte for publishing the report, "Indian Aviation: Bracing to ride out headwinds", a post-event knowledge paper, for WINGS India, 2018.

I look forward to the positive developments these insights will trigger.

जयंत सिन्हा
Jayant Sinha



सत्यमेव जयते

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MESSAGE

The Aviation sector has been growing consistently at a fast rate. Air passenger traffic has doubled in the last four years. The country had ~130 million passengers in FY 2018 travelling by air annually, which is more than the number of passengers that the Indian Railways carries in AC (air-conditioned) passenger coaches. Furthermore, the Aviation sector is poised for a significant step up with a planned purchases of 900-plus aircraft to meet fast-growing demand.

The Aviation sector has been able to realize the vision of the Hon'ble Prime Minister of giving flight to the aspirations of the common-man through the Regional Connectivity Scheme or UDAN. Connecting 56 unserved airports and 31 heliports through more than 400 routes is a landmark achievement: it dramatically strengthens the country's growth story. Bringing air connectivity to these Tier 3 and 4 cities was inconceivable just a few years ago.

By 2035, the Aviation sector is expected to directly employ approximately 10 lakh people. Jobs in Aviation represent 'frontier' jobs -- such jobs are highly productive and hence well-paying; they also generate many indirect jobs.

Wings India 2018 was successful in bringing together all industry stakeholders and the government in identifying a coordinated action plan needed to take Aviation to greater heights. The event had roundtables and award ceremonies. As we plan for Wings 2019, we should recommit to this purpose and ensure one-to-one meaningful and outcome-oriented meetings for aviation companies with States and cities.

I would like to thank Ministry of Civil Aviation, FICCI and Deloitte for publishing this post-event Knowledge Paper, "**Indian Aviation: Riding Strong Tailwinds**", for Wings 2018, and highlighting the steps the industry and the government must adopt to prepare for the times ahead.

(Jayant Sinha)

Date: August 01, 2018

Foreword – Deloitte



Peeyush Naidu
Partner
Deloitte Touche Tohmatsu India LLP

Transportation is a crucial element for the growth of a developing economy. Air transportation truly delivers when it becomes the choice of travel for the multitudes. For that reason –and more importantly to unlock the economic potential of India's cities–, it is important to tap into the country's huge latent demand for air travel in every region, howsoever remote and inaccessible.

It gives me pleasure to see the growing significance of a preliminary study undertaken by Deloitte in 2013 that identified the potential for air connectivity in remote areas. Today, the Ministry of Civil Aviation is implementing the Regional Connectivity Scheme (RCS) and UDAN is spreading its WINGS across the country, changing the way India travels.

The knowledge paper **Indian Aviation: Bracing to Ride out Headwinds** is the result of WINGS India 2018, the flagship aviation industry event organized jointly by the Ministry of Civil Aviation (MoCA) and the Airports Authority of India in association with the Federation of Indian Chambers of Commerce and Industry. The theme of the four-day biennial event was 'India-Global Aviation Hub' – with focused roundtables on the themes General Aviation, Skill development, Tourism, and Air cargo. The potential for integrating these areas with regional air operations was the recurring thread. The paper through discussions with MoCA and FICCI, presents a view on how best Indian aviation can stay on course to high growth and attempts to address issues such as: How can the Government facilitate sustaining traffic on regional routes? How can the community innovate? How can cargo movements enhance viability of RCS airports? What strategies can be used for speeding skilling requirements? These, and some other, are questions that we should start thinking about.

Airport-centred urban development, general aviation and tourism are some ways to hedge potential risks to the sector when demand may begin to slow down due to some reason. Cargo operations is another big opportunity in the non-passenger business yet to be adequately exploited. However, all this groundwork would mean little without appropriate investment in human capital and infrastructure.

It was our privilege to support the Ministry of Civil Aviation and FICCI as the knowledge partner for the second edition of WINGS India. We hope that this paper leads to a discourse among policymakers and industry players on best practices to enhance the sector's contribution to the economic growth of the country.

Foreword – FICCI



Mr. Pratyush Kumar
Chairman, FICCI Civil Aviation Committee
Vice President, Boeing International & President - Boeing India

I am happy to share with you the FICCI-Deloitte report on 'Indian Aviation: Bracing to Ride out Headwinds' based upon detailed research and analysis along with capturing key discussion points from WINGS INDIA 2018, which was organized by Federation of Indian Chambers of Commerce and Industry along with the Ministry of Civil Aviation (MoCA) and Airports Authority of India (AAI).

The Indian aviation sector is poised for a faster and secular growth. The opportunities are limitless but implementation is the key. To develop a thriving aviation sector, the Government has taken several initiatives in areas of modernization and up-gradation of airports, enhancement of regional air connectivity, development of MRO, cargo and ground handling services among others.

The four days WINGS India program had received an overwhelming response from India and abroad as it provided a unique platform to the civil aviation industry as well as the government to discuss and deliberate upon the enormous potential of the sector.

As a knowledge partner for WINGS 2018, Deloitte has prepared a report, which highlights how the Indian civil aviation sector can prepare for future challenges by capitalizing on the opportunities presented by four crucial segments of the sector- tourism, general aviation, cargo and skills.

FICCI has been working actively with all the stakeholders of the civil aviation sector by promoting the cause and interests of the sector in order to bring it on the global map as a cost-effective, competitive and efficient sector of Indian economy.

I hope you will find this report useful. As always, your suggestions and feedback are welcome.

Flying High

India's aviation numbers make it the envy of the world. Over the last four years, on the back of a strong domestic demand, policy push by the Ministry of Civil Aviation, and private sector investment and participation, the industry has grown consistently in double digits, expanding the industry size almost twice over[1]. In 2016-17, Directorate General of Civil Aviation (DGCA) data shows that an estimated 158 million[2] passengers travelled by air in the country and overseas, an increase of 17.3 percent year-on-year, putting India among the markets that grew the fastest.

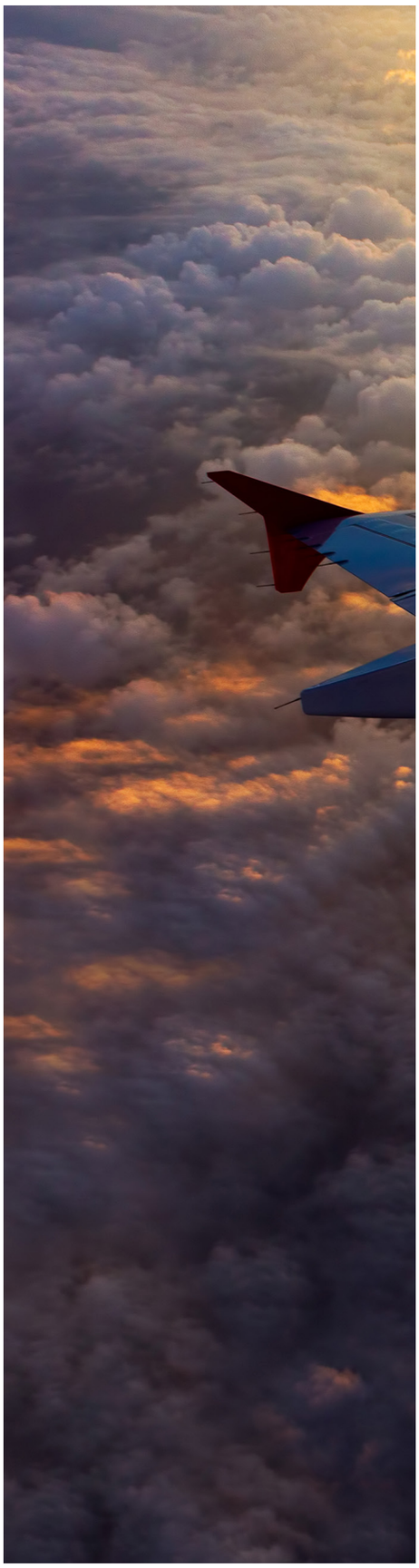
If this pace of growth continues, the industry has the potential to outgrow more mature markets. The International Air Transport Association (IATA) forecasts India to become the third-largest aviation market in terms of passengers by 2025[3] after China and the United States, surpassing countries such as UK, Japan, Spain, and Germany.

Importantly, aviation is changing like never before. In addition to a robust GDP growth driving increased spend on air travel, low fares have led to a rise in demand in smaller-towns of India. Flying has become easier and affordable for the common-man with increased regional connectivity bringing about a step change in opening up the market.

Not surprisingly, domestic passenger load factors are at record highs today, having touched an all-time high (~91%) in February 2018[4]. As fuel prices remained subdued, airlines have tried to cash in on the opportunity with more fuel-efficient aircrafts. Additionally, airlines have been trying to leverage use of hard and soft infrastructure, economies of scale, and technology to manage their cost and capacity better, in turn driving down operational costs.

Investments have been pouring into the industry, especially for aircraft acquisition, and it is estimated that over the next decade Indian airlines are expected to induct more than 900 aircrafts[5]. One of India's most profitable carrier began the induction of 50 new turbo-props in its fleet in November last year. Even the latest Full Service Carrier (FSC) in the country is seeking to buy about 50 narrow body jets and up to 10 wide-bodies. Another strong player in India's largest regional market too has placed one of the biggest orders, for $22 billion for up to 205 aircrafts[6].

Increased capacity by airlines and low-cost carriers seem to have both helped unlock value of air travel for the vast majority of Indians. **Hawai chappal se hawai jahaz tak** is one of the government's favourite credo. Not without reason. Indian carriers are



[1] https://www.aai.aero/en/business-opportunities/aai-traffic-news
[2] http://dgca.nic.in/pub/HANDBOOK%202016-17/Handbook_2016-17.pdf
[3] https://www.iata.org/pressroom/pr/Pages/2016-10-18-02.aspx
[4] http://dgca.nic.in/reports/Traffic-ind.htm
[5] https://timesofindia.indiatimes.com/business/india-business/indian-carriers-to-induct-over-900-planes-in-coming-years/articleshow/62240303.cms
[6] https://www.reuters.com/article/us-boeing-spicejet/spicejet-plots-expansion-with-order-for-100-new-boeing-planes-idUSKBN14X0LM


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now flying almost as many passengers as Indian Railways carries in AC (air-conditioned) passenger coaches in a year, (which was 150 million passengers in 2016-17[7]).

Correction in the offing?

In spite of the high growth, the million-RPK question is: how long will the flight of Indian aviation remain turbulence-free? To be sure, no business cycle is immune to correction. Ministry of Civil Aviation through a proactive approach plans to understand how can the government and industry prepare for possible headwinds when growth does begin to taper off and the top of the cycle is achieved? It is felt that there are some tell-tale signs of stress with serious challenges on three fronts.

- **Congestion at airports**
  Growing traffic has also meant growing congestion at major airports. During the rapid expansion phase, airlines cashed in on the surging demand to identify and market air connectivity on routes with maximum potential – connecting Tier-1 and Tier-2 cities with the metros with already busy facilities. This has resulted in the capacity constraint on the airport infrastructure, both with regard to the airside and landside set-ups. The two busiest airports – Mumbai and Delhi – that serve almost 40 percent of the country's total traffic either are constrained or will possibly become saturated much earlier than expected. AAI-operated airports are faring no better with approximately 25 of 126 airports having reached saturation limits.[8] Clearly, capacity constraint at a number of metro and Tier-1, Tier-2 airports poses a significant pain point to the growth of air passenger traffic in the country.

- **ATF prices**
  Another significant imponderable staring Indian aviation in the face is higher air turbine fuel (ATF) prices. According to industry figures, all major airlines have seen their profit margins strengthen because of the lower jet fuel prices in the last few years. However, there has been a consistent increase in fuel prices in the last few quarters with an increase of almost 60 percent over the last two years[9]. Further increase in ATF prices could hit the profit margins of the airlines operating in the country because expenditure on jet fuel at current prices already accounts for approximately 30 percent of their overall operating costs. The implication of such a scenario is higher fares, which could hit the demand for air travel.

- **Skills gap**
  The growth of the aviation industry has presented newer opportunities to stakeholders, including aircraft manufacturers and lessors, MROs, and ground handling agents, among others. With the unprecedented induction of aircrafts planned in the coming years, there is likely to be a significant demand from airlines that the ancillary industries would be looking to target.

  However, although India sits on a demographic goldmine, the industry has been up against a severe shortage of skilled work force and accredited institutes to train the required engineers, technicians and other professionals to meet its growing requirement. The government has initiated a host of measures in this regard, chief among them being the launch of Aerospace and Aviation Sector Skill Council. However, more

[7] http://www.indianrailways.gov.in/railwayboard/uploads/directorate/stat_econ/IRSP_2016-17/Annual_Report_Accounts_Eng/29.pdf
[8] https://www.aai.aero/sites/default/files/PC-120917.pdf
[9] https://www.iocl.com/Products/AviationTurbineFuel.aspx

needs to be done to bridge the gap between demand and supply for skilled professionals across the entire aviation ecosystem.

Government initiatives to liberalize regulatory climate

One of the significant contributors to the growth of the aviation industry has been the strong policy support from the government. In 2016, the Ministry of Civil Aviation launched the first integrated National Civil Aviation Policy (NCAP). It covered aspects related to all the stakeholders, including airline operators, airport operators, air freighters, MRO players, and ground handling service providers, among others.

The policy collectively tried to address a host of regulatory issues, including the review of the Civil Aviation Regulations (CAR), simplification and digitisation of the processes for transparent and fast approvals, taking a hard relook at Route Dispersal Guidelines, bilateral traffic rights, and code share agreement to simplify procedural issues for key stakeholders.

By far the biggest effort by the Ministry of Civil Aviation has been to give a push to the regional aviation market and promote air connectivity to unconnected regions in the country through Udey-Desh-Ka-Aam-Nagrik (UDAN) Scheme.

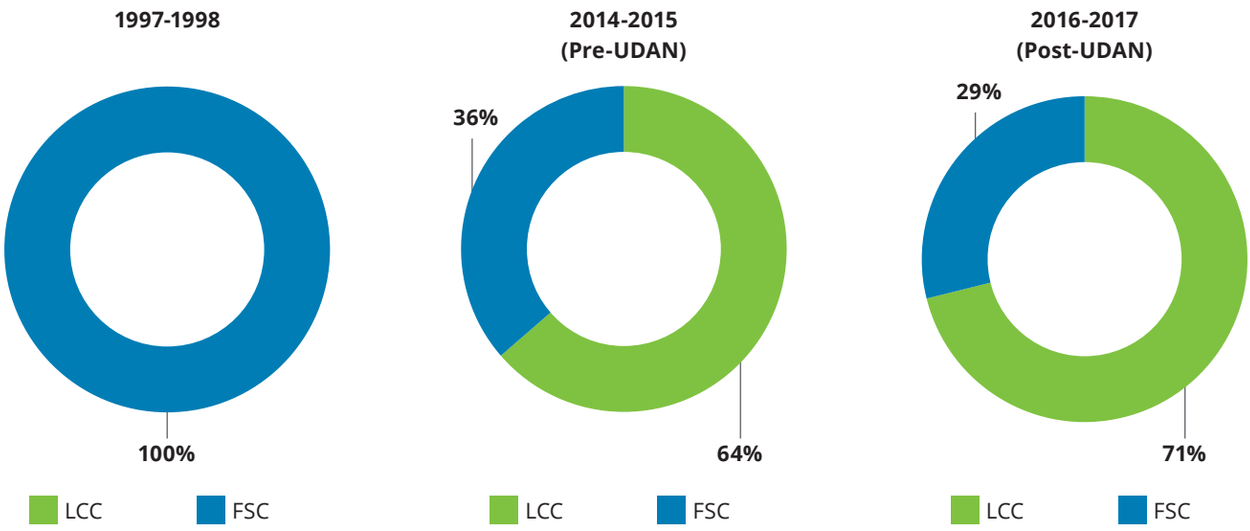
Adapting and surviving change

In addition to the government support, the aviation industry has been consistently responding to the market forces and modifying business strategies.

- **Airline operators – Low-cost travel for the longer run**
  In early 2000s, the aviation industry saw the introduction of the Low-Cost Carrier (LCC) model where airlines established their market by providing point-to-point connections, single-aisle fleet, short-haul flights, low airfares, and limited on-board services. All these helped airlines reduce their costs, enabling them to provide affordable flying to passengers in a price-sensitive market like India. This has helped LCCs to become the predominant model of operation in the country with approximately 70 percent of market share.

The focus on LCC model is expected to only get sharper in the coming years. It is expected that few airlines would even try out the newer Ultra-Low Cost Carrier (ULCC) model that has seen some traction in USA, the biggest domestic market of the world. They could offer absolute stripped-down travel, itemising ticket prices to the services included. Industry experts are even talking about Hybrid and Low-Cost Long-Haul (LCLH) business models. With lower cost of operations due to the waiving off of most airport charges on RCS (Regional Connectivity Scheme) routes, the ULCC model may be the newest paradigm for the industry in India. This would indeed help make air travel more affordable to the country's millions.

Figure 1: Breakup of airlines' operating models in last 20 years



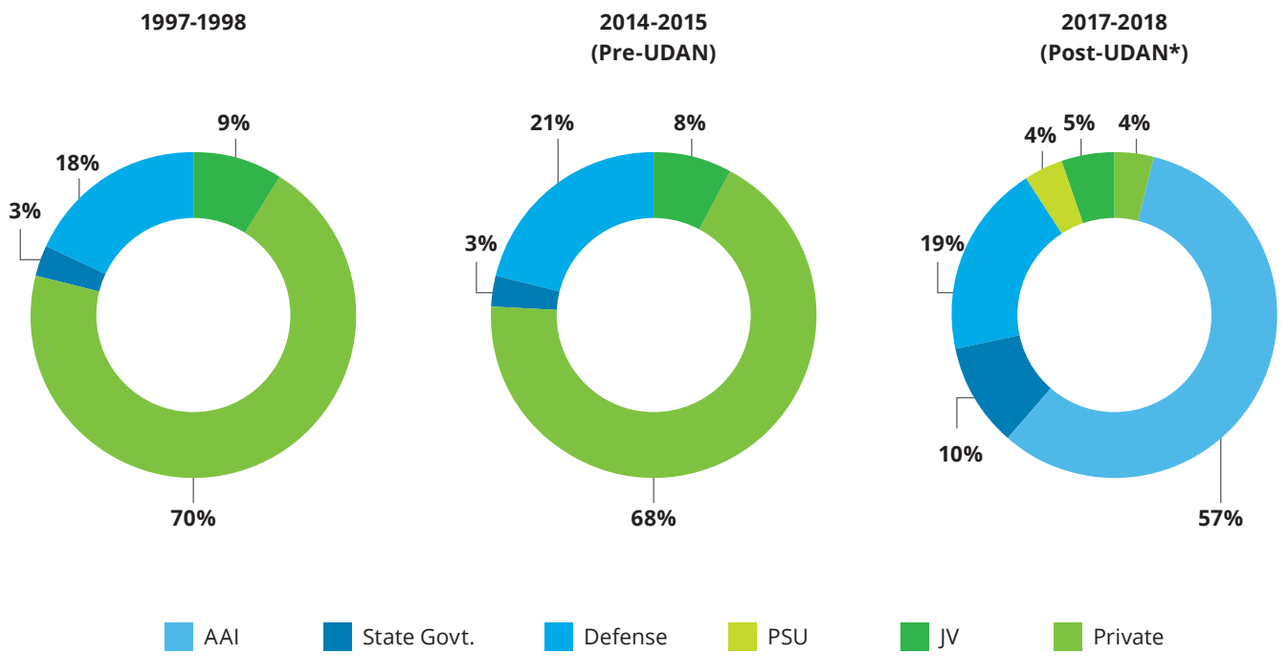
Source: http://dgca.nic.in/reports/Traffic-ind.htm

As Figure 1 illustrates, the transition from an all-FSC model to a predominantly LCC-based model in less than two decades marks a significant push by the industry to respond to the price-sensitive market in the country. Importantly, it also shows the willingness of industry newcomers to disrupt the market and take on the incumbents.

- **Airport operators – varying development models**
  Even though a PPP airport had commenced operations at Cochin in mid-nineties, a major structural shift came about almost a decade later. The Airports Authority of India has been the apex authority for the development and management of aviation infrastructure in the country since 1995. In September 2003, the Government of India decided to upgrade and revamp the Indira Gandhi International Airport (IGIA) Delhi and the Chhatrapati Shivaji International Airport (CSIA), Mumbai under the PPP mode[10]. Subsequently, Terminal 3 of the airport under the ownership of DIAL commenced operations in July 2010 after a construction period of only 37 months.[11]

Over time, under the UDAN scheme, the country has witnessed significant increase in the number of non-AAI airports – owned by private companies, state governments, JVs– getting operationalized for commercial operations. This seems to have put the sector on a firmer footing. Figure 2 below captures the ownership structure of operational airports in the last 20 years.

Figure 2: Ownership structure of operational airports in last 20 years



Source: 1) http://dgca.nic.in/reports/Traffic-ind.htm 2) https://www.aai.aero/sites/default/files/traffic-news/Mar2k18annex2.pdf
*Including the airports to be operationalized on account of proposals awarded under UDAN 1 and UDAN 2 2016-17 and 2017-18

To sustain the increasing air traffic and to mitigate airport constraints, the resource-strapped government has been encouraging private sector participation in the development of airport infrastructure, including taking steps such as permitting 100 percent FDI under automatic route in airport projects.

[10] http://civilaviation.gov.in/sites/default/files/Annual%20Report%20-%202003-2004.pdf
[11] http://www.gmrgroup.in/pressreleasedetail-III-03-July-2010.aspx



UDAN – Small-town India takes wings

Fostering air connectivity to under-served and un-served regions appears to be a win-win for both the aviation industry and for the economic development of these regions. Better regional connectivity is expected to help meet latent consumer demand for convenient travel, make businesses and trade more efficient, unlock India's tourism potential, enable availability of medical services in remote areas, and promote national integration.

Equally importantly, airlines and airports need high traffic volumes to sustain their businesses. Given that bulk of the passenger growth is restricted to the country's select few airports, it is compelling to connect the interiors and bring them on to the country's air grid. In fact, a thriving regional market can be expected to act as a sound hedge against some of the possible headwinds the industry might ever face.

Given the scenario, the biggest initiative launched by the Ministry of Civil Aviation that stands out, next only to the Open Skies Policy in 1990, is the **launch of** the **Regional Connectivity Scheme (RCS)** – commonly known as **UDAN.**

Uniquely customized for India

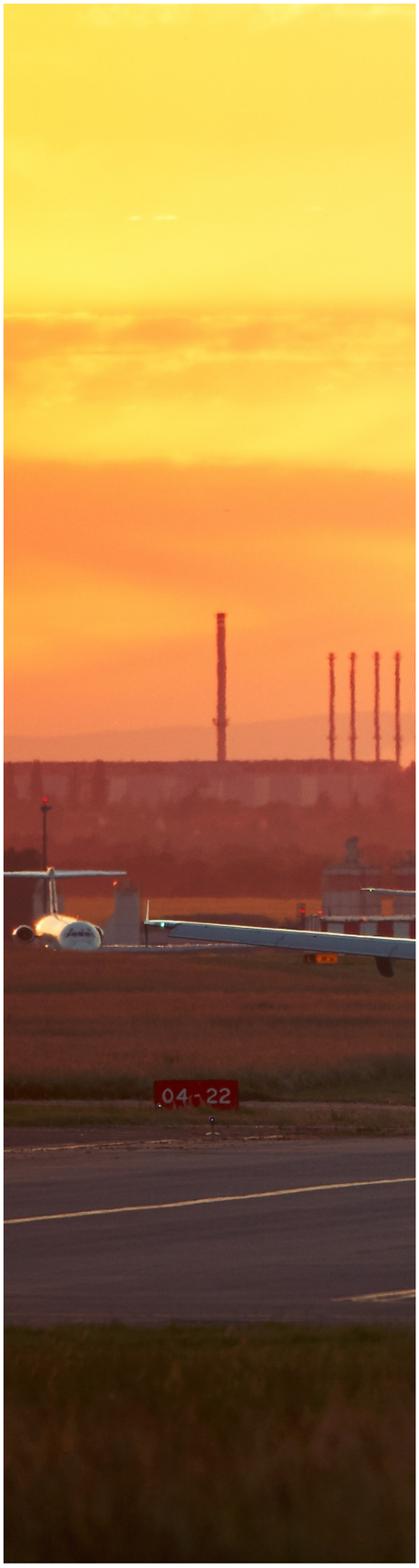
UDAN is the first-of-its-kind innovatively designed scheme in the sector to jump-start the regional aviation market. It aims to provide affordable air travel to passengers through an appropriate set of incentives that could provide sustainable operations on hitherto unserved routes.

The inception of UDAN has roots in a study undertaken by Ministry of Civil Aviation in 2013 on Regional and Remote Area Connectivity in the country. The study highlighted air connectivity being concentrated on select routes and sectors in spite of significant growth in air transportation over the last two decades. Therefore, the need for promoting regional air connectivity gave way to the formulation and implementation of the UDAN scheme, which since its inception has already seen two successful rounds of bidding through a competitive and transparent mechanism.

UDAN is a transformational scheme based on a unique self-sustaining working model that does not require budgetary support from the central government.

Unifying India by enhancing air connectivity

The success of UDAN has been well established with a far wider participation from different airlines in the second round of bidding, as compared to the first round, leading to an almost two-and-a-half time increase in route connectivity. UDAN Scheme has the potential to assist projecting India as a Global Aviation Hub in the next decade.





01

During the 70 years prior to the launch of UDAN, there were only 76 airports with scheduled commercial flights. With UDAN, **within a span of 15 months, work has been initiated to provide scheduled connectivity to 56 unserved airports and 31 helipads.** Sixteen such airports have already been operationalized (see figure 3 below).

02

UDAN has triggered substantial air connectivity. The scheme is expected to provide **scheduled connectivity on approximately 450 unconnected routes in country.**

03

The two phases of UDAN are expected to generate **an estimated 33 lakh RCS seats (airfare capped)** through fixed wing aircrafts and **2 lakh RCS Seats (airfare capped) through helicopter operations** in a single year. As a result, 35 lakh additional seats will be available to passengers at competitive market prices.

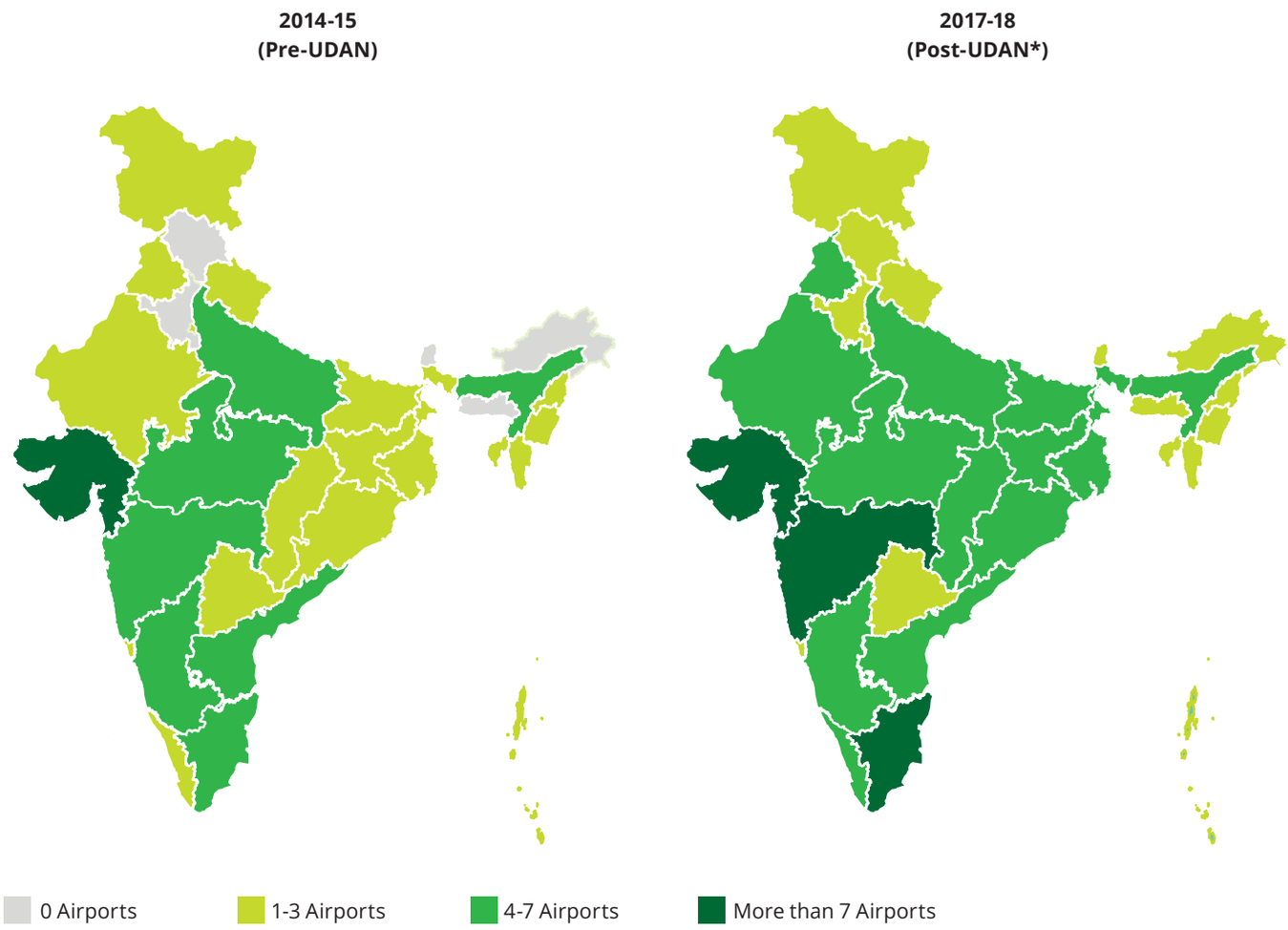
04

UDAN has helped airline operators develop sustainable business models, because of which **non-scheduled airline operators are to commence scheduled operations in country.**[12]

[12] https://www.aai.aero/sites/default/files/rcs_news_notifications/RCS_brief_04_July.pdf



Figure 2: Impact of UDAN on number of operational airports in the country



Data Sources: AAI, News Report
*The chart also includes airports to be operationalized on account of proposals awarded under UDAN 1 and UDAN 2 over 2016-17 and 2017-18

Despite the exponential air connectivity triggered since the launch of UDAN, India is still some way off from the global benchmark. The annual domestic seats per capita in India is still much lower compared to that of other developing economies such as Brazil, Indonesia and China. This highlights the potential for further penetration of air travel as a mode of transport in India. Also, as routes operationalized under UDAN enter into the fourth year of operations and financial support and exclusivity provided under the scheme are about to end after the first three years, it is in the interest of the government, the airport operators and more importantly of the airlines that the routes commenced under UDAN remain viable and operational. This can be achieved if the demand is established and airlines see merit in operating on such routes without any financial subsidy. Proactive support from the state governments would be one of the crucial factor to achieve this.

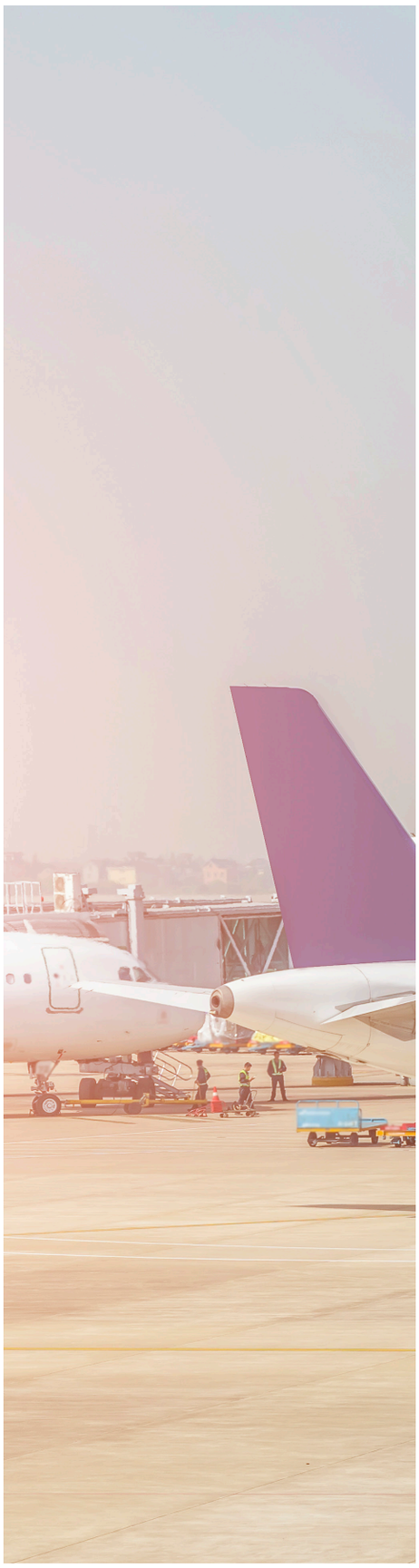
Shoring up air traffic growth

Indian aviation needs to be prepared for any possible headwinds that blow when the industry growth moderates and costs begin to escalate. This paper has tried to capture how the industry can sustain growth with the right strategy even when the operating climate turns unfavourable. Some of the building blocks are already being put in place by both the private sector and the government, of which building the regional aviation market is a critical ingredient that was discussed in the last section.

It is therefore worth considering what additional steps, the industry and the government can undertake to facilitate sustainable growth. Greater focus on air cargo can be one area for the airlines and airport operators to unlock the next round of growth in aviation. Additionally, factors such as growth in urbanization, growth in domestic tourism and a thriving ecosystem of Non-Scheduled Operators, including helicopter operators, in the country can all support Indian aviation in sustaining growth and facing any possible turbulence.

WINGS India 2018, the flagship event of the Ministry of Civil Aviation, brought together industry stakeholders and government officials for an open dialogue on innovative solutions for growing the aviation industry. Discussions were held across multiple forums to identify policy initiatives for the growth of the industry. The event brought forth suggestions for relaxing certain existing norms, requests for new guidelines and policies, and proposals for setting up specific task force to tackle impediments. The government, on its part, seems to be focused on identifying how best to go for a strategic push to the sector.

The roundtable discussions specifically targeted some of the broad levers of growth in the decade to come. Based on industry interactions and in-depth research, this paper proposes a collaborative mechanism under which both the industry and the government play complementary roles with the objective of sustaining a robust growth of the aviation sector.





Voices from Industry – CEO Speak

- **Air Cargo development**
  In order to provide an impetus to the industry, Government of India has sought to establish the first airfreight corridor (Delhi-Kabul) having performance standards of 3-4 hours for clearance. Mumbai-Kabul corridor is also ready (December 17). Meeting the requirement of different stakeholders, GoI also launched **Cargo e-go,** the single window platform for e-booking of cargo.
- **Multi-faceted task force**
  State governments are taking initiatives to provide a fast track approval process and look at policy impetus for Aerospace and defense sectors. There is a need to create a small rapid action force to get together with academia, ministry and consulting to create and implement a couple of pilot projects along these lines.
- **Improvement in physical infrastructure**
  With the impending induction of newer aircrafts in Indian airspace, there is a need to identify air space apart from developing physical infrastructure to meet requirement. Additionally, the possibility of making airports into multimodal hubs along with linking Airport master plan to city's master plan needs to be explored further.

Giving aviation the extra push

With active participation from airlines under the two rounds of UDAN, air connectivity has a huge thrust on interior routes. This has translated into immediate gains of converting sections of small-town India into a viable air market. However, to move the needle, the industry may have to fire on all the cylinders to keep up the growth energy. What is needed next is proactive action – both on the part of the states and communities.

Through an analysis carried out by Deloitte and FICCI, interviews and industry interactions, this paper has identified the following levers as crucial to unlocking additional and sustainable growth:

01. Tourism and community initiatives;
02. Airport-centred urban development; and
03. General aviation.

01. Promoting tourism and community initiatives

Tourism has the potential to be a significant growth driver in the aviation industry given India is a compelling tourist destination. There were about 8 million inbound travellers in 2016 compared to an outbound traffic of over 30 million[13], which presents a huge opportunity. It is important to explore how best to incorporate regions with tourism potential in the country's travel network. The share of the top 10 States/UTs of India in number of foreign tourist visits in 2015 was 88.4 percent.[14] Yet amongst these popular tourist destinations, direct air connectivity between cities across states is lacking. The following interventions by communities could assist in increasing tourism traffic.

- **Online portal for market discovery/ data sharing:** An online portal with data from tourism associations and transport-planning agencies about actual customer movement needs to be facilitated to enable market discovery of viable routes for air connectivity. Tourism policy makers and associations can communicate the identified factors that affect tourist demand, including daily, weekly and annual cycles, thus working with airlines and tour operators to improve forecasting for air traffic. Through the exchange of data on an online portal that is facilitated by the government (e.g., Ministry of Tourism), the industry can generate actionable insights.
- **Hospitality support:** Given the seasonal nature of tourism, the hospitality and aviation industry need to collaborate with each other. Tourism associations and tour operators can provide a certain level of comfort to airlines by underwriting seats.

In several cases of newly established air routes, hotels and resorts run airline guarantee programs, in the absence of which reduced flight frequencies would disrupt flow of visitors. Telluride Montrose Regional Airline Organization (TRMAO)'s airline guarantee program's role in increasing traffic at the destination ski resort is one such example.

[13] WINGS India 2018, Roundtable on Tourism and Civil Aviation
[14] http://tourism.gov.in/sites/default/files/Other/India%20Tourism%20Statistics_English_2015%20Final.pdf

Support from the hospitality industry

Background	Objective	Operating mechanism	Result
Colorado's resort communities rely heavily on area airports to support their tourism-based economies. Telluride has emerged as one of the most air-accessible resorts in Colorado. The Telluride Association of Realtors (TAR) had pledged to support the Telluride Montrose Regional Air Organization's Airline Guarantee Program, considered crucial for the success of tourism in the region.	The program encourages major airlines to offer adequate and attractively priced flights into the Telluride and Montrose regional airports by utilizing revenue guarantees	Since 2002, TAR has contributed upwards of $215,000 to TMRAO's guarantee program. It shares the fiscal risk with airlines, allowing such carriers to better and more cost-effectively serve the region.	Brought more than $73 million in additional direct guest spending in the Telluride region because of guaranteed flights.

Source: http://www.telluridenews.com/business/article_fd0034fb-5234-5b45-bc81-741f679225ed.html
https://www.denverpost.com/2016/11/19/colorado-resort-mountain-regional-airports/

- **Community participation:** The obligation of ensuring sustainable air connectivity rests on the local community as well. Internationally, mechanisms have been developed to ensure shared responsibility among various stakeholders for promoting air connectivity. Supporting mechanisms for risk sharing include revenue and seat guarantees, marketing support, community pledges, and joint ventures with airlines apart from direct payments per flight/passenger, tax holidays and discounts.

  Some examples of community-based efforts to enhance regional air services have been illustrated below:-

Community participation

Background	Objective	Operating mechanism	Result
The Remote Air Service Subsidy (RASS) scheme is subsidizing remote air services in Australia for eligible communities	To ensure communities in remote and isolated areas have access to scheduled air services for the carriage of passengers and goods	**Communities** and not the airlines **apply or re-apply** to be included in the scheme based on pre-determined eligibility criteria. The community must present a "demonstrated need for a weekly air service" and evidence of being situated in a sufficiently "remote" location. Then , the operator is selected through a competitive tender process and the Government subsidies the selected airline on a monthly basis	The RASS Scheme provides some 372 communities in remote and isolated areas of Australia with improved access through the subsidy of a regular air transport service.

Source: https://infrastructure.gov.au/aviation/regional/rass.aspx

Revenue guarantee/Community ticket trusts

Background	Objective	Operating mechanism	Result
The Regional Development Agency for Casper (Wyoming, USA), the Casper Area Economic Development Alliance (CAEDA), offered Northwest Airlines a US$2.2 million revenue guarantee for the first twelve months of operations together with the Casper/Natrona County Economic Development Joint Powers Board and the Wyoming Business Council.	Reduce the risk of the airline not reaching its break-even point and incentivizing Northwest Airlines to fly from Casper	By forming an agency that ensures revenue guarantees/ pre-purchased tickets. CAEDA spearheaded a travel bank campaign, subscribing nearly US$400,000 in pre-purchased travel by businesses and individuals to show their support for the new service. Revenue guarantees are granted worldwide, for instance by tour operators such as TUI or Apple Vacations to leisure charter carriers both within and outside their groups.	The twice daily inbound and outbound flights provided additional capacity, new one-stop destinations and improved connection times. They resulted not only in traffic growth for Northwest and its competitors, United and Delta, but also in lower fares.

Source: https://trib.com/news/casper-closer-to-northwest-service/article_33d88a72-0c1d-51e7-8e84-49c156390481.html

To drive air traffic, it is important to mobilise community support and work towards better coordination among stakeholders. **Regional Connectivity Forums,** comprising airport operators, airline operators, state governments, business clusters, local passengers, and the hospitality and tourism industry, can be considered to promote air connectivity in the region.

For example, a community ticket trust can be established which requires major airline customers in the region to commit to booking a minimum number of tickets during the initial period of a new service. Such a 'travel bank' or 'mileage bank' does not have to cost anything extra, but it is useful in lowering risk. Such an initiative ideally works on a B2B or a B2C model. That is because companies that value connectivity for their employees and clients are willing to guarantee tickets. The forum will have to proactively liaise with identified business clusters to encourage them to use the air service.

- **Marketing and awareness programs:** State governments and tourism associations could use the forums of National and International travel marts to spread awareness about the presence of regional flights to these destinations. In Australia, for instance, the government's Tourism Access Working Group (TAWG) developed awareness packages on the Government's Regional Air Access initiative to encourage more international passenger services to regional airports.
- **Airports as symbols of states' cultural heritage and communities:** Regional airports can be used as showcases of local culture, history and economic assets. This is likely to enhance the travel experience of visitors, including those in transit, encouraging return visitation. Regional marketing through informative and attractive public art could likewise be used to characterise the airport's terminals, adding to the promise of cultural experience.
- **Aviation tourism policy:** Synergy between transport and tourism policies can assist in improving visitor mobility to and within destinations – this will have to include rail, road, cruise and air travel. Airports need to be a vital element of the integrated transport network design for tourist destinations. Similarly, helicopters can be an intrinsic part for last-mile connectivity. It would be important for tourism policies to showcase the aviation sector's commitment in catering to tourist travel.
- **General Aviation for Tourism:** The potential of helicopter services and small aircrafts could be leveraged for tourism, particularly in the north-east region. Helicopters and seaplanes can serve to connect remote tourist destinations by providing last-mile connectivity. Charter services could even aim to connect major wildlife destinations or popular religious circuits, such as that of prominent Buddhist destinations, through a single network in India and to international destinations.

The potential of Tourism for civil aviation was also discussed as part of a roundtable on Tourism and Civil Aviation at WINGS India 2018. Some of the key suggestions which were discussed to optimise convergence between the two sectors for maximum mutual benefit are summarised below.

Voices from Industry

- **Creation of an Indian hub airport:** It was suggested that a small multi-organizational group should study and identify the special requirements of hub airports and the new operating procedures they may require. Airlines expressed the need to facilitate low-cost long-haul traffic so that India can create hubs in South-East Asia along the lines of the one in Dubai.
- **Airports as symbols of cultural heritage:** Airports provide a massive potential to display local culture and heritage. There are excellent examples of airport terminal designs that reflect local heritage of states in different ways. These provide learnings that can be incorporated in designing terminals at Indian airports.
- **Multimodal connectivity:** In collaboration with Indian railways, stations may be provided at airports to connect and operate inter-city trains. Tourism stakeholders proposed a three-tier system to achieve enhanced reach to Himalayan destinations: Large aircrafts (Boeing/Airbus) till main airports such as Dehra Dun, Kohima, Imphal, Kullu, Leh, etc.; small 15 - 17 seater fixed wing aircrafts from main state airports to connect with Shorter Take Off and Landing/ Greenfield airfields within the state; and connecting heliports to the Greenfield/Shorter Take Off and Landing airfields to remote villages and main adventure travel destination.

Planning for Safety-Reactivating Civil Aviation Safety Advisory Council (CASAC): There is a need to address safety issues in the hilly areas by first assessing the coverage provided by existing Communications, Navigation & Surveillance (CNS) equipment and then upgrading and installing new equipment wherever necessary. A suggestion to revive the CASAC was made for this purpose.

Data sharing: Granular data on tourist spots, functional airfields, airports and passenger and tourist movements with various service providers and stakeholders should be aggregated on an online platform on an ongoing basis for Big Data Analysis for Tourism and Civil Aviation. Therefore, it was suggested that the two ministries jointly set up a Working Group to work on this. Tour operators may host a platform and solicit participation from the Ministry of Tourism.

02. Promoting airport-centred urban development

Economic growth can be considered the primary driver of air travel demand. As shown below in Table 1 based on the last 20 years' data set (of urban population, GDP per capita and total Air pax) for India, economic growth, the level of urbanisation, and the air traffic demand are all closely associated. Shoring up the air transport network with improved and frequent connections leads to improved access to markets, enhancing links within and between businesses. The result is increased output and employment opportunities.

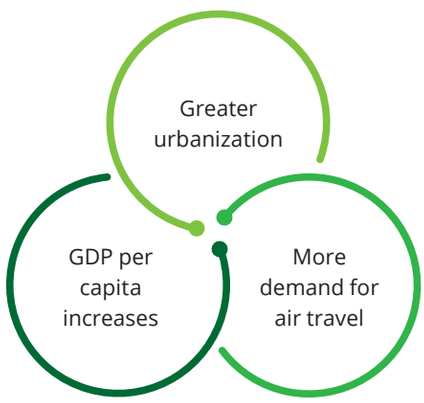
Given the relationship between GDP and urbanisation on air passenger travel as shown in Table 1, intensifying economic activity around an airport has the potential to spur demand. This forms the crux of the Airport-centred urban development model described below.

Table 1: Relationship between GDP and urbanization on air passenger travel

1% increase in per capita GDP	=	By forming an agency that ensures revenue
1% increase in urbanization	=	3.62% increase in air passenger travel
1% increase in per capita GDP	=	1.24% increase in air passenger travel

Source: A nalysis based on data from 1996-2016[15]

Figure 4: Per data analysis - Interrelated nature of Economic growth, urbanization and air travel demand



[15] Urban Population, GDP Per Capita: https://data.worldbank.org/indicator/SP.URB.TOTL?locations=IN
Total Air PAX: https://data.gov.in/catalog/air-traffic-handled-all-indian-airports

Airport-centred urban development is a model of urban development that tries to cash in on the importance of airports as engines of business. Airport-centred urban development relies on economic activity concentrated around airport infrastructure. The focus is on integrated mobility and creation of compact, dense areas, in addition to providing fast connections to areas further in the regional catchment zone.

Depending on the feasibility, strategically developing an airport using the concept of 'airport-centred urban development' has the potential to provide a fillip to air operations in such regions. A classic example of this is the Dallas/Fort Worth International Airport (DFW) with its key features presented below.

Case Study of the Dallas/Fort Worth International Airport (DFW)

Dallas wanted its own airport, but the Federal Aviation Administration ruled that it would have to share one with the city of Fort Worth. DFW, lies halfway between the two Texas cities (27 kms in each direction). Sprawling over a massive 78 sq. km, it has been the economic driver of the region. Several warehouses, factories, hotels, office space, golf course, and one of the world's largest Infiniti car dealership are located here. Even though residential neighbourhoods are less prominent, some of the major companies are headquartered here.

Key interventions

- **Non-aviation land use:** During the mid-1990s, a real estate firm saw potential in DFW's rise as an international gateway. They decided to promote mixed-use development that included industrial, commercial, and for hospitality and recreation. The developer continues to add to the project, thanks to the continued demand DFW creates.
- **Community study:** The master plan took into account market studies of the communities that surrounded DFW, which helped them zero in on land uses that would have a synergy with existing development.
- Multimodal transportation: DFW has been integrating itself with multimodal transportation networks to increase access to potential catchment areas. This is by way of fast lane connectivity through addition of special truck-only lanes to airport expressways, improved highway interchanges to reduce congestion, airport expressway links complemented by airport express trains, cars, trucks and rail among others. It has been connected to downtown Dallas via light rail, and a rail line to and from downtown Fort Worth.

Impact:

- According to a 2013 University of North Texas study, DFW is responsible for having created 148,000 jobs and $31.6 billion in annual economic activity in the region.
- Since the airport opened in 1974, the region's population has surged from 2.5 million to about 6.7 million today. Gradually, the airport itself has become a destination.
- It has demonstrated how business can be conducted easily as traveling executives fly in to the airport, attend business meetings at adjoining facilities and fly back without ever going outside the airport.

Source: https://urbanland.uli.org/industry-sectors/infrastructure-transit/evolution-of-an-aerotropolis/

Stakeholder interventions required for airport-centred urban development

- **Comprehensive Mobility Plans (CMP):** Comprehensive mobility plans facilitate development around airports. These present strategies to improve accessibility and mobility for its residents, identifying major traffic corridors and feeder corridors, land use patterns that assist in urban planning. Comprehensive mobility plans could later become a part of City Master plans.
- **Transfer of Development Rights (TDR) and Land Pooling Schemes:** These are proven concepts to increase the density of development at designated locations and can be adopted as mechanisms to expand expected traffic at the airports. This is a viable alternative to land acquisition for industries and housing around airports. Villages coming under Navi Mumbai Airport Influence Notified Area (NAINA)[16] are already participating in a land pooling scheme for the construction of Navi Mumbai airport.

[16] http://www.dnaindia.com/mumbai/report-government-approves-project-to-develop-23-villages-under-panvel-taluka-2278262

- Multimodal connections to airport: Investment in fast-corridor links to the airport must be made to connect catchment areas with airports. For example, dedicated metro corridor between the two airports in Mumbai, the proposed rail link to the planned Jewar airport in Uttar Pradesh and the proposed Hyderabad Airport Metro Rail. Such fast corridors can cut traffic time from the city to the airport and boost traffic at the airports. Similarly, Bengaluru airport has launched a new helicopter-taxi service to connect areas in the city to the airport. The Airport provided land for the construction of a heliport and the electronic city area administration provided land for a helipad.
- Capacity Planning: Each busy city can consider having a separate municipal airport that can be used for General Aviation, helicopters and flying training. This needs to fit into the master plan itself. The SMART city plan should also incorporate helicopter intra-city connectivity and medical emergency infrastructure.

03. Promoting general aviation (GA)

Even after the successful launch of UDAN scheme, a number of areas remain unconnected in the country. This may be due to difficult terrain, low demand, sparse infrastructure or simply because the latent demand has not been recognized. For areas with inadequate demand for scheduled commercial operations, non-scheduled operators (NSOP) and small aircrafts, helicopters or seaplanes can provide services for medical emergencies, disaster relief, tourism and to move industrial workers employed in industries that have been set up in remote areas.

GA typically encompasses commercial non-scheduled air transport as well as private operations, also known as Business aviation. In India, the fleet strength of this "on-demand" and "non-scheduled" industry, including helicopters, stands at over 350[17]. The role of the Business and General Aviation industry in bringing remote areas into the national air grid holds substantial promise. GA becomes imperative especially for areas not conducive to scheduled commercial operations.

For difficult areas that cannot be reached through road or rail transport, providing access through helicopters could help solve the problem. Prominent among such areas are J&K, Himachal, and Uttarakhand.

Similarly, seaplanes are an efficient and versatile mode of transportation in otherwise inaccessible areas, given India's extensive network of inland waterways – 7,400 km long shoreline, 1,400 km of waterfront, and 2,000 water ports across 13 coastal areas. Even though India started commercial seaplane operations in 2011, these are still considered a novelty. Importantly, seaplanes can be used for rescue operations and Disaster Management. Flights ranging from 30 to 200 km typically last between 15 minutes to 45 minutes. While some state governments are taking state-specific initiatives for promoting seaplanes, a national policy push seems to be the need, to promote the use of seaplanes in India.

As discussed in the roundtable on General Aviation, dedicated focus on GA infrastructure and a favourable regulatory climate can assist in driving air connectivity to remote areas significantly. FICCI announced setting up of a Task force on General Aviation, which would work for the development of a sustainable general aviation sector in India and nurture its potential in various areas such as tourism, corporate, heli-medical, security surveillance, infrastructure, intercity air taxi among others.

Further, during the event, industry representatives discussed the issue of allowing single engine aircrafts to operate in this space and for the government to look into the suggestion in detail.

[17] http://www.dnaindia.com/mumbai/report-government-approves-project-to-develop-23-villages-under-panvel-taluka-2278262

Highlights from the WINGS roundtable on General Aviation

The following emerged as focus areas to boost General Aviation in the country:

Regulations focussed on General Aviation (GA) /Business Aviation (BA):

- Appropriate regulations for smaller aircrafts and helicopters that are usually not used for scheduled air operations by commercial airlines. These should be developed based on specific domestic requirements. DGCA needs to develop expertise in this direction and 'file differences', where applicable, with International Civil Aviation Organization's (ICAO) Standards and Recommended Practices. In order to achieve this, DGCA should organize workshops for staff, with participation of experts.
- The National Civil Aviation Policy should include provisions for GA/BA requirements as well.
- Procedures need to be put in place for seamless operations of helicopters from metro airports. Regulations and standard operating procedures are also required for point-to-point helicopter flying.
- Rules on the levy of GST on small aircraft industry need clarity and consistency.

Infrastructure planning:

- A framework for institutionalized capacity planning for GA/BA should be implemented. This would include estimating the specific requirement for helipads, maintenance facilities and maintenance hangar facilities based on projected traffic.
- Airport development plans should have dedicated facilities for General Aviation, including terminals and space for heliports. Each busy city may also have a municipal airport that can be used for GA and training for flying.
- SMART city plans should take into account inter and intra-city helicopter connectivity and infrastructure medical emergency infrastructure. Helistops should be built at strategic locations like metro stations.
- State Governments should be involved in the development of airports/ heliports and for the optimal use of existing airports.
- A committee should discuss the development of seaplane infrastructure in India and present a five-year roadmap, with necessary representation of the Ministry of Civil Aviation, Ministry of Tourism, and Ministry of Road Transport and Highways.

Air cargo opportunity

Cargo operations are one big opportunity in the non-passenger business that has the potential for better exploitation. According to IATA (Air Freight Market Analysis , December 2017)[18], global air freight markets grew by around 9 percent in 2016-17, showcasing the strongest performance since the rebound from the global financial crisis in 2010. The segment grew at more than twice the pace of the expansion in world trade (4.3 percent) and thrice that of capacity addition in available FTK (3 percent). According to IATA, the outlook for air freight in 2018 continues to be optimistic due to the growing strength of e-commerce and the transport of goods such as pharmaceuticals, which are sensitive to time and temperature.

The Indian cargo scenario is looking up because of similar drivers – rapid expansion of the e-commerce market and pharmaceutical exports. Pharmaceutical exports from India, which stood at US$ 17.25 billion in FY 2017-18, are expected to cross US$ 20 billion by 2020[19]. Likewise, the e-commerce industry (B2C e-tail) in India is expected to reach US$ 100 billion by 2020[20]. Both these industries rely heavily on air connectivity for shorter delivery cycles. Therefore, India is poised to be in a sweet spot in the global air cargo industry.

The three primary ways and means which can be considered for boosting the air cargo industry in India in the coming years are discussed below.

- **Investment in technology –** The air cargo industry in India continues to be dominated by paper-driven legacy systems and procedures, which are time-consuming and expensive to comply with. There is a need to simplify and integrate compliance processes. The lack of a single-window mechanism for regulatory clearance, mandatory inspection rather than the declaration of cargo, cumbersome information requirements and approval procedures for non-scheduled freight operations by the DGCA are some of the major impediments that need to be suitably looked into for the air freight sector to be able to realize its potential.

  Clearly, there is a need to expedite some of the technology initiatives to not just automate all information systems

[18] https://www.iata.org/publications/economics/Reports/freight-monthly-analysis/freight-analysis-dec-2017.pdf
[19] http://www.thehindu.com/business/Industry/pharma-exports-climb-to-1725-bn/article23731993.ece
[20] https://www.business-standard.com/article/companies/indian-e-commerce-industry-is-expected-to-cross-100-billion-mark-by-2020-118051801480_1.html

but also to streamline redundant processes and regulations. For example, MoCA is working on setting up a National Air Cargo Community System, an online information exchange that is expected to do away with the need to enter the same data in multiple systems.

- **Network expansion –** The industry needs to consider expanding its reach by tapping unserved regions with smaller freighters, connecting them to mainland hubs. There is a clear need to integrate air cargo infrastructure with the country's overall logistics infrastructure –with the likes of multi-modal logistics hubs, specifically catering to airports – and create hubs for transhipment of air cargo by simplifying processes.
- **Improving the overall value chain –** Thirdly, the air cargo industry needs to consider providing ancillary infrastructure to shippers across the entire value chain for end-to-end connectivity. This should ideally include adequate facilities for storage and other value- added services. Quality service providers and freight forwarders also help meet the specialized requirements of shippers.

Building new standards

Voices from Government

At WINGS 2018, the Ministry of Civil Aviation gave a rundown of its plans for growing the air cargo market. To facilitate easier movement of Exim cargo, the government has inaugurated air freight corridors and B2B single-window platforms that are expected to enable seamless movement of freight. The Ministry has also committed to reducing lead times through policy interventions and to providing financial incentives to cargo and courier facilities operating out of underutilized airports. Details of these initiatives are summarized below.

- **Bilateral initiatives - Network expansion through corridors**
  The Ministry plans to develop air freight corridors and digital air corridors, which would facilitate seamless movement of air cargo on select routes. The first such corridor was established between Kabul and New Delhi – with its first flight taking off in June 2017. This corridor provides farmers in Afghanistan faster access to markets in India and South Asia for their perishable produce.

  The second such air cargo route linking Kabul to Mumbai was inaugurated in December 2017[21]. Subsequently, the airports of Mumbai and Kabul – along with their partners for cargo community systems – have undertaken an initiative to create a digital air corridor between the two countries that would help to reduce unnecessary administrative paperwork. Some of these corridors are expected to connect other countries with Indian airports, which are considered central transit destinations. These early steps will help position India as a regional transhipment destination.
- **Technological interventions – Establishing booking platforms**
  Given that greater integration between air cargo stakeholders and improved transparency in systems could augment air cargo volumes in India, the government is contemplating adopting electronic communication platforms with a module for each stakeholder of the cargo industry. During the WINGS 2018 event, the Ministry announced the launch of two single-window communication platforms – Cargo e-go and RIGEL – with modules for different stakeholders in the supply chain. These B2B e-freight portals are expected to allow sharing of transportation, customs and other cargo service requirements. The platforms are also designed to make it possible to receive price quotations from a range of service providers.
- **Policy facilitation – Reducing release time**
  The government aims to improve India's ranking in the World Bank's logistics performance index from 35 to 15 by 2020[22]. High cargo dwell times (time taken at the ports) substantially increase inventory-carrying costs. The air cargo industry in India has done well to reduce the average dwell time for imports to ~3 days[23] at present. However, these are still a lot higher than the typical dwell times of ~3-4 hours abroad.

  India intends to transform its cross-border clearance eco-system by promoting a paperless regulatory environment and reducing cargo release times, as required by the **WTO-National Trade Facilitation Action Plan (NTFAP) 2017-2020[24].** The Government intends to comply with the mandate through collaborative efforts between the National Committee on Trade Facilitation and the lead agency identified for the task.

As per the NTFAP, India is committed to bring down release time of the following:

01. For imports – Within 3 days for Sea Cargo, within 2 days for Air Cargo & Inland Container Depots and on the same day for Land Customs Stations.
02. For exports –Within 2 days for Sea Cargo and on the same day for Air Cargo, Inland Container Depots & Land Customs Stations.

[21] https://www.hindustantimes.com/world-news/india-afghanistan-launch-second-air-corridor-linking-kabul-and-mumbai/story-LF2ABpIZOomPf3VvzqxezN.html
[22] http://www.itln.in/air-cargo-india-2018-pumps-up-indias-air-cargo-prospects
[23] http://cargotalk.in/editions/2017/CTJan17.pdf
[24] http://www.cbic.gov.in/resources//htdocs-cbec/implmntin-trade-facilitation/national-trade-facilitation.pdf;jsessionid=B8DDBA5CEFA40E1422F860B3D858DD07

- **Financial stimulus – Reducing costs for the sector**
  The Ministry highlighted that the AAI is evaluating an innovative model to make cargo terminals viable. The government has decided to reduce space rentals by half in under-utilized passenger terminal buildings where cargo/courier facilities are outsourced under an O&M model. The move is expected to have a positive trickle-down effect on the health of the cargo industry.

  While the benefits of these government initiatives are due to be realized, a more collaborative approach is needed to understand and address the specific requirements of the shippers in India, especially those from the thriving sectors of e-commerce, pharmaceuticals and perishable food products.

Voices from the industry

Air Cargo roundtable at WINGS India 2018, highlighted the requirements of respective industries as presented below:

- 40 MT of APEDA products move daily from Mumbai to the UK and yet the route does not have direct freighters.
- Promoting Guwahati as a regional hub for the northeast would foster the exports of floriculture and fruits.
- Smaller airports must be notified by the Ministry of Finance and DGFT for the purposes of exports. Vijayawada is a case in point.
- Perishables should be given priority with up to 30 percent to 40 percent space available for cargo on aircrafts.

For micro and small Indian exporters, the e-commerce marketplace opens up opportunities to sell across the world with low investments in physical infrastructure. However, the growth of the sector would be stunted if the right regulatory climate is not created.

- The industry suffers due to inordinate delays in security and customs clearance for cargo/express terminals from government agencies such as Customs, BCAS and CISF.
- USA has increased its customs duty threshold whereby duties and taxes are imposed only if the value of imports crosses US$800. However, in India, the cap on an export order placed online and dispatched through courier/post is only Rs. 25,000. This prevents Indian exporters from benefitting from the relief available.

Additionally, the regulators may look at "Customs-to Customs Cooperation" to reduce clearance times, simplified GST accounting and payment for non-resident vendors, and easier customs processes for return of express shipments.

- India's Customs regulations do not allow factory stuffing of containers. Scanning shipments at the airport breaks the cold chain and risks damage to the exported cargo.
- Temperature-controlled containers should be loaded and custom-cleared at the shipper's location and loaded directly into the aircraft without any further checks – as is the process in Europe, USA, and Singapore.
- The sector needs adequate warehouse capacity with cold chain facility along with tracking systems for end-to-end monitoring of cold chain facility. Integration of warehouses with Customs and Airports is the need of the hour.
- Providing round-the-clock Customs and Assistance Drug Controller clearance for pharma products would boost volumes and facilitate quicker shipments.

While the government has made a note of the policy/regulatory constraints, the industry needs to collaboratively chart out a plan to boost air freight.

Future strategy

Planned interventions for infrastructure development are as essential as the changes in regulations and policy stimulus to fulfil the wide-ranging demands of shippers. Few suggestions on possible interventions are discussed below.

- **Exploiting the cargo potential of RCS routes**
  Multiple new routes have been identified and awarded to Indian air carriers, thanks to the UDAN scheme. Additional new routes translates into greater potential for carrying additional air cargo because of connectivity on such routes. State governments may use this to streamline the movement of perishables produced in their respective states. E.g., North-eastern states could commit to buying cargo space, if available, in RCS flights through fixed-duration contracts for transporting floriculture and horticultural produce grown in these states. This space could also be used by e-commerce companies to tap into the latent demand of the unserved and underserved regions for a wider range of products available on e-commerce portals through faster delivery. There is a sizeable potential in the country's interiors for the movement of cargo on RCS flights that B2B portals such as RIGEL and Cargo e-go are looking to tap into.

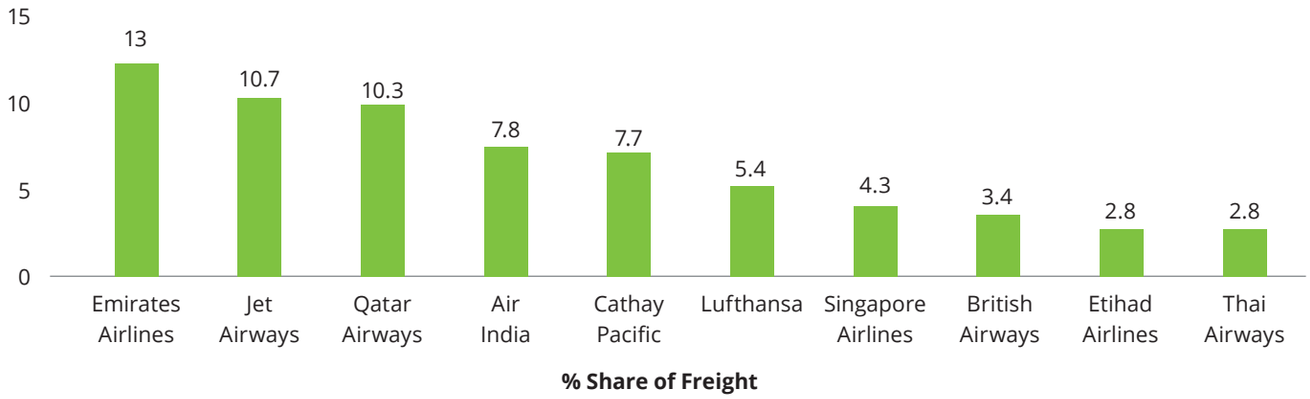
  In fact, there is an opportunity for the shippers to use the RCS opportunity to build better backend infrastructure for the entire supply chain. This will help them expand their cargo network more effectively, and lead in the direction of establishing transhipment hubs in the country.

- **Incentivizing Indian freighters**
  Foreign carriers, who use their belly cargo space efficiently and ply freighters on select high-density international routes, currently dominate the international air cargo space in India. Globally, national carriers have contributed to building transhipment hubs in their respective countries, which, in turn, has helped airports achieve higher cargo volumes. Emirates, Etihad, and Qatar Airways, for the longest while, have held onto the opportunity of transporting cargo from India to USA and Europe via their base locations.

  Indian air carriers, on the other hand, seem to have missed this opportunity. To make a place for themselves in the global airfreight market, the government may explore certain policy initiatives. The objective could be to support Indian air carriers in establishing reliable freighter operations with adequate frequencies until these routes become self-sustainable.

  In the process, airport operators in India would also be incentivized to invest in upgrading their cargo-handling infrastructure and to focus on the value chain of shippers. Further, by using its geographical advantage and connecting its neighbouring countries such as Bangladesh, Myanmar, Bhutan, and Nepal to places in the Middle-East, South-East Asia and Australia, India could expand its cargo network and take intermediate steps towards positioning itself as a regional hub for air cargo.

Figure 5: Market share (%) of top ten carriers for international freight traffic (April'17-Jun'17) in India



Source:http://dgca.nic.in/pub/international/QUARTERLY%20PUBLICATION%20Q2%202017/ANALYTICAL%20REPORT%20Q2%202017.pdf

Growth prescription – Skills and Infrastructure



India's aviation growth is the story of its booming domestic market with almost four-fifths of the growing volumes coming from within the country. International travel segment has typically grown at less than half the pace of the burgeoning home market[25]. The expectation is that the growth in Indian aviation will become more rounded as international traffic takes off in the coming year when the country's two biggest carriers launch long haul outbound flights to Europe and other destinations. However, even as the outlook looks promising, the industry needs to address two key issues discussed during WINGS India 2018.

One, there is an immediate requirement of investment in the development of human capital to bridge the gap in the availability of skilled work force. Two, there is an equally daunting challenge of strengthening the deficient airport and supporting infrastructure.
This section highlights the broad efforts which would be required to implement some of the initiatives that the government and industry can take in this regard.

A. Skills and Training in Indian Civil Aviation
The projected growth in Indian aviation means a concomitant requirement for skilled professionals across diverse segments and functions of the industry. Recognizing this, the Ministry of Civil Aviation commissioned a study for a comprehensive skill gap analysis and sought recommendations to bridge the gap.

Growing requirement of skills in Civil Aviation
According to the study conducted by the Ministry of Civil Aviation in 2016[26], the Indian civil aviation sector will employ – across airports, airlines, cargo, MRO and ground handling – 0.8 to 1 million personnel directly and another 3 million indirectly by 2035. For the direct employment opportunities estimated, the bulk of the requirement is expected to come from the airlines segment at 32 percent, followed by 25 percent from cargo, 23 percent from airports, 17 percent from ground handling, and 3 percent from MRO.

Sure enough, the magnitude of the skill gap is huge for various functions. For instance, industry reports suggests that about 73,000 technicians and Aircraft Maintenance Engineers (AMEs) will be needed across MRO and airlines by 2035. In comparison, DGCA has issued a little over 3,500 Basic Licenses and only 159 type rated AME licenses from 2012-17[27]. Similarly, the Communication Navigation and Surveillance (CNS) function and Air Traffic Control (ATC) services are suffering from a critical work force shortage. It is understood that the Mumbai airport is managing with just about half the requisite work force required to operate the new air traffic control systems at Chhatrapati Shivaji International Airport (CSIA).

[25] https://www.aai.aero/sites/default/files/traffic-news/TR%20%20Mar%202018.pdf
[26] http://www.civilaviation.gov.in/sites/default/files/Final%20Report%20-%209th%20March%202016.pdf
[27] http://www.civilaviation.gov.in/sites/default/files/Apprenticeship%20Training%20for%20AMEs.pdf



"The Indian civil aviation sector will require 0.8 to 1 million personnel directly by 2035."

This means that to meet the projected human resources needed for the sector's growth, it is imperative to put in place a robust training and skill-building ecosystem. It will need to focus on soft skills and also domain-specific and segment-specific competencies across levels. According to the Ministry study, areas that need interventions, include institutional strengthening, infrastructure and capacity planning, training process re-engineering, in addition to building effective funding mechanisms. It might be a sound idea to consider leveraging retired aviation personnel for suitable job roles and collaborating with training agencies outside India to speed skilling.

Industry perspective

At the WINGS India 2018 platform, the industry identified the need for skilling in the following five areas, namely Aerospace Design and Development, Aerospace Manufacturing and Assembly, Airline Operations, Airport Operations, and MRO. These cover a wide spectrum of activities, including manufacturing, design, airline operations, and airport services, and even those with a functional overlap between segments.

The deliberations at the roundtable and the potential solution discussed have been summarised below:

Voices from industry

Role of the industry: There is a considerable mismatch between industry expectation of competencies and those actual available. Moreover, the emerging skill ecosystem is increasingly becoming demand-driven with increased industry participation in training and curriculum design. What came out loud and clear was that investments in skill development should be via innovative PPP models. Importantly, skill development should not be viewed as a standalone CSR activity, but as productive investment, that yields ROI in terms of valuable human capital. Employers-paid models of training can be built on this premise of productivity increase; this is a better mechanism to meet the skill gap than outsourcing.

Training curriculum and partnerships: Disparity in training and certification across regions and inability to meet global standards for overseas employment is a challenge in India. International partnerships in training would help understand global requirements and encourage standardisation. For example, IATA courses could serve as useful minimum criteria for training curriculum because they meet global standards through 300 courses. It was recommended that in addition to soft skills, professionals also need to develop a comprehensive understanding of the changing needs of the industry. For example, with most of the aviation industry depending on leased aircrafts, the training curriculum should also include a course on how the leasing industry works.

Apprenticeship programs are an integral skilling model for aviation. Engaging apprentices and making training more practical with exposure to latest technologies and processes can assist in speeding up the skilling process.

Setting occupational standards: Development of Qualification Packs (QPs) and National Occupational Standards (NOS) are an ongoing process where the industry can modify the curriculum to suit the dynamic needs of the sector and to ensure that graduating students are readily employable.

Train-the-trainer program: Essentially, given the need to train millions, it is important to first train the trainers, who are presently insufficient in number. It is expensive and cumbersome to get trainers from abroad, affirming the need for a domestic "train the trainer program".

Skills for ancillary industries: The scope for employment in ancillary industry segments like Cargo, Helicopters, Manufacturing, among others, requires skill upgradation through active industry-academia collaboration. MRO training needs curriculum restructuring to be future-ready, as also to prepare quality personnel in the air cargo segment. Overcoming skill deficits in these areas will also improve job creation in allied sectors like Tourism and Hospitality. With adequate training programs, India has the potential to export talent to the rest of world given its demographic advantage

Critical role of the assessor: The approach for monitoring and evaluating skills needs to transition from being "certification-centred" to being "outcome-oriented". A distinguished panel of assessors is vital to bring standardisation and value to certifications.

Investment in multi-skill development centres: Taking a cue from the aviation multi-skill development centre (MSDC) that has been set up at Chandigarh airport, the potential for skill training at airports and specialization in MSDC programs was emphasized. Opening training academies at airports would also ensure practical exposure to latest technologies and processes.

Changing skill requirements

To successfully implement solutions advocated by the industry, skill-building efforts would need to integrate with technological and digital advancements in the sector. Following are some of the key issues that need to be looked into concerning building a future-ready skilled work force for aviation:

- **Technological advancements**
  The aviation industry is finding technological advancements such as drones useful for a variety of applications, especially for monitoring, maintenance, upkeep of aircrafts, all of which can be done without a scaffolding. A leading aircraft manufacturer has been working on a project that integrates an Unmanned Aerial Vehicle (UAV) with its software to provide high-precision photographs of aircrafts that can be used to generate quality reports. Hamburg's Finkenwerder[28] and London's Gatwick are among the airports that are also considering the use of drones for airfield and pavement inspections. The use of UAVs is likely to reduce the manpower and time required for inspections, saving costs for the aviation industry. As the use of UAVs spreads globally, the aviation industry will likely face a surge in demand for licensed remote pilots, making it an emerging skill gap.
- **Digitized business tools**
  The aviation ecosystem is increasingly introducing digital tools to compete in the marketplace and such tools are expected to have positive implication in many ways – improving the passenger's journey through the airport, achieving efficiencies in airport operations and boosting retail and ancillary revenues of airports, and so on. Airports in India are also considering biometrics for passenger processing via smarter security lanes with remote screening, which would increase processing capacity with fewer staff. Similarly, other segments (airline, ground handling and so on) are also adopting or are set to adopt more digital solutions.

  With increased digitization and automation, airports are likely to require higher levels of specialization with digital tools and infrastructure. In addition, it will not be limited to just the potential manpower. Even the existing personnel at airports would also need to undergo training to bridge the skill gap. Therefore, while digitization is changing existing roles, it is also creating new roles in the aviation sector.
- **Rationalization of career progression and compensation practices**
  According to the paper **Skill Gap Analysis and Training Needs in Indian Aerospace Industry** by the Journal of Airline and Airport Management aviation (in India)[29], the sector is struggling to attract quality personnel who are increasingly being drawn to other sectors. A large part of the problem seems to be that the industry is associated with "shift work, declining perks, poor remuneration, and instability", which need to be addressed. Aviation is targeting the same skills as other technology-intensive industries. This makes it even more important to ensure compensation levels are competitive.

  A study conducted by MOCA[30] mapped career paths with typical lead times for the airlines and ground handling segments. It found slow career progression cycles, a minimum 2-3 years for ticketing and check-in staff, and a minimum of 5-7/8 years for cockpit crew and dispatchers in airlines. In ramp operations, there is no vertical career progression below the supervisory level, and trained personnel end up moving across airlines or overseas for growth. Other employees on the ramp include drivers/janitorial staff, who at times move to hospitality and facilities management sectors.

  The specialized training and education requirements of the aviation sector come at a high cost. To retain its work force and bridge the skill gap, recruitment, career progression and compensation practices in the industry need a relook urgently. India is significantly well placed considering the demographic profile. For aviation to be in a sweet spot, all stakeholders need to work together to capitalize on this huge talent pool.

[28] https://www.airsight.de/projects/item/airfield-pavement-inspections-using-drones/
[29] http://www.jairm.org/index.php/jairm/article/view/56/97
[30] Comprehensive skill gap analysis and future road map for skill development in civil aviation sector, 2016

Voices from industry – CEO Speak

- **Skilling remains a concern**
  It is felt by major stakeholders that investment in simulators is the need of the hour to deal with shortage of pilots. Retention of skilled work force is tough and there is a need to implement a talent pipeline through skilling universities and aviation academies. To tackle availability of skilled work force – pilots, engineers, and supervisory staff govt. has set up national aviation university. State governments have been proactive in this space with Govt. of Telangana having signed agreements with UK based university along with setting up of Telangana academy and T.S. Aviation academy, which trains more than 400 students per year.
- **Constrained airport infrastructure**
  Land availability for development of physical infrastructure remains a challenge and therefore, 400 airstrips lying vacant across the country since WWII must be utilized. Concepts such as land pooling (create a township with an airport), partnership between AAI and State government need to be explored. Even though AAI Act does not allow land monetization in a free manner but it is needed to make effective utilization of existing infrastructure

B. Investment in airport infrastructure

Growth in aviation is unlikely to be sustained without the necessary enabling physical airport infrastructure. Accordingly, the Central Government through its scheme 'NABH (Next Gen Airports for Bharat) Nirman' plans to expand airport capacity by more than five times to handle a billion trips in a year[31].

As per the Ministry of Civil Aviation, India would eventually need 150-200 airports to bring 90 percent of the Indians within 60-90 minutes of an airport[32] – much like the model of LPG universal coverage being adopted in the country.

Airports are currently faced with crippling capacity constraints. This has translated into all kinds of attendant impediments, including managing the flow of passengers through terminals during peak hours. There is also the challenge of the availability of night parking facilities for the aircrafts at the metro airports as well as in obtaining new slots for increasing the frequency or connecting new areas at a number of metro and Tier-1 airports.

Tackling this is expected to require a massive effort. The government must consider looking at policy-level interventions to: a) boost physical airport infrastructure, b) initiate programs for improving operational performance of airports.

01. Planned movement to multi-airport system

Due to constrained physical infrastructure at metro airports, one way out to improve airport capacity is to invest in and move towards multi-airport system. This would allow constrained airports to unburden air traffic movements and passenger flows to other nearby airports.

The government may, through stakeholder interactions (including airlines, airports and regulatory bodies), consider establishing a task force to explore the possibility of creating multi-airport system as well as its attendant aspects (such as policy for traffic allocation, tariff determination etc.) so that such competing/complementing airports remain viable in the long run. The task force may study various international models of creating multi-airport systems, and even draw from the Indian context. For example, the Railways' model of operating railways stations in the national capital could provide some learning. Indian Railways, while decongesting two of the biggest railways stations of the country – New Delhi Railway Station and Old Delhi Railway Station – has reorganized movement of trains through one of the other five major railway stations in the city[33].

The taskforce could also examine how best to manage the airspace between airports to provide unhindered access to aircrafts during take-off and landing. For this, they would need to consider all options – investment in CNS equipment, air traffic flow management system, and the use of automatic dependent surveillance broadcast system, among others.

02. Revisiting airport slot allocation mechanism

One of the potential ways to address airside capacity and slot availability at the airports is to consider trading of slots. In 2013, the Ministry of Civil

[31] http://pib.nic.in/PressReleaseIframePage.aspx?PRID=1518555
[32] http://www.moneycontrol.com/india/newsarticle/news_print.php?autono=9140981&sr_no=0
[33] https://www.indiatoday.in/india/delhi/story/northern-rly-shuffles-terminals-to-decongest-new-delhi-station-265523-2015-09-29

Aviation released guidelines for slot allocation at airports. These were intended to address: (a) the absence of a system for objectively assessing the available slots at an airport; (b) no mechanism to cancel slots; (c) the blocking of slots by airlines without using them; and (d) the absence of robust appellate mechanisms[34].

However, with the record air traffic growth in recent times, many airports across the country – both AAI-owned and PPP airports – are facing significant constraints in slot availability for newer flights. This problem seems to have been compounded through the implementation UDAN scheme on regional routes where smaller aircrafts carry fewer passengers and typically take more time during take-off and landing.

IATA's guidelines on slot allocation allow for trading of slots among airlines, a practice banned under the Indian regulatory framework. Globally the practice has been implemented in US, UK, and the European Union – allowing airlines to improve operational efficiencies and maximize the utilization of slots[35]. Therefore, it is well worth considering the mechanism in the country, with certain oversight from MoCA.

03. **Enhancing airport efficiency and asset utilisation**

Due to the extraordinary growth in passenger traffic, many airports have started handling traffic volumes close to their designed capacity two or three years ahead of projections. In order to sustain such growth in the near future, airport operators may need to adopt innovative measures to enhance passenger throughput, as it may not always be feasible to add fresh capacity through expansion.

Airport operators such as Schiphol Airport have explored sweating their assets, which implies improving operating efficiencies through the induction of better technology. This is tried to be achieved through superior terminal design and advanced automated baggage handling systems. A "one-roof-terminal-concept" is expected to bring in economies of scale and helps avoid unnecessary expenditure that may arise from duplicating facilities and infrastructure within multiple terminals. Moreover, the airport is working on a security system using biometrics, which would give them a higher passenger throughput.[36]

In addition, with advancements in technology and the adoption of better information systems, airport operators are likely to be able to manage their operations more efficiently, enhancing their ability to process more flights and passengers. In India, where the population density is high and acquiring land for further expansion and building Greenfield airports is not easy, it is critical to make optimal use of existing infrastructure for the growth of the sector.

Voices from industry

- **Policy paper on Multi-airport Systems:** Given the need of hub airports, the industry ought to also consider the policy and strategy needs of multi-airport systems. Concerns in operation, airspace use, traffic distributions between the airports, tariff control, First Right of Refusal, among others, are issues that need to be addressed in a policy paper.
- **Guidelines for development of no-frills airports:** There should be unanimity between airport operators, airlines and industry regulators at the Centre and in the states about 'No-Frills' airports. There is a need to open or reactivate airstrips in remote locations to enable access by fixed-wing aircrafts. This exercise will not only increase tourism footfalls to these remote destinations but also reduce pressure from existing airstrips like that of Leh, which cannot handle huge footfalls.

[34] https://www.aai.aero/en/system/files/employee_corner/MoCA_Guidelines_SlotAllocation21513.pdf
[35] http://planningcommission.nic.in/sectors/NTDPC/volume3_p1/civil_v3_p1.pdf
[36] https://www.itf-oecd.org/sites/default/files/docs/airport-restricted-capacity-analysis.pdf

Way forward

WINGS India 2018 proved to be a significant platform for key stakeholders of the aviation industry and the government to come together for a stimulating dialogue on the contours of a possible road map for the sector. While acknowledging the role of the different stakeholders in the growth of the industry, the government sought their inputs on policy framework to enable adoption of a more integrated approach to conducting business.

With the underlying theme of Regional Connectivity, which is a key area of focus for the government, aviation practitioners were convinced about the tenets and merits of the scheme. Even so, the need was felt to strike the right balance between the various components to ensure that the regional aviation market is sustainable in the long run. As was discussed and concluded during various industry interactions, there is a need to: a) bridge the gap in the requirement of skilled manpower in aviation industry, b) bring more focus to air cargo operations, upgrade the physical infrastructure in a big way and, c) exploit all avenues of growth for the sector to thrive in the decade to come.

The Government of India, through the National Skill Development Council (NSDC), is already looking at a host of initiatives to involve the industry in some of the programs launched to bridge the gap in skilled manpower. The government could also consider supporting a comprehensive program to impart the requisite knowledge and skills specifically for the aviation industry, such as government-sponsored apprenticeship programs for the industry.

According to industry sources, government must focus on the air cargo segment and could look at implementing a policy framework on the lines of UDAN scheme wherein freighter operations are incentivized just like passenger flows. The program could also possibly look at incentivizing air cargo movement from unconnected areas of the country. Building on the government initiatives already launched, the program must help enable faster adoption of online platforms for tracking and capturing air cargo movement.

Similarly, in order to sustain viability of a number of routes and for the demand to mature at regional airports, proactive actions are required on the part of both the states and communities. Such actions could include creating Regional Connectivity Forums for risk sharing and marketing of routes through tourism departments of various state governments in collaboration with hospitality industry and look at airport-centred urban development and promotion of General Aviation.

However, all these effort would not amount to much without the development of necessary infrastructure at airport terminals.

The time to get ready for headwinds is now.

About FICCI

Established in 1927, FICCI is the largest and oldest apex business organisation in India. Its history is closely interwoven with India's struggle for independence, its industrialization, and its emergence as one of the most rapidly growing global economies.

A non-government, not-for-profit organisation, FICCI is the voice of India's business and industry. From influencing policy to encouraging debate and engaging with policymakers and civil society, FICCI articulates the views and concerns of industry.

It serves its members from the Indian private and public corporate sectors and multinational companies, drawing its strength from diverse regional chambers of commerce and industry across states, and reaching out to over 2,50,000 companies.

FICCI provides a platform for networking and consensus building within and across sectors and is the first port of call for Indian industry, policymakers and the international business community.

About the event – Wings India 2018

The Wings India 2018 event was organized from 8-11 March 2018 at Begumpet Airport in Hyderabad. The event structured as International Exhibition and Conference on Civil Aviation provided a congenial forum catering to the rapidly changing dynamics of the sector, focusing on new business acquisition, investments, policy formation and regional connectivity.





The event intended to provide a much desired fillip to the aviation industry and provide a common vantage forum for connecting the Buyers, Sellers, Investors, and other stakeholders.





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