

High Hopes and Higher Hurdles: Unpacking Six Regulatory Challenges Facing Advanced Air Mobility

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Executive Summary

Advanced air mobility (AAM) promises to transform the transportation sector by introducing aviation into people's everyday lives. This vision offers potential benefits such as enhanced connectivity, reduced congestion and lower emissions. However, its realisation is hindered by complex legal, operational, financial and societal challenges that must be addressed to enable the safe, sustainable and equitable integration of manned vertical take-off and landing (VTOL) capable aircraft and unmanned aircraft into society. This research paper reflects the authors' independent insights on six pressing legal risks and opportunities facing AAM. Written free from commercial interests, it aims to support AAM's safe, inclusive, trusted and resilient development.

1. Certification

Aircraft certification remains a significant bottleneck for AAM development. Regulatory authorities are creating new frameworks or adapting existing ones, however, divergent approaches, high costs, and the inclusion of complex software and automation pose challenges. Furthermore, certification in one jurisdiction does not guarantee international acceptance, impeding global scalability.

2. Operational Considerations

Certification does not equate to operational approval. Pilot licensing requirements, infrastructure and air operator certificates introduce additional hurdles. Legacy aviation rules, as well as other areas of law, may not align with highly automated AAM systems and varied use cases, raising questions about the need for new regulatory categories.

3. Funding

AAM manufacturers are dependent on private investment or public funding, each with their limitations, before the deployment of commercial services. Venture-backed companies face pressure to meet timelines,

while public funding through European Union Joint Undertakings is constrained by bureaucracy, thematic silos and questionable support for small innovators. Research often fails to translate into commercial deployment.

4. U-space

Despite regulatory readiness since 2023, the European Union's U-space (unmanned traffic management) framework remains largely unimplemented due to Member State inertia, economic uncertainty, and lack of designated infrastructure and service providers. This hinders AAM scalability, especially for operations beyond visual line of sight.

5. Sustainability

While AAM is marketed as environmentally friendly, a deeper analysis raises environmental concerns. Battery production, electricity and raw material sourcing, infrastructure demands and end-of-life management all challenge claims of sustainability. Without full life-cycle assessments and grid decarbonisation, AAM risks accusations of greenwashing.

6. Stakeholders

AAM operations blur traditional jurisdictional lines. While national authorities regulate the airspace, infrastructure and urban integration fall under local governance. Conflicts, such as in Paris during the Olympics, highlight the power of local resistance based on noise, pollution and social equity concerns. Meaningful multi-level governance is crucial for public acceptance and practical implementation.

Conclusion

AAM represents more than a technological shift; it requires systemic legal, economic and infrastructural adaptation. While regulatory progress is ongoing, fragmentation, inertia and misalignment threaten to delay or derail its potential. A holistic, interdisciplinary approach, grounded in safety, sustainability and public legitimacy, is essential to make AAM a viable part of future mobility.

Background

This research paper is an expansion of a previously published short 2-part article written in German in the magazine [Airliners](#). Citation: Benjamyn I. Scott and Öykü Kurtpınar, 'Hoffnungen und Hürden: Regulatorische Herausforderungen für Advanced Air Mobility', [Advanced Air Mobility \(5.1\)](#) and [Advanced Air Mobility \(5.2\)](#).

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Introduction

Promising to bridge gaps between urban and rural areas, enhance regional connectivity and optimise the use of low-level airspace, advanced air mobility (AAM) is proclaimed by some as the leading edge of innovation in aviation.

The term ‘AAM’ is used in this research paper as it is widely accepted, such as by the International Civil Aviation Organization (ICAO).¹ The Federal Aviation Administration (FAA) has defined ‘AAM’ as:

“[...] AAM is not a single technology, but rather a collection of new and emerging technologies being applied to the aviation transportation system, particularly in new aircraft types. Notional AAM use-cases include Urban Air Mobility (UAM), Regional Air Mobility (RAM), public services, large cargo delivery, and private or recreational vehicles.”²

This term is not universally accepted, as, for example, in the European Union (EU), the term ‘innovative air mobility’ is used. The term is defined by the European Union Aviation Safety Agency (EASA) in a legally binding regulation, focusing solely on the technical characteristics of the aircraft used in the operations. Accordingly, innovative air mobility includes any operation in congested and non-congested areas with vertical take-off and landing (VTOL)-capable aircraft, being

“power-driven, heavier-than-air aircraft other than aeroplanes or rotorcraft, capable of performing VTOL by means of lift and thrust units used to provide lift during the take-off and landing.”³

AAM constitutes not merely a new class of aircraft, but a transformative mobility ecosystem grounded in the use of electric or hybrid propulsion, VTOL aircraft capabilities, and automated and unmanned flight systems. These aircraft are often framed as environmentally sustainable, operationally efficient and structurally diverse due to the use of composite materials, allowing passengers and cargo to travel seamlessly from start to finish.

AAM’s innovation lies as much in its operational philosophy as in its technical specifications. It extends the ‘mobility-as-a-service’ concept in aviation beyond private helicopters and jets, providing on-demand air transport to both densely populated urban centres and underserved rural regions.⁴ Envisioned to scale rapidly, potentially supporting thousands of daily operations, AAM calls for equally novel infrastructures, particularly digitalised air traffic management systems and vertiports.

The EU has, by way of example, already begun to address the disruptive nature of AAM and has enacted various regulations adopting a risk-based regulatory approach.⁵ Central to

¹ See, ICAO, ‘Unmanned Aviation and Advanced Air Mobility’, <https://www.icao.int/safety/ua/Pages/default.aspx>.

² FAA, ‘Aeronautical Information Manual (AIM)’, Chapter 11, Section 6.

³ Commission Implementing Regulation (EU) 2024/1111 of 10 April 2024 Amending Regulation (EU) No 1178/2011, Implementing Regulation (EU) No 923/2012, Regulation (EU) No 965/2012 and Implementing Regulation (EU) 2017/373, as Regards the Establishment of Requirements for the

Operation of Manned Aircraft with a Vertical Take-Off And landing Capability, OJ L, 2024/1111, Art. 3(2)(c).

⁴ CIVITAS, ‘Policy Paper on Mobility as a Service (MaaS)’, 10 October 2023, <https://civitas.eu/resources/policy-paper-on-mobility-as-a-service-maas>.

⁵ Commission Delegated Regulation (EU) 2019/945 of 12 March 2019 on Unmanned Aircraft

this framework is the categorisation of unmanned aircraft system operations, including unmanned VTOL aircraft operations, into ‘open’, ‘specific’ and ‘certified’ categories, with regulatory requirements increasing according to the operational risk posed. Unmanned AAM operations that carry passengers, utilise larger aircraft (larger than 3 metres) or carry out other high-risk activities (e.g., the carrying of unprotected dangerous goods) will fall under the ‘certified’ (high risk) category.⁶ For manned VTOL, EASA has also begun to take steps, such as the production of a Special Condition on VTOL aircraft⁷ and Regulation 2014/1111 as regards the establishment of requirements for the operation of manned aircraft with VTOL capabilities.

At the global level, ICAO has begun laying the foundations for a harmonised framework, beyond its work on remotely piloted aircraft systems, which aims to guide States and stakeholders in safely scaling operations while ensuring interoperability, inclusiveness and global coordination.⁸ This led to the creation of the ICAO AAM Study Group.

Charting the regulatory future of AAM requires more than keeping pace with new legal instruments. It necessitates a critical assessment of how existing regulatory frameworks, many of which were never designed with the characteristics of AAM in mind, may hinder or inadequately accommodate its integration into society. The legal landscape is, thus, marked by both adaptation and inertia, raising fundamental questions about the capacity of current

rulemaking paradigms to meaningfully respond to technological disruption in aviation.

Against this backdrop, six overarching and pressing legal issues are identified in this research paper that demand attention if drone and manned eVTOL operations are to be scaled safely, sustainably and equitably, so as to actualise AAM and prevent it from being a transportation option merely for the wealthy. Addressing these challenges is essential, not only for enabling high-volume operations, but also for ensuring that AAM evolves as a trusted and resilient component of the future mobility ecosystem.

Systems and On Third-Country Operators of Unmanned Aircraft Systems, OJ L 152, 11.6.2019, p. 1–40, and Commission Implementing Regulation (EU) 2019/947 of 24 May 2019 on the Rules and Procedures for the Operation of Unmanned Aircraft, OJ L 152, 11.6.2019, p. 45–71. See, EASA, ‘Unmanned Aircraft Systems (UAS)’, <https://www.easa.europa.eu/en/regulations/unmanned-aircraft-systems-uas>.

⁶ Commission Delegated Regulation (EU) 2019/945, Art. 40.

⁷ EASA, ‘Special Condition for VTOL and Means of Compliance’, 18 July 2025, <https://www.easa.europa.eu/en/document-library/product-certification-consultations/special-condition-vtol>.

⁸ See, for an overview of ICAO’s activities, Benjamyn I. Scott and Andrea Trimarchi, *Fundamentals of International Aviation Law and Policy*, Second Edition, (Routledge, 2025), ch. 13 (Unmanned Aircraft Systems).

Unpacking Six Regulatory Challenges

1. Lengthy, Costly and Complicated: The Certification Labyrinth of AAM Aircraft

The aviation ecosystem has a well-established and rigorous regulatory system, including in the area of certification, which has evolved to become increasingly more stringent, upholding the principle of ‘safety first’. The vehicles used in AAM, such as unmanned aircraft (drones) and eVTOL aircraft are, as their names suggest, *aircraft*⁹ and should, therefore, be regulated as such. However, their novel characteristics, including but not limited to propulsion systems, beyond visual line of sight capabilities, novel structures, composite materials, levels of automation (including autonomous¹⁰) and flight control software, necessitated a re-evaluation of the existing certification regulations.

Different regulatory authorities, such as EASA and the FAA, quickly identified the need to certify high-risk AAM aircraft. EASA produced dedicated Special Conditions for manned VTOL,¹¹ setting the level of safety as the same as Part 25, whereas the FAA adapted existing

Part 23,¹² 27¹³ and 29¹⁴ frameworks to certify AAM aircraft. Moreover, this regulatory bifurcation may have created market asymmetries where certification expertise becomes a competitive advantage, potentially favouring established original equipment manufacturers with institutional certification knowledge over new entrants. Interestingly, the approaches of these regulatory authorities are recently converging,¹⁵ but certification nonetheless remains a critical hurdle for eVTOL manufacturers, shaping both financial sustainability and compliance with investor and public timelines.

Certification drives several primary financial consequences, consuming a significant portion of total development costs, creating a ‘certification valley of death’ where revenue generation remains blocked pending regulatory approval. Further, each certification delay directly extends negative cash flow periods and diminishes investor trust in this newly emerging sector. Thus, it is less a question of when certification will be achieved, but who will survive long enough to receive it. Certification costs can also impact scalability, as it is a costly process, so aircraft are more expensive and time-consuming to

⁹ Annex 2 to the Convention on International Civil Aviation, ‘Rules of the Air’, Eleventh Edition, July 2024, page 1-2: “Any machine that can derive support in the atmosphere from the reaction of the air other than the reactions of the air against the earth’s surface.”

¹⁰ See, for a detailed discussion on automation and autonomous in the context of unmanned aircraft, Samar Abbas Nawaz, ‘Regulating Autonomy in Civilian Drones: Towards a Spectral Approach’, 110 *Journal of Intelligent & Robotic Systems* 46 (2024), <https://link.springer.com/article/10.1007/s10846-024-02056-9>.

¹¹ EASA, New Air Mobility: Continuing Airworthiness Rules for Electric- and Hybrid-Propulsion Aircraft and other Non-Conventional

Aircraft (Subtask 1); Gyroplanes: Flight Crew Licensing for Private Pilot Licences and Non-Commercial Operations Conducted in Visual Flight Rules by Day and by Night (Subtask 2), RMT.0731 – SUBTASKS 1 & 2, Opinion No 04/2024, https://www.easa.europa.eu/sites/default/files/dfu/opinion_no_04-2024.pdf.

¹² 14 CFR Part 23.

¹³ 14 CFR Part 27.

¹⁴ 14 CFR Part 29.

¹⁵ Treena Hein, ‘Narrowing the Gap Between U.S., European eVTOL Certification Regulations’, Vertical, 8 July 2024, <https://verticalmag.com/features/narrowing-the-gap-between-u-s-european-evtol-certification-regulations/>.

build, and operations cost more to run, which may result in the increased costs being passed on to the customer. Further exacerbating the burden on the companies, a certification received from one jurisdiction does not enable operations in another. For instance, eHang, a Chinese eVTOL manufacturer, has already received certification by the Chinese competent authority and started operating in China, but it is required to go through the lengthy process of certification in other jurisdictions for these aircraft to be operated outside of China.¹⁶ It is, thus, uncertain whether eHang's eVTOL aircraft meets the requirements in other parts of the world, such as in the EU and United States.

Certification of the aircraft is a multifaceted process, not only including the hardware design of the aircraft but also its software. As AAM aircraft rely more on automation and digital controls, software certification also emerges as a critical challenge. While companies employing established software development and testing processes may mitigate certification hurdles and maintain an early-mover advantage,¹⁷ AAM's novel operational environment (e.g., urban, rural and low altitude) renders currently certified software potentially insufficient. Moreover, there is a shift in the software certification relationship between stakeholders, especially after the recent revision of the Product Liability Directive.¹⁸ It transformed the traditional model of handing over the product to operators after certification and improving the product by a periodic feedback process, to

a continuous process, which may potentially escalate costs. This paradigm shift fundamentally alters capitalisation models, requiring sustained engineering investment throughout operational lifespans rather than concentrated precertification expenditure.¹⁹

The European headlines of eVTOL manufacturers' insolvency²⁰ highlight a tension between regulation (at initial stages; certification) and innovation. Unlike early aviation, where accidents were expected during development, public risk perception regarding aviation has fundamentally changed. AAM does not have the 'privilege of making mistakes' that commercial aviation enjoyed to a certain degree in its formative years. Today's certification processes are necessarily more stringent and making it more costly, resulting in AAM's emergence fundamentally being more complex and challenging than previous aviation revolutions.

Certification should, however, not be seen as a negative activity. It obviously contributes to safety, which is of paramount importance as AAM activities are expected to happen over populated areas and transport passengers. Further, the assessment by the competent authority can improve the design of the aircraft, and it can also improve public confidence in the product. Confidence is seen as key, as noted by EASA in its 'Study on the Societal Acceptance of Urban Air Mobility in

¹⁶ eHang, 'EHang Successfully Obtains Type Certificate for EH216-S Passenger-Carrying UAV System Issued by Civil Aviation Administration of China', 13 October 2023, <https://www.ehang.com/news/990.html>.

¹⁷ Steve Di Camillo, 'Addressing the Challenges of Certifying Next-Generation Flight Software', Embedded, 2 October 2024, <https://www.embedded.com/addressing-the-challenges-of-certifying-next-generation-flight-software/>.

¹⁸ Directive (EU) 2024/2853 of the European Parliament and of the Council of 23 October 2024 on Liability for Defective Products and Repealing

Council Directive 85/374/EEC, OJ L, 2024/2853, 18.11.2024.

¹⁹ Steve Di Camillo, 'Addressing the Challenges of Certifying Next-Generation Flight Software', Embedded, 2 October 2024, <https://www.embedded.com/addressing-the-challenges-of-certifying-next-generation-flight-software/>.

²⁰ Nicole Kobie, 'Lilium Fails Again. Is this the End of Europe's EVTOL Dreams?', Forbes, 28 February 2025, <https://www.forbes.com/sites/nicolekobie/2025/02/28/lilium-fails-again-is-this-the-end-of-europes-evtol-dreams/>.

Europe’.²¹ An important observation from this study is that certification does not equal societal acceptance, but it is an important factor towards it. Furthermore, societal acceptance goes beyond safety, such as security, environmental considerations (emissions, noise, light and wildlife), and use cases. Certification is lengthy. However, it is a known requirement, should be taken into consideration by AAM stakeholders, and should not be used as a scapegoat for poor design or poor management.

Industry standards also play a strong role in certification and other regulatory areas. While numerous organisations are capable of developing robust industry standards for both civil and defence AAM aircraft, the significant challenge lies in managing the overwhelming number of existing standards. Efforts like AW-Drones²² highlight issues of duplication, gaps and lack of alignment across various frameworks. A critical need remains in better coordinating standards to reduce duplication of efforts, close gaps and minimise inconsistent standards.

2. Getting it Off the Ground: Beyond Certification, Operational Approval and Safety in Practice

While certification is a crucial step in ensuring the airworthiness of AAM aircraft, it is not the full picture and does not in itself confer operational authorisation. The current discourse, mainly focused on aircraft certification challenges, often overlooks the distinction between type certification and operational approval. Certification is a hurdle,

and it must be overcome, but certification does not equal commercial operations.

There are additional safety requirements that must be satisfied. For example, under the current rules, pilots operating eVTOL aircraft will most likely need commercial pilot licences, just as conventional fixed-wing and helicopter pilots do. The transportation of people and cargo by aircraft would be commercial air services, so a commercial pilot licence, as opposed to a private pilot licence, would be required. This may be deemed as too onerous due to the high levels of automation in eVTOL aircraft, whereby the levels of automation are expected to increase over time. However, it may also be seen as consistent with manned aviation, whereby pilots are required to interact with varying degrees of automation for safety-critical systems. This is complex and important, whereby a high level of training is required.²³ Regulators now face the question: is the existing licensing framework fit for purpose, or is a new eVTOL-specific category necessary? This is to be determined, along with other safety areas such as vertiports, maintenance, medical, training, traffic management and rules of the air.

An additional concern linked to pilots is their recruitment and job role evolution. There is no existing pool of people who are qualified to fly eVTOL aircraft to draw from. They will have to be recruited and trained, despite the fact that their role may soon be phased out by automation. Training will add additional costs, as it will likely require specialised simulators, take time and resources, and require in-flight training. Therefore, it may be difficult to fill these roles as people may be reluctant to invest in training for such a short period. A solution may be to utilise the existing licensing system for fixed wing or rotorcraft, and adapt the requirements. This may prove

²¹ EASA, Study on the Societal Acceptance of Urban Air Mobility in Europe, 19 May 2021, <https://www.easa.europa.eu/en/full-report-study-societal-acceptance-urban-air-mobility-europe>.

²² AW-Drones, ‘Harmonising Drone Standards to Support the Ongoing EU Regulatory Process’, <https://www.aw-drones.eu/>.

²³ FAA, ‘Powered Lift Part 194 SFAR Frequently Asked Questions (FAQ)’.

challenging as EASA has insisted, via its definition of ‘VTOL-capable aircraft’, that a VTOL aircraft is distinct from aeroplanes and rotorcraft.²⁴ Another solution may be for the role to evolve over time, whereby they switch from being an onboard overseer, as opposed to a pilot, to a ground-based role, such as a multiple-aircraft flight manager. It is debatable how transferable the skills will be, especially as both roles will need to satisfy stringent safety requirements, and whether societal acceptance will be there for cockpitless passenger transportation. Thus, this could be unrealistic. Alternatively, as seen in the air traffic management case, could unions and lobbying restrict this evolution and keep the pilot seats occupied?

Broader than safety, commercial AAM services will require an air operator certificate and, which in the EU, compliance with Regulation 1008/2008²⁵ on the common rules for the operation of air services will be required. This regulation governs *inter alia* ownership, financial fitness and operational control of air carriers. A requirement under the EU rules is that the main occupation of the undertaking requesting an air operator certificate is operating air services. A significant challenge arises from the fact that some AAM manufacturers intend to operate their own fleet. Therefore, the criterion of having the main occupation as the operation of air services may not be satisfied. The undertaking must also be majority-owned and effectively controlled by EU nationals. Since many AAM

companies are funded via venture capital from around the world, the ownership and control requirements will not be met. This will limit their ability to operate within certain countries and markets, particularly as urban and regional operations would then likely be classified as cabotage within a single country. Alternatively, it may be overlooked. For example, the FAA has issued a Part 135 certification to Joby, which has received substantial funding from non-US entities.²⁶ This covers ‘Air Carrier and Operator Certification’, but it is extremely limited as it, for example, only permits fewer than 5 round trips per week on a single route.²⁷ Thus, this falls short of allowing for full operational freedom, which AAM is promising. Additionally, such restrictions will limit future funding opportunities, so it could slow down the actualisation of the industry and its growth. Therefore, there may be a need to evolve the licensing framework due to AAM, so as to take into consideration different categories of commercial operations, increased automation, the transition to unmanned aviation and the influence of new-tech thinking in traditional aviation. The revision of Regulation 1008/2008 is on the EU’s agenda. Regulation 1008/2008 also mentions insurance, which highlights another challenge, along with how contractual and third-party liability will be handled.²⁸

Other areas of law must be considered, such as security. Vertiports, which are critical infrastructure for AAM, will need to be

²⁴ Commission Delegated Regulation (EU) 2024/1108 of 13 March 2024 Amending Regulation (EU) No 748/2012 as Regards the Initial Airworthiness of Unmanned Aircraft Systems Subject to Certification and Delegated Regulation (EU) 2019/945 as Regards Unmanned Aircraft Systems and Third-Country Operators of Unmanned Aircraft Systems, OJ L 2024/1108, 23 May 2024, Art. 1(b)(iv)(p).

²⁵ Regulation (EC) No 1008/2008 of the European Parliament and of the Council of 24 September 2008 on Common Rules for the Operation of Air Services in the Community, OJ L 293, 31.10.2008, p. 3–20.

²⁶ Joby Aviation, ‘Joby Receives Part 135 Certification from the FAA’, 26 May 2022, <https://ir.jobyaviation.com/news-events/press-releases/detail/40/joby-receives-part-135-certification-from-the-faa>.

²⁷ FAA, ‘14 CFR Part 135 Air Carrier and Operator Certification: General Information’, https://www.faa.gov/licenses_certificates/airline_certification/135_certification/general_info.

²⁸ See, Jacques Hartmann, et al., (Eds.), *Civil Regulation of Autonomous Unmanned Aircraft Systems in Europe*, (Edward Elgar, 2024). Open Source - <https://www.elgaronline.com/edcollbook-0a/book/9781035312344/9781035312344.xml>.

designed and operated in compliance with established aviation security frameworks to ensure the security of passengers, operators and the wider society. This includes adherence to EU Regulation 300/2008, which sets common rules in the field of civil aviation security, covering areas such as access control, passenger screening, and baggage handling.²⁹ Additionally, AAM stakeholders must align with the Standards and Recommended Practices found in ICAO's Annex 17, which focuses on safeguarding international civil aviation against acts of unlawful interference.³⁰ As vertiports are airports, the assessment of the safety and security rules applicable to aerodromes and heliports to see which rules apply to vertiports, as well as integrating these requirements from the outset, will be essential to establishing the acceptable level of safety.³¹ This must, however, be balanced against authorised counter-drone initiatives, which utilise vulnerabilities in unmanned aircraft to prevent them from flying in restricted airspace.

While the focus is on providing commercial services, more attention is required on the actual use cases. AAM offers transformative potential, with high-value use cases, like emergency transport, being likely first movers. These applications enhance public trust and demonstrate societal benefits. However, large-

scale passenger transport to ease congestion remains unrealistic for now and could hinder acceptance if prematurely prioritised over smaller, impactful deployments.

3. The Price of Getting Off the Ground: Financing During the Pre-Revenue Phase

Until AAM operations come to market, offer commercial services and start generating revenue, companies need to fund development from other sources. This has traditionally come from direct backing or via raising capital from investors. In the first category, large aerospace companies like Airbus and Boeing have funded their own AAM research and development programmes. For example, Airbus Helicopters developed its CityAirbus Next Gen prototype³² as a demonstrator, which was made possible by the financial, technological and knowledge resources of Airbus. It has since paused its eVTOL development, citing a lack of maturity in the technology.³³ In contrast, venture-backed eVTOL developers like Joby Aviation in the United States (which also received public funds) have raised a total of USD 690 million from 9 different funding rounds.³⁴ This puts its total funding to be over USD 2.5 billion,³⁵

²⁹ Regulation (EC) No 300/2008 of the European Parliament and of the Council of 11 March 2008 on Common Rules in the Field of Civil Aviation Security and Repealing Regulation (EC) No 2320/2002, OJ L 97, 9 April 2008, p. 72–84.

³⁰ ICAO, Annex 17 - Aviation Security, 12th Edition, July 2022.

³¹ Benjamyn I. Scott, 'Vertiports: Ready for Take-off ... And Landing', 87(3) *Journal of Air Law and Commerce* 503-530 (2022).

³² Airbus, 'Pioneering Advanced Air Mobility (AAM)', <https://www.airbus.com/en/innovation/energy-transition/hybrid-and-electric-flight/cityairbus-nextgen>.

³³ Yves Le Marquand, 'Airbus Helicopters Pauses eVTOL Programme Citing Lack of tech Maturity', Helicopter Investor, 28 January 2025, <https://www.helicopterinvestor.com/news/10279>

[7/airbus-helicopters-4/#:~:text=Airbus%20Helicopters%20pauses%20eVTOL%20programme%20citing%20lack%20of%20tech%20maturity,-news&text=Airbus%20Helicopters%20is%20to%20suspend.is%20completed%2C%20expected%20late%](https://airbus-helicopters-4/#:~:text=Airbus%20Helicopters%20pauses%20eVTOL%20programme%20citing%20lack%20of%20tech%20maturity,-news&text=Airbus%20Helicopters%20is%20to%20suspend.is%20completed%2C%20expected%20late%20).

³⁴ Tracxn, 'Joby Aviation's Funding Rounds', 22 July 2025, https://tracxn.com/d/companies/joby-aviation/_cPLBx4dly4UKlj7UxoTdtAMnyVdojskT2t5xnq_VGBU/funding-and-investors; and Advanced Air Index, 'Advanced Air Mobility Reality Index', <https://aamrealityindex.com/aam-reality-index>.

³⁵ Justin Dawes, 'Joby Aviation Raises \$500 Million from Toyota for Flying Taxis: Startup

coming from investors that are betting on pre-commercial products.

Obtaining funding requires finding and convincing investors to part with large sums of money on a possible product, where there is a regulatory and commercial limbo: not yet certified, let alone market-ready. While there are certification milestones, which bring some confidence in the product, there can be a risk of creating hype that is already wearing thin. For some companies, the bubble has already burst.

An alternative source of money is via public funding. For example, since 2023, the EU has invested almost EUR 980 million in the development or use of drones, totalling 320 different projects under the EU Research and Innovation Framework Programmes.³⁶ This support has continued under the Horizon Europe Research and Innovation framework programme,³⁷ which runs between 2021-2027 and amounts to EUR 95.5 billion. However, public funding comes with strings attached.

While public funding is a way to gain access to public money, which may otherwise be out of bounds due to competition law, it comes with strict requirements. Much of this money is distributed through Joint Undertakings (JUs), partnerships focused on specific areas such as SESAR-JU for air traffic management and Clean Aviation JU for sustainability. These JUs create calls, listing the required deliverables, timeframes and available resources, restricting market flexibility, controlling market forces and creating additional administrative work for

participating companies. For example, on the latter point, JUs are subject to audits by the European Court of Auditors, so there are checks to ensure the money is appropriately spent.

JUs are public-private partnerships, as there is a buy-in requirement from the private sector. For example, SESAR JU has more than 50 organisations, including airports, airlines, manufacturers and AAM companies.³⁸ From this, Horizon Europe contributed EUR 600 million, EUROCONTROL EUR 500 million and industry EUR 500 million. This system can favour larger companies with deeper pockets, potentially locking out smaller firms and startups that may lack the capital to get involved and, therefore, struggle to compete. This can stifle innovation and limit market diversity as smaller companies or new entrants have to join consortia as a minor contributor.

Funding is allocated through JUs and this can create research gaps as it focuses on and prioritises only certain areas. For example, SESAR-JU is focused on air traffic management and Clean Aviation JU on sustainability. There is no specific JU for AAM. This siloed, thematic approach can prevent interdisciplinary research, limiting advancements in AAM technology that require cross-sector collaboration. This is exacerbated as cooperation between JUs is not mandated and the European Commission takes a weak coordination role. This disconnection leads to inefficiencies and missed opportunities for holistic AAM advancements.

Funding Roundup', Skift, 5 October 2024, <https://skift.com/2024/10/05/joby-aviation-raises-500-million-from-toyota-for-flying-taxis-startup-funding-roundup/>.

³⁶ EU Commission, 'A Drone Strategy 2.0 for Europe to Foster Sustainable and Smart Mobility', 29 November 2022, https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/13046-A-Drone-strategy-20-for-Europe-to-foster-sustainable-and-smart-mobility_en, page 15.

³⁷ Benjamyn I. Scott, 'Horizon Europe: the Next Multiannual Framework Programme', 2023(1) *Aisdue/Associazione Italiana Degli Studiosi Di Diritto Dell'Unione Europea* 375-383, <http://scholarlypublications.universiteitleiden.nl/access/item%3A3677506/view>.

³⁸ SESAR-JU, 'SESAR 3 JU Members', <https://www.sesarju.eu/discover-sesar/partnering-smarter-aviation>.

Another issue is that even when the research is publicly funded, it is not always translated into industry adoption. Without a mandate for deployment, valuable research can remain unused, reducing its real-world impact. For example, Horizon Europe is focused on research and development (i.e., lower technology readiness levels). However, the designing, manufacturing and testing are just parts of the story. It needs to be deployed. Operational stakeholders should buy and purchase the technology, so the benefits can be actualised. However, there are no incentives for early adopters and no penalties for non-adoption. Thus, even if certain technological elements within AAM mature, there is no guarantee they will be utilised.

Funding is often linked to a nationality or a geographical region. This is not surprising as it is public money. However, due to this, it prioritises national or, in the case of Horizon Europe, EU-based companies. Aviation is a global sector with complex and multinational supply chains. Limiting international cooperation, and potentially excluding the best talent and innovations from outside the region is not ideal. The EU has gone some way to limit this by allowing non-EU companies with a foot in the EU, such as Boeing, Collins Aerospace, Honeywell, to participate, for example, in SESAR-JU. However, this approach is less common outside this specific context, such as in the US with NextGen,³⁹ which retains a strong protectionist approach. It is also not universally supported within the EU.

The EU Drone Strategy 2.0 places significant emphasis on the concept of dual-use technologies, recognising their potential to drive innovation and technological progress across both civil and defence sectors. By allowing civil research and industrial

capabilities to inform defence advancements and *vice versa* the strategy seeks to avoid duplication of efforts, strengthen technological sovereignty and optimise the use of public funding. For instance, Flagship 11 states that the “Commission will consider possible amendments to the existing financing/funding framework to ensure a consistent approach in support of dual-use research and innovation to improve synergies between civil and defence instruments.”⁴⁰ This opens the door for defence-based funding, such as the European Defence Funds, to contribute to the development of AAM. However, this crossover raises societal concerns, particularly if AAM technologies developed for civil purposes are later adapted for military use. Addressing this challenge requires careful consideration of the distinction between defensive and offensive capabilities, and between combatant and non-combatant applications, to ensure transparency, maintain public trust and uphold the peaceful intent behind civil aviation advancements. It could also bring once purely civil technology into the sphere of export control rules, which could hamper the technology’s use and export potential. Civil-defence cooperation goes beyond funding and technology synergies, but also airspace management, as they must share the airspace. Thus, coordination and cooperation are also required here to ensure due regard and suitable airspace use.

4. U-space: Still a Blueprint, Implementation Remains Delayed

Unmanned traffic management (UTM) represents a collection of services designed to ensure safe and efficient operations of unmanned aircraft⁴¹ within authorised

³⁹ FAA, ‘NextGen’, <https://www.faa.gov/newsroom/nextgen>.

⁴⁰ EU Commission, ‘A Drone Strategy 2.0 for Europe to Foster Sustainable and Smart Mobility’, page 17.

⁴¹ ICAO, ‘Unmanned Aircraft Systems Traffic Management (UTM) – A Common Framework

airspace volumes. The European framework for these services,⁴² termed U-space, comprises various mechanisms to ensure safe traffic management of AAM aircraft. This framework emerged from collaborative efforts among stakeholders, including operators, U-space service providers, and regulators, ostensibly balancing diverse interests.⁴³ The development and regulatory approval of U-space services are widely cited as foundational enablers for the safe, scalable integration of drones and AAM. In Europe, the U-space regulatory package entered into force in January 2023; however, practical implementation has proven significantly more complex. As of May 2025, no operational U-space airspace had been formally established, and no Common Information Service (CIS) providers had been designated by EU Member States. Key barriers include:

- Delay in national airspace designations.
- Unclear CIS governance models (centralised v. distributed).
- Slow rollout of digital infrastructure such as flight authorisation systems.
- This inertia risks undermining confidence in beyond visual line of sight and urban drone operations.

Another primary obstacle is Member State inertia. As acknowledged by an EASA representative during Amsterdam Drone Week, there has been a persistent delay, if not reluctance, among Member States to even adopt preliminary U-space plans, let alone actually implement them. While the regulatory framework⁴⁴ establishes foundational requirements, numerous areas remain dependent on Member State implementation. Without proactive

engagement from National Aviation Authorities fostering a U-space ecosystem, these formal obligations remain merely theoretical constructs. Implementation rates reported by various sources remain concerning, as full-scale AAM operations cannot commence without effective traffic management systems, forcing many use cases to operate under exemption regimes.

The inherent complexity of the AAM ecosystem presents a second major challenge. The diversity of aircraft types and control methodologies necessitates simultaneous management of manned, autonomous, and remotely piloted vehicles. This reality undermines the vision of a ‘fully digital’ UTM system initially envisioned, forcing reliance on traditional control methods that inherently constrain AAM scalability; a prerequisite for ecosystem business viability. The transition toward digital air traffic management necessarily requires unrestricted digital information flow, representing a paradigm shift from centralised governmental air navigation service provider control over air traffic control, traditionally the cornerstone of aviation safety systems. This reveals a fundamental contradiction within the U-space framework: imposing conventional safety structures on a digital environment where centralised control is inevitably limited.

EASA was under a lot of pressure to produce draft rules on the U-space, which resulted in the initial Regulations focusing on high-level requirements, requiring the acceptable means of compliance and guidance materials to be developed later for full understanding. Regulators may have failed to fully consider the prerequisite of a viable business case for

with Core Principles for Global Harmonization’, Edition 4, <https://www.icao.int/safety/UA/Documents/UTM%20Framework%20Edition%204.pdf>.

⁴² Commission Implementing Regulation (EU) 2021/664 of 22 April 2021 on a Regulatory

Framework for the U-space, OJ L 139, 23.4.2021, p. 161–183.

⁴³ Mikko Huttunen, ‘The U-space Concept’, 44(1) *Air & Space Law* 69–89 (2019).

⁴⁴ EASA, ‘U-space’, <https://www.easa.europa.eu/en/regulations/u-space>.

providing UTM/U-space services,⁴⁵ which currently offers minimal financial incentives due to limited operational volume. The regulatory framework presupposes the existence of service providers and was formulated before their establishment, consequently failing to reflect their actual operational structure and economic realities. Business cases may not be initially known, thus requiring the setup of the U-space to fully appreciate the opportunities. Thus, there was a chicken and egg situation.

On 14 May 2025, EASA issued the first U-space Service Provider certificate. The certification confirmed the entity's readiness to offer services including network identification, geo-awareness, flight authorisation, and traffic information. Despite this progress, actual implementation remains slow. Accelerating CIS designation and national airspace activation will be essential to operationalise the framework. The service provision model itself remains shrouded in uncertainty, whether monopolistic or competitive providers will operate within individual states or airspace segments; how management will function in international or non-sovereign airspace; whether traditional air navigation service providers or new entities will deliver these services; and critically, how liability will be distributed when incidents occur. This structural uncertainty further complicates the already challenging implementation landscape

5. 'E' Does Not Mean 'Green'

Aviation is often highlighted as a contributor to global emissions, whereby it accounts for around 2% of all man-made global CO₂ emissions.⁴⁶ Aviation stakeholders are seeking solutions to reduce emissions via market-based measures such as the ICAO Carbon Offsetting and Reduction Scheme for International Aviation;⁴⁷ technological advancements via improvements to aircraft; the utilisation of sustainable aviation fuels;⁴⁸ improved flight routes;⁴⁹ or changing consumer behaviour. Thus, sustainability is an extremely important topic in aviation, of which AAM is also a part of the discussion and is posed as a possible solution.

AAM is often promoted as a green and sustainable revolution in aviation, with eVTOL aircraft positioned as a clean alternative to traditional short-distance air travel, replacing gas-guzzling aircraft. There are many claims that AAM aircraft are 'zero-emission', 'zero carbon', 'green' and 'sustainable'. However, is this really the case? eVTOL aircraft are electric and, therefore, do not produce direct emissions at source, providing a localised positive impact. However, this rhetoric, as well as the specific aviation environmental rules, do not take into consideration the full system and life cycle of the technology.

A key issue is the production of batteries. The extraction of rare Earth materials such as lithium typically requires large-scale mining operations. These activities often result in

⁴⁵ Philip Butterworth-Hayes, 'Why Europe's Historic U-space Day is Passing Without a Mention', Unmanned Airspace, 28 November 2024,

<https://www.unmannedairspace.info/uncategorized/whys-europes-historic-u-space-day-is-passing-without-a-mention/>.

⁴⁶ IATA, 'Non-CO₂ Aviation Emissions', <https://www.iata.org/contentassets/5499da2b3b7d46b3b13be4dad54a9689/policy-position-non-co2-aviation-emissions.pdf>.

⁴⁷ ICAO, 'Carbon Offsetting and Reduction Scheme for International Aviation (CORSA)', <https://www.icao.int/environmental-protection/CORSIA/Pages/default.aspx>.

⁴⁸ EU Commission, 'ReFuelEU Aviation', https://transport.ec.europa.eu/transport-modes/air/environment/refueeu-aviation_en.

⁴⁹ EUROCONTROL, 'Airlines Back MUAC's New Greener Route Plan', <https://www.eurocontrol.int/article/airlines-back-muacs-new-greener-route-plan>.

significant environmental damage,⁵⁰ such as deforestation, water pollution and habitat destruction. The negative localised impact of mining can be devastating to local communities, whereby resistance can be seen when new mines are proposed, as seen in Serbia.⁵¹ AAM stakeholders must ensure compliance with the rules on supply chain management, as well as take into account the wider impact of their actions.

Extracting the rare materials for the batteries is just the first step. In order for eVTOL aircraft to fly, they require electricity. The source of this electricity will impact the environmental footprint of the operation. If electricity is sourced from the burning coal, oil or natural gas, which is the case in many countries, then the carbon footprint remains high. Without a widespread shift to renewable energy, the claim that AAM is a green solution remains questionable and could lead to greenwashing claims.

Even when the electricity is sourced from renewable sources, electricity is a finite resource. This means that electricity will have to be redistributed to power the AAM ecosystem. When some countries do not have enough electricity to support the existing demand, this will only make this worse. Even when there is enough electricity in the grid, it will increase demand and could impact prices. This electricity could be better used. eVTOL aircraft are not particularly efficient,⁵² whereas ground infrastructure may do the same task, albeit slower, but in a more efficient way. Here, *flygskam* or flight shame may

prove a defining cultural barrier to AAM adoption..

Battery degradation also raises questions about the long-term sustainability of AAM. Varying reports put the number of battery charge cycles around 1000 to 2000,⁵³ which could exhaust the battery within several months or a few years, depending on use. This would not only create significant financial barriers to running AAM operations, as these costly assets would require frequent replacements, but also raise issues regarding the disposal of retired batteries. Without a clear and effective recycling strategy, retired batteries risk becoming hazardous waste, further diminishing the industry's environmental credibility. Similarly, the use of composite materials in airframes presents recycling challenges at the end of an aircraft's life, intensifying concerns about AAM's overall sustainability.

Full life cycle consideration is not restricted to batteries. For example, the production of new types of aircraft requires resources. This includes the materials used, such as for the airframe, but also the energy used in the manufacturing process. At the end of life, the aircraft needs to be properly disposed of. The use of composite materials makes this more complex, as it is not as simple to reduce, reuse and recycle. Therefore, AAM stakeholders will have to consider the circular economy and life cycle assessments such as the manufacturing of eVTOL aircraft, when engaging in activities.

AAM should integrate into existing mobility networks such as metro, bus and road. People

⁵⁰ UN Trade and Development, 'Developing countries pay environmental cost of electric car batteries', 22 July 2020, <https://unctad.org/news/developing-countries-pay-environmental-cost-electric-car-batteries>.

⁵¹ Agence France-Presse in Belgrade, 'Thousands of Serbians Protest in Belgrade Against Lithium Mine', The Guardian, 11 August 2024, <https://www.theguardian.com/world/article/2024/aug/10/thousands-of-serbians-protest-in-belgrade-against-lithium-mine>; and Dragana Dorđević, et al., 'The Influence of Exploration

Activities of a Potential Lithium Mine to the Environment in Western Serbia', 14 *Scientific Reports* 17090 (2024).

⁵² Bill Sweetman, 'Bursting the eVTOL Bubble', Royal Aeronautical Society, 6 September 2024, <https://www.aerosociety.com/news/bursting-the-evtol-bubble/>.

⁵³ Elan Head, 'Joby touts a 10,000 flight cycle eVTOL battery. Can it deliver?', Vertical, 21 April 2021, <https://verticalmag.com/features/joby-10000-flight-cycle-evtol-battery/>.

should be able to access this mobility solution, but this requires extensive infrastructure, including vertiports, charging stations and air traffic management systems. Constructing these facilities demands land, materials and energy, which can contribute to urban expansion and environmental degradation. Introducing vertiports into urban areas could create conflict with local communities, as vertiports will require sufficient space to land an eVTOL aircraft. This land could be used for other activities, such as social services or green escapes. Converting land to vertiports and operating aircraft at low altitudes may also impact wildlife and this must be taken into consideration.

The noise and light generated by frequent eVTOL operations could further increase the negative environmental impact, disrupting wildlife, particularly in suburban and rural areas where AAM is expected to operate. While stakeholders advertise reduced noise levels, integrating AAM into an ecosystem will nevertheless add more noise and light into that ecosystem. Noise is often seen by AAM stakeholders as a problem for technology to fix, whereby the norm in aviation is operational restrictions (e.g., location and time). Such restrictions will impact the integration and scalability of AAM.

Alternatively, noise is downplayed with unhelpful analogies being made to other noisy. Historically, airspace control has been firmly established to fall under a National Aviation Authority's jurisdiction. This arrangement emerged when the majority of aircraft flew high and far from daily life. The advent of AAM, operating at low altitudes across both urban and rural environments, has sparked debates regarding the extent to which local

activities, such as helicopters and underground trains. While AAM aircraft may be quieter, they are nevertheless additional noise producers (rather than replacing ground alternatives) that will be introduced right at the centre of an already loud world. It will also take up space on the ground (infrastructure) and in the air (flights), which will impact people and animals already using those spaces. Space is finite.

The EASA Study on the Societal Acceptance also cited wildlife as a concern for the public. There are numerous studies on how the noise and presence of drones in an environment negatively impact wildlife, such as birds. This concern, while raised early on, does not appear to have been picked up by regulators. Further, low altitude operations will result in operations taking place in the domain of birds. Therefore, the risk of bird strike is present for the full operational window, which has a significant impact on safety. This adds to the considerations of other risks of operating in low altitude and urban areas, such as wind caused by building corridors (horizontal) and skyscrapers (vertical).

6. Contested Jurisdiction: The Critical Role of Local Authorities

authorities can exercise control over these emerging activities.⁵⁴

The jurisdictional tension between national aviation authorities and local authorities regarding AAM has already manifested during the Paris Olympics preparations.⁵⁵ Paris councillors rejected proposed AAM plans, with the Deputy Mayor dismissing them as 'a totally useless, hyper-polluting gimmick for a few

⁵⁴ European Platform on Sustainable urban Mobility Plans, 'Practitioner Briefing Urban Air Mobility and Sustainable Urban Mobility Planning', December 2021, [https://urban-mobility-](https://urban-mobility-observatory.transport.ec.europa.eu/system/files/2023-11/urban_air_mobility_and_sump.pdf)

[observatory.transport.ec.europa.eu/system/files/2023-11/urban_air_mobility_and_sump.pdf](https://urban-mobility-observatory.transport.ec.europa.eu/system/files/2023-11/urban_air_mobility_and_sump.pdf).
⁵⁵ The Local, 'Paris's Olympic Flying Taxi Plans Hit City Council Setback', 15 November 2023, <https://www.thelocal.fr/20231115/pariss-olympic-flying-taxi-plans-hit-city-council-setback>.

ultra-privileged people in a hurry.’ The conflict escalated when Paris City Hall filed an urgent appeal with the Council of State to block the flying taxi project. Subsequently, the Council annulled a ministerial decree that had authorised the construction of a ‘vertiport’ on the Seine, ordering the State to pay EUR3,000 each to the *Union Française Contre les Nuisances des Aéronefs* and the City of Paris in legal costs.⁵⁶

The Paris case underscores a fundamental jurisdictional dilemma. While the term ‘Advance Air Mobility’ emphasises its aerial dimension, the ecosystem necessarily incorporates a crucial land-connected component; infrastructure. Aircraft require landing areas, charging facilities, and integration with existing ground transportation modes for economic viability. These elements fall under local authority control, which also retains responsibility for prosecuting infringements related to urban airspace use.

Even within the aerial domain, Article 18(f) of EU Regulation 2021/664⁵⁷ empowers local authorities to coordinate with U-space competent authorities designated by Member States. Cities and regions consequently maintain decisive roles in authorising AAM services of public interest, determining U-space operational parameters, and regulating flight permissions through mechanisms, including geo-fencing and operational restrictions.

Article 18(f) was articulated through the efforts of the affected stakeholders. For instance, the critical local governance role was explicitly articulated in the ‘Manifesto on the Multilevel Governance of the Urban Sky’,⁵⁸ presented by the UAM Initiative Cities

Community during Amsterdam Drone Week. The initiative advocates for local authority participation in decision-making alongside other stakeholders, recognising their essential role in developing AAM infrastructure and shaping related policy, regulation, and legislation at both national and regional levels.

Other stakeholders will also be relevant. For example, law enforcement agencies are increasingly using unmanned aircraft for surveillance, search and rescue, and crowd monitoring. These unmanned aircraft enhance situational awareness, reduce response times, and improve officer safety. However, illegal drone use is a growing concern, such as airport disruptions, as this poses safety and security risks. Police are essential in enforcing regulations, investigating incidents, and ensuring responsible drone operation.

Despite theoretical legal frameworks delineating jurisdictional boundaries, the practical reality remains more ambiguous, creating a grey zone where national mandates intersect with local authority. This ambiguity creates a complex environment for AAM development, where operators must navigate conflicting regulatory interpretations and where local resistance, based on environmental, noise, or social equity concerns, can effectively override national aviation directives, regardless of formal jurisdictional authority.

While a lot of attention is given to passenger transportation, early use cases are more likely to be for emergency activities, such as transporting medicines for medical emergencies, search and rescue, and firefighting. While this will support societal acceptance, it does raise a question of

⁵⁶ Laurent Borde, Paris : le Conseil d'Etat annule l'arrêté créant une plateforme de "taxis volants", France Bleu, 18 December 2024, <https://www.francebleu.fr/infos/transports/paris-le-conseil-d-etat-annule-l-arrete-creant-une-plateforme-de-taxis-volants-1618789>.

⁵⁷ Commission Implementing Regulation (EU) 2021/664 of 22 April 2021 on a Regulatory Framework for the U-space, OJ L 139, 23.4.2021, p. 161–183.

⁵⁸ UIC2, ‘Manifesto on the Multilevel Governance of the Urban Sky by the UAM Initiative Cities Community – UIC2’, V3.3- Sep. 2022.

competences. For example, EASA's competences are primarily limited to civil aviation, meaning its regulatory authority generally excludes aircraft used for state purposes. However, activities such as air ambulances and aerial firefighting are potentially classified as state operations. While such aircraft may be operated by civil operators and they may interact with other airspace uses, this raises questions about which authorities should be involved, suggesting a need to clarify the boundary between civil and state aviation responsibilities. This may, then, necessitate the inclusion of other authorities, such as the national ministry of defences.

Cross-border drone operations present significant complexity due to the fragmented regulatory landscape and the involvement of multiple competent authorities, each with varying requirements or, in some cases, no

clear requirements at all. While some countries have established comprehensive frameworks, others lack consistent or enforceable rules, creating legal and operational uncertainties. This inconsistency can hinder seamless cross-border flights, complicate the enforcement of the rules, and create barriers for operators aiming to provide services across national boundaries. Harmonisation efforts at the regional and international levels are, therefore, critical to enabling safe, secure, and efficient drone operations that respect national sovereignty while supporting global mobility. The rules should also provide clarity on how different national competent authorities should work together to facilitate cross-border operations, as well as to make it clear which authorities have which responsibilities, since international entities, namely ICAO, may also have a role.

Conclusions

AAM stakeholders are making grand promises to revolutionise mobility by introducing novel aircraft into the existing transportation systems to facilitate urban and regional travel. The utilisation of the third dimension in mobility systems could reduce congestion, cut emissions and drastically shorten commute times, offering a faster, cleaner and more efficient supplement to ground transport. However, realising this vision is far from simple and is too often oversimplified. Several significant hurdles remain, which this research paper has tried to highlight a few examples.

The issues with certification are well documented and worth repeating, but the story does not end there. There are challenges with other safety areas, airspace management, sustainability, funding, as well as launching commercial air services. While AAM is frequently marketed as a unique solution to unique challenges, AAM does not exist in a regulatory vacuum. Rather, AAM is an ecosystem that impacts many legal areas. For example, AAM vehicles are aircraft and shall be regulated as such. They interact with society and shall be scrutinised with societal values and laws. Further, AAM requires integration with the ground ecosystem. Acknowledging these realities is essential for meaningful discussions. Hying the benefits of AAM, without facing the realities, will only have long term negative consequences.



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