Exploring India's Connectivity Landscape

Using ATR's MobilityMonitor to explore airport access, demand, and future growth

ACCELERATING SUSTAINABLE CONNECTIONS

Why this analysis matters

India is making one of the most ambitious investments in aviation infrastructure anywhere in the world. Through the government's UDAN regional connectivity scheme, more than USD 2 billion have already been invested to support the goal of "letting the common citizen of the country fly."

The results have been impressive. Over the past decade, the number of operational airports has more than doubled, and nearly 650 new routes have been operationalised. But this is just the beginning: UDAN has been extended for another decade, and India plans to reach 230 airports by 2030.

The scale and pace of this expansion highlight the importance of data-driven insight for the aviation ecosystem, including:

- **How airport access and catchment areas evolve as the network expands**
- **Which city-pairs show the strongest potential to support sustainable air services**
- **How passenger demand and network scale could develop toward 2030**

This document outlines how these dimensions can be explored using 'MobilityMonitor', ATR's mobility analysis platform, to support informed discussion and strategic planning.

Indian government's UDAN so far:

ACHIEVEMENTS

→ 2B USD invested on regional connectivity

→ 650 new routes initiated

TARGETS

→ 230 new airports by 2030

From forecasting to “backcasting” demand

Predicting aviation demand is especially challenging in fast-growing markets. Traditional forecasts often rely on historical aviation data. In countries like India, however, travel behaviour evolves rapidly as infrastructure expands, making past flight data alone an unreliable guide to the future.

To address this, ATR developed the MobilityMonitor, a platform designed to analyse real mobility behaviour, not just aviation statistics.

ATR’s MobilityMonitor is built on anonymous data from 20 million travellers in India, capturing actual journeys made across all transportation modes, including rail, road, and air.

By aggregating these journeys, the platform allows users to:

- **Measure the total inter-city mobility market between any two locations**
- **Assess the current share of air travel within that market**
- **Identify where demand exists today, even where no air service is currently offered**

Working in collaboration with Georgia Tech University, ATR also developed models to estimate how the share of air travel could evolve on city-pairs that do not yet have direct flights.

Rather than producing a traditional forecast, ATR’s MobilityMonitor applies a “backcasting” approach. It starts with a snapshot of how millions of people move today, then adjusts the share of air travel to reflect the opening of new airports and new direct routes. This allows users to explore how infrastructure decisions could reshape future demand.

Assessing access to air travel and the need for more airports

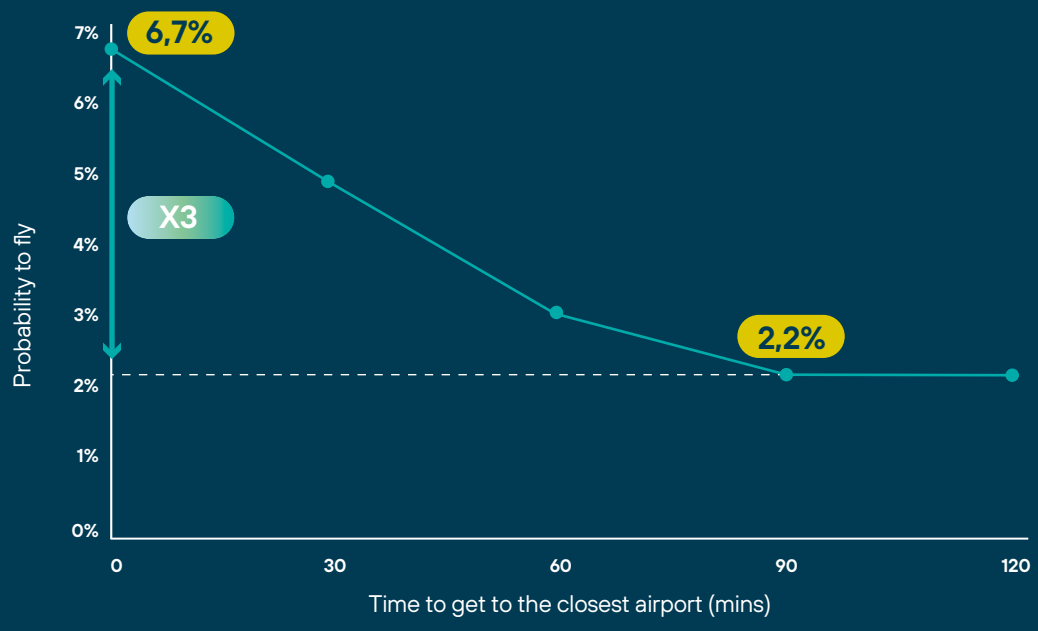
The UDAN programme defines its central objective as expanding access to air travel to a broader share of the population. Against this backdrop, the analysis begins by examining how many of India's approximately 1.4 billion residents currently have practical access to air services.

While airports exist across India, physical presence alone does not guarantee usage, distance and travel time play a decisive role in transport choices. If the nearest airport is too far away, travellers are more likely to choose alternatives such as trains, buses, or private vehicles. This is reflected in findings from ATR's MobilityMonitor, which show that air travel currently accounts for around 3% of India's domestic inter-city mobility market, compared with approximately 10% in China and the United States.

To better understand the relationship between airport accessibility and the use of air transport, we examined how the probability of a journey including a flight varies with travel time to the nearest airport. Using observations of millions of real journeys, ATR's MobilityMonitor evaluates changes in air market share as access times decrease.

The results reveal that when people are located within 90 minutes of an airport, the share of air travel in the overall mobility market increases significantly. Within this range, air demand can be up to 3 times higher than for populations located beyond the 90-minute travel time.

Probability to fly vs time to the closest airport (Fig1)



Applying this to the more than 120 mainland airports currently served by scheduled commercial flights, ATR's MobilityMonitor estimates that approximately 425 million people live within 90 minutes of an airport. While this is a substantial number, it represents only about 30% of India's population.

From an access perspective, this suggests that a majority of Indians still live beyond the distance at which air travel becomes a natural option, indicating how further expansion of the airport network could influence the share of air travel within the country and would play an important role in meeting UDAN's objectives.

Exploring the impact of 200 airports

The Indian government is already progressing toward its goals for new aviation infrastructure with a target of 230 airports by 2030. This provides a useful basis for assessing how access to air services may evolve under an expanded infrastructure scenario. For the purposes of this analysis, the ATR MobilityMonitor examined a 200-airport scenario.

At present, 39 airports are either under construction or already completed but currently limited to unscheduled operations.

We found at least 7 more locations which have advanced plans for construction, and then to take the total to over 200, we identified 38 existing airfields which could be developed. In total, MobilityMonitor generates a picture of mobility and air demand for some 85 additional airports.

ATR's MobilityMonitor allows users to visualise these airports and their effect on population coverage using an interactive map. When all the additional categories are added, the population with access to air services will increase by 175 million to over 600 million people. This represents a big achievement, one that will surely generate a sizeable increase in demand for air services.

→ Increasing airline market access by 1.5x

Airlines can only serve markets where airports exist. However, the lack of an airport does not imply the absence of mobility demand, especially in a country with an extensive rail network such as India.

ATR's MobilityMonitor estimates that India's total inter-city mobility market is currently around 4.6 billion journeys per year, across all transport modes.

The catchment areas of today's roughly 120 mainland airports with scheduled services generate around 2.5 billion journeys per year by all modes of transport. This means that nearly half of the country's mobility demand remains outside the reach of air services.

The catchment areas of the additional 85 airports generate a further 1.25 billion inter-city journeys per year across all modes of transport, expanding the portion of the mobility market accessible to airlines by a factor of 1.5 compared with today.

This expansion of access creates conditions for new routes and new passenger flows to emerge, giving travellers the chance to experience the benefits of air travel, and communities to be connected by new direct air routes.

→ Nearly half of the country's mobility demand remains outside the reach of air services.

→ New routes and new passenger flows can be increased, as well as new communities can be connected.

Identifying new routes and passenger demand

→ 900 new routes & 90 million more passengers

Using models built on hundreds of observed city-pairs across India, ATR's MobilityMonitor estimates potential demand for air services based on travel time and cost comparisons across transport modes.

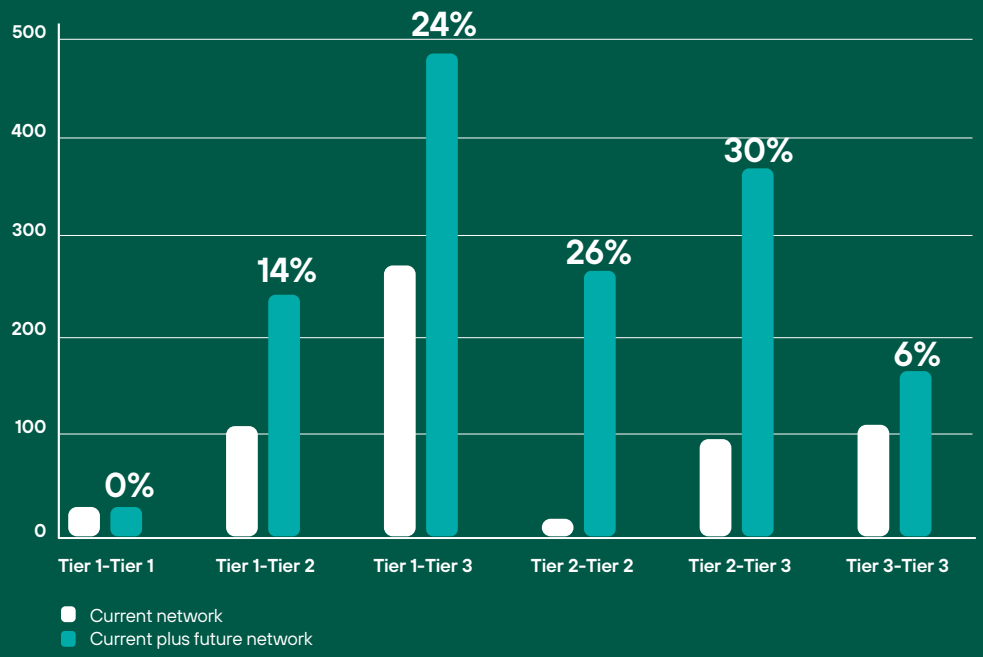
At a national level, the platform identifies over 900 new city-pairs (Non-directional Origin & Destination pairs) with a minimum potential demand of 9,000 passengers per year. If realised, this would expand India's domestic network to more than 1,500 routes. Notably, none of these new routes involve connections between Tier 1 cities.

All new routes involve a Tier 2 or Tier 3 city at at least one end of the journey, with:

- **30% connecting Tier 2 and Tier 3 cities**
- **62%* involving only Tier 2 or Tier 3 cities**

Number of routes by city tier flow (Fig2)

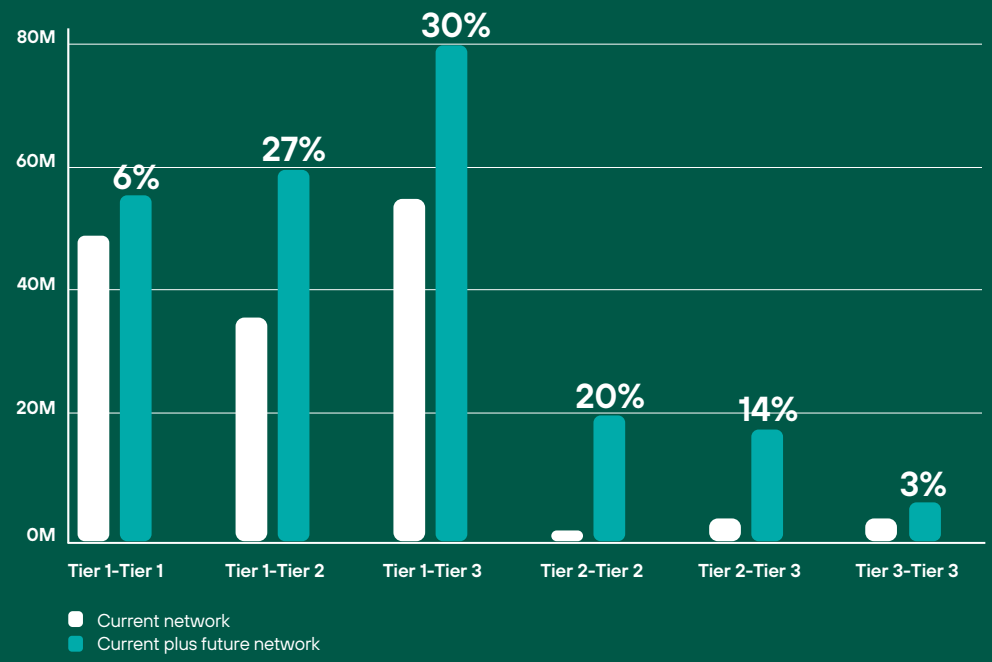
Non-directional domestic O&D pairs | Source: MobilityMonitor



* Refers to the percentage of growth in number of domestic routes 26% + 30% + 6% = 62%

Passenger demand by city tier flow (Fig3)

Annual passengers | Source: MobilityMonitor



Passenger demand is expected to grow accordingly. Domestic passenger volumes are expected to expand by 90 million from today's 150 million per year, to 240 million. Nearly 95% of this volume will involve at least one Tier 2 or Tier 3 city.

Understanding the regional aviation opportunity

Regional routes, defined by distances under 740 km (400 NM), are particularly important in India. More than 90% of all inter-city journeys across all modes fall within this range. This is where turboprop technology offers advantageous economics and the best solution for airlines.

Despite this, air penetration in the regional mobility market remains low, at around 3%. Given that over 4 billion journeys under 740 km are made each year, even a 0.2% increase in market share toward air travel would generate 10 million additional regional passengers.

Assuming turboprop aircraft are deployed on new routes and on services with demand below 750 passengers per week, ATR's MobilityMonitor estimates that approximately 35 million of the 90 million additional passengers could be carried on regional routes. Generating this many new regional air passenger requires a mode-swap from ground transport of only 0.7% of the estimated total mobility market of 4.6B annual inter-city journeys.

At route level, close to half of all new origin-destination pairs fall within the regional segment.

→ ATR's MobilityMonitor estimates that approximately 35 million of the 90 million additional passengers will be flying on regional routes.

What this means for India's aviation future

India's mobility market is vast and evolving rapidly. Supported by direct government action under UDAN, the expansion of airport infrastructure has the potential to significantly reshape how people travel across the country.

By observing real travel patterns through ATR's MobilityMonitor, it is possible to develop evidence-based insights into how access, routes, and demand may evolve as the airport network grows. These insights show that for the Indian air transport system with over 200 airports, the analysis suggests the potential to:

- ➜ Convert up to 90 million new domestic air passengers from a mobility market of 4.6 billion annual journeys
- ➜ Create 900 new domestic origin-destination pairs
- ➜ Generate a demand of 35 million annual regional passengers
- ➜ An addition of approximately 420 new regional routes

This user guide is intended to help readers understand not only the scale of India's aviation ambition, but also how data-driven tools can be used to explore its practical implications for connectivity, access, and regional growth.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