SKIES UNLOCKED: A GUIDE TO AIRSPACE INTEGRATION OF AAM VEHICLES

March 2025

As urban skies grow busier, the challenge is no longer just how to fly—but how to fit.

Skies Unlocked offers a data-driven, globally benchmarked roadmap for integrating Advanced Air Mobility (AAM) vehicles into national airspaces. From regulatory frameworks to digital traffic systems, **we highlight what's working, what's missing, and how India can lead.**

CONTENTS

THE AAM ADVANTAGE: WHY IT'S NOT SCIENCE FICTION ANYMORE

Advanced Air Mobility (AAM) isn't coming—it's already circling overhead, waiting for the green light. In the last five years, cities, regulators, and industry have quietly laid the foundation for the next major shift in how people and goods move through dense urban & remote rural environments. Powered by eVTOL (electric vertical and takeoff landing) aircraft, automated traffic systems, and reimagined airspace, AAM has moved from theoretical whiteboards to practical deployment. And the question for governments now is not if, but how fast they catch up.

This report benchmarks 25 countries across eight readiness indicators, uncovering who's ready for takeoff—and who's still stuck in pre-flight. But we also go a step further. Drawing on recent case studies, infrastructure trials, and global best practices, we highlight what it will take to activate AAM corridors—not in theory, but in real-world timelines and time savings.

GLOBAL READINESS. LOCAL IMPERATIVE

This report is driven by a simple premise: *AAM is inevitable. But readiness is optional.* Nations that act now—updating regulatory frameworks, activating low-altitude corridors, and investing in enabling infrastructure—will shape the future of urban transport. Those that hesitate will be left trying to retrofit yesterday's systems for tomorrow's challenges.

To that end, this study sets out to answer three core questions:

What regulatory frameworks currently govern Advanced Air Mobility around the world, and how well do they support safe, scalable deployment?

What operational, technical, and legal barriers stand in the way of AAM integration—especially in complex, high-density airspace like India's?

How can India learn from international best practices to close its readiness gaps and build a forward-looking regulatory environment for AAM?

Our benchmarking divides countries into four clusters - The ***Emerging Flyers*** who are at the early stages of considering AAM flight; The ***Rising Navigators*** who have gone beyond the bare basics, and have foundational building blocks in place; The Advanced Aviators who have sophisticated protocols and are gearing up for commercial services over the medium term; and The Sky Leaders, a small group that is leading the pack in the overall airspace integration of AAM into their airspace.

This isn't just a mapping exercise, and the report goes beyond diagnostics. It delivers:

A global scan of policy and market frameworks

A strategy for India to activate AAM within 24–36 months

A visual maturity model to benchmark progress

Risk mitigation playbooks for investors, cities, and regulators

METHODOLOGY: MAPPING THE SKY WITH DATA

Airspace is complex. So is comparing how 25 countries are preparing to manage it. To make sense of that complexity, we developed a structured benchmarking methodology—grounded in both policy analysis and quantitative modeling.

Qualitative Assessments of regulatory documents, government initiatives, and AAM-related pilot programs

Quantitative Scoring of eight key readiness parameters—from airspace segmentation and UTM deployment to certification frameworks and compliance mechanisms

Strategic Weighting to prioritize the most critical enablers of scalable AAM operations

Multivariate Cluster Modeling to group countries into meaningful maturity segments, based on shared traits and trajectory

Data sources include regulatory filings from aviation authorities (FAA, EASA, ICAO, DGCA), government strategy documents, expert interviews, industry white papers, and public domain research from academic institutions and think tanks.

The result is a thorough comparison of AAM readiness across airspce integration focused parameters - and a tailored set of insights for India, positioned not just as a global learner, but a potential leader.

INDIA'S FIRST AIR TAXI ROUTES: MINUTES, NOT HOURS

Some trips were never meant to be driven. India's metro regions are primed for eVTOL routes that dramatically cut travel times while reducing road congestion and emissions. These routes aren't hypothetical—they're operationally feasible and economically meaningful (Table 1).

These early pilot routes represent strategic opportunities for state governments and private operators to launch proof-of-concept services—while instantly demonstrating public value through drastic reductions in travel time, emissions, and congestion.

DRONE USE CASES ALREADY FLYING UNDER THE RADAR

While air taxis get the headlines, short-range drones are already proving how aerial logistics can deliver public value (Table 2).

CITY/REGION	ROUTE	DISTANCE	BY ROAD	BY AIR	IMPACT
Delhi NCR	New Delhi - Jewar Airport	~80 km	2-3 hrs	~30 mins	Cuts peak congestion; links city to new hub
Delhi NCR	Gurugram - NOIDA	~40 km	1.5-2 hrs	~15 mins	Business route; eases ring-road pressure
Mumbai-Pune	Juhu - Kharadi	~120 km	3.5-4 hrs	~40 mins	Inter-city shuttle; huge productivity gains
Mumbai Region	Juhu - Shirdi	~240 km	6-7 hrs	~60 mins	Religious tourism; same-day return possible
Bengaluru	Electronic City - Airport	~42 km	2 hrs	~15 mins	Proven demand; IT corridor time-saver
Bengaluru-Mysore	Central B'luru - Mysuru	~150 km	3-4 hrs	~45mins	Tier-2 regional link; business + tourism
Hyderabad	Gachbowli - Hyd Airport	~30 km	1 hr	~10 mins	Premium airport shuttle for tech hub
Chennai	Port - Mahabalipuram (ECR)	~55 km	1.5 hrs	~20 mins	Aerial tourism corridor; high novelty appeal

Table 1: Examples of early passenger air taxi routes in India's metro regions, with estimated distances and travel times. Air travel times are projected based on eVTOL speeds (~200 km/h) and direct routing

USE CASE	ROUTE	DISTANCE	IMPACT
Medical supply delivery	Vikarabad to remote villages (Telangana)	5–20 km hops	Faster rural healthcare; reduced patient travel
Urban e-commerce pilot	Bengaluru suburbs (Whitefield area)	~10 km	Delivery time cut from 45 min to 10 min
Postal drone delivery	Assam river islands (Brahmaputra region)	~5–10 km	Ensured access for isolated communities
Industrial Just-in-Time	Auto hub in Pune – supplier cluster	~15 km	Prevented assembly downtime, lowered costs
Disaster relief	Uttarakhand flood-affected villages	10–30 km	Delivered aid in inaccessible terrain

Table 2: Representative last-mile and short-haul drone use cases in India, some already implemented in pilot projects and others proposed. Illustrative of the range of applications from routine commerce to life-saving missions

GLOBAL AAM MARKETS (2025–2035): WHO'S FLYING, WHO'S WAITING, AND WHO'S BUILDING THE RUNWAY

Asia-Pacific: The Front-Runner	The APAC region is pacing the pack, propelled by bold national policies, early UTM deployments, and heavyweight investment in air mobility ecosystems. China, Japan, South Korea, and Singapore are already conducting large-scale trials, certifying aircraft, and sketching commercial flight paths. Expect fully operational air taxi networks here before most countries have published draft regulations.
Europe: The Standards Setter	Europe is taking a regulation-first approach. With its U-Space framework leading the charge, major cities are preparing for commercial deployments post-2027. Paris, London, and several German metros are set to showcase eVTOL services linked to public transport and green mobility goals.
North America: The Innovation–Regulation Mismatch	Despite housing many of the world's top eVTOL manufacturers, North America is slowed by fragmented oversight and cautious regulatory rollout. FAA's timeline extends into the 2030s, suggesting moderate AAM penetration unless harmonization accelerates.
Middle East: Bold Moves, Fast Timelines	Governments in the UAE and Saudi Arabia are moving fast, treating AAM as a core layer of future smart cities. With luxury air taxis set to launch as early as 2026, the region is betting on speed, spectacle, and urban integration to leapfrog into the lead.
Latin America & Africa: The Ground Game	Emerging economies in LATAM and Africa are starting with drones—focusing on medical logistics, rural access, and cargo corridors. Infrastructure gaps and funding constraints remain real, but their use cases are urgent, and their potential to leapfrog with lightweight regulatory models is significant

RISKS THAT PREVENT AAM FROM TAKING FLIGHT, AND WHAT TO DO ABOUT THEM - AN INVESTOR PERSPECTIVE

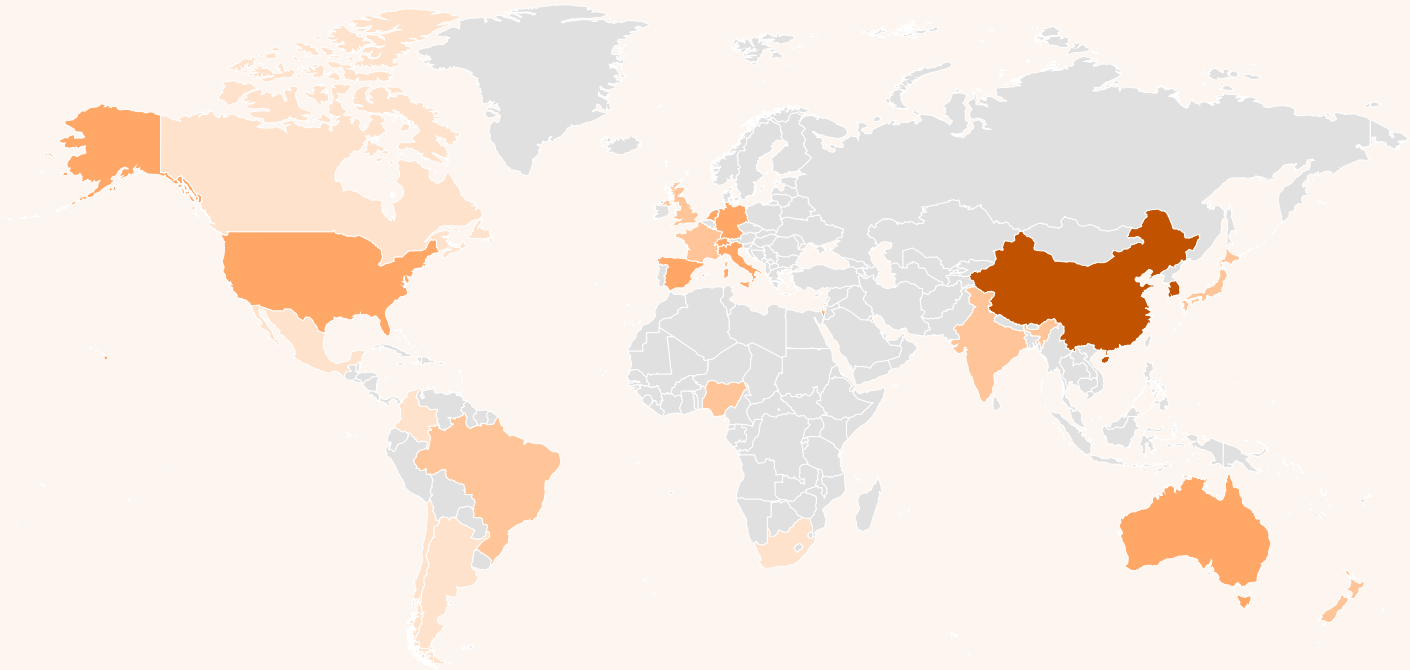
RISK AREA	STRATEGIC HEADWINDS	MITIGATION PATHWAYS
Regulation	Delays in certification, fragmented oversight, cross-border inconsistencies	Engage early with regulators; advocate for harmonized standards
Infrastructure	High upfront costs for vertiports, UTM networks, and integration with legacy systems	Public-private financing models; modular design for scalability
Technology	Battery constraints, detect-and-avoid systems, system integration gaps	Invest in R&D and interoperability pilots with OEMs and ANSPs
Market Adoption	Low public awareness, safety concerns, and cultural barriers to new aerial modes	Run high-visibility demos; align with public transport; emphasize safety
Economic Viability	Unclear ROI timelines, especially in underserved or price-sensitive regions	Start with high-demand routes; use freight/logistics to balance ops mix

Table 3: Risk, Return, and the Reality Check: The AAM sector, for all its promise, comes with real turbulence for investors:

Our analysis ranked 25 countries across eight critical airspace parameters for a comparative snapshot of national integration efforts. We further segmented these countries into four distinct maturity clusters - revealing not just where nations stand today, but how they're positioned for scalable, future-ready advanced air mobility.

COUNTRY	RANK
SOUTH KOREA	1
DUBAI (UAE)	2
CHINA	3
SWITZERLAND	4
ISRAEL	5
USA	6
AUSTRALIA	7
JAPAN	8
GERMANY	9
SPAIN	10
ITALY	11
SINGAPORE	12
UNITED KINGDOM	13

COUNTRY	RANK
NEW ZEALAND	14
FRANCE	15
BRAZIL	16
THE NETHERLANDS	17
INDIA	18
NIGERIA	19
CANADA	20
ARGENTINA	21
COLOMBIA	22
SOUTH AFRICA	23
MEXICO	24
CHILE	25



EMERGING FLYERS
CANADA
MEXICO
SOUTH AFRICA
ARGENTINA
CHILE
COLOMBIA

RISING NAVIGATORS
NIGERIA
SINGAPORE
JAPAN
INDIA
NEW ZEALAND
FRANCE
BRAZIL
UNITED KINGDOM

ADVANCED AVIATORS
AUSTRALIA
SPAIN
NETHERLANDS
ITALY
GERMANY
ISRAEL
UNITED STATES
SWITZERLAND

SKY LEADERS
DUBAI (UAE)
SOUTH KOREA
CHINA

Figure 1: AAM maturity clusters in increasing order of airspace integration readiness

HOW AIRSPACE WORKS (AND WHY IT'S ABOUT TO GET VERY CROWDED)

For decades, the sky has been neatly carved into two broad categories: **controlled and uncontrolled airspace.** Controlled airspace is the exclusive domain of commercial jets, business aviation, and flight plans filed down to the last coordinate—managed meticulously by ground-based Air Traffic Control (ATC). It's precision ballet at 35,000 feet.

Below that? Class G airspace—the wild west of the navigable part of the atmosphere. This is where hobby drones fly, agricultural aircraft dust fields, and, increasingly, where Advanced Air Mobility (AAM) vehicles will stake their claim. It's low altitude, high complexity, and effectively the last frontier in aviation regulation.

Traditionally, airspace management has been optimized for big aircraft moving at high speeds over long distances, guided by radar and human radio commands. It was never designed to handle a future with hundreds of small, electric, autonomous aircraft zigzagging over cities at 400 feet.

To make this vision real, the current system needs a serious upgrade that is less control tower, and more cloud platform. That means:

Digitized tracking and communication systems to replace voice-based radio calls.

Real-time airspace visibility—especially in urban areas where radar coverage is poor and concrete gets in the way.

Unmanned Traffic Management (UTM) solutions that can detect, deconflict, and reroute vehicles without a human ever picking up a mic.

And because these vehicles are taking off from vertiports tucked between skyscrapers—not runways outside city limits—the lines between aviation, city planning, and public infrastructure are blurring fast.

	LEGACY SYSTEMS	NEXT-GEN AAM SYSTEMS
Altitude Focus	High-altitude (IFR, 10,000–40,000 ft)	Low-altitude (VLL/urban, 200–1,000 ft)
Aircraft Type	Manned jets, helicopters, commercial aviation	Autonomous drones, eVTOLs, cargo UAVs
Navigation Control	Voice-based ATC via radio communication	Automated flight path approvals + digital updates
Surveillance Technology	Radar + ADS-B	Networked sensors, 5G/6G, IoT, AI conflict engines
Traffic Management	Centralized by ATC towers	Federated UTM with real-time conflict resolution
Scalability	Dozens of aircraft per region	Hundreds to thousands of aircraft per city
Regulatory Backbone	ICAO + ATC Class-Based Segmentation	Dynamic corridors, digital permissions, APIs
Infrastructure	Runways, towers, traditional airways	Vertiports, smart city integration, digital twins

Table 4: Legacy civil aviation systems vs next-gen approaches necessary for AAM

The bottom line: the existing airspace model is foundational, but it's not future-proof. To integrate AAM safely and at scale, we need a system that is intelligent, automated, and anticipatory.

KEY CHALLENGES IN AAM AIRSPACE INTEGRATION

Advanced Air Mobility doesn't just disrupt traffic patterns—it disrupts everything we thought we knew about airspace. And while the tech is landing fast, the systems that need to catch it are a work in progress.

Outdated Airspace Designs

The current airspace model was built for jumbo jets and regional turboprops—not a swarm of small, low-flying eVTOLs zigzagging over cities. Below 1,000 feet AGL (Above Ground Level), there's no dedicated infrastructure, no traffic separation, and no standard corridor planning.

Translation: Trying to run flying taxis on 1970s highway maps.

Human-Centric Traffic Management

Today's air traffic control relies on voice comms, radar, and human decision-making. That doesn't scale when you're managing hundreds of aircraft per hour in dense, complex airspace.

What we need: Real-time digital deconfliction, UTM systems that think faster than humans, and AI-based prioritization logic.

Surveillance & Comms Infrastructure

In cities, radar doesn't see well. Buildings block signals. Low-altitude aircraft get lost in the noise—literally. Combine that with limited 5G/6G coverage, patchy sensor networks, and no common drone ID protocols, and you've got a visibility crisis.

Fixing it requires: National-scale sensor networks, unified data-sharing policies, and resilient comms systems built specifically for urban flight.

Regulatory & Certification Gaps

Most aviation regulators are still figuring out how to classify eVTOLs.

Generally missing dedicated eVTOL airworthiness standards, BVLOS operation framework, licensing pathways for autonomous AAM pilots (human or software)

Until these are in place, progress will be trial-by-exemption.

Fragmented Stakeholder Ecosystem

AAM sits at the awkward intersection of aviation, telecom, transport, urban planning, and public safety. Everyone owns a piece. No one owns the whole.

Without coordinated governance structures, cross-sector data protocols, and agile joint decision-making bodies, AAM will remain in a holding pattern.

Figure 2: Universal challenges to successful airspace integration of AAM

Integrating AAM into existing airspace is contingent upon overcoming substantial infrastructure, regulatory, and technological hurdles, including modernising legacy manual ATC systems, plugging surveillance gaps in dense urban environments, simplifying vertiport zoning requirements, and ensuring communication spectrum availability.

AAM IN INDIA: BETWEEN DRAFT POLICY AND SCALABLE REALITY

CURRENT POLICIES AND REGULATIONS FORLOW-ALTITUDE OPERATIONS

India's drone regulations provide the foundation for Advanced Air Mobility (AAM) in low-altitude airspace (below 400 feet). The Drone Rules, 2021 established a liberalized framework for unmanned aircraft, and defined airspace zones and altitude limits. Specifically, "green zones" (unrestricted airspace) extend up to 400 feet above ground in unrestricted areas (and up to 200 feet in the 8–12 km peri-airport belt). Operations in green zones do not require prior permission, whereas "yellow zones" (controlled airspace) – including any airspace above 400 ft – require Air Traffic Control clearance. The Drone Rules also expanded their scope to cover heavier UAS, raising the weight limit from 300 kg to 500 kg to include emerging "drone taxi" vehicles. This means that many eVTOL AAM prototypes (which typically fall in this weight range) are, in principle, covered under current drone regulations.

Operationally, India's rules distinguish between Visual Line of Sight (VLOS) and Beyond Visual Line of Sight (BVLOS) operations, and civilian drone flights are restricted to VLOS conditions. The government is yet to issue general permissions for routine BVLOS ops, especially for passenger-carrying AAM. The initial certification scheme for unmanned aircraft has been limited to VLOS use-cases, with BVLOS missions only allowed under specific exemptions or trial approvals. For example, any operation above the 400 ft AGL ceiling requires special clearances on a case-by-case basis. These limitations reflect a cautious approach to safety, but also highlight the regulatory gap for AAM vehicles that would inherently need to fly beyond the visual range of a remote pilot (e.g. autonomous air taxis between city vertiports).

To enable higher-density low-altitude operations, India is developing an Unmanned Traffic Management (UTM) ecosystem. Part IX of the Drone Rules 2021 laid out the vision for UTM, followed by a detailed National UTM Policy Framework 2021. This framework defines Very Low Level (VLL) airspace up to 1000 feet as dedicated UTM airspace and introduces third-party UTM Service Providers (UTMSPs) to manage drone traffic. The UTM system is envisioned as a digital, automated traffic management network that handles flight permissions, dynamic airspace updates, and conflict avoidance in real time. The policy calls for a modern software-based UTM separate from conventional Air Traffic Management (ATM), with eventual integration into traditional ATM systems.

In 2024, the DGCA (Directorate General of Civil Aviation) issued comprehensive guidelines for vertiports and eVTOL aircraft certification. These guidelines outline infrastructure standards (e.g. landing pad design, safety measures) and airworthiness requirements for new VTOL aircraft, paving the way for air taxi operations by 2026. the DGCA's Sep 2024 circular provides rules for vertiport construction, charging facilities, and emergency planning, with a process for site approval Their advisories define baseline safety and performance criteria for type-certification of eVTOLs in India. Together, these steps signal that regulators are proactive in facilitating AAM integration. The Civil Aviation Ministry itself champions AAM as a key part of India's future mobility mix. Minister of Civil Aviation, Shri K. R. M. Naidu, stated that India is *"at the threshold of a new revolution... AAM presents a unique opportunity to address urban sprawl challenges and enhance regional connectivity".*

India's current regulatory landscape – through the Drone Rules 2021 and the nascent UTM policy set the stage for low-altitude AAM operations, but primarily for small drones and within visual-line constraints. Fully enabling AAM will require building on these policies to accommodate larger, passenger-carrying eVTOL vehicles and autonomous flight operations.

Effective AAM deployment will require these bodies to

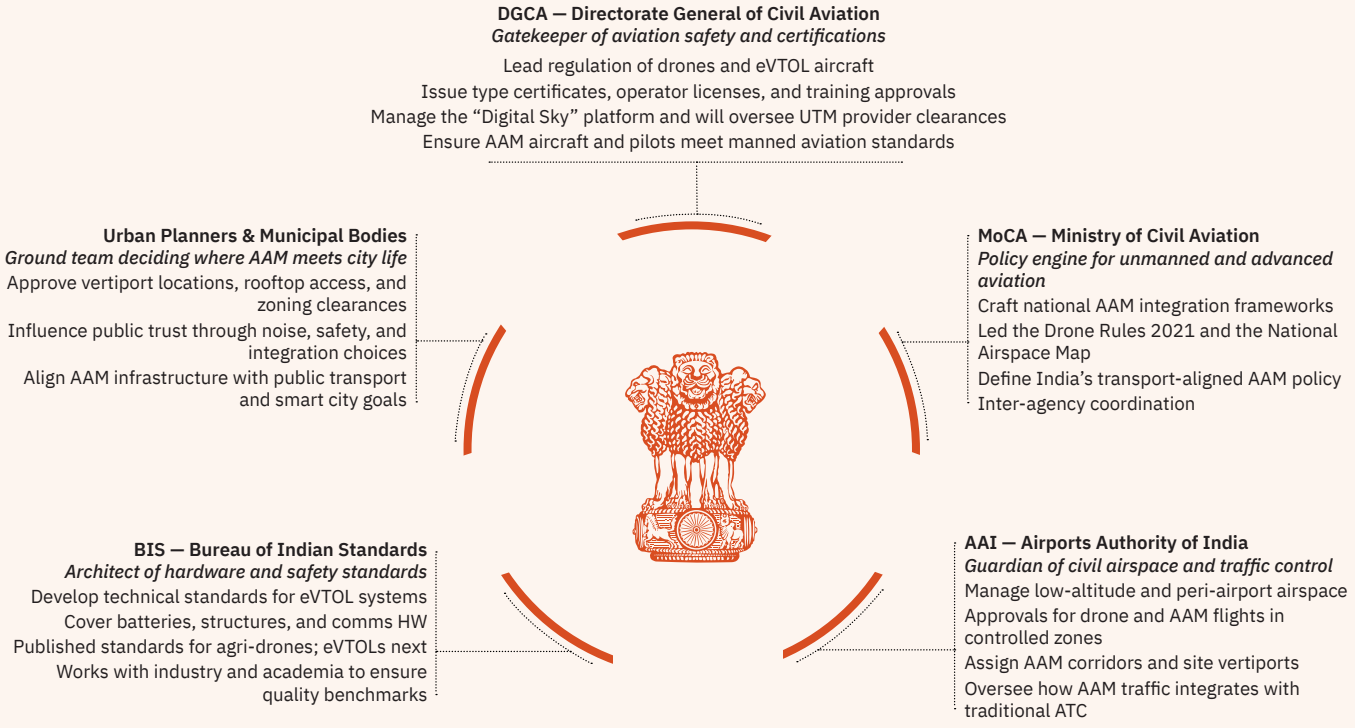


Figure 3: AAM stakeholders - federal and local bodies/agencies

work in close coordination. Currently, their roles intersect at various points – for example, airspace access for a AAM flight might require DGCA certification, AAI ATC permission, and even defense/security clearance via other agencies. The UTM framework seeks to streamline this by involving all stakeholders on the Digital Sky platform, so that permissions and surveillance are handled through a unified system. Nonetheless, inter-agency coordination remains a challenge. Overlapping jurisdictions can lead to procedural delays – e.g. aligning DGCA's certification timeline with AAI's airspace management or ensuring security protocols from BCAS/Defense are built into AAM operations. There are opportunities to improve this coordination: the creation of joint working groups and MoCA-led task forces can harmonize efforts. For instance, the DGCA-EASA MoU in 2023 on unmanned and innovative air mobility is a positive step, as it brings international best practices into the inter-agency dialogue. Going forward, a streamlined single-window approval process for AAM (expanding on Digital Sky) and clear delegation of responsibilities will be key to efficient regulatory approvals.

EXISTING FRAMEWORKS FOR AAM INTEGRATION

While India has made early strides in drone regulation, certain gaps remain before true advanced air mobility can become reality. These include:

ABSENCE OF DEDICATED AAM AIRSPACE CORRIDORS AND CLASSIFICATION STANDARDS

There is currently no defined airspace category or "corridor" exclusively for passenger AAM operations. The Drone Rules, 2021 hinted at developing drone corridors for cargo delivery, but no specific corridors or route structures have been designated for air taxi services. AAM flights will likely need predefined flight corridors or altitude blocks to separate them from other air traffic and obstacles (as seen in FAA's AAM concepts of corridors). The lack of an urban route network or specialized airspace class (beyond the broad red/yellow/green zones) means AAM operators have no clear paths to fly in metropolitan areas without case-by-case airspace approvals.

LACK OF CLEAR BVLOS OPERATIONAL GUIDELINES FOR PASSENGER-CARRYING AAM

Existing rules do not adequately address carrying passengers or autonomous operations beyond visual line of sight. In fact, current drone certifications are restricted to VLOS operations, and regulators have yet to publish standards for routine BVLOS flight of large AAM vehicles. There is an experimental BVLOS exemption process, but no permanent framework. For air taxis to function (which by nature will fly beyond an operator's line of sight, potentially autonomously), detailed BVLOS regulations are needed – covering detect-and-avoid requirements, command and control link reliability, and contingency procedures for lost link scenarios. The absence of these guidelines today is a major gap for AAM readiness.

CHALLENGES IN HARMONIZING AAM POLICIES WITH TRADITIONAL AVIATION REGULATIONS

AAM vehicles blur the line between traditional manned aviation and unmanned drones, creating regulatory uncertainty. India's existing aviation regulations (Aircraft Act, Aircraft Rules) and certification standards were developed for conventional aircraft and rotorcraft – they do not yet neatly accommodate eVTOL air taxis, especially autonomous ones. For instance, a passenger eVTOL with a pilot onboard might be treated like a small helicopter, but if remotely piloted or autonomous, it doesn't fit existing license categories or right-of-way rules. There is currently no dedicated certification category for autonomous passenger aircraft. Although DGCA has issued guidance for certifying eVTOLs with onboard pilots up to 5,700 kg , these are essentially manned aircraft standards. AAM operations need to be harmonized with legacy aviation in areas like airworthiness (e.g. new performance-based standards), air traffic rules (integrating with existing flight rules), and operator licensing. Without updates, AAM proponents may face regulatory barriers applying rules that were not designed for their use-case.

NEED FOR DIGITAL AND AUTOMATED UTM INFRASTRUCTURE TO SUPPORT HIGH-DENSITY AAM

Scaling AAM in cities will require handling dozens or hundreds of simultaneous low-altitude flights – a capacity far beyond traditional ATC methods. India's recognition of UTM as necessary is a positive step, but implementation is still in progress. The envisioned UTM system (with multiple UTMSPs, real-time tracking, and automated de-confliction) is not yet operational at scale. Until a robust UTM network is in place, managing high-density urban drone traffic safely is a challenge. The current ATM system cannot handle unmanned flights without heavy restrictions. Thus, the lack of fully realized UTM infrastructure – including traffic management software, city-wide surveillance, and communication networks for AAM – is a critical gap. This also ties into lacking integration of UTM with manned aviation systems; for example, AAM flights might need to transition to controlled airport airspace, which demands coordination between UTM and conventional ATC.

India's existing frameworks, while progressive for small drones, do not yet encompass the full requirements of Advanced Air Mobility. Dedicated airspace design, BVLOS regulations for people-carrying drones, updated certification and licensing regimes, and advanced traffic management are all areas requiring development.

RECOMMENDATIONS

To accelerate AAM integration and address the above gaps, targeted policy revisions and new regulations are recommended:

ESTABLISH AAM-SPECIFIC AIRSPACE CLASSIFICATIONS AND CORRIDORS

India should define dedicated AAM airspace corridors or zones in metropolitan areas for eVTOL operations. This could involve creating "AAM lanes" at certain altitude bands (for example, 500–1000 ft AGL corridors) that are segregated from most manned traffic except emergencies. Clear route structures and altitude rules would allow air taxis to operate predictably. Global best practices point this way – the FAA's AAM plans envisage operations up to 4,000 feet using predefined low-altitude routes in urban and rural airspace. India could similarly designate corridor networks connecting key hubs (airports, vertiports, downtown heliports), with published performance requirements for any vehicle using them. This may require amendments to airspace classification in the Aircraft Rules, creating a new category for "AAM corridors" alongside existing classes of airspace.

DEVELOP A NATIONAL CERTIFICATION FRAMEWORK FOR EVTOL AIRCRAFT AND AAM PILOTS

A comprehensive certification regime is needed to ensure AAM aircraft are airworthy and pilots/operators are properly trained. DGCA's recent guidance on type certification for VTOL aircraft up to 5.7 tons with a pilot onboard is a good start. India's upcoming eVTOL certification framework should

coves design and safety standards specific to AAM craft (redundant propulsion, advanced autopilots, battery safety, etc.). Additionally, certification pathways for unpiloted or autonomous AAM vehicles must also be considered, perhaps via special conditions or a new category in the Aircraft Rules. In parallel, pilot licensing norms should be updated: for example, a new AAM pilot license or rating could be introduced, addressing the unique skills needed to operate eVTOLs (which differ from airplanes or helicopters). Training programs can be developed in cooperation with existing aviation academies and drone schools, with DGCA overseeing standards. This ensures that by the time AAM services launch, India has certified vehicles and crew ready to operate safely.

CREATE A GLOBALLY INTEGRATED REGULATORY ROADMAP

Given that AAM is a new domain worldwide, India should actively harmonize its approach with emerging international standards. This may involve suitably adapting elements of FAA's AAM blueprint (e.g. pilot training rules, vertiport guidelines) and EASA's Special Condition VTOL for eVTOL certification, for unique Indian needs. Collaboration with global bodies is already underway – the DGCA-EASA MoU (2023) focuses on jointly developing certification and operational standards for innovative air mobility, including personnel licensing, air traffic management, and UTM services. Such partnerships should continue and extend to sharing of safety data and lessons learned from AAM trials in other countries. India should also engage with ICAO's work on Advanced Air Mobility to ensure international interoperability. A government backed AAM Policy Roadmap could tie these threads together, setting phased milestones (e.g. pilot projects by year X, certification regulations by year Y, commercial operations by year Z) and aligning the efforts of DGCA, MoCA, AAI, and BIS toward common goals. Legislative amendments – such as updating the Aircraft Act/Rules to include unmanned passenger aircraft and vertiport licensing – would flow from this roadmap at the appropriate stages.

STRENGTHEN COLLABORATION BETWEEN GOVERNMENT, INDUSTRY, AND ACADEMIA FOR AAM DEVELOPMENT

AAM ecosystem development requires a coordinated effort among policymakers, technology developers, and research institutions. It is recommended to establish a formal AAM Advisory Group or Task Force that brings together regulators, industry players, and academic experts. This group should be tasked with collaborating & engaging on the design, development and execution of regulatory sandboxes, standards, and infrastructure needs. India's Drone Promotion Council, which the government planned with participation from academia and startups, is a good model to expand upon for AAM. Regular stakeholder consultations and public-private partnerships can accelerate innovation while ensuring safety and compliance. For instance, trial AAM corridors or vertiports could be developed in partnership with industry under DGCA supervision to gather data. Academic institutions can contribute through research on noise, airspace modeling, and safety algorithms, guiding evidence-based regulations. By fostering an inclusive, collaborative approach, India can more rapidly refine its AAM regulations and address concerns (such as community noise or safety perceptions) through transparent dialogue.

Overall, these revisions aim to make India "AAM-ready" by proactively filling regulatory gaps and learning from global benchmarks. The government's intent to make India a drone hub by 2030 can be extended to advanced air mobility by creating an enabling regulatory environment that balances innovation with public safety. With clear airspace rules, a strong certification and training framework, and inter-agency coordination, India will be well-positioned to launch pilot AAM projects and gradually scale up to full-fledged air taxi services and other use cases in the coming decade.

RECOMMENDATIONS FOR INDIA

ESTABLISH DEDICATED AAM CORRIDORS AND AIRSPACE CLASSIFICATIONS:

Develop clearly defined airspace structures with designated altitude bands and routes, segregated from conventional air traffic, to facilitate efficient AAM operations.

FORMALIZE COMPREHENSIVE BVLOS REGULATORY FRAMEWORKS:

Create explicit, robust regulatory standards for autonomous and semi-autonomous passenger operations, incorporating stringent safety protocols, detect-and-avoid technologies, and contingency procedures.

DEVELOP NATIONAL CERTIFICATION FRAMEWORKS FOR EVTOLS AND AAM PILOTS:

Introduce tailored certification categories for eVTOL airworthiness, pilot training, and operational safety standards, drawing upon FAA, EASA, and ICAO best practices.

ACCELERATE IMPLEMENTATION OF DIGITAL AND AUTOMATED UTM NETWORKS:

Expedite investments in comprehensive UTM systems integrating digital communication, real-time traffic monitoring, automated conflict resolution, and seamless interoperability with traditional ATM systems.

STRENGTHEN STAKEHOLDER COORDINATION AND INDUSTRY-ACADEMIA-GOVERNMENT COLLABORATION:

Establish a formal AAM Advisory Group to foster continuous dialogue, innovation pilots, and capacity building, ensuring inclusive stakeholder engagement.

BENCHMARKING GLOBAL READINESS FOR ADVANCED AIR MOBILITY

Why This Matters:

Integrating AAM into national airspace systems requires alignment across regulation, infrastructure, and digital systems—at scale

Section Covers:

A structured benchmarking of 25 countries across eight critical airspace integration parameters

Data Reveals:

Significant variance in national readiness. Some positioned to scale safely and efficiently, and others are adressing foundational gaps

How to Use This:

A strategic tool for policymakers, regulators, and private stakeholders to identify priorities, accelerate alignment, and close readiness gaps

GLOBAL BENCHMARKING

METHODOLOGY

We followed a structured and data-driven methodology to benchmark Advanced Air Mobility (AAM) readiness across 25 countries, utilizing standardized evaluation criteria, hierarchical clustering, and investment risk modeling. This multivariate cluster segmentation model was purpose built for this study, with the intent to objectively compare our sample of 25 nations, as well as to arrive at an appropriate set of actionable recommendations for India to move up the readiness ladder.

BENCHMARKING PARAMETERS & SAMPLE SELECTION

To assess AAM readiness, we established eight key parameters covering policy frameworks, regulatory progress, technological maturity, and operational integration (Table 5).

PARAMETER	WEIGHT	KEY FOCUS AREAS
1. Airspace Structure & Segmentation	20%	Defined AAM corridors, integration of AAM into traditional airspace, airspace restrictions.
2. Integration with Traditional Aviation	15%	Ability to coordinate AAM with air traffic control (ATC), coexistence with crewed aircraft.
3. UTM & Automation Level	5%	Deployment of Unmanned Traffic Management (UTM) systems, automation in flight planning and conflict resolution.
4. Communication & Data Exchange	10%	Real-time communication protocols, Remote ID implementation, data-sharing with regulators
5. Surveillance & Collision Avoidance	5%	Drone/eVTOL tracking, detect-and-avoid systems, networked surveillance for AAM traffic.
6. Regulatory & Certification Pathways	25%	Type certification for eVTOLs, licensing frameworks for AAM pilots/operators, vertiport regulation.
7. Enforcement & Compliance	10%	Regulatory oversight, airspace monitoring, compliance penalties for non-compliant AAM operations.
8. Implementation Roadmap & Milestones	10%	National strategies, timelines for AAM adoption, funding for test corridors and full-scale services.

Table 5: Benchmarking Parameter Definintions and Weightages

A diverse set of 25 countries was selected to reflect a global perspective on AAM development. These countries were chosen based on:

Market Size & Potential: U.S., China, EU, and APAC have large urban populations and strong AAM demand.

Regulatory Leadership: Countries like UAE, Singapore, and South Korea lead in AAM-friendly policies.

Technological Innovation: France, Germany, and Japan are home to leading eVTOL manufacturers.

Emerging AAM Markets: Brazil, India, Nigeria, and South Africa were included to analyze early-stage adoption efforts.

COUNTRY-LEVEL POLICY & MARKET REVIEW

For each country, a comprehensive policy and market analysis was conducted, including:

Review of **National AAM Policies & Regulations** (Airspace laws, eVTOL certification, UAS integration strategies).

Existing & Planned AAM Corridors (Dedicated airspace for drones and air taxis).

UTM Deployment & Digital Air Traffic Integration (Automated approvals, real-time tracking, conflict deconfliction).

Commercial AAM Programs (Active eVTOL trials, regulatory sandbox projects, medical/logistics drone deliveries).

Enforcement & Compliance (Remote ID requirements, compliance oversight, airspace security).

Investment Roadmaps (Public-private partnerships, urban transport strategy inclusion, vertiport plans).

This analysis provided quantitative scores for each parameter on a 1–5 scale (1 = Low Readiness, 5 = Fully Mature), with objective definitions for each level across each of the 8 parameters.

Each nation's airspace integration maturity was then assessed in line with the weightages highlighted in Table 1 to reflect realistic factors and strategic priorities in the development and deployment of AAM

The collected data was standardized to ensure the integrity of the output of the ranking methodology and to accurately reflect each nation's current AAM airspace integration status.

NATIONS COVERED									
Canada	Mexico	Argentina	Brazil	Chile	Colombia	France	Germany	Italy	Netherlands
Spain	Switzerland	UK	USA	China	India	Japan	Singapore	South Korea	Israel
UAE	Nigeria	South Africa	Australia	New Zealand					

Table 6: Nations Covered in Benchmarking

The global AAM landscape is characterized by a spectrum of tailored approaches—each uniquely shaped by national priorities, technological readiness, and regulatory philosophies, illustrating that there is no single universal solution for airspace integration.

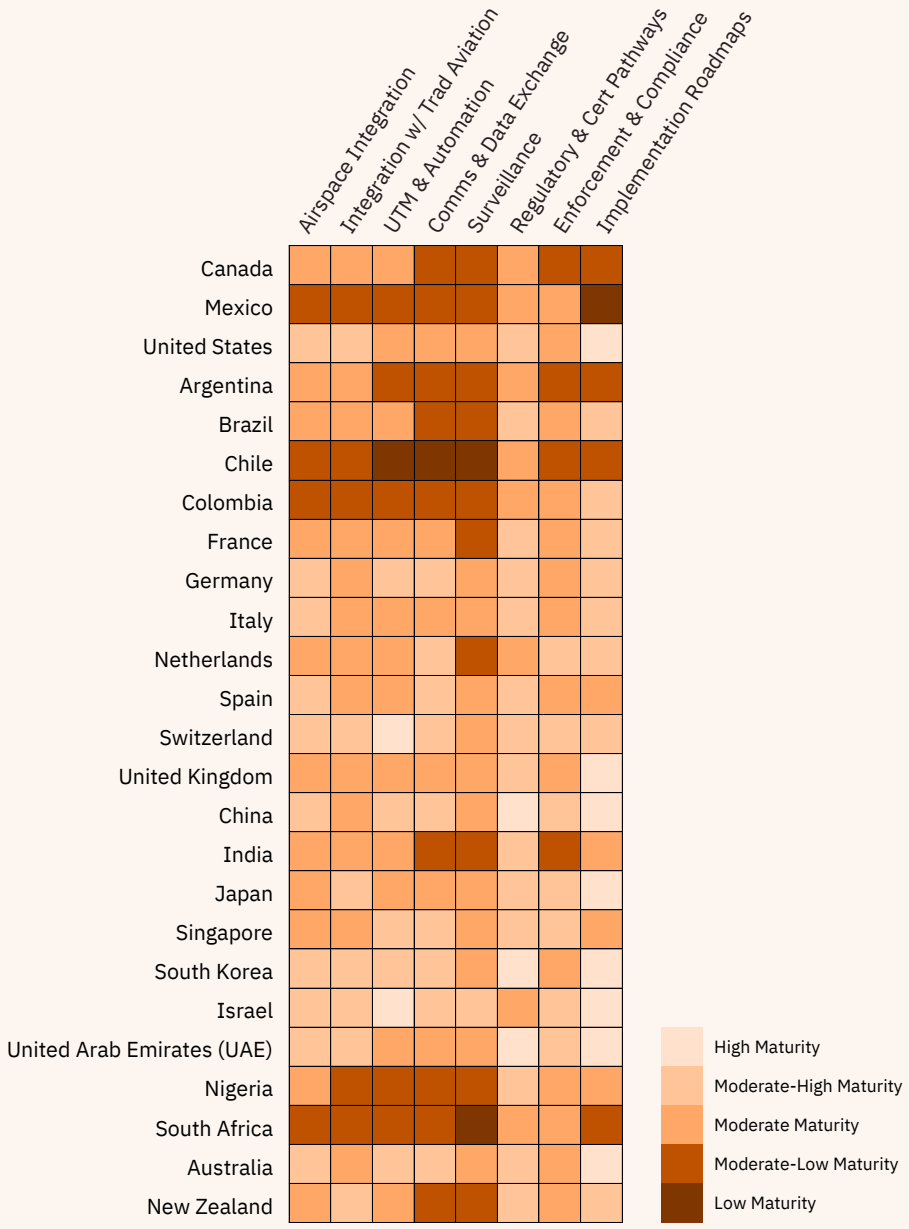


Figure 3: AAM Maturity Heatmap

The benchmarking analysis highlights significant diversity in how countries approach the integration of Advanced Air Mobility (AAM) vehicles into existing airspace systems. Airspace structure and segmentation vary considerably, with some regions adopting clearly defined AAM corridors while others favor flexible, dynamically managed airspace. Integration with traditional aviation also shows variability; some jurisdictions advocate for complete separation of AAM operations, whereas others prefer closely integrated systems that require a higher level of coordination.

The extent of UTM (Unmanned Aircraft System Traffic Management) and automation implementation also differs, ranging from predominantly manual control systems to highly automated traffic management solutions to handle dense urban airspace autonomously. Communication and data exchange strategies also diverge, with some countries relying heavily on established aviation standards and others opting for the development of communication protocols specifically designed for AAM environments.

Surveillance and collision avoidance methods display significant differences as well, varying between uses of conventional radar and ADS-B technologies & advanced autonomous detect-and-avoid systems. Differing technological adoption rates and comfort levels with automation risk management emerge as as determining factors for these approaches. Regulatory and certification pathways also reflect diverse approaches: some countries have created entirely new regulatory frameworks and certification standards for AAM vehicles, while others are choosing to modify existing aviation regulations incrementally.

Enforcement and compliance measures show varied implementation, from traditional air traffic control oversight to novel digital monitoring systems specifically designed for automated and unmanned operations. Timelines and implementation roadmaps also differ, with certain nations outlining clear milestones and concrete plans, and others maintaining a cautious approach.

Airspace integration strategies for AAM are deeply influenced by national priorities, technological readiness, regulatory environments, and societal acceptance of automation.

The result is a broad spectrum of tailored local solutions rather than a universal approach.

RANKING & HIGHLIGHTS

1. South Korea: Leads with a highly structured airspace segmentation strategy, robust regulatory pathways, strong government-industry partnerships, and ambitious milestones that position it as a global pioneer in AAM.

2. Dubai (UAE): Rapid implementation of dedicated AAM corridors, a clear regulatory and certification roadmap, exceptional automation levels, and proactive enforcement policies supporting sustainable AAM growth.

3. China: Exceptional progress through clearly defined regulatory frameworks, significant investments in surveillance technology, first to type certify a craft, and extensive pilot projects signaling readiness for rapid AAM scaling.

4. Switzerland: Strong coordination between AAM and traditional aviation, precise communication standards, and well-developed certification processes that set high safety benchmarks.

5. Israel: Advanced UTM and collision-avoidance technologies, rigorous enforcement and compliance mechanisms, and strategic investments in innovative infrastructure.

6. USA: Effective regulatory certification pathways, comprehensive implementation roadmaps supported by federal initiatives, and active development of national AAM corridors.

7. Australia: Effective integration of AAM within traditional airspace structures, proactive regulatory measures, and clear milestones backed by substantial government support.

8. Japan: High automation maturity, communications infrastructure, and planning for AAM services integration, highlighting. Methodical approach to airspace management.

9. Germany: Structured regulatory pathways, rigorous enforcement policies, and well-defined national roadmaps with clear implementation phases

10. Spain: Completes the top 10 leaderboard with noteworthy progress in airspace segmentation, clear and progressive regulatory strategies, and notable efforts in communication and data exchange enhancements.

COUNTRY	RANK
SOUTH KOREA	1
DUBAI (UAE)	2
CHINA	3
SWITZERLAND	4
ISRAEL	5
USA	6
AUSTRALIA	7
JAPAN	8
GERMANY	9
SPAIN	10
ITALY	11
SINGAPORE	12
UNITED KINGDOM	13
NEW ZEALAND	14
FRANCE	15
BRAZIL	16
THE NETHERLANDS	17
INDIA	18
NIGERIA	19
CANADA	20
ARGENTINA	21
COLOMBIA	22
SOUTH AFRICA	23
MEXICO	24
CHILE	25

Table 7: AAM Maturity Ranking

AAM MATURITY CLUSTERS

Beyond the simple ranking of nations, our analysis categorizes global AAM readiness into four distinct clusters based on maturity levels and integration capabilities:

SKY LEADERS (CHINA, UAE, SOUTH KOREA)

Exhibit advanced airspace structures, robust regulatory frameworks, and significant public investment.

Demonstrate strong technological maturity, including high-level automation, sophisticated UTM deployment, and strategic implementation roadmaps.

Global role models, capable of setting international standards and frameworks for the global AAM ecosystem.

ADVANCED AVIATORS (AUSTRALIA, SPAIN, NETHERLANDS, ITALY, GERMANY, ISRAEL, UNITED STATES, SWITZERLAND)

Characterized by mature regulatory environments, clear certification processes, advanced technological infrastructure, and proactive public-private collaboration.

Feature established AAM-specific corridors, significant investments in automated surveillance and collision avoidance technologies, and comprehensive airspace integration strategies.

Continue to drive innovation, positioning themselves as technological leaders capable of scalable commercial AAM operations in the near future.

RISING NAVIGATORS (INDIA, UNITED KINGDOM, FRANCE, SINGAPORE, BRAZIL, JAPAN, NIGERIA, NEW ZEALAND)

Demonstrate moderate maturity levels, with varying degrees of regulatory clarity, infrastructure readiness, and automation capabilities.

Feature promising yet diverse progress, necessitating targeted investments in communication networks, airspace management, and regulatory enforcement.

Have the potential for rapid advancement through strategic alignment with global best practices, infrastructure enhancement, and regulatory consistency.

EMERGING FLYERS (CANADA, MEXICO, ARGENTINA, CHILE, COLOMBIA, SOUTH AFRICA)

Currently positioned at foundational levels with initial exploration into AAM integration.

Face substantial hurdles related to infrastructure limitations, incomplete airspace segmentation, insufficient technological readiness, and inconsistent regulatory clarity.

Require focused interventions, strong stakeholder collaboration, and significant capacity-building investments

to transition towards meaningful AAM deployment.

Cluster 1 ***("Emerging Flyers")*** are actively developing foundational policies and regulatory frameworks but currently exhibit lower maturity across evaluated parameters. Their priority lies in accelerating regulatory development and building initial infrastructure to facilitate future growth.

Cluster 2 ***("Rising Navigators")*** have established promising regulatory and certification frameworks and are advancing efforts in airspace structuring and traditional aviation integration. Strategic roadmaps and improved surveillance and collision avoidance capabilities are their near-term goals.

Cluster 3 ***("Advanced Aviators")*** demonstrate notable maturity levels, effective regulatory pathways, and significant advancements in communication systems and airspace segmentation. Nations in this cluster have made considerable progress in integrating AAM within traditional aviation systems and effectively employing UTM technologies and automation. Their strategic focus is on refining and scaling their existing frameworks and operations.

At the forefront are the members of **Cluster 4** ***("Sky Leaders")***who currently represent and set the global benchmark. These nations have successfully developed sophisticated regulatory infrastructures, comprehensive airspace integration frameworks, and advanced technological ecosystems to support AAM. Their proactive, innovative regulatory approaches, mature certification pathways, and highly integrated airspace management systems position them as the clear leaders in the global AAM landscape.

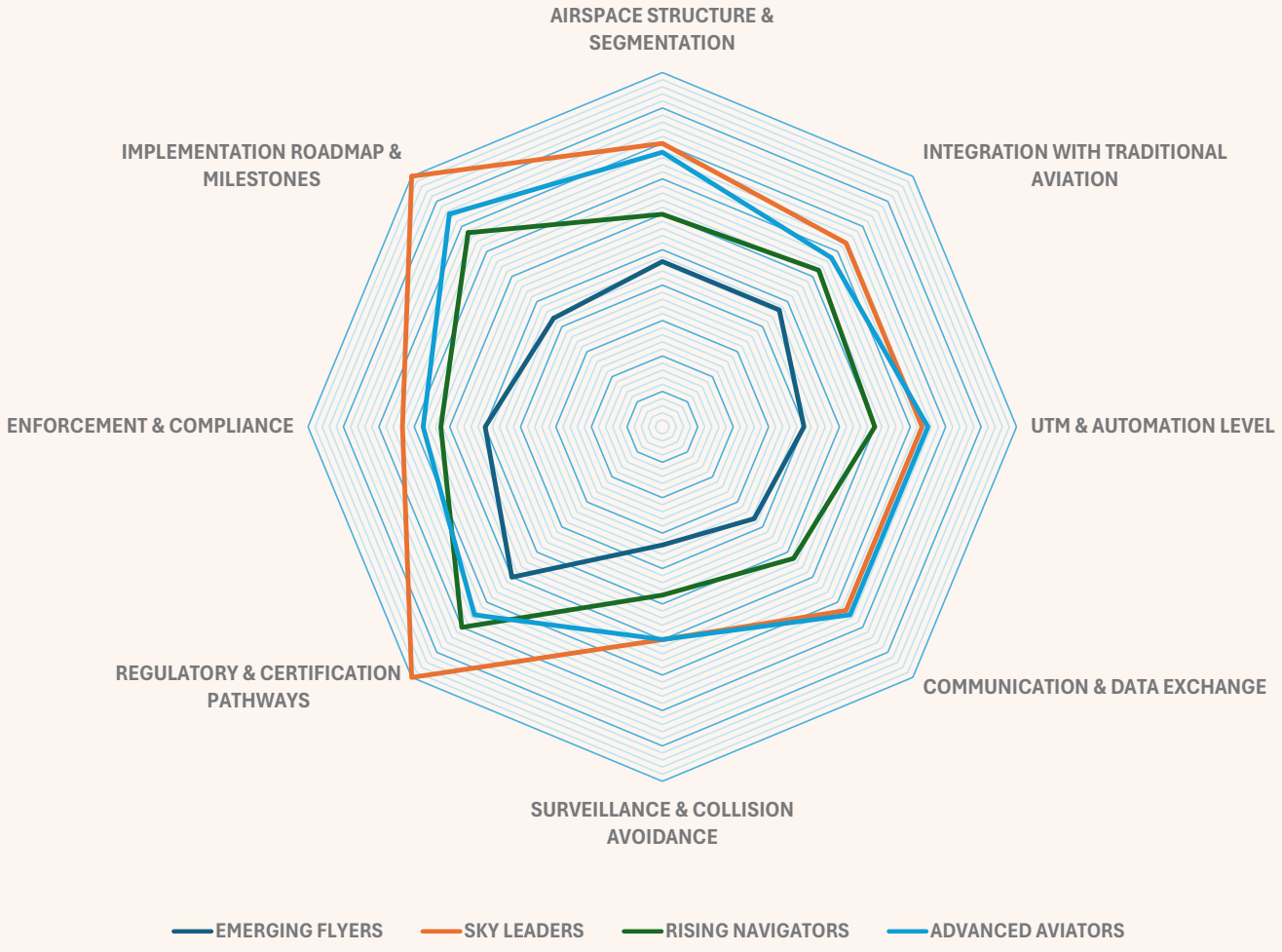


Figure 4: AAM Cluster Maturity by Parameter

	EMERGING FLYERS	RISING NAVIGATORS
Countries	**Canada, Mexico, South Africa, Argentina, Chile, Colombia**	**Nigeria, Singapore, Japan, India, New Zealand, France, Brazil, United Kingdom**
Characteristics	Currently at foundational levels. Exhibit potential but substantial developmental, regulatory, and infra hurdles.	Moderate AAM maturity. AAM efforts reflect active, yet varied, progress, policy innovation, emerging technologies, and steady infra development.
Airspace Structure & Segmentation	Preliminary exploration into airspace restructuring but no comprehensive segmentation plans. Canada and Argentina, slightly ahead, have established some foundational measures; others, like Mexico and Colombia, remain in early phases of conceptualization.	Generally clear airspace segmentation but often lack dedicated AAM air corridors. UK, France, Japan, and Singapore show strong regulatory intent and airspace delineation. India, Nigeria, and Brazil are progressing with early-stage structural definitions.
Integration with Traditional Aviation	Limited integration with existing aviation infra and procedures. Canada and Argentina show higher integration with trad aviation bodies. Major airlines and trad aviation stakeholders yet to fully engage with AAM integration efforts.	Considerable integration variability. JPN and NZ effectively aligning with trad frameworks. India, Nigeria, and Brazil have moderate to low integration due to legacy infra constraints and regulatory complexities.
UTM & Automation Level	Basic UTM and automation maturity - exploration phase Chile notably behind, whereas Canada and Colombia have begun pilot projects and discussions. Lagging in adoption and/or integration of UTM.	Diverse maturity. UTM systems and automated services pilots exist, but wide-scale deployment limited by regulatory uncertainty, technological barriers, and infra gaps
Communication & Data Exchange	Limited infra and tech support for advanced communication and real-time data exchange. Need substantial upgrades in telecom infra and services dedicated for AAM operations	Generally moderate maturity with advanced comms capabilities in some like JPN, SGP, and the UK. Significant opportunities for Nigeria and NZ in digital AAM infrastructure.
Surveillance & Collision Avoidance	Capabilities in initial stages. Chile and South Africa face considerable constraints regarding radar coverage, and sensor tech	Moderate surveillance capability; collision avoidance at low maturity. SGP and JPN lead in advanced AAM networks, Others face tech and infra gaps around major urban areas.
Regulatory & Certification Pathways	Moderate level approaches. All have shown regulatory intent through preliminary legislative frameworks or policy discussions.	Well-defined pathways. Robust regulatory frameworks. Room to enhance clarity, consistency, and implementation.
Enforcement & Compliance	Inconsistent enforcement and unclear compliance mechanisms. Limited institutional capacity to monitor, oversee, and enforce AAM operational standards.	Adequate, yet vary. JPN and SGP show strong enforcement, others require further improvements in compliance and operational oversight.
Implementation Roadmap & Milestones	Diverse maturity - varying degrees of governmental commitment. eg. Colombia has a relatively strong roadmap, while Mexico lacks any.	Well-defined milestones and implementation plans, with notable leadership from Japan, France, Brazil, and the United Kingdom. Timelines differ across countries.
Strategic Recommendations	Prioritize technological and infrastructural development in communication, data exchange, and collision avoidance to enhance UAM safety and efficiency. Accelerate the implementation of clearly defined regulatory and certification frameworks. Establish clear, actionable implementation roadmaps with defined milestones to accelerate maturity growth.	Strengthen technological infrastructure, with focus on surveillance and collision avoidance technologies, and Communication systems for better interoperability Enhance regulatory clarity and enforcement consistency to improve investor confidence and facilitate rapid adoption. Intensify collaboration among nations within this cluster to learn best practices and coordinate resources.

Table 8: Cluster profiles across each evaluated airspace integration parameter

	ADVANCED AVIATORS	SKY LEADERS
Countries	**Australia, Spain, Netherlands, Italy, Germany, Israel, United States, Switzerland**	**United Arab Emirates (UAE), South Korea, China**
Characteristics	High AAM maturity. Sophisticated regulatory environments, high tech advancement, AAM ready infra, and proactive government support. Clear policy roadmaps, certification processes, and integration with trad aviation systems.	Advanced AAM maturity with ambitious policy commitments, substantial investments, advanced technology integration, infrastructure readiness, strategic industry collaboration, and clear regulatory frameworks.
Airspace Structure & Segmentation	Advanced and clearly segmented airspace structures. US, Germany, Switzerland, and Australia have established dedicated AAM corridors and defined operational boundaries for low-altitude flights.	Well-developed and segmented airspace for AAM. China and UAE have advanced pilot programs, and dedicated airspace corridors for deliveries and passenger AAM. South Korea is actively working toward designated corridors in major cities
Integration with Traditional Aviation	Well-aligned to existing aviation frameworks, notably advanced in Israel, Switzerland, and the US. Structured protocols ensuring coexistence of traditional aviation and emerging AAM operations.	Excel in integrating AAM with conventional systems. SK and UAE stand out with urban airports and vertiport infra investments, China focused on integrating AAM into transportation strategies
UTM & Automation Level	Highly advanced UTM systems deployed, particularly in Switzerland and Israel. Germany, Australia, and the U.S. also showcase significant automation in airspace management.	High degree of automation, particularly noticeable in China and South Korea. All actively exploring AI, automation, and next-gen UTM to enhance scalability and ops efficiency
Communication & Data Exchange	Advanced comms infra and strong data exchange capabilities. Germany, Switzerland, Netherlands, and Israel exhibit excellent digital infrastructure leveraging 5G networks and data-exchange platforms for AAM.	Reliable, scalable and secure AAM communication frameworks. UAE shows strong advancements, in urban regions like Dubai and Abu Dhabi with focus on reliable data exchange platforms for AAM services.
Surveillance & Collision Avoidance	Strong maturity with extensive sensor networks, radar coverage, and collision avoidance systems. Israel, Switzerland, Germany, and Australia lead with AI-driven collision avoidance, real-time surveillance systems, and comprehensive integration of sensors and detection systems.	Comprehensive deployment of surveillance tech such as radar, LiDAR, and advanced sensor NWs in China and South Korea. Good progress in UAE with demos of high-tech, integrated surveillance frameworks and advanced collision avoidance systems.
Regulatory & Certification Pathways	Mature, transparent, and clearly-defined regulatory and certification processes explicitly designed to accelerate innovation, commercialization, and market entry.	Highest strength for this cluster UAE a global regulatory innovator. China has extensive regs and clear certification processes for drones and AAM. SK aligning with international standards, and proactive regulatory harmonization
Enforcement & Compliance	Strong enforcement, high compliance rates, effective monitoring, and accountability protocols. Advanced surveillance technologies and automated compliance systems.	Highly effective industry supported enforcement mechanisms - regular auditing, technology-driven monitoring, and high accountability standards
Implementation Roadmap & Milestones	Clear and well-defined roadmaps, supported by government investment and industry alignment. Comprehensive milestones, timelines, and pilot projects for AAM commercialization.	Strong, clearly articulated, and ambitious implementation roadmaps. All have set granular and clear milestones and timelines
Strategic Recommendations	Sustain the momentum in regulatory clarity and sophisticated technological infrastructures. Continue investing in automation and communication technologies to maintain global leadership. Share best practices internationally to support global advancement in UAM implementation.	Continue investing in technological integration and automation to maintain their competitive edge. Share best practices internationally, as these nations can set benchmarks for countries with lower maturity. Address minor gaps in UTM & Automation, emphasizing innovative automation solutions to enhance operational efficiency and safety further.

Table 8 (Contd): Cluster profiles across each evaluated airspace integration parameter

AAM MATURITY AT THE INTERSECTION OF REGULATION AND TECHNOLOGY

Figure 1 below visualizes how national AAM readiness efforts group together based on the primary driving factors (Regulatory & technology development) determined by our analysis.

ADVANCED AVIATORS (PURPLE):

Distinctly positioned, indicating advanced maturity across multiple parameters. This cluster shows high readiness and capability in regulatory frameworks, technological sophistication, and strategic implementation.

While not explicitly ahead in the current race for AAM supremacy (Sky leaders hold that title due to overall AAM readiness as per the applied weighting scheme), Advanced Aviator nations (Australia, Spain, Netherlands, Italy, Germany, Israel, United States, Switzerland) map as "tech savvy regulators" due to their balanced approach to building AAM readiness. Generally balanced mix of forward thinking regulation and to building/fostering enabling technologies

SKY LEADERS (GREEN):

Clearly separated from other clusters, affirming their strong maturity levels, especially in regulatory aspects and planning, reflecting their global leadership status.

While these nations (China, UAE, South Korea) map as regulatory pioneers, their relative positioning in the principal component analysis must not be confused to indicate lower readiness. These nations, as per our selection and weighting of parameters, exemplify the current gold-standard in overall AAM readiness.

RISING NAVIGATORS (BLUE):

Centrally located, reflecting moderate, balanced maturity. Countries in this cluster share similar developmental progress across various parameters, indicating intermediate readiness levels.

EMERGING FLYERS (ORANGE):

Positioned mostly toward the negative side of both factors, highlighting lower maturity. Significant gaps are present in technological and operational preparedness, emphasizing the need for strategic growth and targeted investments.

STRATEGIC RECOMMENDATIONS:

Advanced Aviators and Sky Leaders should continue to leverage their positions, fostering innovation, automation, and international cooperation.

Rising Navigators could benefit from targeted investments to close maturity gaps.

Emerging Flyers need focused developmental interventions, particularly technological infrastructure, automation capabilities, and structured implementation plans.

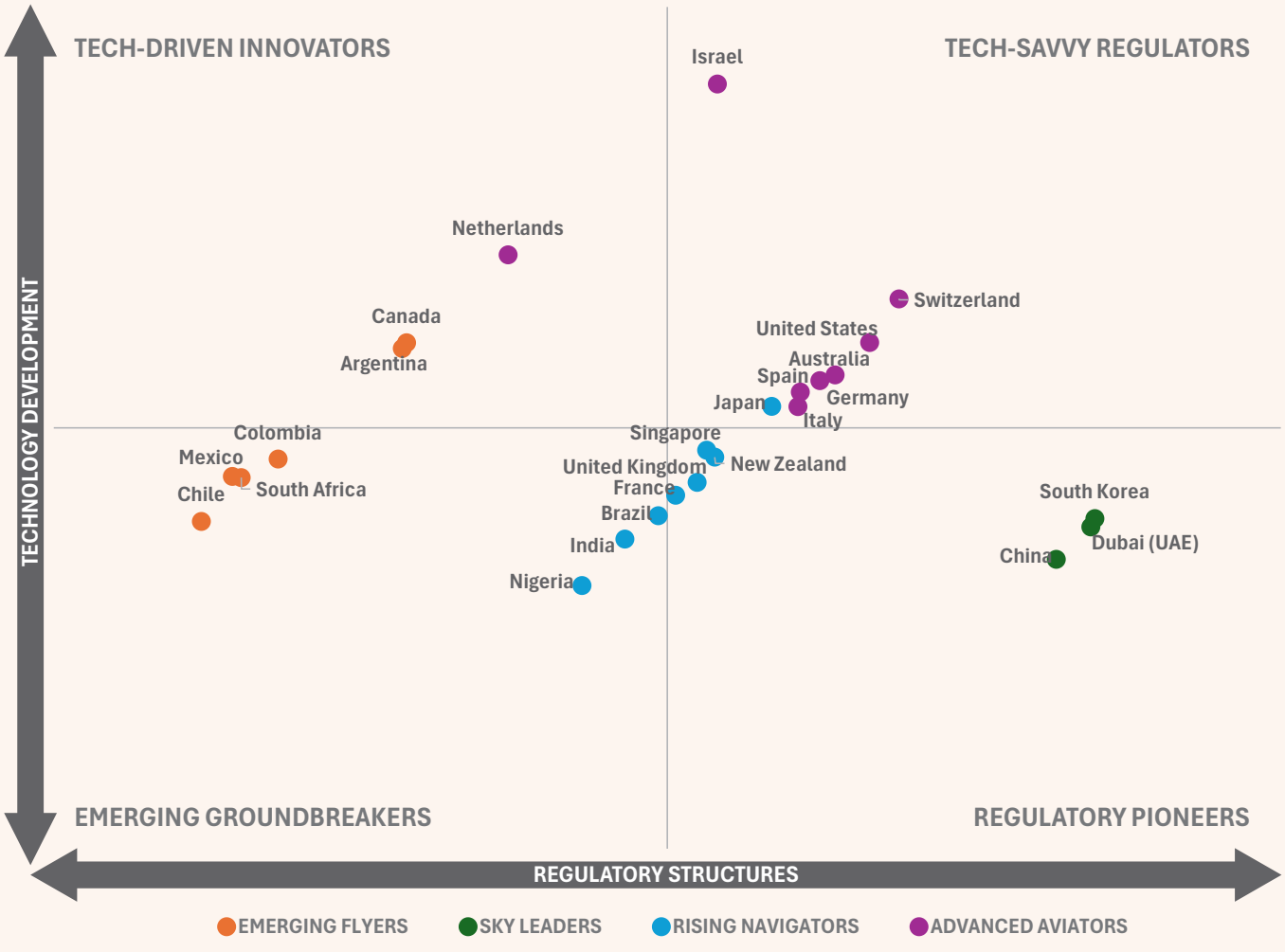


Figure 5: AAM Maturity by Primary Driving Factors

SPECIFIC STRATEGIC RISKS AND OPPORTUNITIES PER QUADRANT:

The strategic quadrant assignments illustrated in figure 3 should not be interpreted as representing the overall maturity of a nation's AAM business environment. Overall maturity by jurisdiction is captured in Table 3 (AAM readiness ranking), determined by the applied weighting scheme in Table 1. Instead, figure 3 visualizes a nation's specific approach and characteristics across balanced regulatory and technological development factors—with regulatory aspects depicted along the x-axis and technological development along the y-axis. Notably, nations from different overall maturity clusters can share quadrant assignments; for example, rising navigator countries like the UK, Singapore, France, and New Zealand are mapped alongside Sky Leader nations such as China, UAE, and South Korea as regulatory pioneers, due to superior regulatory developments compared to their peers. Additionally, some clusters might span across two quadrants; for instance, Emerging Flyers may appear in both Emerging Groundbreakers and Tech-Driven Innovators quadrants, reflecting varying maturity across assessed parameters.

Tech-Savvy Regulators exhibit strengths in both regulatory frameworks and technological infrastructure. Their primary risks include complacency and potential challenges in scaling or adapting rapidly to technological advancements. Opportunities for these nations include leveraging regulatory leadership to define global standards and attracting industry investment through clear policy frameworks.

Tech-Driven Innovators showcase advanced technological capabilities and operational readiness. They face risks from regulatory uncertainties that may delay comprehensive AAM integration and potential operational disruptions due to evolving regulatory environments. Opportunities exist to accelerate regulatory development, thus establishing themselves as global innovation hubs.

Regulatory Pioneers possess robust regulatory environments but risk facing technological and infrastructure shortcomings, which could hinder effective operational implementation. Additionally, there's a risk their regulatory frameworks may become outdated in the face of advancing technologies. Strategic investments in technological infrastructure and partnerships with tech-leading nations or private sector innovators offer significant opportunities.

Emerging Groundbreakers represent high-potential markets actively pursuing AAM deployment. Their risks include significant gaps in both technological and regulatory maturity, presenting comprehensive challenges and a high degree of uncertainty, potentially deterring immediate private-sector investment. However, opportunities exist for these nations to implement comprehensive national strategies that integrate regulatory clarity and technological advancement simultaneously, enabling them to potentially leapfrog by rapidly adopting global best practices and forming strategic partnerships.

REGIONAL COMPETITIVE LANDSCAPE

The global Advanced Air Mobility (AAM) landscape is evolving rapidly, characterized by diverse regional approaches, distinct regulatory frameworks, and varying levels of technological readiness. The Asia-Pacific (APAC) region leads the charge, driven by aggressive policy initiatives and early adoption of commercial air taxi services. Europe closely follows with a regulation-focused model anchored by its pioneering U-space framework, positioning it as a global benchmark for safe airspace integration. North America, while home to industry-leading manufacturers, faces regulatory fragmentation and slower UTM automation. The Middle East, supported by ambitious governmental visions, moves swiftly towards smart-city integrated luxury air taxis. Latin America emerges with compelling cargo and medical applications, though it faces policy and funding hurdles. Meanwhile, Africa, still in the nascent stages, presents unique opportunities for humanitarian and medical logistics use cases. Each region's distinct strengths, barriers, and expected timelines for commercialization shape a dynamic and competitive global AAM ecosystem anticipated to transform urban transport over the next decade.

	EXPECTED START	PRIMARY USE CASES	BARRIERS	WHY
APAC	2026	Air taxis, cargo drones, medical deliveries	Airspace congestion, UTM automation challenges	Many APAC nations have aggressive AAM policy frameworks, strong investments in automation, and major eVTOL manufacturers China's pilot AAM routes and South Korea's K-AAM Grand Challenge show rapid real-world progress APAC will be first fully operationalize air taxi services in multiple countries by 2026–2027
EU	2027	Air taxis, public transport, U-space-enabled logistics	Stringent EU regulations, cross-border harmonization	EASA's U-Space regulatory framework is a global benchmark for drone and eVTOL integration Paris, London, and German cities will deploy AAM for the 2024 Olympics and beyond, ensuring early adoption Airbus, Volocopter, and Lilium are major European AAM players leading certification efforts
NORTH AMERICA	2026	Cargo drones, airport shuttles, private eVTOL NWs	Regulatory fragmentation, slow UTM rollout	The U.S. is home to the world's largest AAM manufacturers (Joby, Archer, Wisk, Beta) FAA's Innovate28 roadmap will enable AAM pilot corridors in New York, Los Angeles, and Miami by 2028 Canada has a structured regulatory approach, but lacks a full-scale air taxi roadmap
MIDDLE EAST	2026	Luxury air taxis, smart city integration	Infrastructure development, regulatory standardization	Dubai's air taxi roadmap (2026 launch) and UAE's strong regulatory push for AAM adoption Saudi Arabia's NEOM includes AAM in its smart transport vision Israel's INNA initiative is a robust framework for AAM adoption
LATIN AMERICA	2028	Medical logistics, urban deliveries, pilot air taxis	Funding constraints, policy development delays	Brazil's ANAC has set strong drone regulations, supporting eVTOL progress (Embraer Eve) Mexico, Chile, and Colombia have expanded drone delivery trials (Zipline, Wingcopter) Growing demand for air taxi networks in congested cities like São Paulo and Mexico
AFRICA	2030	Medical drones, humanitarian aid, early-stage air taxis	Weak enforcement, underdeveloped infrastructure	Nigeria, South Africa, and Rwanda lead in medical drone logistics (Zipline, Swoop Aero) AAM trials in South Africa and Nigeria show promise for commercial expansion Demand for drone-based logistics is high due to poor ground infrastructure

Table 9: Regional Competitive Landscape

APAC (ASIA-PACIFIC) – LEADING THE GLOBAL AAM MARKET

The Asia-Pacific region is positioned to become the global leader in Advanced Air Mobility (AAM), driven by aggressive policy frameworks, extensive investments in automation, and significant private-sector innovation. Countries such as China, Japan, South Korea, Singapore, and Australia are actively preparing for commercial AAM operations by 2026, primarily focusing on air taxis, cargo drones, and medical deliveries. Prominent manufacturers like EHang, Volocopter, Hyundai, and Joby are establishing substantial operations in the region. Notable real-world progress includes China's successful pilot AAM routes and South Korea's K-AAM Grand Challenge, demonstrating readiness to launch the world's first fully operational Advanced air taxi services. However, high-density airspace congestion remains a critical challenge, necessitating advanced AI-driven UTM solutions to manage complex and high-volume airspace.

EUROPE – REGULATION-DRIVEN MARKET WITH U-SPACE LEADERSHIP

Europe's AAM market is characterized by robust regulatory leadership through EASA's pioneering U-Space framework, which sets global standards for safe and efficient drone and eVTOL integration. Primary use cases include air taxis, integration with public transportation systems, and U-space-enabled logistics, with initial commercial deployments anticipated by 2027. Key European cities—such as Paris, London, and various German urban centers—are leading the charge, leveraging events like the 2024 Olympics to showcase AAM capabilities. European industry leaders Airbus, Volocopter, and Lilium drive certification processes, although stringent environmental and safety regulations, as well as complexities in cross-border air taxi harmonization, could moderate the pace of rollout.

NORTH AMERICA – HIGH POTENTIAL, SLOW UTM & REGULATORY UNCERTAINTY

North America holds significant promise for AAM, driven by the presence of globally leading manufacturers such as Joby, Archer, Wisk, and Beta. The region's key use cases revolve around cargo drones, airport shuttle services, and private eVTOL networks. The FAA's Innovate28 roadmap aims to establish pilot AAM corridors in key urban centers like New York, Los Angeles, and Miami by 2028. Despite high potential, the market is constrained by regulatory fragmentation, cautious FAA approaches, and slower-than-anticipated development of fully automated UTM systems. Canada's structured regulatory environment further complements this, yet lacks a clear full-scale air taxi roadmap. These uncertainties could delay widespread adoption but commercial operations are still expected to begin around 2026.

MIDDLE EAST – FAST MOVERS WITH STRONG GOVERNMENT SUPPORT

The Middle East, particularly the UAE, Saudi Arabia, and Israel, is rapidly emerging as a dynamic AAM market driven by strong government support, visionary urban planning, and substantial financial investment. Primary use cases include luxury air taxis and smart city transportation integration. Dubai's ambitious air taxi roadmap, aiming for a 2026 launch, and Saudi Arabia's futuristic NEOM megacity initiative, along with Israel's comprehensive INNA framework, exemplify regional commitments. However, significant infrastructure development—particularly vertiports—and regulatory standardization across GCC nations remain critical challenges for achieving fully integrated, cross-border AAM operations.

LATIN AMERICA – EMERGING MARKET WITH STRONG CARGO & MEDICAL USE CASES

Latin America is an emerging but rapidly developing AAM market, with commercial services expected to launch by 2028. The region's strongest initial use cases are medical logistics, urban deliveries, and early-stage air taxi services, particularly in congested urban areas like São Paulo and Mexico City. Brazil's ANAC has set progressive drone regulations that facilitate the advancement of local innovators such as Embraer's Eve, while Mexico, Chile, and Colombia actively explore drone delivery solutions with companies like Zipline and Wingcopter. However, key barriers include limited funding availability, inconsistent national policy frameworks, and early-stage integration of infrastructure and air traffic control systems, necessitating targeted investments and coordinated policy development to accelerate market readiness.

AFRICA – AAM IN ITS INFANCY, BUT STRONG HUMANITARIAN POTENTIAL

Advanced Air Mobility in Africa remains in its initial stages, yet exhibits strong potential, especially within medical logistics and humanitarian aid. Commercial services are expected by around 2030, focusing initially on medical drone logistics and early-stage air taxi demonstrations. Leading nations include Nigeria, South Africa, and Rwanda, with proven medical drone delivery operations by Zipline and Swoop Aero that address critical healthcare infrastructure gaps. Key barriers involve underdeveloped aviation infrastructure, weak regulatory enforcement, and limited financial investment. The region continues to depend heavily on international organizations such as WHO and UNICEF for project funding and technical support. However, high demand for drone-based logistics, driven by significant ground infrastructure challenges, ensures substantial growth potential and impactful humanitarian applications over the coming years.

Figure 6: Global AAM Maturity Timeline

INVESTMENT PRIORITIES & RISK ANALYSIS

Our analysis of Market-Specific AAM Investment Priorities focuses on priority investment markets, and challenges for different AAM stakeholders, including investors, regulators, manufacturers, air navigation service providers (ANSPs), and urban planners.

Investors & Regulators have the highest priority level (5 & 4), as funding and regulation are critical enablers for scaling commercial AAM services.

Manufacturers & ANSPs (4 & 3) must focus on eVTOL certification, standardization, and seamless integration with traditional air traffic management.

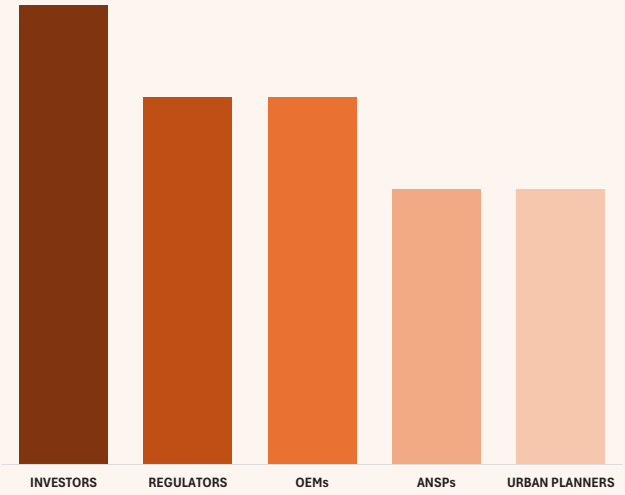


Figure 7: Investment Priority by Stakeholder

Urban Planners (3) play a vital role in zoning, vertiport development, and public transport connectivity for air taxis.

This aligns with global trends in AAM infrastructure deployment, regulatory refinement, and commercialization efforts.

INVESTMENT PRIORITIES FOR GOVERNMENTS

APAC & Europe → Invest in UTM scaling, cross-border harmonization, and infrastructure deployment.

Middle East → Focus on vertiport construction and regulatory refinements.

Latin America & Africa → Prioritize regulatory frameworks, early infrastructure investments, and international partnerships.

AAM INDUSTRY EXPANSION OPPORTUNITIES

APAC & Middle East will be the largest AAM markets for commercial air taxis by 2027.

Latin America will be a high-growth market for logistics-focused AAM (cargo drones, BVLOS delivery networks).

Africa's drone-based humanitarian networks will set the foundation for commercial AAM services.

RISK ANALYSIS

The successful commercialization of Advanced Air Mobility (AAM) hinges upon proactively addressing various interconnected risks across regulatory, infrastructure, technological, market, and societal domains. Each category carries distinct challenges, from navigating fragmented global regulations and infrastructure constraints to overcoming technical barriers and public acceptance hurdles. Understanding and mitigating these risks through targeted strategies will be essential to realize the full economic and societal potential of AAM ecosystems worldwide.

RISK CATEGORY	KEY RISKS	MITIGATION STRATEGIES	RISK SEVERITY (1-5 SCALE)
Regulatory & Compliance Risks	Delays in AAM certification, inconsistent regulations across regions, lack of global standards for eVTOL safety.	Invest in countries with clear AAM roadmaps (e.g., U.S., UAE, South Korea); work with regulators on standardization.	5
Infrastructure & Airspace Risks	High cost of vertiport infrastructure, slow integration of UTM with traditional air traffic control, limited airspace segmentation.	Focus on public-private partnerships for vertiport funding; adopt modular AAM infrastructure designs to reduce costs.	4
Technology & Operational Risks	Battery limitations (range, charging time), detect-and-avoid system reliability, lack of standardization in vehicle design.	Invest in battery R&D and AI-based air traffic automation; collaborate with global aerospace leaders to align safety standards.	4
Market & Economic Risks	High upfront costs, uncertain consumer demand, long return-on-investment periods, competition from existing transport modes.	Target urban areas where congestion relief is needed; partner with city planners to integrate AAM into smart transport networks.	3
Public Acceptance & Safety Risks	Concerns over noise pollution, privacy issues, airspace congestion, potential resistance from traditional aviation industries.	Implement public education campaigns, use noise-reduction tech in eVTOLs, conduct pilot programs to demonstrate safety benefits.	3

Table 10: AAM Risk Analysis and Mitigation Strategies

FINAL APPROACH: WHAT COMES NEXT FOR AAM

WHERE THE WORLD STANDS

Advanced Air Mobility (AAM) is entering a decisive phase.Around the world, momentum is building—but unevenly. Countries such as **South Korea, the UAE, and China** have transitioned from regulatory pilots to early-stage commercial pathways, with established corridors, automation infrastructure, and high-level political backing.

The **United States, Germany, Australia, and Israel** are progressing steadily, with clear frameworks in place and a growing focus on integration between manned and unmanned systems.

India, identified in this study as a Rising Navigator, has laid critical policy foundations through initiatives like the Drone Rules 2021, the National UTM Policy, and recent eVTOL certification advisories. But moving from potential to performance will require accelerated action across several dimensions—most notably, the operationalization of digital airspace infrastructure, clear rules for BVLOS and autonomous operations, and cross-agency coordination on vertiport and corridor planning.

The opportunity is real, but the window for first-mover advantage is narrowing.

HOW TO LEAD THE NEXT PHASE

The next phase of AAM integration will not be defined by technology alone. Success will depend on the institutional capacity to align regulation, investment, urban infrastructure, and public trust—at both national and regional levels.

To move forward, governments and industry must prioritize

Formal designation of AAM corridors, with altitude bands and route standards tailored to urban use cases.

A national certification regime that accommodates both piloted and autonomous aircraft, drawing on international best practices.

Full-scale deployment of UTM networks, capable of seamless integration with traditional ATC and civilian airspace users.

Strategic zoning and planning tools for vertiports, embedded in municipal frameworks and transit-oriented development plans.

AAM is not just mobility innovation—it is a new layer of national infrastructure. Its success will hinge on how effectively countries can coordinate across agencies, unlock capital, and scale systems without compromising safety, equity, or sustainability.

APPENDIX A: GLOSSARY

TERM	DEFINITION
Air Navigation Service Providers (ANSPs)	Organizations responsible for managing air traffic on behalf of a company, region, or country, ensuring safe and efficient navigation.
Airspace Segmentation	The division of airspace into controlled and uncontrolled areas to manage and regulate aircraft traffic and ensure safety.
Beyond Visual Line of Sight (BVLOS)	Operation of drones or aircraft at distances beyond the operator's direct sight, requiring advanced safety systems.
Digital Sky Platform	India's online platform for drone operations, providing clearances, permissions, and monitoring for drone flights.
Directorate General of Civil Aviation (DGCA)	India's primary aviation regulatory authority, responsible for safety oversight, certifications, and operational guidelines for civil aviation.
Drone Enable	An ICAO initiative focused on facilitating international standards and harmonization for unmanned aircraft systems.
Drone Rules, 2021 (India)	Regulatory framework established by the Indian Ministry of Civil Aviation (MoCA) for the operation and management of drones in India.
Electric Vertical Takeoff and Landing (eVTOL)	Electric aircraft capable of taking off, hovering, and landing vertically, crucial for advanced air mobility.
European Union Aviation Safety Agency (EASA)	Agency responsible for ensuring safety and environmental protection in air transport across Europe.
Federal Aviation Administration (FAA)	U.S. governmental body regulating all aspects of civil aviation, including air traffic control and airspace management.
Instrument Flight Rules (IFR)	Rules governing flight operations based on instrument navigation, critical for operations in poor visibility or controlled airspace.
International Civil Aviation Organization (ICAO)	Specialized agency of the United Nations, responsible for international aviation standards and cooperation.
Low Altitude Operations	Flights conducted at altitudes below 400 feet, relevant primarily for drones and eVTOL vehicles.
Ministry of Civil Aviation (MoCA)	Indian government ministry responsible for formulating national civil aviation policy, including drone and AAM regulation.
Multivariate Cluster Segmentation Modeling	Statistical method used to categorize entities (e.g., countries) based on multiple parameters to identify similarities and readiness levels.
Original Equipment Manufacturers (OEMs)	Companies that manufacture and assemble original aircraft or components for the aviation industry.
Regulatory Sandbox	A controlled environment for testing innovative products and services under regulatory supervision, aiding regulators to adapt laws appropriately.
Remote Pilot License	Certification issued by aviation authorities for operating unmanned aircraft or drones remotely.
Unmanned Aircraft System (UAS)	Aircraft operated remotely or autonomously without a pilot on board, including drones and eVTOL vehicles.
Unmanned Traffic Management (UTM)	Digital, automated systems managing the safe and efficient integration of unmanned aircraft into airspace, typically at low altitudes.
Advanced Air Mobility (AAM)	Air transport systems utilizing eVTOLs and drones for passenger transport, cargo delivery, and other services within urban environments.
Airspace Corridors	Dedicated pathways or lanes in urban airspace designated for the efficient and safe operation of AAM vehicles.
Vertiport	Specialized landing, takeoff, and service infrastructure designed explicitly for eVTOL aircraft.
Visual Flight Rules (VFR)	Rules for aircraft operation when visual reference to terrain and other aircraft is maintained by pilots.
Very Low Level (VLL) Airspace	Defined as the airspace up to 1000 feet above ground level, designated primarily for drone and low-altitude AAM operations in India.
Zoning and Land-Use Regulations	Municipal rules governing how land is developed, crucial for the placement and operation of vertiports and other AAM infrastructure.

APPENDIX B: OVERVIEW OF GLOBAL AAM AIRSPACE INTEGRATION MATURITY

The following sections include notable country-level highlights from our desk review of legislation, regulations, policies etc across each the 25 identified nation. The sub sections are arranged regionally, moving from North America to Oceania.

NORTH AMERICA

UNITED STATES

The United States is making significant strides in integrating Advanced Air Mobility (AAM)into its National Airspace System (NAS). Federal Aviation Administration (FAA), Department of Transportation (DOT), and NASA have collectively developed a regulatory framework, concepts of operation (ConOps), and pilot certifications to safely integrate electric vertical takeoff and landing (eVTOL) air taxis.

FEDERAL INITIATIVES

The FAA has established foundational rules, including definitions and pilot training for "powered-lift" aircraft (Part 135).

AAM operations will use helicopter flight procedures and airspace initially, and later transition to designated corridors managed by federated traffic systems.

Key laws (Advanced Air Mobility Coordination Act of 2022, FAA Reauthorization Act of 2024) set clear timelines and provide funding and regulatory support to fast-track AAM integration.

Full aircraft certification is underway under adapted existing aviation rules with performance-based criteria - some gaps exist.

A federated UTM system, initially developed for drones, will eventually manage AAM flights

FAA's "Innovate28" - small-scale pilot projects in 2025 using modified existing heliports.

Vertiport pilot programs by DOT indicate focus on flexible and mobile infrastructure solutions due to initial scarcity.

COMMUNITY AND STATE INITIATIVES

Noise, community acceptance, and interagency cooperation (19 federal agencies engaged) are active focus areas.

Numerous states (e.g., Florida, Ohio, Texas, California, Virginia) have proactively developed supportive AAM plans, legislation, and public-private partnerships to attract and facilitate AAM operations.

INDUSTRY AND MEDIA PERSPECTIVES

Industry (Joby, Archer, Beta, and others) views FAA actions positively but acknowledges airspace congestion, and community acceptance as major hurdles.

Media highlights challenges such as vertiport availability, public acceptance, noise concerns, and air traffic control complexities. Comparisons are often made with global competitors like Europe and Singapore.

The U.S. approach is cautious yet progressive, balancing safety with innovation, supported by comprehensive regulatory frameworks, interagency collaboration, and state-level initiatives to facilitate the successful introduction of advanced air mobility.

CANADA

Transport Canada (TC) oversees AAM integration, has established drone regulations (small drones under visual-line-of-sight with plans for new Beyond Visual Line of Sight (BVLOS) drone regulations to move beyond the current case-by-case approval system.

FEDERAL INITIATIVES

Canada currently uses traditional certification pathways for eVTOL aircraft, adapting these frameworks incrementally, and expects to define clearer "powered-lift" aircraft standards by late 2024.

NAV CANADA, the air navigation service provider, implemented "NAV Drone," a digital system facilitating airspace authorization and strategic traffic management for drones. More advanced UAS Traffic Management (UTM) capabilities are being tested.

Canada's low-altitude AAM currently relies on existing airspace rules (mainly Class G airspace under 400 ft). There's no dedicated AAM corridor yet, but NAV CANADA is exploring flexible airspace designs to accommodate future traffic increases.

Ongoing UTM trials (Phase II) involve advanced automation (AI, radar, real-time weather integration) but currently remain experimental.

COMMUNITY AND STATE INITIATIVES

Vancouver's AAM consortium (CAAM) actively promotes AAM development. B.C. plans infrastructure updates (e.g., heliport conversions) and is considering AAM for healthcare and emergency services.

Ontario is engaged in cross-border AAM studies with Michigan, and focusing on drone corridors, vertiports and medical logistics.

Quebec is supporting drone/AAM research through CRIAQ and industry partnerships. Montreal hosts eVTOL startup Jaunt Air Mobility, with ongoing drone trials informing future regulation.

Manitoba, Alberta, and cities like Winnipeg and Calgary are exploring drone-based logistics and medical delivery trials.

INDUSTRY COLLABORATION & INITIATIVES

The Canadian Advanced Air Mobility Consortium (CAAM) - inl members like Transport Canada, NAV CANADA, industry, and provincial partners, is coordinating pilot projects and inform regulatory development.

Private-sector-led pilot projects (e.g., Harbour Air's electric seaplane, Helijet's eVTOL partnerships, and Dymond Group's proposed vertiports).

NAV CANADA's collaboration with international firms (e.g., Unifly, Variable Pitch consortium) for traffic management advancements and international interoperability.

Canada's AAM integration strategy is cautious, focused on safety, and built around incremental progress. Regulatory frameworks are developing steadily, with significant provincial and private-sector participation informing the federal approach. Canada is moderately positioned for near-term drone-based AAM services, while passenger-carrying eVTOL integration is in earlier stages of regulatory and infrastructure readiness.

MEXICO

AFAC (Mexico's aviation authority since 2019) oversees aviation regulation, including emerging AAM technologies. Mexico's air navigation provider, SENEAM, manages existing airspace but has no specialized airspace dedicated to AAM yet.

FEDERAL INITIATIVES

No dedicated AAM law exists yet; current regulation is based on existing drone and civil aviation laws (Civil Aviation Law Art. 88 Bis 1, NOM-107-SCT3-2019).

AFAC is working closely with industry partners (e.g., AirMobility and EHang) to establish norms for eVTOL operations. The first autonomous eVTOL (EHang EH216-S) received special authorization for demonstration flights, and set a regulatory precedent.

AFAC currently approves training on a case-by-case basis but has yet to formalize a dedicated "eVTOL pilot" license. Existing drone pilot licenses and traditional aviation licenses are currently the basis for approving AAM operators.

Current AAM flights operate at low altitudes (100–150 meters) below helicopter routes to avoid conflicts. Existing rules prevent drones and AAM from entering helicopter corridors.

COMMUNITY AND STATE INITIATIVES

Mexico City is a Leading candidate for AAM adoption due to heavy congestion and existing helipad infrastructure. Public acceptance is high (54% view AAM as safe; 67% likely to use services). No formal city policy, but private operators (AirMobility) are planning airport-to-city center routes.

Vertiport concepts are being proposed privately, and are awaiting municipal planning and zoning updates. Early demonstration flights (e.g., Morelos eVTOL test) have begun involving local authorities.

INDUSTRY COLLABORATION & INITIATIVES

EHang (w/ AirMobility) achieved Mexico's first autonomous eVTOL test flight, closely coordinated with AFAC. Redwings aviation partnered with Jaunt for future AAM services.

AFAC has MoUs (e.g., w/ China's CAAC) to adopt global best practices. Participation in global forums (ICAO, NASA, EASA) informs Mexican regulations.

Private companies propose modular vertiports; Eve Air Mobility and Bluenest planning UTM systems applicable to Mexico.

Mexico's AAM development is currently industry-driven, with federal regulators adapting and responding incrementally. Early pilot demonstrations (EHang/AirMobility) and private sector interest are prompting AFAC and local governments to develop necessary regulations and infrastructure progressively. However, Mexico lacks a clearly defined implementation roadmap and dedicated AAM infrastructure at this stage.

LATIN AMERICA

ARGENTINA

ANAC is the civil aviation regulator in Argentina, and is developing eVTOL airworthiness certification guidelines. A remote pilot licensing regime already exists; ANAC likely to expand this framework for AAM pilots/operators. EANA oversees controlled airspace.

FEDERAL INITIATIVES

Aeronautical Code (Law 17.285) updated in late 2023; Presidential Decree (663/2024) established explicit recognition for autonomous and AAM vehicles - emphasizes gradual integration, first enabling agricultural and industrial drone uses, then expanding to urban scenarios.

ANAC to develop detailed technical standards for drones and eVTOL aircraft within 180 days (mid-2024 onward).

Existing rules (Resolución 527/2015, 880/2019) mandated VLOS (Visual Line of Sight), altitude below 120 meters, and limited urban operations without special approval.

Current AAM-related drone flights require individual authorization and tactical separation from manned flights.

Plans for automated Unmanned Traffic Management (UTM) exist but remain limited

COMMUNITY AND STATE INITIATIVES

Strong public-safety drone usage by city police in Buenos Aires; ANAC-approved local drone training academy established to build public acceptance. Aeropuertos Argentina 2000 (Corporación América Airports) exploring urban vertiport networks; potential routes: Aeroparque-Ezeiza-downtown corridors.

Córdoba is an aerospace hub with industry and university involvement; local companies (INVAP, Cicaré) developing advanced drone tech (e.g., RUAS-160A unmanned helicopter).

Rosario & Other Cities demonstrating drone adoption (e.g., traffic monitoring); no explicit local AAM plans yet, relying on federal permissions (ANAC/EANA).

INDUSTRY COLLABORATION & INITIATIVES

Aeropuertos Argentina 2000 partnered with Skyports (UK) in 2022 to develop vertiports across key cities (Buenos Aires, Córdoba). This initiative significantly influences ANAC's forthcoming vertiport regulations and infrastructure planning.

Active drone industry (ITS Drone Solutions, INVAP) piloting advanced UTM systems, providing practical insights for regulatory updates.

Participation in ICAO, LACAC, and global AAM forums; possibility of hosting eVTOL demonstration flights (e.g., Eve or Volocopter) within the next few years, under ANAC oversight

Argentina has established foundational legal recognition and a policy framework for AAM integration, spearheaded by ANAC's regulatory updates following the pivotal 2024 decree. Industry partnerships are robust, significantly shaping infrastructure and standards development. However, practical airspace management tools, surveillance systems, and a clear, phased implementation roadmap remain in early developmental stages. The country is positioned to accelerate rapidly in AAM integration if current initiatives continue receiving active government support, particularly in key urban centers such as Buenos Aires and Córdoba.

BRAZIL

National Civil Aviation Agency (ANAC) and Department of Airspace Control (DECEA) share responsibility for integrating AAM vehicles in Brazil's urban airspace. ANAC proposed new "VTOL Capable Aircraft" (VCA) pilot licensing rules mid-2024, benchmarked to FAA/EASA standards.

FEDERAL INITIATIVES

ANAC has released airworthiness criteria for eVTOL aircraft (Eve Air Mobility's Eve-100), establishing Brazil among global regulatory leaders for this new category - informed by extensive public consultations (~300 contributions) for criteria aligned with international best practices.

ANAC proposed new VTOL pilot licensing rules in 2024, benchmarked to FAA/EASA standards, and addressed transitional scenarios for existing helicopter pilots and new ab initio VCA pilots.

ANAC has also initiated a 24-month vertiport sandbox in São Paulo (Campo de Marte Airport), with Eve, UrbanV, and PAX Aeroportos, and is actively developing vertiport design standards, operational safety measures, noise management, and integration procedures.

DECEA released national AAM CONOPS (DCA 351-7) in March 2024, defining phased integration of eVTOLs, and introduced "Digital Flight Rule (DFR)" concept for automated, high-density AAM operations, by augmenting traditional VFR/IFR rules.

Plans initial use of existing helicopter corridors, evolving into dedicated AAM airspace with automated traffic management and reduced separation minima

Also launched BR-UTM (2023) for UTM system prototyping, involving companies like High Lander (BIRDS), to facilitate drone and eVTOL traffic management.

COMMUNITY AND STATE INITIATIVES

Sao Paulo is the world's busiest urban helicopter network - existing infrastructure (300+ heliports) enables quick eVTOL integration for initial AAM adoption; city collaborating for municipal participation in ANAC's vertiport sandbox.

Rio Di Janeiro has developed comprehensive AAM CONOPS (2022) collaboratively with Embraer's Eve, ANAC, DECEA, local airport (RIOgaleão), and city stakeholders; Identified routes (e.g., airport-downtown-tourist hotspots) and key vertiport locations, with Jacarepaguá Airport as a proposed initial AAM hub.

Brasília and Other Cities (Belo Horizonte, Curitiba) in early planning stage; observing national developments, considering integration strategies for airport shuttles and urban connectivity.

INDUSTRY COLLABORATION & INITIATIVES

Embraer's Eve coordinated landmark CONOPS for Rio, integrating industry, regulatory, and municipal insights into actionable plans.

Eve, UrbanV, and PAX Aeroportos actively conducting vertiport operational trials under ANAC's oversight.

Eve and Revo executed live AAM air traffic simulations in São Paulo (2024), testing Eve's Vector ATM system, and demonstrated traffic integration feasibility.

DECEA's BR-UTM integrates cutting-edge international tech (e.g., High Lander's UTM system).

ANAC's partnership with EASA ensures global standard alignment; Azul Airlines and Lilium's partnership indicates inter-city AAM considerations.

Brazil demonstrates significant advancement in preparing regulatory, operational, and technological foundations for AAM integration, positioning itself among global leaders. Robust public-private partnerships, clear regulatory pathways, proactive stakeholder involvement, and an actionable roadmap suggest Brazil is on track to achieve commercial AAM services by approximately 2026–2027. However, successful realization depends on the timely implementation of planned infrastructure, airspace management solutions, and final regulatory enactment.

CHILE

DGAC – Dirección General de Aeronáutica Civilis leading the integration of AAM vehicles in Chile. Significant regulatory evolution required, moving from manual oversight to automated systems (UTM/U-space).

FEDERAL INITIATIVES

Current drone operations governed by strict rules: DAN 151, DAN 91, and DAN 137. RPAS limited by weight (9 kg), daytime VLOS, 400 m altitude, and proximity to airports. Commercial drone operators require Air Operator Certificate (AOC)

Chile currently lacks dedicated eVTOL certification standards but is proactively developing them. In 2024, DGAC signed a cooperation agreement with EASA to align future AAM/eVTOL standards with global best practices.

Currently, drone flights are manually authorized and segregated from traditional aviation. DGAC acknowledges the need for restructuring airspace and developing dedicated AAM corridors.

COMMUNITY AND STATE INITIATIVES

DGAC-led working group formed in 2022 includes regional, municipal, energy, and transportation authorities to prepare for AAM.

Santiago (capital), Valparaíso–Viña del Mar, and Concepción identified as initial AAM candidates.

Existing heliports will initially serve as vertiports, but dedicated new infrastructure is recognized as essential.

Municipal governments expected to enact ordinances on vertiport locations, operating hours, and flight routes, guided by DGAC standards.

INDUSTRY COLLABORATION & INITIATIVES

Airbus–Ecocopter partnership (2022) aims to establish a AAM ecosystem in Chile based on Airbus's CityAirbus NextGen eVTOL platform.

Discovery Air Chile partnered with Horizon Aircraft (Canada) to introduce hybrid eVTOLs (Cavorite X7) for operations starting 2028.

No full-scale AAM demonstrations yet, but clear timelines set by private firms (Discovery Air's targeted eVTOL deployment by 2028).

Chile's integration of AAM is in the early formative stages, characterized by strong international collaboration and foundational regulatory groundwork. While existing drone regulations provide a basic framework, significant development remains in airspace restructuring, automated traffic management (UTM/U-space), and dedicated vertiport infrastructure. The private sector (Airbus–Ecocopter, Discovery Air–Horizon) has initiated concrete plans, establishing 2028 as an informal industry milestone, which pushes regulatory authorities (DGAC) towards defining and implementing AAM standards. Given proactive collaboration and commitment to global regulatory alignment, Chile is well-positioned to advance rapidly, though actual readiness currently remains at a preliminary stage.

COLOMBIA

Aerocivil – Unidad Administrativa Especial de Aeronáutica Civil is responsible for setting Federal Policies and Regulationsfor AAM airspace integration. Aerocivil has explicitly identified AAM as a strategic opportunity, committing to early adoption and regulatory flexibility.

FEDERAL INITIATIVES

Existing RAC 100 defines UAS registration, pilot licensing, and operational rules. UAS categories: Abierta (open), Específica (specific), Certificada (certified), mirroring the EU risk-based approach. However, detailed rules for passenger-carrying (certified) eVTOLs still pending.

Current lack of eVTOL-specific certification paths; reliance on existing aircraft certification and remote pilot licensing systems as interim measures.

Currently, drone flights are segregated and manually authorized. Aerocivil developing a UTM (Unmanned Traffic Management) concept to structure airspace, integrate low-altitude operations, and enable high-density AAM corridors.

Issued Directiva 03-23 (vertiport infrastructure) and Directiva 01-23 (command-and-control links).

COMMUNITY AND STATE INITIATIVES

Active collaboration between Aerocivil and Medellín municipality (Olaya Herrera Airport administration) - Developed an initial local AAM roadmap, covering regulatory adaptation, airspace zoning, vertiport integration, community acceptance, and noise mitigation.

Bogotá identified as a key market; private initiatives (e.g., Eve–Flapper partnership) already assessing potential AAM routes through helicopter simulations.

Cali, Cartagena, and other cities beginning to consider AAM infrastructure; leveraging existing aviation facilities expected.

INDUSTRY COLLABORATION & INITIATIVES

Varon Vehicles closely collaborating with Aerocivil to define vertiports and “virtual air corridors.”

Public-private “Think Tanks” used to identify regulatory requirements and localize AAM implementation strategies.

Aerocivil and industry engaged with NASA, JARUS, and FAA/EASA to synchronize global and local AAM regulations.

Eve–Flapper partnership developing AAM operational data through helicopter flights in Bogotá; informing Aerocivil’s regulatory strategy.

Colombia demonstrates proactive, strategically advanced preparation for AAM, supported by a strong commitment from Aerocivil, extensive industry collaboration (Varon Vehicles, Eve–Flapper), and detailed roadmap planning. Regulatory foundations are solid (RAC 100), and Colombia is actively addressing gaps (advanced certification, UTM). Medellín’s role as a pilot city provides a replicable model for other cities (Bogotá, Cali). Although detailed airspace structures, surveillance, and automation remain in early stages, the country’s explicit timelines and policy clarity position it ahead of regional peers.

EUROPE

FRANCE

Federal Policies and Regulations set by the Direction Générale de l’Aviation Civile (DGAC) informed by the EU AAM frameowrk by the European Union Aviation Safety Agency (EASA).

FEDERAL INITIATIVES

EU-wide digital U-space regulation effective since 2023; France actively planning dedicated U-space corridors but yet to fully implement. Temporary corridors for demonstration flights; permanent urban U-space zones are under development.

Adoption of EASA’s “Part IAM” rules specifically for crewed VTOL air taxi operations across Europe. Initial VTOL operations permitted under VFR daytime rules, with plans for IFR/night operations as experience grows.

VTOL-specific pilot type rating established, leveraging existing airplane/helicopter pilot pools; dedicated VTOL licensing in development.

Established Special Condition VTOL airworthiness standards for eVTOL vehicles since 2019.

COMMUNITY AND STATE INITIATIVES

Extensive trials at the **Pontoise-Cormeilles, Paris** testbed with over 30 partners (ADP, RATP, Volocopter, Airbus, Vertical Aerospace). Operational prototype vertiport tested, including noise, infrastructure integration, airspace coordination, and public acceptance. Initial Paris vertiport network (5 sites) identified: airports (CDG, Le Bourget), heliports (Issy-les-Moulineaux), and floating Seine vertiport at Quai d’Austerlitz.

Partnership (Lilium, UrbanV, Nice Airport Authority) establishing vertiport network connecting **Riviera cities** (Marseille–Monaco) by 2026.

Toulouse actively involved in SESAR TindAIR demonstrations (drone/eVTOL airspace integration tests)

INDUSTRY COLLABORATION & INITIATIVES

Volocopter leading demonstrations, and providing operational data (noise, flight procedures, passenger experience).

International collaboration to test regulatory harmonization (France–Monaco–Italy), with inputs for the broader EU policy for cross-border AAM operations

U-space and Automation Development through partnerships (ADP/Hologarde, Thales, DSNA) for drone detection and UTM systems

France displays strong strategic preparation and an advanced regulatory environment (through DGAC/EASA). The country has fostered powerful public-private ecosystems (Paris sandbox, Riviera network), significantly advancing AAM’s operational readiness. While full U-space airspace management and advanced surveillance systems are still emerging, France’s near-term milestones (Paris 2024 Olympics demonstration, Riviera 2026 routes) show concrete commitment to rapid implementation. The regulatory and certification pathways are among the most mature globally, providing industry clear guidance toward commercial deployment.

GERMANY

Germany exhibits advanced preparedness and strong regulatory alignment with European standards, strategic national planning, extensive regional engagement, and effective industry-government partnerships.

FEDERAL INITIATIVES

Luftfahrt-Bundesamt (LBA) implements EU-wide EASA regulations (Part IAM, SC-VTOL) governing AAM.

Clear pathway via EASA's SC-VTOL framework, actively used by German OEMs (Volocopter, Lilium) advancing toward type certification in 2025.

Existing CPL licenses extendable to eVTOL pilots; Germany approved the world's first eVTOL pilot training program (Volocopter, 2024) under LBA supervision

National U-space strategy published (2023), defining digital UTM services (e-identification, automated flight approvals), tested extensively (Hamburg, Rhineland labs). A dedicated U-space law is planned, leveraging results from pilot programs.

Initial operations under tightly managed VFR conditions, with phased regulatory evolution

€15M for research/pilots, plus targeted regional investments (eg. Bavaria's €100M commitment)

COMMUNITY AND STATE INITIATIVES

Collaborative MOU with Hamburg, Aachen, Ingolstadt, North Hesse, for infrastructure (vertiports), routes/corridors, and community acceptance.

DLR prototype vertiport as national standard; using airports (Munich), transit hubs, rooftop urban sites; aligned with EASA's Vertiport Design Guidelines.

Strong focus on public education; stringent noise limits set by EASA (initially using helicopter standards); local ordinances planned for noise and operations management.

Munich Air Mobility Initiative (AMI) with vertiport and pilot route prototypes by 2025–26.

INDUSTRY COLLABORATION & INITIATIVES

Hamburg U-space lab, Rhineland 5G lab; joint projects (LUV, UDVeo) actively informing regulatory frameworks.

Volocopter/Lilium collaborating directly with regulators, on certification, operations, and pilot training.

Partnership with international infrastructure providers (Urban-Air Port); EU research (CORUS-XAAM, AMU-LED); and Vodafone for V2I communications.

Collaborative airspace integration tests with Airbus/DLR to demonstrate feasibility of mixed operations.

Germany exhibits strong regulatory clarity, strategic planning, and significant public-private collaboration. While full mixed integration with conventional aviation and complete national U-space coverage remain near-future objectives, current pilot initiatives, infrastructure development, and community engagement position Germany to successfully start commercial AAM operations within the next 2–3 years.

ITALY

Italy has proactively established a regulatory framework, national strategy, and industry collaborations, and aims to positioning itself as a regional leader in AAM development.

FEDERAL INITIATIVES

Italy has adopted the EU-wide certification and pilot licensing standards set by EASA (SC-VTOL, Part IAM)

Italy's National Regulatory Framework for AAM (ENAC) aligns with EASA rules, and supplements with national requirements for operations, infrastructure, and procedural details

VCA Regulation (2024) implements comprehensive rules for eVTOL operations and vertiports, including dedicated urban flight corridors, including reserved U-space flight corridors for AAM in urban areas

Currently implementing EU U-space framework (ENAV & d-flight) to manage low-altitude airspace digitally

COMMUNITY AND STATE INITIATIVES

First operational vertiport prototype at Rome Fiumicino (2022); compliant with EASA guidelines

Strategic vertiport network planned for major cities (Rome, Milan, Venice) and transport hubs by 2026, extensive network by 2030

Dedicated urban corridors, initially segregated and controlled, evolving toward fully integrated dynamic corridors

Comprehensive public education, acoustic impact studies, zoning for vertiports, and stringent noise standards aligned with EASA requirements

INDUSTRY COLLABORATION & INITIATIVES

Successful crewed eVTOL test flights at Rome Fiumicino (Volocopter, ADR, Mundys)to validate operational and regulatory concepts

Formation of UrbanV for vertiport development; partnerships with global manufacturers (Volocopter, EHang, Joby)

ENAC actively using industry trials to define future airspace requirements, communication standards, and automated UTM integration

Italy demonstrates significant leadership in AAM regulatory innovation, infrastructure readiness, and active public-private collaboration. While full routine integration into traditional airspace and comprehensive automation in UTM systems remain works-in-progress, Italy's systematic and collaborative approach indicates a high likelihood of successful large-scale AAM deployment by 2030.

THE NETHERLANDS

The Netherlands is proactively advancing AAM integration through EU-aligned regulatory frameworks, strong national strategy, and collaborative industry partnerships, positioning itself as a leader in preparing for widespread drone and eVTOL operations.

FEDERAL INITIATIVES

ILT (Human Environment and Transport Inspectorate) enforces EU/EASA rules locally; Adheres to EASA drone/eVTOL regulations

Drone operations currently confined to Class G airspace below 120m; BVLOS flights require ILT approval via Specific Operations Risk Assessment

Netherlands implementing EU's U-space framework (Regulations 2021/664,665,666)

Ministry of Infrastructure issued BVLOS policy (2024) with phased integration approach

ILT grants specific trial authorizations for AAM testing; future remote/autonomous operations will follow EASA's evolving standards

COMMUNITY AND STATE INITIATIVES

Port of Rotterdam established first Dutch drone vertiports ("Galileo" experimental vertiport, 2023) as a scalable infrastructure prototype.

Active planning for vertiport networks in urban regions (Amsterdam, Eindhoven, Rotterdam); Spatial and zoning considerations already integrated into city planning initiatives (Amsterdam Urban Sky Lab).

Use-case demonstrations (medical deliveries, logistics) for public trust-building.

Noise regulations aligned with EASA guidelines; strict environmental permitting required for vertiports.

INDUSTRY COLLABORATION & INITIATIVES

Significant public-private collaboration (KLM, LVNL, Port of Rotterdam, NLR, etc.)

Digital U-space system testing real-time drone traffic management (collaboration with AirHub/MovingDot). Results to guide national decisions on CISP, corridor management, and operational rules.

Active Dutch participation in EU-wide initiatives (AMU-LED, CORUS-XAAM) testing urban air mobility scenarios.

The Netherlands demonstrates significant progress regulatory alignment, digital airspace management (U-space), and comprehensive national planning for AAM. While technological gaps, notably in surveillance and collision avoidance, remain areas for improvement, the Dutch structured approach positions the country strongly as a European frontrunner for large-scale commercial AAM deployment by the early 2030s.

SPAIN

Spain is making significant progress integrating Urban Air Mobility through comprehensive national policies, active EU alignment, structured infrastructure planning, and strong industry collaboration. Ministry of Interior involved in pre-flight security; Ministry of Defense for airspace coordination.

FEDERAL INITIATIVES

Spain updated national regulations (Royal Decree 517/2024) align with EU drone regulations (EU 2019/945, 2019/947), and create legal certainty for AAM operations.

National U-space Plan (PANDU) to guide deployment strategy.

ENAIRE has been designated sole Common Information Service Provider (CISP) to provide a unified digital platform (real-time data, flight authorizations) under a 10-year mandate

COMMUNITY AND STATE INITIATIVES

Aena partnering with UrbanV/Volocopter for feasibility studies and test vertiports at existing airports

Valencia region pilot "drone highway" integrates drones/AAM into existing airspace structures; coordinated by ENAIRE and Polytechnic University of Valencia. Regional corridors (Valencia, Castellón, Alicante) for testbed development

INDUSTRY COLLABORATION & INITIATIVES

Collaboration with global firms (Airbus, Honeywell, Vertical Aerospace) positions Spain as key AAM testbed

Ferrovial announced plans for nationwide network of 20+ vertiports, coordinating with government for EU funding.

AESA-issued authorizations for advanced drone operations (swarming flights) for companies like UMILES and Flock Drone Art.

Spain demonstrates substantial progress in AAM integration, with notable strengths in structured airspace management, centralized digital infrastructure, and regulatory clarity. While some areas (collision avoidance tech, long-term roadmap specifics) still require further development, Spain's coordinated strategy and concrete short-term achievements place it on a solid trajectory toward AAM maturity by the late 2020s

SWITZERLAND

Switzerland demonstrates advanced progress toward integrating AAM vehicles, with a proactive regulatory approach, clear national strategies, and industry collaboration. It aligns closely with European (EASA) frameworks while employing national authority to foster innovation.

FEDERAL INITIATIVES

Adopted EASA's risk-based drone regulations (EU Reg. 2019/947); mandatory drone pilot registration and certification since 2023.

First official U-space designated around Zurich, emphasizing automated digital air traffic services.

FOCA mandates "electronic conspicuity" for all aircraft in U-space (manned and unmanned), indicating a shared airspace approach over strict segregation.

U-space and traditional ATC systems have been interconnected via skyguide.

First in Europe to issue a Light UAS Operator Certificate (LUC) for complex BVLOS drone operations (e.g., Matternet)

FOCA follows EASA's Special Condition VTOL, facilitating airworthiness certification for eVTOL manufacturers (e.g., Dufour Aerospace).

FOCA provides national authorizations (SORA compliance) enabling ambitious BVLOS drone/AAM operations

COMMUNITY AND STATE INITIATIVES

Zurich and Geneva airports actively exploring AAM connectivity; awaiting adoption of EASA vertiport standards.

Proactive public outreach to build trust in drone/AAM operations - Prioritized through mandatory pilot registration, strict geofencing, and noise/ environmental controls.

Zurich to serve as first operational U-space region; operational by 2025; expanded regions following; Full airspace "electronic conspicuity" target by 2030 for complete integration.

INDUSTRY COLLABORATION & INITIATIVES

FOCA–skyguide–AirMap partnership established Europe's first nationwide U-space Flight Information Management System (FIMS).

Matternet and Swiss Post launched world's first urban BVLOS drone delivery (medical supplies) with FOCA approval; FOCA granted first-ever LUC in Europe to enable self-authorized operations for high-risk BVLOS flights.

Switzerland has established itself as an international leader in AAM airspace integration, particularly excelling in the deployment of highly automated U-space systems and strong regulatory frameworks aligned with European standards. Its collaborative approach, rigorous safety culture, and clearly defined roadmap position the country at the forefront of global AAM readiness. Key areas for continued development include advanced collision avoidance technologies and completion of nationwide U-space coverage to achieve the highest maturity levels.

UNITED KINGDOM

The UK demonstrates significant progress in AAM integrationusing proactive regulatory approaches, extensive industry collaboration, and clear national strategies. While some regulatory elements remain in development, concrete milestones, robust planning, and international alignment are observed.

FEDERAL INITIATIVES

CAA leverages existing aviation regulations (CAP 722) with interim policies for eVTOL operations. Comprehensive rulemaking in progress.

Adapted EASA's Special Condition VTOL (SC-VTOL) for airworthiness certification.

Vertical Aerospace first to receive Design Organisation Approval in 2022.

Future of Flight Action Plan (2024) targetsfFirst commercial eVTOL services by 2026, regular services by 2028, autonomous demos by 2030, backed by £300 million Future Flight Challenge funding and active industry consortia.

Piloted eVTOL services initially follow existing commercial pilot and operator standards; new VTOL-specific training methods under development. Target for qualified eVTOL pilots established by 2026.

CAA Innovation Hub and Regulatory Sandbox actively informing operational rules (e.g., London AAM ConOps, CAP 2272).

Public consultation conducted (Oct. 2023) to refine VTOL policies

COMMUNITY AND STATE INITIATIVES

London (Heathrow, Battersea), Midlands (Coventry), Manchester, and Southwest (Bristol) proactively testing infrastructure and feasibility Local governments engaged actively in zoning, transport integration, and community acceptance.

Net Zero 2050 goals incentivize zero-emission AAM adoption; noise impact studies ongoing to inform future vertiport operations.

INDUSTRY COLLABORATION & INITIATIVES

Extensive industry-government collaboration through CAA Sandbox (e.g., Eve-led consortium, Vertical Aerospace–Heathrow partnership).

Significant international industry presence (Volocopter, Eve Air Mobility, Hyundai Supernal) influencing UK regulatory direction.

Altitude Angel's nationwide UTM "drone superhighway" (Project Skyway) informing surveillance and airspace policies.

The UK exhibits strong forward momentum in AAM integration, supported by a clearly defined roadmap, international regulatory alignment, proactive industry collaboration, and significant government investment. While core infrastructure and operational frameworks are progressing from trial stages toward broader implementation, the UK's detailed planning, high-level commitment, and incremental progress position it well to realize commercial AAM services by the mid-to-late 2020s. The key areas of ongoing development include completing detailed airspace integration design, scaling automation in UTM operations, and finalizing regulatory standards, all of which are actively being addressed.

ASIA PACIFIC

CHINA

China has emerged as a global leader in AAM integration, underpinned by strategic government support, comprehensive regulation, advanced infrastructure development, and proactive international collaboration. Significant milestones like the world's first certified autonomous eVTOL demonstrate China's position at the forefront of global AAM deployment.

FEDERAL INITIATIVES

CCAR-92 introduced in 2024 with comprehensive rules for operations, risk management, operator certification, and flight approvals; Interim operational rules since 2019 allowed trials, notably EHang's autonomous drone flights.

Since 2010, structured phased reforms (below 1,000 m) enabling easier drone/AAM access; 2024 milestone to decentralize airspace management (below 600 m) to empower local authorities, and support flexible AAM zoning.

CAAC implemented pioneering "special conditions" for eVTOL airworthiness (EHang EH216-S type certified in 2023—world's first certified autonomous passenger eVTOL). AutoFlight's Prosperity and Geely's Aerofugia AE200 also advancing under clear certification procedures.

Pilot Licensing & Drone Registration system with ~1.27 million drones registered, 194,000 certified remote pilots.

COMMUNITY AND STATE INITIATIVES

Over 30 cities have incorporated vertiports and air corridors into local development plans, and arer integrating AAM with public transport hubs.

Aggressive AAM development (Shenzhen–Zhuhai demo flights, cross-border Hong Kong routes).

Advanced passenger trials (Suzhou's pilot eVTOL corridors).

Extensive tourism/transport pilots using converted airports (Hefei, Taiyuan)

INDUSTRY COLLABORATION & INITIATIVES

Close collaboration with domestic AAM leaders (EHang, SF Express) shaping certification processes and operational rules.

Cross-border technology partnerships (Geely-Volocopter, AutoFlight's German R&D) to facilitate regulatory harmonization.

EHang's global trial flights and European AMU-LED involvement with interoperability and regulatory alignment goals.

China's comprehensive regulatory framework, rapid infrastructure development, and strategic government-industry alignment establish it as a global leader in AAM integration. China excels particularly in regulatory and certification processes (world-first certified autonomous eVTOL) and detailed implementation planning. While full integration with traditional aviation and fully automated collision avoidance systems are ongoing areas of development, China's structured airspace reforms, strong compliance mechanisms, and proactive international collaboration position it for successful nationwide AAM adoption within the next few years.

INDIA

India is actively preparing for Advanced Air Mobility (AAM) through progressive regulatory frameworks, strategic infrastructure planning, and strategic industry partnerships. Its phased approach aligns domestic policies with international standards and uses local trials to refine airspace management, vehicle certification, and vertiport integration.

FEDERAL INITIATIVES

DGCA released Advisory Circulars (2024) providing guidelines for type certification of piloted eVTOL aircraft (up to 5700 kg MTOW), aligned with EASA SC-VTOL standards

Liberalized drone regulations, allowing drones/eVTOLs up to 500 kg for air-taxi applications.

Digital Sky UTM platform operational, enforcing "no permission, no takeoff" with defined low-altitude airspace zones (green/yellow/red).

Government support for converting existing helipads/airports to vertiports (e.g., Bengaluru's Kempegowda Airport initiative).

DGCA working groups actively developing tailored pilot licensing and operational permit frameworks for air taxis

COMMUNITY AND STATE INITIATIVES

Multiple initiatives in Bengaluru - BIAL-Sarla Aviation partnership for airport commute (~5-min flights); Blade India partnering with Jaunt/Eve Air Mobility

Roadmaps for phased AAM rollouts (Mumbai airport routes; Hyderabad's 2030 target)

IIT–Madras-incubated ePlane Company developing local eVTOL technology, planning post-2026 service

Vertiport zoning aligned with city master plans; environmental (noise/emissions) impact studies mandated; Emphasis on sustainable AAM (electric, quieter than helicopters) as part of India's smart-city initiatives.

INDUSTRY COLLABORATION & INITIATIVES

Archer Aviation–InterGlobe MoUl Planned introduction of eVTOL aircraft (initially in Delhi, Mumbai, Bengaluru) by 2026

Blade India partnerships with Jaunt Air Mobility and Eve Air Mobility for AAM ecosystem development; planned 2027 operational start.

DGCA established a Regulatory Sandbox (2025) to test AAM technologies (collision avoidance, data links) in controlled conditions.

India exhibits considerable momentum toward AAM integration, driven by proactive regulatory groundwork, international harmonization, and high-profile industry commitments. Regulatory frameworks (type certification, vertiport standards) are advanced, and position India favorably. However, practical enforcement mechanisms, communication infrastructure, and collision-avoidance technologies remain at early stages and will require substantial development through upcoming trials and pilot programs. With strong central and state government backing, combined with private-sector engagement, India is poised to significantly enhance its mid-level readiness scores as commercial AAM trials commence by 2026.

JAPAN

Japan is strategically positioning itself as a global leader in Advanced Air Mobility (AAM) through proactive regulatory frameworks, well-defined national roadmaps, international regulatory alignment, and extensive public-private collaboration. The Japanese government is systematically integrating AAM into its existing aviation infrastructure, with focus on incremental adoption and rigorous safety standards.

FEDERAL INITIATIVES

Comprehensive AAM roadmap since 2018 (updated regularly); Clear, timeline-driven national plan: pilot operations at Osaka Expo 2025, expanded routes by late 2020s, nationwide integration by 2030.

Drone licensing regime established (Class 1 & 2 licenses), providing foundation for future remote pilot licenses for autonomous AAM operations.

MLIT/JCAB leverage existing Civil Aeronautics Act, adapting standards for eVTOL aircraft certification (e.g., SkyDrive's G-1 certification).

Defined drone/AAM airspace below ~150 meters; mandatory remote ID, registration, and flight plan submissions.

Vertiport Design Guidelines issued (2023), with formal standards due by 2028; coordinated with urban zoning and building codes.

COMMUNITY AND STATE INITIATIVES

Detailed AAM roadmap ("Osaka Diamond Route") for Expo 2025; partnerships (SkyDrive, Osaka Metro) to integrate vertiports with metro transit.

Comprehensive phased plan for Tokyo - demonstration flights in 2026-27, extensive vertiport network by the 2030s, fully integrated with existing transport.

Extensive regional testbeds (Nagoya Airport, Fukushima Robot Test Field) support AAM trials and regulatory refinement.

INDUSTRY COLLABORATION & INITIATIVES

Major airline partnerships: ANA–Joby Aviation, JAL/Sumitomo ("Soracle")–Archer Aviation, JAL–Volocopter, highlighting integration with traditional aviation.

EHang (China) established Japan's first autonomous AAM flight center in Tsukuba City (2024), conducting demonstration flights to inform regulations.

Fukushima Robot Test Field hosts AAM trials, and provides crucial operational data for future regulatory frameworks.

Japan's AAM integration strategy is highly structured, systematic, and internationally harmonized, significant readiness in certification pathways, enforcement mechanisms, and strategic implementation planning. While airspace segmentation, automation, and advanced collision avoidance technologies are currently at moderate readiness, Japan's clearly articulated national vision, supported by industry-government collaboration, positions it to rapidly achieve comprehensive AAM integration by the early 2030s. The combination of early successes (Expo 2025), strong international cooperation, and continuous regional infrastructure development are a significant predictor of Japan's leadership potential in global AAM deployment.

SINGAPORE

Singapore is positioning itself as a global and regional frontrunner in AAM, driven by progressive regulatory frameworks, strategic international partnerships, technological readiness, and targeted infrastructure investments. Its integrated approach leverages existing aviation excellence and ongoing digital transformation efforts, although commercial operations are still emerging.

FEDERAL INITIATIVES

Actively developing national AAM regulatory structures, building upon existing drone (UA) regulations; Mandatory Remote ID by Dec 2025 for all drones >250g - establishes key standards for future AAM vehicle compliance and tracking.

CAAS-EASA MoU (2022) and similar partnerships (ANAC-Brazil, JCAB-Japan) ensure regulatory harmonization, easing entry for globally certified eVTOLs.

Initial reliance on existing commercial pilot licenses (with conversion training) until dedicated eVTOL pilot licenses are developed.

Developing operational rules (altitudes, flight corridors, weather minima, vertiport usage), closely aligned with EASA standards.

Deployment underway for an advanced nationwide Unmanned Traffic Management System (UTMS) capable of real-time tracking, automated approvals, and airspace deconfliction.

COMMUNITY AND STATE INITIATIVES

"Smart Digital Tower" at Changi enhances surveillance capabilities; aims to facilitate integration of AAM operations at airports.

Planned vertiports (e.g., Marina Bay, Sentosa) strategically located near public transport hubs (MRT, buses), for efficient transfer and city accessibility.

Collaborative approach (CAAS, URA, MOT, EDB) ensures vertiport locations and flight corridors align with urban and infrastructure planning.

INDUSTRY COLLABORATION & INITIATIVES

Landmark Volocopter test flight (2019, Marina Bay); Airbus "Skyways" drone logistics trials; Skyports' world-first floating vertiport prototype.

Active government backing (CAAS, EDB, MOT), with plans for ongoing demonstrations, regulatory sandboxes, and public engagement activities.

Singapore demonstrates advanced readiness for integrating AAM, leveraging robust regulatory frameworks, strategic international cooperation, cutting-edge UTM infrastructure, and targeted infrastructure investments. Clear progress in aircraft certification pathways, communication infrastructure, and enforcement readiness highlights a mature regulatory ecosystem. Although airspace structuring, ATM integration, and autonomous collision avoidance technologies are actively developing, Singapore's practical, adaptive approach positions it as a global AAM leader. Upcoming milestones in 2025–2030, if acheived, will solidify readiness and elevate Singapore to next level of maturity.

SOUTH KOREA

South Korea has established a robust regulatory foundation through its K-AAM Roadmap (2020) and the 2023 AAM Special Act, led by MOLIT and KOCA.

FEDERAL INITIATIVES

A Dedicated Regulatory Framework to legally defining and recognize AAM vehicles, vertiports, and dedicated AAM corridors; Benchmarking International Standards, Actively working with FAA and EASA to harmonizing eVTOL certification processes.

Developing pilot standards initially based on helicopter pilots, and transitioning to remote and autonomous operations post-2030.

Defined AAM-specific flight rules (modified VFR), infrastructure standards for vertiports, and phased integration strategies.

Expanding the K-Drone UTM to AAM altitudes (300–600 m) and implementing digital flight plan approvals.

Expanded K-Drone system, including radar tracking, ADS-B integration, and networked control.

Active participation in ICAO Advanced Air Mobility Study Group and ASTM/ISO standards development.

Integrated 5G-based networks, digital CNS systems, and eventual full AAM-ATC integration

COMMUNITY AND STATE INITIATIVES

Four initial vertiports (Yeouido, Jamsil, Suseo, Gimpo Airport) strategically placed at multimodal transport hubs. Vertiport prototypes already operational (Goyang, Goheung); Seoul and airport vertiports planned by 2025.

Defined initial routes (e.g., Han River, Seoul-Incheon route) gradually shifting towards dynamic airspace integration.

Special zones for AAM tests, streamlined environmental procedures, noise standards, and integrated city planning.

INDUSTRY COLLABORATION & INITIATIVES

Hyundai (Supernal), Hanwha, SK Telecom (with Joby), Volocopter.

Public-private coordination involving over 40 stakeholders to synchronize policy, tech, and infrastructure development.

K-AAM Grand Challenge to test operations, infrastructure, and traffic management in realistic environments.

South Korea's approach to AAM stands out due to its clarity of vision, structured regulatory environment, robust international collaboration, and systematic integration with traditional transport infrastructure. With commercial AAM services starting by 2025, South Korea is positioned as a global leader in Advanced Air Mobility due to its regulatory foresight, strong public-private coordination, and technology readiness. Its roadmap is realistic yet ambitious, and provides a globally replicable model for future advanced air mobility integration.

MIDDLE EAST

ISRAEL

Israel's Civil Aviation Authority (CAAI), under the Ministry of Transport, governs all AAM, drones, and eVTOL activities.

FEDERAL INITIATIVES

Mandatory connectivity to Unmanned Traffic Management (UTM) systems (Regulation 10916), requiring drones (>200g) to broadcast real-time ID, location, altitude, and velocity.

CAAI is harmonizing standards with global regulations (ICAO, EASA, FAA). Currently, eVTOL flights operate under experimental conditions while formal certification rules develop.

Implementation of "U-Space" airspace managed by licensed U-space Service Providers (USSPs). AAM operations require pre-approved flight plans, automated flight authorization, and coordination.

INDI National Strategy (Israel National Drone Initiative) - a multi-agency initiative launched in 2019 (₪60M funding). Milestones achieved include Israel's first passenger-carrying eVTOL flight (AIR ONE), intra-city medical cargo flights, and over 23,000 drone sorties safely completed.

Mandatory nationwide UTM system (High Lander, Airwayz), highly automated with real-time flight management, tracking, and collision avoidance capabilities.

COMMUNITY AND STATE INITIATIVES

Successful trials of UAV integration into busy airspace, including UAV landing at Ben Gurion Airport. Plans underway for dedicated vertiports at airports (e.g., Ramon Airport–Eilat corridor, Ben Gurion–Tel Aviv flights).

AAM integrated with rail and road networks; demonstrated drone-train multimodal cargo deliveries. Urban vertiports co-located with public transport nodes and smart-city infrastructure.

INDUSTRY COLLABORATION & INITIATIVES

Global AAM companies (e.g., EHang, Airbus) testing operations within Israel.

Israeli firms (Urban Aeronautics, AIR, Flytrex, High Lander) exporting AAM technology globally.

National UTM system integrating with conventional air traffic control - Demonstrated simultaneous management of multiple operators in shared airspace.

Israel's high level of AAM integration is a function of proactive regulations, thoughful infrastructure development, and global collaboration. Its sophisticated UTM system, clear strategic roadmap (INDI), and emphasis on multimodal integration demonstrate advanced readiness, despite ongoing efforts to finalize regulatory certification pathways. Israel has positioned itself internationally as a pioneering AAM hub, influencing global standards and practices while laying the groundwork for comprehensive, sustainable, and scalable advanced air mobility operations.

DUBAI

National Framework by the GCAA, and Dubai-Specific Regulations by the DCAA.

FEDERAL INITIATIVES

GCAA has implemented early regulatory initiatives since 2015 (Civil Aviation Regulations - CAR XII). Issued CAR-HVD (2023) detailing vertiport certification and operation standards aligned with ICAO, FAA, and EASA standards.

DCAA established "Dubai Sky Dome," a digital airspace management system for drones/AAM. Released comprehensive DCAR-UAS (2023) covering UAS operations, vertiports, and local compliance mandates.

Structured Air Operator Certification (AOC) process mirroring FAA Part 135.

Dubai Autonomous Transportation Strategy targets 25% driverless trips by 2030. Air taxis explicitly integrated into city's multimodal transport vision, supported by the leadership.

Advanced Unmanned Traffic Management (UTM - "Sky Dome") for airspace separation and management. Comprehensive surveillance/collision-avoidance systems mandated; initial operations piloted, transitioning to autonomous.

COMMUNITY AND STATE INITIATIVES

First vertiport (DXB Vertiport - DXV) closely integrated with Dubai International Airport operations and existing transport systems (Metro Terminal 3). Future expansion to Al Maktoum International (DWC) and Expo City planned.

Strategic initial sites selected to target high-demand urban routes. Zoning updates and dedicated low-altitude corridors (below ~500m) in progress, mapped alongside existing urban infrastructure.

Vertiports co-located with public transit (Metro, tram) for seamless passenger transfer.

Integrated booking systems via RTA's smart mobility platform, combining metro, road, and marine transport.

INDUSTRY COLLABORATION & INITIATIVES

Successful early trials with EHang (autonomous flight) and Volocopter (2017 provided foundational operational data.

Active partnerships (Joby Aviation, Archer Aviation, Etihad Training) to establish pilot licensing frameworks aligned with global standards.

Exclusive rights granted to Joby to launch air taxi services by 2026, with initial vertiports identified (DXB Airport, Downtown, Palm Jumeirah, Dubai Marina).

Dubai demonstrates strong regulatory leadership, advanced planning, and strategic international collaborations. It has established itself at the forefront of global AAM integration, particularly with clearly defined regulatory and certification pathways, a practical implementation roadmap, and well-structured urban integration strategies. While some aspects (e.g., full UTM automation, surveillance) are actively progressing towards operational maturity, Dubai's comprehensive vision, backed by governmental support, positions it to rapidly realize one of the world's most advanced and integrated AAM ecosystems.

AFRICA

NIGERIA

NCAA responsible for Civil Aviation AAM integration. No dedicated eVTOL rules yet; manned eVTOL would fall under existing aviation regulations (like helicopters).

FEDERAL INITIATIVES

Implemented Part 21 of Nigerian Civil Aviation Regulations (Nig. CARs, 2023) specific to drones (RPAS). Drone operations restricted primarily to Class G airspace (≤400 feet AGL) and VLOS unless special permissions granted.

Mandatory Remote Pilot Licensing (RPL) for drone operations, requiring NCAA training, testing, and national security clearance.

Current traffic management remains procedural/manual, with full UTM deployment ongoing.

Clearly segmented low-altitude airspace, with defined rules limiting drone altitudes and restricted zones. Dedicated drone corridors emerging for logistics, though no fully integrated urban corridors yet established.

Protocols for future eVTOL operations under discussion; current integration limited but structured towards convergence.

COMMUNITY AND STATE INITIATIVES

Lagos hosts drone delivery startups (e.g., Arone's "Micro-AVports") piloting urban logistics. Discussions around future eVTOL air taxis ongoing to address traffic congestion.

Other States such as Kaduna, Bayelsa, Cross River have active drone delivery programs for healthcare (Zipline), and provide regional logistics and operational experience.

INDUSTRY COLLABORATION & INITIATIVES

Droneports/vertiports: Micro-infrastructure (Arone) and regional drone hubs (Zipline) in place, serving as AAM prototypes.

UTM & digital systems: NCAA-Elint partnership developing nationwide drone management system.

Local startups (Arone, Elint Systems, BeatDrone) working closely with government regulators. Major foreign participation from Zipline; exploratory discussions with EHang, Volocopter observed regionally.

Nigeria shows clear regulatory and foundational policy structures conducive to drone and eventual AAM operations. Notable progress includes regulatory alignment with international standards, public-private partnerships enabling drone logistics, and early investment in digital infrastructure (UTM). However, the operational integration of AAM with traditional aviation remains in developmental stages, with significant room for advancing automation, surveillance, and real-time integration. Given current momentum, Nigeria is positioned to advance rapidly in AAM maturity over the next few years, particularly as dedicated infrastructure (vertiports, corridors) and digital capabilities expand.

SOUTH AFRICA

South Africa exhibits foundational strengths in drone regulatory frameworks and initial AAM pilot projects, however, significant gaps remain in infrastructure maturity, airspace integration, and UTM automation.

FEDERAL INITIATIVES

SACAA implemented Part 101 drone regulations (2015); pioneering but restrictive. Drones >250g require registration, a Remote Pilot License (RPL), Remote Operator's Certificate (ROC), and explicit mission approvals. BVLOS, night operations, and flights in controlled airspace are strictly regulated; no dedicated eVTOL category yet established.

Introduced updated licensing framework (2023), aligning with ICAO standards (Remote Pilot Certificate (RPC) for general operations, specialized licenses for advanced ops).

Currently segregated airspace: drones limited to <120m AGL, away from airports and urban centers without special permission. No formal urban air corridors yet; planning efforts underway (ATM-CNS UAS workgroup).

COMMUNITY AND STATE INITIATIVES

Prototype drone corridor (Johannesburg-Durban) under development; no nationwide UTM yet operational. Medical logistics drone demos conducted; municipal interest in drone services for smart-city applications.

Critical hub for proposed AAM logistics corridor; vertiport concept discussions at King Shaka Airport.

Active drone program ("Eye in the Sky") for law enforcement and public safety.

INDUSTRY COLLABORATION & INITIATIVES

Early-stage UTM efforts through partnerships (Altitude Angel, Vertiport Alliance Africa (VAA)).

SANBS & Quantum Systems: "Project BloodWing" drone deliveries (first BVLOS ROC in SA)

Companies (Wingcopter, Swoop Aero) considering SA entry; regulatory clarity required first.

Startups like PHRACTYL ("Macrobat" eVTOL) engaging SACAA on future certification.

South Africa exhibits foundational strengths in drone regulatory frameworks and initial AAM pilot projects. Continued regulatory refinement, targeted infrastructure investment, and deeper integration with traditional aviation systems are needed to reach higher levels of AAM readiness. Proactive engagement by government and private stakeholders emerges as a promising pathway toward robust AAM integration over the next few years.

OCEANIA

AUSTRALIA

CASA's 2024 RPAS/AAM Regulatory Roadmap outlines a 10–15-year integration plan for eVTOL air taxis. CASA collaborates regionally via APAC DGCA and APEC forums.

FEDERAL INITIATIVES

Drone Regulations (CASR Part 101) limits drones to 120 m (400 ft) AGL, maintaining 30 m separation from people, avoiding crowds and restricted areas (airports, emergencies).CASA is trialing Automated Airspace Authorisations for drones near major airports with instant digital clearances.

CASA's 2024 RPAS/AAM Regulatory Roadmap outlines a 10–15-year integration plan for eVTOL air taxis, anticipating piloted urban services by 2027–2029. Developing domestic criteria for AAM-specific pilot licensing, maintenance, vertiport standards, and operational approvals.

CASA already certifies and oversees commercial drone services (Wing, Swoop Aero), and demonstrates readiness to expand oversight to AAM vehicles.

COMMUNITY AND STATE INITIATIVES

Canberra and Logan host commercial drone delivery by Wing (Alphabet) (over 100,000 deliveries).

Brisbane/Southeast Queensland preparing for air taxis (Wisk Aero) ahead of 2032 Olympics, identifying vertiport sites.

Victorian Government's 2024 AAM Action Plan aims to regain leadership in air taxis post-Uber Elevate.

Electro.Aero and Skyportz developing vertiport network in Perth for readiness on Australia's west coast.

Drone delivery trials and pilot projects in cities like Ipswich and Newcastle to assess community acceptance and refine airspace procedures.

INDUSTRY COLLABORATION & INITIATIVES

AUD 32.6M federal funding program supporting drone/AAM projects; 24 funded projects across 2023–24 (eg. AMSL Aero's aeromedical trials, drone logistics in remote communities, and regional cargo networks)

Wisk Aero (Boeing) and Southeast Queensland Mayors collaborate on autonomous air taxi planning.

Wing (Alphabet) scaling drone deliveries under CASA approvals.

Local drone logistics firm Swoop Aero partnered with Queensland Health.

Vertiport developer Skyportz securing infrastructure nationwide, collaborating with U.S.-based Skyway for airspace management.

Telecom (Telstra), ANSP (Airservices Australia), airports (Melbourne Airport), and property developers (Pelligra) engaged to support vertiport connectivity and infrastructure planning.

Australia demonstrates advanced readiness and proactive AAM integration, particularly in policy/regulatory clarity, implementation planning, and public–private collaboration. While airspace integration, collision avoidance tech, and enforcement capabilities are still evolving, Australia's clear strategic vision, extensive stakeholder partnerships, and tangible progress in infrastructure investments position it as a global frontrunner in preparing for widespread AAM operations by the late 2020s.

NEW ZEALAND

Current AAM policies and regulations estabblished through the CAA NZ framework established in 2015, utilizing a risk-based approach. NZ goverment has a strategic framework and approach for promoting drone integration into the broader aviation/transport ecosystem.

FEDERAL INITIATIVES

Civil Aviation Rules (Parts 101 & 102) established in 2015; Part 101 prescribes rules for low-risk drones (<25 kg, VLOS, under 120 m AGL, ≥4 km from aerodromes). No approval needed; Part 102 establishes case-by-case certification procedures for higher-risk ops (e.g., BVLOS, heavier drones, passenger-carrying).

Civil Aviation Act 2023 introduces legal definitions for remote pilots and autonomous aircraft; By April 2025, detailed rules (including pilot licensing, drone registration, Remote ID) expected to be implemented.

Preference for integrating AAM within existing airspace rather than segregated corridors, demonstrated through IFR UAV trials in controlled airspace (2023).

COMMUNITY AND STATE INITIATIVES

Early drone delivery trials in Aucland (Domino's Pizza/SkyDrop since 2016, expanded in 2023).

Christchurch positioned as a hub for AAM innovation with Wisk Aero's autonomous air taxi flights and airspace integration trials in 2023, and Tāwhaki National Aerospace Centre established as a private vertiport/test site.

Early-stage drone integration for delivery across Wellington Harbour; structured local drone rules.

Drone-based medical logistics network (West Coast), agricultural drones (Hamilton region), early UTM trials (Queenstown).

INDUSTRY COLLABORATION & INITIATIVES

Government-led program enabling private drone/eVTOL trials (e.g., Wisk's passenger-carrying autonomous flights).

SkyDrop/Domino's partnership: First routine BVLOS drone delivery approval (2023).

Swoop Aero partnered with public health authorities for medical drone deliveries (West Coast).

AirShare UTM developed by Airways NZ in partnership with AirMap (U.S.).

New Zealand serves as an APAC regional testbed for advanced drone/eVTOL operations.

New Zealand demonstrates forward-thinking AAM integration readiness, especially notable in regulatory clarity, airspace integration capability, and proactive public-private trials. While areas like communication infrastructure, surveillance, and collision avoidance systems are still in developmental phases, New Zealand's flexible regulatory environment, willingness to integrate uncrewed aircraft with traditional aviation, and effective use of trials position it as a global innovator. Continued investment in digital infrastructure (UTM, Remote ID), advanced collision avoidance technology, and physical vertiport development will further enhance readiness in the near term.

APPENDIX C: BENCHMARK METHODOLOGY

This appendix outlines the structured approach employed to perform a comprehensive regulatory benchmarking analysis of Advanced Air Mobility (AAM) airspace integration across 25 selected nations: Canada, Mexico, Argentina, Brazil, Chile, Colombia, France, Germany, Italy, Netherlands, Spain, Switzerland, United Kingdom, United States, China, India, Japan, Singapore, South Korea, Israel, UAE, Nigeria, South Africa, Australia, and New Zealand.

IDENTIFICATION AND DEFINITION OF KEY PARAMETERS

Eight critical parameters were identified to evaluate the preparedness and maturity of regulatory environments for successful AAM integration into existing airspace systems. Each parameter was assessed on a five-level maturity scale, designed to reflect progressive stages of regulatory and technological sophistication.

	LEVEL 1	LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5
1. Airspace Structure & Segmentation (20%)	- No formal low-altitude airspace classification - No dedicated AAM corridors - Ad hoc or no zoning regulations	- Initial discussions on low-altitude definitions - Very limited corridors (pilot projects) - Fragmented zoning with unclear rules	- Basic low-altitude classification in place - A few operational corridors or test zones - Some zoning regulations, but inconsistencies remain	- Well-defined low-altitude classes - Multiple established corridors for AAM - Clear operational zoning with moderate enforcement	- Comprehensive low-altitude airspace framework - Dedicated, high-volume AAM corridors - Seamless zoning regs integrated with ATM
2. Integration with Traditional Aviation (15%)	- No defined coordination with manned aviation - No deconfliction protocols - No priority rules for mixed traffic	- Some ad hoc coordination - Minimal deconfliction strategies - Limited priority rules under trial	- Established coordination procedures - Basic conflict-resolution protocols with manned aviation - Emerging priority rules under certain conditions	- Full real-time coordination with ATC - Robust deconfliction and joint ops exercises - Clear priority rules in mixed airspace	- Seamless integration with manned aviation in shared airspace - Automated conflict resolution across all altitudes - Harmonized priority and traffic flow rules
3. UTM & Automation Level (5%)	- No UTM system in place - Entirely manual flight planning - No automation for conflict resolution	- Experimental or very basic UTM - Mostly manual flight planning with limited automation - Rudimentary conflict alerts	- Partially functional UTM with some real-time data - Semi-automated flight planning - Basic automated conflict resolution in controlled areas	- Advanced UTM with near-real-time updates - Mostly automated flight planning - Automated conflict resolution for most operations	- Fully integrated national UTM - High-level automation in flight planning & execution - Adaptive conflict resolution (AI-driven) covering all flight phases
4. Communication & Data Exchange (10%)	- No standardized comm protocols for AAM - Reliance on manual or unencrypted channels - Minimal 4G/5G usage	- Emerging guidelines for data exchange - Mostly manual data sharing - Limited coverage of 4G/5G in key urban areas	- Basic standardized protocols (e.g., for flight plans) - Partial real-time data sharing with ATC - Moderate 4G/5G infrastructure in main urban centers	- Well-defined standards with high adoption - Near real-time data sharing with ATC and operators - Widespread 4G/5G coverage in major AAM corridors	- Nationwide, secure, and interoperable protocols - Full real-time data exchange with redundancy - Comprehensive 4G/5G (or higher) coverage supporting dense AAM operations
5. Surveillance & Collision Avoidance (5%)	- No remote ID requirements - No onboard DAA sensors - No standards for collision avoidance	- Limited remote ID trials - DAA sensors optional or in early testing - Fragmented performance requirements	- Remote ID mandated in certain regions - Basic onboard DAA in many AAM vehicles - Foundational performance standards exist but not fully harmonized	- Nationwide remote ID requirement - Advanced onboard DAA with compliance checks - Well-established and enforced performance standards	- Universal remote ID coverage integrated into ATC - State-of-the-art DAA with multi-sensor fusion - Strict and uniformly applied performance standards for all operators

	LEVEL 1	LEVEL 2	LEVEL 3	LEVEL 4	LEVEL 5
6. Regulatory & Certification Pathways (25%)	- No specific eVTOL certification framework - No pilot licensing for AAM - No rules for BVLOS or digital authorizations	- Initial eVTOL guidelines under discussion - Very limited AAM pilot licensing - Case-by-case BVLOS approvals	- Formal eVTOL certification process with pilot licensing - BVLOS/AAM rules in place but with high administrative overhead - Partial digitization of authorizations	- Streamlined certification with clear timelines - Comprehensive pilot licensing & ops rules - Mostly digital authorization process for AAM	- Fully established eVTOL certification pathways recognized globally - Holistic pilot/ operator licensing frameworks - End-to-end digital authorization & compliance processes (fast-track)
7. Enforcement & Compliance (10%)	- No monitoring or penalty system for AAM - No incident reporting procedures - Enforcement not integrated with local authorities	- Limited monitoring efforts - Basic incident reporting guidelines (voluntary) - Rudimentary enforcement actions	- Moderate monitoring of AAM operations - Mandated incident reporting with partial compliance - Clear penalties but limited enforcement capabilities	- Proactive monitoring through technology solutions - Robust incident reporting with follow-up investigations - Strong enforcement and penalty mechanisms integrated with ATC	- Continuous, automated monitoring of AAM compliance - Well-established, transparent incident reporting ecosystem - Swift and effective enforcement integrated with national aviation and law enforcement systems
8. Implementation Roadmap & Milestones (10%)	- No documented AAM strategy - No clear timeline or goals - Disconnected pilot projects	- Preliminary AAM roadmap with vague timelines - Early-phase objectives with low funding - Minimal alignment among stakeholders	- Intermediate roadmap with phase-wise plans - Some funding allocated to achieve measurable milestones - Stakeholder coordination is moderate	- Detailed national strategy for AAM - Specific short- and medium-term milestones with funding - High-level stakeholder alignment and cross-agency collaboration	- Comprehensive AAM master plan with long-term vision - Well-defined phased milestones, all funded and tracked - Strong multi-stakeholder governance ensuring continual progress on technology and operations

A detailed desk review and qualitative analysis were conducted for each nation across each identified parameter. The analysis drew upon authoritative sources, including:

- National policy frameworks and vision documents
- Existing and draft legislation related to drone and AAM integration
- Technical reports and official documentation from civil aviation authorities
- Industry whitepapers and secondary literature reviews
- Insights from recognized international aviation bodies (ICAO, FAA, EASA, among others)

PARAMETER WEIGHTING AND JUSTIFICATION

To accurately represent the varying significance of each parameter to AAM integration, differential weightings were applied. Weightings were developed based on expert consultations and analysis of global best practices. This ensured alignment with strategic priorities influencing successful AAM deployment (Table above)

DATA STANDARDIZATION

Raw scores collected for each parameter were standardized using Z-score normalization to facilitate unbiased comparisons among nations. The Z-score for each nation for a given parameter was calculated using the formula:

$$Z_i = \frac{X_i - \mu}{\sigma}$$

Where:

$X_i \rightarrow$ represents the raw score of a nation for the parameter,

$\mu \rightarrow$ is the mean raw score across all nations for that parameter, and

σ → is the standard deviation of raw scores for that parameter.

This transformation ensured that scores across all parameters were directly comparable, independent of differing original scales/weightages.

AGGREGATE RANKING

Following standardization, the weighted standardized scores were aggregated for each country to derive an overall maturity index, represented mathematically as:

$$\text{Maturity Index}_i = \sum_{j=1}^{8} (Z_{ij} \times W_j)$$

Where:

Z_{ij} → is the standardized score for country on parameter, and

W_j → is the assigned weightage for parameter.

Countries were subsequently ranked in descending order based on this aggregated maturity index, producing a clear comparative hierarchy reflective of relative readiness for AAM integration.

CLUSTERING ANALYSIS

Hierarchical clustering was conducted on the standardized dataset to identify groupings of countries exhibiting similar regulatory maturity profiles. Euclidean distance and Ward's method (minimum variance) were used to generate a dendrogram.

$$d_{pq} = \sqrt{\sum_{j=1}^{n} (Z_{pj} - Z_{qj})^2} \qquad \Delta(A,B) = \frac{n_A n_B}{n_A + n_B} ||\bar{Z}_A - \bar{Z}_B||^2$$

Where:

d_{pq} → Euclidean distance between countries p and q,

n → is the number of parameters,

n_A, n_B → number of countries in clusters A & B, and

$\bar{Z}_A$, $\bar{Z}_B$ → Centroids (mean vectors) of clusters A & B

The analysis yielded four distinct clusters:

- **Cluster 1 (Sky Leaders):** Leading adopters with advanced regulatory and technological frameworks
- **Cluster 2 (Advanced Aviators):** Moderate adopters demonstrating substantial progress but with notable gaps
- **Cluster 3 (Rising Navigators):** Emerging markets showing early-stage development
- **Cluster 4 (Emerging Flyers):** Nascent adopters in the preliminary phase of regulatory readiness

FACTOR ANALYSIS

Factor analysis was employed to reduce dimensionality, revealing two underlying dimensions: regulatory maturity and technology development

$$PC_{ik} = \sum_{j=1}^{n} (Z_{ij} \times \upsilon_{jk})$$

Where:

PC_{ik} → Principal component score of country i on component k

Z_{ij} → is the standardized score for country and parameter, and

υ_j → Eigenvector loading of parameter j on component k

The two key factors (regulatory maturity and technology development) that explained over 90% of variability in the data were then visualized to reveal the critical dimensions that drive national AAM regulatory ecosystems, as well as map the position of each nation in its AAM airspace integration journey.

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