

India's Journey to a **TOP 5 AVIATION HUB**



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Setting The Stage

India stands at the threshold of a transformative era in aviation, with ambitious plans to become one of the world's major aviation hubs by 2040. The Indian government, supported by industry leaders and key stakeholders, is spearheading initiatives that promise to revolutionize the aviation landscape. This thought leadership delves into the critical elements of this grand vision, highlighting the steps needed to overcome challenges and realize this ambitious goal.



Current Scenario

The Indian aviation sector has witnessed unprecedented growth in recent years. From expanding infrastructure to increasing fleet sizes and enhancing passenger services, the country is on a fast track to becoming a global aviation powerhouse.

As one of the world's fastest-growing major economies, India's aviation sector has seen remarkable expansion in recent years, driven by an increasing middle class, rising disposable incomes, and an increasing appetite for domestic and international air travel. According to the Directorate General of Civil Aviation (DGCA), **domestic air passenger traffic in India grew by 14.8% year-on-year to reach ~172 million passengers in FY 2023-24¹.**

The International Air Transport Association (IATA) projects that India will become the third-largest aviation market globally by 2024, surpassing the UK².

With a population of over **1.3 billion**, India boasts a massive consumer base steadily taking to the skies, fuelling strong demand for passenger and cargo services. The air cargo segment has also shown significant growth, with total air cargo volumes handled by **Indian airports reaching 3.14 million metric tonnes in FY 2021-22**, despite the challenges posed by the COVID-19 pandemic³.

1. Directorate General of Civil Aviation (DGCA) - Annual Report 2023-24

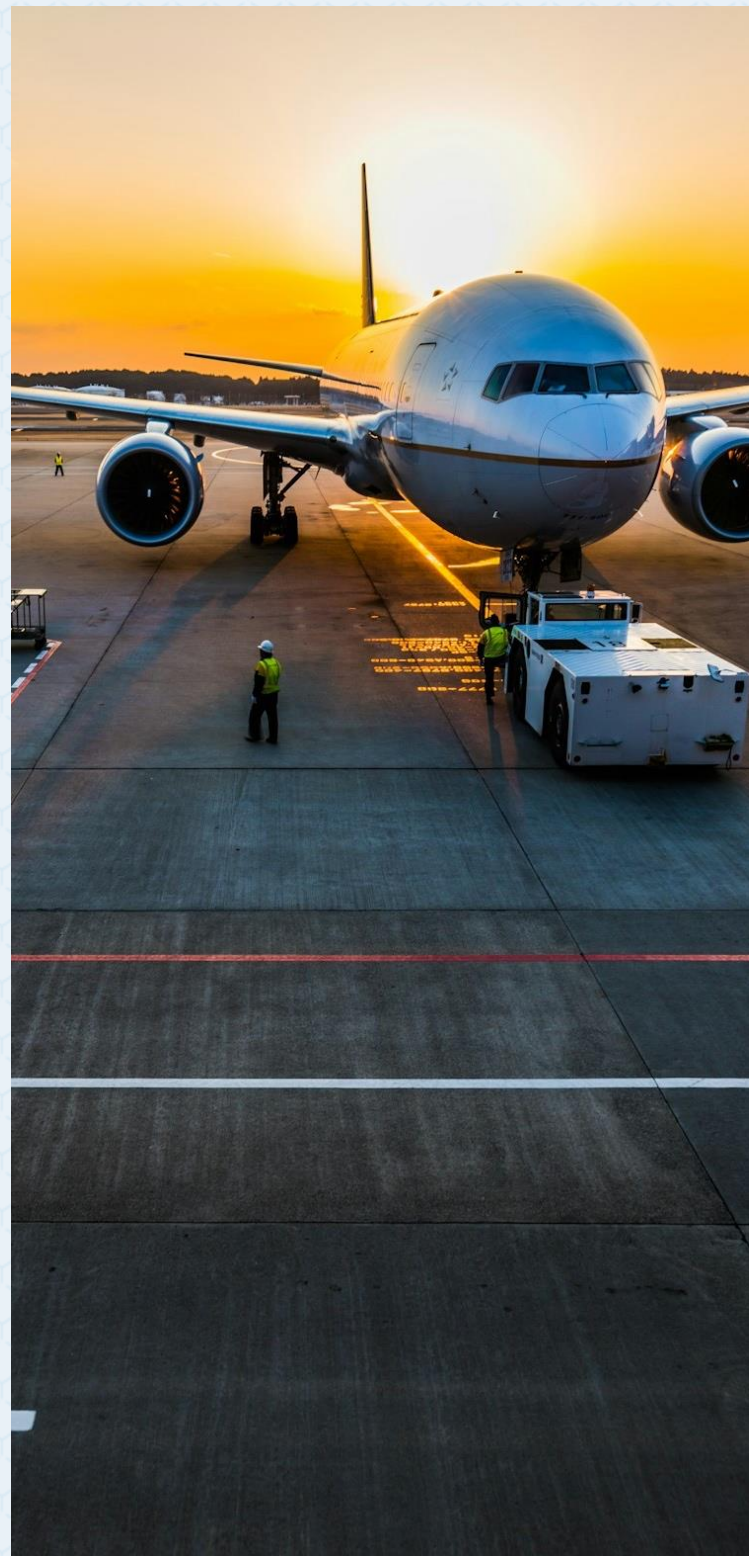
2. International Air Transport Association (IATA) - 20-Year Air Passenger Forecast, 2022

3. Airports Authority of India (AAI) - Annual Report 2021-22

The country's strategic geographic location, nestled between Europe, the Middle East, and Southeast Asia, further positions it as an ideal transit point, allowing airlines to leverage India's central position to establish efficient, cost-effective routes and connectivity across the region. This advantage is reflected in the increasing number of international passengers, which grew at a **CAGR of 6.1%** between FY 2016-17 and FY 2019-20, before the pandemic-induced slowdown⁴.

Additionally, the Indian government has undertaken significant initiatives to strengthen the aviation industry, including infrastructure upgrades, policy reforms, and incentives to attract investment, all of which have contributed to a thriving ecosystem for airlines, airports, and ancillary services. Reforms like the National Civil Aviation Policy 2016, the **GST rate reduction for MRO from 18% to 5%**, and privatization of Air India, are all testament to the Indian government's significant initiatives. The government's **UDAN (Ude Desh ka Aam Nagrik)** scheme has been particularly successful in enhancing regional connectivity, with 517 UDAN routes connecting 76 underserved/unserved airports operationalized as of December 2023⁵.

However, significant strides must be made in various industry sub-sectors to achieve the status of an aviation hub akin to Singapore, Dubai, or Doha. These include further improvements in infrastructure, enhanced operational efficiency, and continued technological advancements.



4. Ministry of Civil Aviation, Government of India - Annual Report 2021-22

5. On Line Bureau, ET TravelWorld. (2023, December 5)



Key Growth Drivers

A Infrastructure Development

One of the fundamental elements in transforming India into an aviation hub is robust **infrastructure development**. The number of operational airports are expected to grow to over 300 by 2047. But this includes not only the expansion of existing airports but also the creation of new ones in strategic locations. The government's UDAN scheme aims to enhance regional connectivity by developing under-served airports nationwide, making air travel accessible to broader populations. For instance, Darbhanga airport has emerged as a top airport under the UDAN scheme, seeing a **4x growth from 1,53,000 passengers handled in 2020-21 to 6,20,000 passengers handled in 2021-22**. Additionally, Bagdogra and Guwahati Airports have also shown a massive increase in passenger traffic since inception.

B Passenger Demand

Another important driver is the **growing passenger demand**. According to experts, the number of air passengers is expected to increase from **376 million to 3–3.5 billion by 2047**. This is more than an eightfold increase. Moreover, the key factors driving this is the growing middle class, record-breaking infrastructure investments and the growing economy with per capita income expected to reach **\$18,000 by 2047**.

C Fleet Expansion

Fleet expansion is another crucial driver for the growth of the Indian aviation sector. Indian airlines have already placed significant aircraft orders with major manufacturers like Boeing and Airbus, preparing to meet future demand. The aircraft fleet in India is expected to grow from **713 in 2022 to 1,647 by 2032**, according to Boeing's Commercial Market Outlook⁶, indicating the industry's robust growth prospects. The increasing fleet size will encourage domestic and international connectivity, making India a pivotal player in global aviation networks.

D Regulatory Reforms

To facilitate smoother operations and attract investments, **regulatory reforms** are essential. Streamlining approval processes, easing restrictions, and implementing policies that encourage foreign direct investment (FDI) will create a conducive environment for growth. In addition, enhancing safety standards and ensuring compliance with international aviation norms will build global trust and credibility.



For instance, after privatization, Delhi Airport's ranking in the Airport Service Quality survey improved from 101 in 2007 to 1 in 2017 in its category⁷. The adoption of the National Civil Aviation Policy (NCAP) 2016 led to a significant increase in domestic air traffic, growing from **85 million passengers** in 2015-16 to **144 million** in 2019-20, a **69% increase over four years**⁸. Additionally, the relaxation of drone regulations has spurred innovation in areas like agriculture and emergency services. These reforms have not only boosted the aviation sector's growth but also enhanced passenger experience and regional economic development.

Moreover, in a landmark move, the Directorate General of Civil Aviation (DGCA) issued comprehensive guidelines for vertiports in the first week of September 2024, marking a significant step towards advanced air mobility in India. These guidelines establish standards for the development and operation of vertical takeoff and landing (VTOL) infrastructure, including electric vertical takeoff and landing (eVTOL) aircraft. The rules cover crucial aspects such as safety standards, infrastructure requirements, operational procedures, and integration with urban air mobility (UAM) frameworks. By providing clear definitions for vertiports and outlining specific criteria for their construction and management, the DGCA has laid the groundwork for a new era in Indian aviation.

This forward-looking reform not only aligns India with global trends in the aviation industry but also paves the way for innovative transportation solutions. The guidelines are expected to accelerate the development of vertiports and UAM networks, potentially revolutionizing urban transportation by reducing congestion, improving connectivity, and offering more sustainable travel options. Furthermore, this initiative opens up new opportunities for economic growth, technological advancement, and skill development in the aviation sector, positioning India as a potential leader in the emerging field of advanced air mobility.

E Skill Gap

Lastly, addressing the skill gap in the aviation industry is vital. According to industry estimates, the aviation sector currently has a staggering **17% deficit** of skilled workers, a figure that is projected to widen to a concerning 25% over the course of this year alone. The pilot shortage is particularly alarming, with experts estimating a requirement of **2,500-3,000 pilots** in the upcoming year, while the country produces only a third of that number due to inadequate infrastructure and a lack of flight instructors.



7. Ministry of Civil Aviation, Government of India Annual Report 2020-21

8. Ministry of Civil Aviation, Government of India Annual Report 2020-21



Lately, international airlines such as Turkish Airlines, Riyadh Air, and Saudia are increasingly looking to hire cabin crew from India, driven by several strategic factors. India's aviation and hospitality sector, with over **500,000 skilled professionals**, offers a rich talent pool that appeals to global carriers. This trend also aligns with the country's booming outbound travel market, which saw over **65 million international passengers in FY24**.

By bringing Indian cabin crew on board, these airlines aim to create a culturally familiar environment for Indian passengers, enhancing the travel experience and potentially boosting customer loyalty. The multilingual capabilities of Indian crew, reflecting the country's linguistic diversity with over **20 official languages**, further enhance their appeal to international carriers.

Additionally, while not the primary factor, India's competitive wage structure offers an opportunity for airlines to optimize costs while maintaining high service standards. Altogether, this interest in hiring from India highlights the country's skilled workforce and its growing importance in the global aviation landscape. As the demand for international travel continues to grow, ensuring an increasing supply of highly skilled crew members will be essential to meeting industry needs and maintaining service excellence.

In case of the drone industry, there are two main roles: pilots and analysts. Drone pilots are often photographers who receive training to fly drones. When a drone company identifies a photographer willing to operate drones, they offer a starting salary of INR 20,000 per month, which includes accommodation. The company also invests INR 60,000 for the pilot's licensing, a process that takes at least six months. After obtaining their license, the pilot's salary is increased to INR 30,000 per month.

On the other hand, analysts are typically college graduates hired to interpret the data collected by drones. **Beginners in this role are paid between INR 18,000 to 22,000 per month**, while senior analysts earn between INR 30,000 to 35,000 per month.

Both pilots and analysts can work as freelancers, providing flexibility and a variety of job opportunities offered by different drone operators. However, to ensure a ready supply of skilled drone pilots, colleges need to design better curricula that prepare students for careers in the drone industry.

Initiatives to train and upskill aviation professionals, from pilots and engineers to ground staff and air traffic controllers, will ensure that the industry has a robust workforce capable of supporting its ambitious growth trajectory. Collaboration with global aviation academies and institutes can further enhance the quality of training programs available in India.

By focusing on these key growth drivers, India can set the foundation for a thriving aviation sector, prepared to become a global hub.





Case Study & Global Benchmark



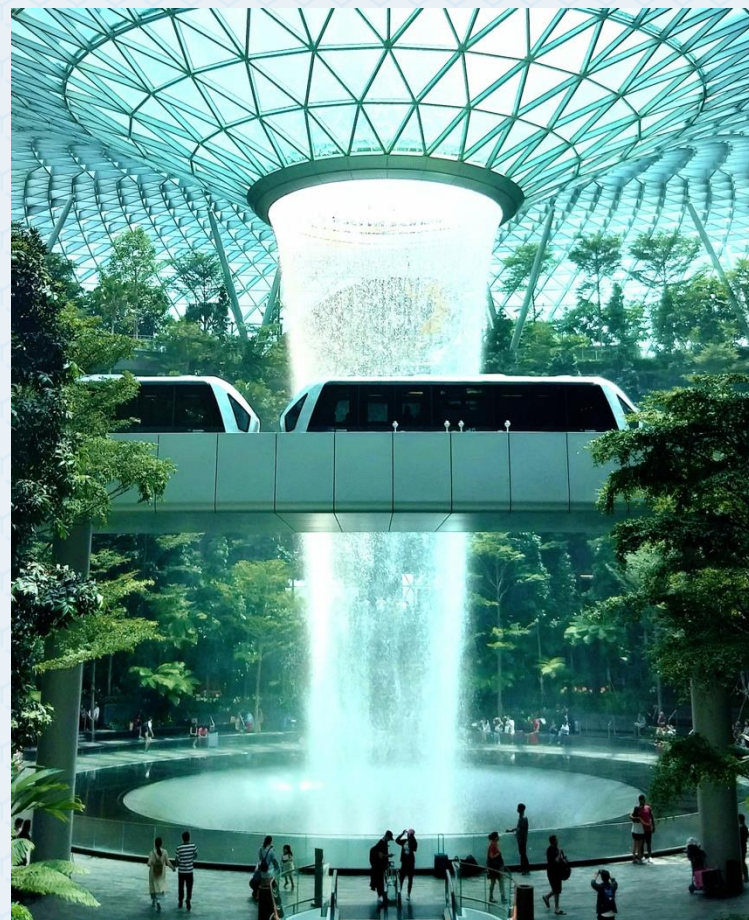
Changi Airport's FAST Initiative

Singapore's Changi Airport has implemented its Fast and Seamless Travel (FAST) initiative, revolutionizing the passenger experience through technological advancements. The airport employs biometric processing and automated bag drops, reducing check-in times by up to 70%. Smart security screening with advanced CT scanners allows passengers to leave liquids and electronics in bags, processing 280 passengers per hour, up from 180.

AI-powered robotic assistants enhance customer service, while data analytics optimize staffing and passenger flow. In response to COVID-19, Changi implemented contactless solutions, including proximity sensor kiosks. These innovations have contributed to Changi's efficiency, processing 82 million passengers in 2019. The airport's commitment to technology has earned it the World's Best Airport title for eight consecutive years (2013-2020).

Changi Airport, known for its efficiency, processes most passengers quickly, though exact times vary. In contrast, processing times

at major Indian airports can be longer. India's Digi Yatra biometric system is in the early stages as of now – operational at select airports and only for domestic passengers. Changi's automated solutions are more extensively implemented. By adopting similar technologies, Indian airports could potentially reduce processing times and increase efficiency, supporting India's hub aspirations.





Increasing Operational Efficiency

Based on these case studies and considering India's unique position and challenges, India can leverage technological advancements to significantly enhance operational efficiency in its aviation sector. These strategies encompass critical aspects of digital transformation, automation, data analytics, and human resource development, which are essential for creating a world-class, technology-driven aviation ecosystem. Below are two major recommendations for improving operational efficiency, and transforming the Indian aviation experience.



Building Integrated Security Checks

Integrated Security Check (ISC) represents a paradigm shift in airport security procedures, proposing a unified and streamlined approach to security checks for passengers, regardless of their domestic or international travel status. Unlike the traditional practice in India, where immigration precedes security checks, ISC reverses this flow, offering a more efficient and passenger-friendly experience.

In an Integrated Security Check system, passengers undergo a single security screening process including security checks for both domestic and international passengers. This innovative model aims to reduce the complexities of separate security checks for international and domestic travelers, fostering operational efficiency and enhancing the overall passenger experience.

Studies show ISC can decrease processing times by 20-30%, leading to shorter queues, improved passenger satisfaction, and potentially increased flight punctuality. Moreover, passengers can navigate through the airport with greater ease, experiencing a more fluid journey from check-in to boarding. This streamlined experience contributes to higher levels of customer satisfaction. Moreover, Airports achieve significant cost savings by reducing manpower requirements and optimizing infrastructure usage. Streamlined passenger flow allows for better resource allocation and improved airport capacity utilization.

Further, Separate security checks for international and domestic passengers often result in longer queuing times, especially during peak hours. ISC reduces these queues by consolidating the processes, ensuring a smoother and more efficient flow of passengers through the airport, ultimately enhancing the passenger experience.

United States widely adopted ISC in the early 2000s, resulting in significant efficiencies. For instance, Los Angeles International Airport (LAX) reported a **30% reduction** in passenger processing time and a 20% increase in operational efficiency after implementing ISC, according to their published internal reports.

The transition to Integrated Security Checks can be approached through a phased implementation strategy. This involves collaboration between airport authorities, security agencies, and immigration authorities to gradually integrate processes, address challenges, and monitor the impact on efficiency and security.

Further, pilot programs can serve as a valuable testing ground for implementing Integrated Security Checks. Selecting a few airports or specific terminals for pilot programs allows stakeholders to assess the feasibility, identify potential challenges, and fine-tune procedures before broader implementation. Moreover, investing in advanced screening technologies and biometric solutions is critical for the success of Integrated Security Checks. The adoption of technology will help enhance security measures while contributing to a more efficient and passenger-friendly process.

The implementation of Integrated Security Checks is an evolving process that requires continuous evaluation and improvement. Regular assessments, feedback loops, and data-driven analyses help identify areas for enhancement, ensuring that the integrated model remains effective, secure, and aligned with the dynamic nature of the aviation industry. Moreover, 23% respondents to the Primus Partners survey said Security Checks need the most improvement, when asked to choose what aspect of Indian Airports need the most improvement.



While there are potential risks associated with Integrated Security Checks, careful planning, technology integration, and stakeholder collaboration can effectively mitigate these concerns. The way forward involves a phased and collaborative approach considering India's aviation landscape's unique challenges and opportunities.

By embracing Integrated Security Checks, India's airports can position themselves as forward-thinking, efficient, and passenger-centric hubs, contributing to the country's economic growth and global competitiveness in the aviation sector. The time is ripe for Indian aviation authorities, industry stakeholders, and policymakers to consider the adoption of Integrated Security Checks as a strategic initiative that aligns with international best practices and ensures a secure and seamless travel experience for all passengers.





Establishing a Common Security Hold Area

The security hold area of an airport is a vital space where passengers wait after passing through security checks and before boarding their flights. In a few countries, including India, there has been a historical practice of maintaining separate security hold areas for domestic arriving and departing passengers. However, the concept of a Common Security Hold Area (CSHA) challenges this tradition by proposing a unified space for both sets of passengers.

The Common Security Hold Area is designed to streamline the passenger experience by eliminating the need for separate security and separate waiting areas. In a CSHA, passengers share a common space after clearing security checks, regardless of whether they are departing or arriving. This innovative approach has been used globally due to the potential to enhance operational efficiency, reduce costs, comply with minimum connecting times, and improve the overall passenger experience. The concept of a common SHA for Domestic passengers has been adopted and put to good use by most countries around the world.

CURRENT DOMESTIC PASSENGER FLOW

SEGREGATED DEPARTURES & ARRIVALS

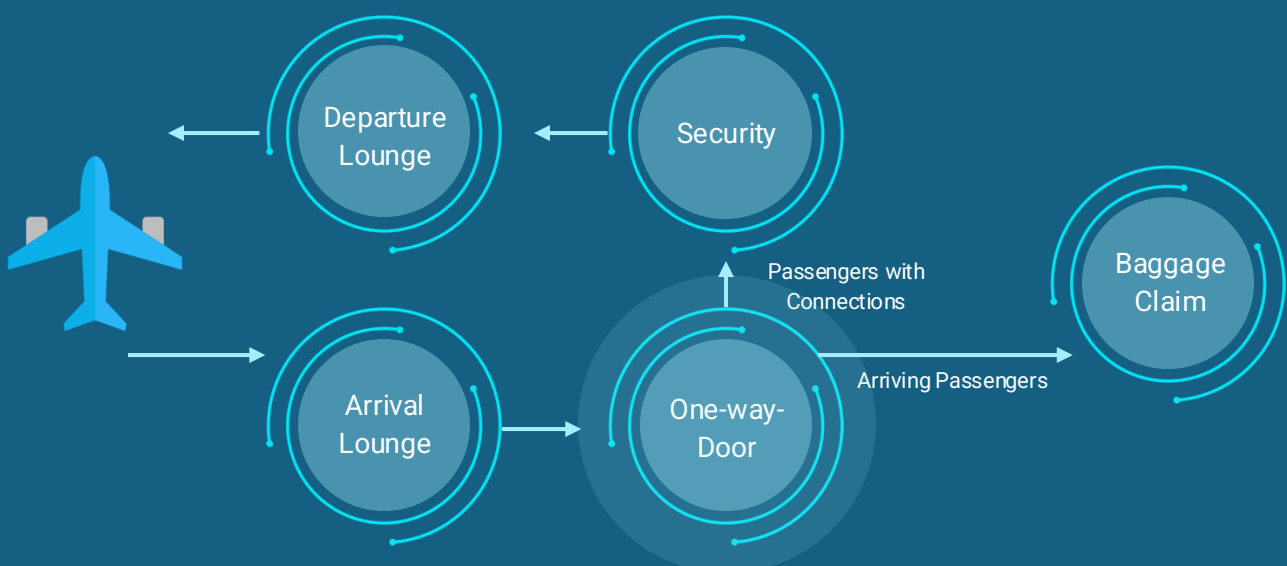


Figure 1

PROPOSED DOMESTIC PASSENGER FLOW

SEGREGATED DEPARTURES & ARRIVALS

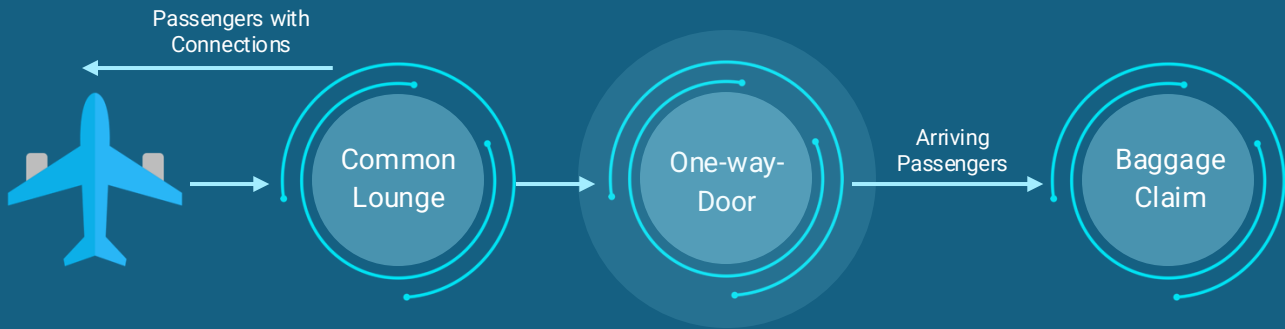


Figure 2

The diagram illustrated in Figure 1 shows the current domestic passenger journey at an Indian Airport. The diagram in Figure 2 shows how a common use security hold area cuts down connection time by removing an additional security check as well as optimises security personal requirement, which helps bring in operational efficiencies and cost savings.

To significantly reduce transit time, a common SHA provides an optimal solution. In India, the Bureau of Civil Aviation Security (BCAS) Circular No. 28/2006 applies uniform security standards across airports for domestic passengers in India. However, a passenger boarding in CCU and connecting to BLR via DEL needs to undergo security screening again at DEL even though they remain within the security hold area given that the security requirements are the same as per BCAS. The concept behind CSHA makes sense as the connecting passenger has not left the secure environment on the aircraft or the airport.

There are multiple benefits to using a well-designed Common Security Hold Area (CSHA).

Few important points are:

1

Reduced Connection Time and Faster Aircraft Turnaround:

It has been assessed through studies at global airports and interviews that a CSHA can help reduce connection times by 40 minutes or more on an average. A reduced connection time helps airlines with reduced turnaround times, and this enables them to maximize the utilization of their fleets by minimizing ground time between flights. The below factors play a pivotal role in helping airports with a CSHA reduce their connection time:

- A. **Elimination of Duplicate Security Screening:** With a common SHA, passengers only need to undergo security screening once, reducing duplication and saving time. This can lead to a significant reduction in connection times, potentially by 15 to 30 minutes per connection and a reduction in security staff and security equipment required.
- B. **Efficient Passenger Flow:** A common SHA facilitates smoother passenger flow within the terminal, allowing passengers to move quickly between arrival and departure gates. This efficient flow helps reduce connection times by minimizing the distance passengers need to walk between gates, potentially saving 10 to 20 minutes per connection.
- C. **Improved Coordination and Gate Assignments:** Airports with a common SHA can better coordinate flight schedules and gate assignments, reducing the likelihood of distant gate changes between connecting flights. This improved coordination can save passenger time by minimizing the need to rush between gates, potentially reducing connection times by 10 to 20 minutes per connection.

2

Operational Efficiency and Improved Resource Utilization:

One of the key advantages of a Common Security Hold Area is the improvement in operational efficiency. The current practice of maintaining separate security hold areas often leads to redundant facilities, including security personnel, screening equipment, and infrastructure. In a CSHA, resources can be allocated more effectively, reducing duplication, and optimizing operational costs. A CSHA allows for better utilization of resources, including staff and equipment. With a shared space, security personnel can be deployed more efficiently, and screening processes can be streamlined. This optimization not only reduces operational costs but also contributes to a more sustainable and eco-friendly airport operation.

3

Security Effectiveness

The centralized nature of security operations in a CSHA allows for better coordination, information sharing, and response to potential threats. This collaborative approach ensures a higher level of security for both passengers and airport infrastructure.

4

Adapting to Changing Travel Patterns

As travel patterns evolve, with more passengers opting for connecting flights or experiencing layovers, the flexibility of a Common Security Hold Area becomes crucial. Further, experts have estimated that the **connection time can be cut short by up to 90%** at in India.

5

A common Security Hold Area plays a pivotal role in facilitating the increase in non-aeronautical revenue at airports. By consolidating security screening into a single, efficient space, the SHA streamlines passenger flow, encouraging more travellers to explore and engage with the commercial zones. This heightened foot traffic in the commercial areas translates directly into increased sales and revenue opportunities for businesses operating within the airport premises. This in turn helps on reducing the cost of flying for the passenger.

With India boasting one of the largest domestic aviation markets globally and experiencing unprecedented growth, it's imperative to uphold air travel quality and enhance efficiencies across airports. By embracing the Common SHA model, India's airports can contribute to the nation's economic advancement, improve global competitiveness, and deliver a more efficient and enjoyable travel experience for passengers. In fact, 60% of the respondents to a Primus Partners survey were in favor of or unsure about Common Security Hold Area as a practice.

A timely opportunity presents itself for Indian aviation authorities, industry stakeholders, and policymakers to view the adoption of a Common SHA for domestic passengers as a strategic step toward modernizing and prioritizing passenger-centric aviation infrastructure.



Conclusion & Way Forward

The vision of transforming India into a global aviation hub by 2040 is both ambitious and achievable, with operational efficiency and technological advancements serving as key catalysts for this transformation. As we have explored throughout this paper, the path to realizing this vision lies in embracing cutting-edge technologies, optimizing operations, and fostering innovation across the aviation ecosystem.

The current scenario in Indian aviation, characterized by rapid growth in passenger traffic and expanding infrastructure, provides a solid foundation for future development. Key initiatives such as Digi Yatra and AirSewa are already paving the way for enhanced operational efficiency and improved passenger experiences. These programs, focused on paperless travel and streamlined grievance redressal, demonstrate India's commitment to leveraging technology for aviation growth.



Learning from global best practices, as evidenced by our case studies, India can accelerate its journey towards becoming an aviation powerhouse. The implementation of integrated airport management systems, biometric technologies, and data analytics will be crucial in optimizing resources, improving decision-making, and enhancing overall operational efficiency.

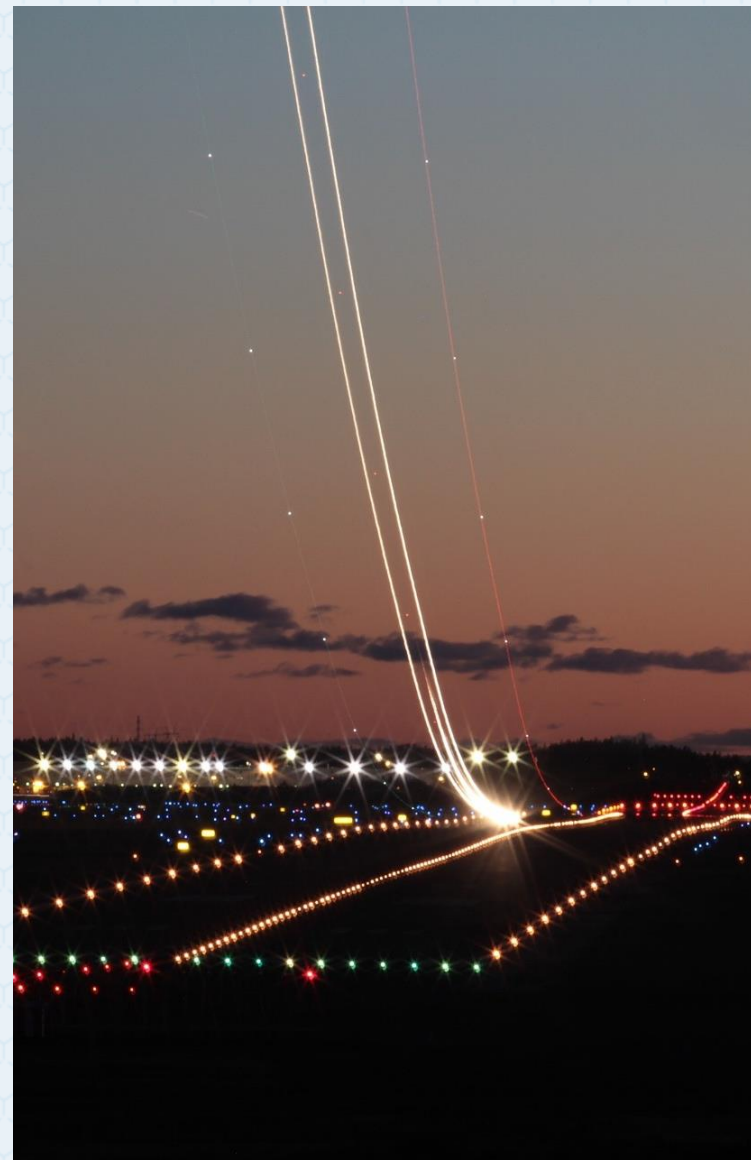
The ongoing efforts to increase operational efficiency, particularly through the implementation of Integrated Security Checks and Common Security Hold Areas, will play a pivotal role in streamlining passenger flow and maximizing airport capacity utilization. These innovations not only improve the passenger experience but also contribute to the overall efficiency of airport operations. In addition, job offers in India can be made more attractive to prevent skilled workers from moving to other countries for better opportunities.

To fully capitalize on these advancements, India must prioritize the development of a skilled workforce capable of managing and innovating within this high-tech environment. This will require close collaboration between the aviation industry, educational institutions, and the government to create tailored training programs and foster a culture of continuous learning and innovation.

As we look to the future, the challenges are significant, but the potential rewards are immense. With continued focus on operational

efficiency, supported by strategic policy initiatives and collaboration across sectors, India is poised to emerge as a leader in the global aviation landscape. This transformation will not only revolutionize air travel within India but will also contribute significantly to the country's economic growth, enhance its global connectivity, and cement its position as a key player in the international aviation community.

The journey to 2040 begins now, with every technological implementation, every efficiency gain, and every innovative solution bringing us one step closer to realizing the vision of India as a world-class aviation hub.



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