Advanced Air Mobility in Australia

MARCH, 2025

Foreword

Message From Wisk CEO, Brian Yutko

It is an exciting time for the Advanced Air Mobility (AAM) industry, and Wisk is proud to be at the forefront of shaping the future of autonomous flight. Australia, with its forward-thinking approach to innovation and aviation, is uniquely positioned to be a leader in this transformative moment. Autonomous aircraft represent a safe, efficient, and sustainable mode of transportation that offers tremendous benefits—not just for urban centres but for regional communities across Australia.

Our vision for AAM in Australia includes creating greater connectivity for regional and remote areas, enhancing economic opportunities, and delivering safe, reliable, and environmentally friendly transportation options across the urban landscape. At Wisk, safety is at the core of everything we do. Autonomous systems have the potential to deliver a step change in performance in the small aircraft market and ensure the highest levels of safety for passengers and the broader public.

The development of the Flight Information Management System (FIMS) presents a significant opportunity for integrating AAM into Australia's airspace. We fully support the efforts of the Department of Infrastructure, the Civil Aviation Safety Authority (CASA) and Airservices Australia, as they lead the development of this critical infrastructure. While our initial operations may use existing airspace and frameworks, Wisk is committed to engaging with Australian stakeholders to evolve and refine airspace systems to support autonomous operations. We aspire to be a thought leader in this domain, drawing on our extensive experience with over 10 years in the development of autonomous systems.

Boeing and Wisk have long been leaders in the development of cooperative airspace procedures. We are actively working with entities such as the Federal Aviation Administration (FAA), National Aeronautics and Space Administration (NASA), Single European Sky ATM Research (SESAR), EUROCONTROL, and ICAO, as well as leading industry bodies such as RTCA, ASTM, EUROCAE, and the General Aviation Manufacturers Association (GAMA) to develop frameworks that ensure the safe and seamless integration of autonomous systems into complex airspace environments. These collaborations have been undertaken over many years, alongside the work being done in Australia. They are building the foundation for a globally connected AAM ecosystem and assisting in regulatory harmonisation.

This document initiates a collaborative dialogue on the future of AAM in Australia, leveraging the nation's unique environment as a foundation for developing innovative concepts of operations. Wisk is committed to working closely with airspace users, government agencies, regulators, and the Australian public to co-create a safe, equitable, and inclusive airspace system. By fostering open discussions and ongoing collaboration with stakeholders, we aim to establish a dynamic ecosystem that not only drives the growth of the AAM industry but also delivers meaningful benefits to communities across Australia.

We look forward to working alongside you as we make this vision a reality.

Brian Yutko, CEO of Wisk

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Executive Summary

Introduction

Advanced Air Mobility (AAM) is transforming air transportation by integrating cutting-edge autonomous systems, innovative aircraft designs, and advanced operational frameworks. AAM aims to establish safe, efficient, sustainable, and affordable transportation networks that connect underserved urban, regional, and remote communities. Wisk and other manufacturers are enabling AAM to support passenger services, cargo logistics, emergency medical transport, and military operations. By leveraging autonomous aircraft, Wisk believes AAM offers significant advancements in safety, cost-effectiveness, and scalability, while addressing critical transportation challenges.

Wisk Aero, through its Australian entity Wisk Australia Pty Ltd, is advancing the vision of autonomous aviation in Australia as a leader in the field. Building on its commitment to innovation, Wisk acknowledges that certifying autonomous systems—an endeavor anticipated to take longer than the certification of crewed AAM aircraft—is a critical step in its mission. This deliberate approach positions Wisk to leverage the progress of early market entrants while focusing on delivering a transformative shift toward autonomous operations, setting new benchmarks in the aviation sector. Wisk's fleet of electric vertical takeoff and landing (eVTOL) aircraft represents a significant leap in operational capability. Wisk aims to integrate advanced airspace management, foster community acceptance, and work closely with regulators to enable AAM in diverse Australian environments.

The Australia Context

Australia presents significant opportunities for AAM adoption, offering distinct advantages in airspace availability, regulatory readiness, and diverse transportation demands. Its relatively low air traffic density allows for minimal disruption to existing aviation operations, while patterns of use and structured airspace can further enhance safety and risk mitigation.

Australia's proactive regulatory environment —guided by key government documents such as the 2024 Aviation White Paper, RPAS and AAM Strategic Regulatory Roadmap, UTM Action Plan, and the forthcoming AAM Roadmap—reflects a whole-of-government approach to fostering innovation. This approach emphasises forward-leaning policies that evolve with industry needs, provide regulatory certainty, and prioritise collaboration with industry stakeholders.

Initiatives like the development of the Flight Information Management System (FIMS) bolster integration capabilities with its goal of enabling seamless data exchange, digital clearances, and improved airspace deconfliction. Australia's mix of coastal urban hubs and dispersed regional communities supports diverse AAM use cases, addressing urban congestion and short-haul connectivity while enhancing access to essential services like healthcare and goods delivery in remote areas. Furthermore, Australia is helping to advance global AAM thinking and alignment through active participation in forums such as the ICAO AAM Study Group and work with the Global Uncrewed Traffic Management Association (GUTMA), reinforcing its position as a leader in shaping the global future of AAM.

Use Cases for Advanced Air Mobility

The Australian Association for Uncrewed Systems (AAUS) states AAM aircraft will offer new, complementary, and, sometimes, competing services to existing transport modalities. The scope of use cases will progressively expand with improvements in AAM aircraft performance, industry scale, and the reduction in procurement and operating costs. "While much attention is given to the use case of high frequency urban transportation of passenger and freight, AAM has a much broader range of potential use cases."[1] While the AAUS industry paper identified ten use cases, these have been summarized into the categories below:

- **Urban Air Mobility (UAM):** Passenger air taxis to alleviate urban congestion and provide faster commutes
- **Regional Air Mobility (RAM):** Connecting remote communities with essential services like healthcare and logistics
- **Cargo and Logistics:** Supporting just-in-time deliveries and critical supply chains, particularly in challenging environments
- **Medical Transport:** Enabling rapid response for emergency medical services and casualty evacuation

Wisk's Operational Approach to Autonomy

Wisk's approach centres on autonomous aircraft supervised by human operators located in a central Fleet Operations Centre (FOC). Located in the FOC, Multi-Vehicle Supervisors (MVSors) manage multiple aircraft simultaneously, ensuring safety, operational efficiency, and real-time contingency responses. Autonomous systems execute high-level instructions from the MVSor while handling flight management tasks like navigation, terrain avoidance, and emergency responses independently.

Our approach to autonomous flight seeks to leverage the best of both human and automation capabilities towards delivering the highest level of safety and efficiency.

Key safety innovations include:

- Multi-layered sensor systems for navigation and collision avoidance
- Robust contingency protocols for lost communication or system failures
- Cybersecurity measures aligned with aviation industry standards to ensure resilience
- Robust training and checking systems for all operators

Regulatory and Airspace Integration

Wisk is working closely with Civil Aviation Safety Authority (CASA) and Airservices Australia to align its operations with evolving regulatory frameworks. Innovations such as the FIMS and Uncrewed Traffic Management (UTM) systems are expected to inform AAM services such as real-time deconfliction, airspace management, and enhanced safety protocols. Establishing fixed-route networks for AAM flights will minimise community impact, streamline operations, and support scalable growth.

Summary

This document is designed to provide one possible "endstate" to help guide ongoing engagements for integrating advanced air mobility into Australia's transportation eco-system. Its autonomous systems and a robust regulatory approach position Wisk to enable AAM to revolutionise connectivity, sustain-ability, and accessibility.

[1] Australian Association for Uncrewed Systems - AAM Industry Vision and Roadmap 2024, p 11.

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Introduction

FIGURE 1: WISK AIRCRAFT INSIDE THE TOUCHDOWN AND LIFT-OFF AREA (TLOF)

Advanced Air Mobility (AAM) represents a transformative approach to air transportation, integrating innovative aircraft designs, high levels of onboard autonomy, and advanced flight technologies into both existing and emerging airspace frameworks. A key component of the future success of AAM is the ability to seamlessly integrate with broader transport systems, creating a unified, multi-modal network that enhances connectivity and accessibility.

The goal of AAM is to establish a safe, efficient, and affordable transportation network capable of delivering services to urban and rural areas. Wisk and other manufacturers are developing AAM aircraft to support a wide array of applications, ranging from passenger and cargo transport to essential government operations like medical evacuation and defence logistics.

By leveraging advancements in aviation design, automation, and airspace management, AAM addresses critical transportation challenges with increased safety, sustainability, and cost-effectiveness. For AAM to become a viable part of the transportation ecosystem, stakeholders must carefully coordinate its integration, evaluate its societal and economic impacts, and foster continuous engagement with communities and regulatory bodies.

Purpose

This document presents Wisk's approach for AAM operations within Australia. It aims to guide stakeholder engagement, advance concept development, and build consensus across Australia's industry and regulatory bodies on enabling these operations.

Scope

Building on Wisk and Boeing's foundational work in developing a Concept of Operations for Uncrewed Urban Air Mobility, this document initiates a similar dialogue in Australia, focusing on the unique aspects and opportunities that exist within the Australian operational environment that involve:

- Autonomous aircraft
- Human oversight
- Fleet operations
- Varied operating environments

This document emphasises Wisk's vision for operations in Australia, strategic goals, and the foundational elements of AAM, aiming to engage stakeholders with a clear and concise framework.

The views and concepts expressed in this document regarding the future development of Airservices Flight Information Systems (FIMS) represent Wisk's vision and should not be construed as representing the views or plans of Airservices. This document is intended to share Wisk's perspective on potential future FIMS capabilities and is for discussion purposes only.

Overview of the Advanced Air Mobility Industry

The AAM industry represents a transformative shift in aviation, aiming to bring air transportation closer to communities through advanced aircraft systems. With rapid advancements in electrification, automation, and data-driven systems, AAM is progressing from developmental phases into early piloted and cargo operations, with initial passenger-carrying flights expected within the next 12 to 18 months. Regulatory bodies like the Federal Aviation Administration (FAA), Civil Aviation Safety Authority (CASA), Civil Aviation Authority (CAA) in the UK, the European Union Aviation Safety Agency (EASA), Brasil's National Civil Aviation Agency (ANAC), and Japan's Civil Aviation Bureau (JCAB) are working with industry leaders to establish certification standards that enable safe integration into existing airspace. Autonomous aircraft like Wisk's are also undergoing certification, with full-scale autonomous operations anticipated after piloted systems are introduced by other operators.

The AAM vision for industry includes fleets of autonomous aircraft as well as piloted aircraft providing efficient, on-demand transport for passengers and goods across urban, suburban, and regional areas. AAM aims to relieve urban congestion, enhance regional connectivity, and improve logistics capabilities by utilising dedicated vertiports and either existing or adapted airspace procedures. Many companies are adopting a network model, where vertiports serve as hubs that connect smaller communities to larger transportation networks, fostering integration with existing travel modes. With sustained infrastructure support and continuous advancements in automation, AAM has the potential to scale into an affordable, environmentally friendly transport option accessible to diverse populations.

The potential benefits of AAM are extensive, impacting communities, governments, military applications, and the overall transportation ecosystem. Communities can anticipate reduced congestion, better access to services like medical transport, and faster movement of goods, while job creation and economic growth in technology and transportation sectors is also expected from the introduction of AAM. Governments and emergency response agencies will gain from enhanced disaster response and medical aid dispatch capabilities, while military applications could see improved logistics, troop transport, and casualty evacuation with quieter, flexible aircraft. Ultimately, AAM stands to create a more integrated, multimodal transportation landscape that supports urban planning, sustainability goals, and community acceptance, shaping a safer and more efficient future for air mobility worldwide.

Key Stakeholders in the Australian Advanced Air Mobility Sector

The successful emergence of the AAM industry relies on a diverse network of stakeholders who play critical roles across the operational, regulatory, and support landscapes. **Regulatory bodies** such as CASA are pivotal in creating and enforcing safety standards, airspace integration guidelines, and operational certifications necessary for AAM operations. **Aircraft operators** (such as Wisk and its partners) focus on the deployment, operation, and maintenance of AAM fleets, coordinating closely with **airport and vertiport operators** who provide the physical infrastructure for takeoffs, landings, and passenger services. Additionally, **local councils and state governments** are essential collaborators, working to integrate AAM into existing urban transport plans and address local community concerns.

Technology providers contribute key innovations in automation, propulsion, and **air traffic management and services providers** such as Airservices Australia that oversee airspace integration, development and innovation, while **aerospace manufacturers** are responsible for designing and certifying these new aircraft to meet rigorous safety and operational standards. Community acceptance is also vital; **local communities** influence AAM's acceptance by providing feedback on noise, infrastructure, and environmental impact, and AAM companies engage them to ensure mutual benefits. Lastly, **logistics and service providers** are instrumental in integrating AAM into broader networks, enabling applications like cargo delivery and emergency response.

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Advanced Air Mobility Use Cases

Use Cases for Advanced Air Mobility

Presently, Wisk is prioritising the complex Urban Air Mobility (UAM) use case, as its resolution paves the way for implementing broader AAM applications. The technology and procedures developed for UAM operations at scale are immediately transferable to other use cases. Outlined below are Wisk's and other manufacturers' AAM use cases, noting that new applications continue to emerge. Wisk's aircraft is designed to adapt across use cases, with modifications, offering versatility and scalability. These outlined use cases are aligned with those identified by the Australian Government, which include Urban Air Mobility, Regional Air Mobility (RAM), Cargo and Logistics Services and Government Applications. More information on use cases can be found at the CASA, RPAS and AAM Roadmap[2] and the AAUS AAM Industry Vision and Roadmap.[3]

Wisk acknowledges that it will not be the first to market, as crewed eVTOL aircraft are expected to begin operations ahead of autonomous systems. This precedence provides an important foundation from which operational concepts and regulatory frameworks can evolve. As the industry matures, there will be a natural progression from crewed to autonomous aircraft, with use cases adapting to leverage the unique capabilities of autonomy. Wisk is committed to learning from early market entrants and collaborating with stakeholders to ensure a seamless transition that maximises safety, efficiency, and value for all users.

FIGURE 2. REPRESENTATION OF WISK AIRCRAFT SERVING BRISBANE

[2] https://www.casa.gov.au/sites/default/files/2022-06/the-rpas-and-aam-roadmap.pdf
[3] https://aaus.org.au/Position-Papers

Urban Air Mobility Use Case

UAM has the potential to revolutionise urban transportation. By leveraging the third dimension, UAM can complement existing ground transportation modes (cars, scooters, and e-bikes), reducing congestion and travel times. It can connect communities that are currently underserved or isolated by existing transportation services, providing access to essential services and growing opportunities. UAM also aligns with the emerging aviation landscape, which is increasingly focused on electric and increased use of autonomy, promising quieter, cleaner, and more efficient air travel. In addition to these core benefits, UAM can contribute to various other advantages:

- **Economic Development:** Creating new industries and jobs, stimulating innovation, and attracting investment.
- **Improved Quality of Life:** Reducing stress, saving time, and providing a more enjoyable travel experience.
- **Environmental Sustainability:** Reducing reliance on fossil fuel-powered vehicles and contributing to a more sustainable future.
- **Enhanced Urban Planning:** Enabling new urban development patterns and optimising land use.

Tourism is also considered part of this use case as it leverages the unique capabilities of autonomous aircraft to provide rapid connections utilising sustainable transport to iconic local tourist destinations, enhancing travel experiences for domestic and international visitors. Tourism AAM aligns with UAM's objectives by addressing market demand for efficient, short-haul mobility, while also being able to support regional economies and sustainable environmentally friendly tourism initiatives. Tourism routes could connect from Air or Sea Ports and link to regional hubs or direct to tourism destinations within the urban fringe.

As technology continues to advance and regulatory frameworks evolve, UAM has the potential to reshape urban landscapes and significantly improve the way we move around our cities.

Regional Air Mobility Use Case

RAM as part of the wider industry AAM use case presents transformative benefits for passenger transportation, especially in regions with limited public transport options and access to essential services. In Australia, where vast landscapes and remote communities create barriers to timely healthcare, education, and employment opportunities, RAM offers a more direct, efficient solution. By enabling affordable and accessible air travel, RAM reduces travel times significantly, connecting individuals in isolated areas to medical professionals and specialists, educational institutions, and other essential urban amenities. Additionally, it alleviates the dependency on long, often unreliable land transport, providing a safer, faster alternative that directly improves quality of life and access to necessary services.

Beyond passenger movement, RAM offers crucial logistical support to remote towns and Indigenous communities by enabling the rapid delivery of food, medical supplies, and other essentials. These benefits are particularly impactful in reducing high costs associated with transporting goods, which can otherwise inflate living expenses in isolated areas due to high delivery fees.

By lowering transportation barriers, RAM enhances economic opportunities, supports local businesses, and fosters community resilience. For Indigenous communities especially, RAM can help preserve cultural ties by making it easier to maintain connections with family and neighbouring communities, improving overall community cohesion. Additionally, RAM's ability to facilitate more frequent and reliable transport of supplies during emergencies contributes to enhanced resilience and disaster response capacity across Australia's remote regions.

FIGURE 3. REMOTE COMMUNITY IN THE NORTHERN TERRITORY

Cargo and Contested Logistics Support Use Case

AAM is expected to provide significant benefits for logistics, especially with autonomous aircraft.

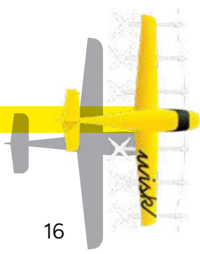
Wisk's aircraft can enable continuous, around-the-clock supply delivery, ensuring essential resources are available without interruption. With the ability to operate day and night, Wisk's aircraft can reduce in-flight crew rotation requirements, streamline logistics, and ensure reliable support in contested and difficult environments where steady resupply is critical.

Autonomous aircraft offer unique advantages over traditional crewed platforms. They can operate in hazardous or remote areas without risking personnel, enhancing safety and operational flexibility. Additionally, autonomous systems can be more efficient and cost-effective in the long term, as they are expected to be capable of reducing the need for specialist pilot training and have lower maintenance and operational costs. Finally, autonomous systems can be rapidly deployed and reconfigured to adapt to changing operational requirements, providing greater flexibility and responsiveness in commercial and military logistics requirements.

Medical Transport Use Case

AAM aircraft hold immense potential for critical patient transport by enabling fast, direct routes to medical facilities. For civilian medical transport, AAM aircraft can quickly move patients needing urgent care from remote or traffic-congested areas to hospitals, reducing delays that could impact survival. Autonomous platforms can be equipped with medical supplies and systems to stabilise patients mid-flight, offering an efficient, reliable way to bridge the gap in emergency response, especially in areas lacking rapid access to advanced care.

In military settings, autonomous aircraft can complement crewed aircraft for casualty evacuation (CASEVAC) operations. Autonomous aircraft can extract injured personnel from combat or hostile environments without exposing additional crew members to danger, making it safer and faster to evacuate casualties. The ability to operate day and night in challenging conditions supports continuous, reliable evacuation support for military personnel and enables other crewed assets to support the war fighter in other ways. This enhanced complementary mobility option and reduced risk can significantly improve survival rates and recovery outcomes in both civilian and military medical scenarios.



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The Wisk Advanced Air Mobility System

Wisk's Aircraft System Overview

Wisk's aircraft is an autonomous, electrically powered lift aircraft with vertical takeoff and landing (eVTOL) capability. Designed to carry up to four passengers, along with their baggage, this aircraft operates without the need for an onboard pilot or crew. Wisk employs an autonomous system of systems, meaning that after a human initiates the flight, the aircraft can complete it safely without further intervention. This system uses sensors and software to manage tasks like navigation, course correction, and obstacle avoidance. A fail-safe architecture is crucial for this autonomy, enabling the aircraft to handle contingencies effectively while maintaining precision and efficiency.

The Wisk aircraft has six tilting and six non-tilting electric engines, each with a propeller, attached to a conventional wing and tail design. This powered-lift design allows the aircraft to transition between vertical flight for takeoff and landing (similar to a helicopter) and forward flight for cruise, using the wings as lifting surfaces (similar to a traditional airplane).

The Fleet Operations Center (FOC) is the central hub for managing all aircraft functions and operations, including maintenance and manifest management across the Advanced Air Mobility (AAM) network. The FOC, which can be located in a city, regional community, or integrated into an existing operational footprint, remotely oversees critical tasks. This centralized management enables scalable operations and allows a single control center to manage multiple aircraft.

FIGURE 4. WISK GENERATION 6 AIRCRAFT

The FOC incorporates redundancy in power and connectivity, as well as cybersecurity measures, to ensure resilience. The FOC team maintains aircraft airworthiness, monitors airspace, manages flight dispatch, and ensures comprehensive mission planning. They also manage real-time contingency actions with protocols in place for swift responses to in-flight events.

The FOC also coordinates operational activities like fleet planning, personnel management, and ground crew and maintenance. It liaises with vertiport operators and third-party entities for synchronized ground handling and logistics. For specialized missions, the FOC optimizes manifests and cargo, tracks assets, and oversees remote ground operations. A single FOC is being designed to manage multiple independent network operating areas.

The FOC connects with each aircraft through a Remote Supervision Segment (RSS), or ground control station, using a dual Command and Control (C2) link. The RSS contains all communication and computer systems needed to manage aircraft both in-flight and on the ground. Supervision is conducted by a MVSor, who acts as the pilot in command for all active aircraft and is the primary point of contact for ATC. The RSS and MVSor operate in a one-to-many configuration, allowing a single MVSor to manage multiple aircraft efficiently.

The Flight Information Management System (FIMS), managed by Airservices, is expected to be a key component in enabling safe, integrated AAM operations in Australia by connecting with the broader air traffic management environment. FIMS is expected to enable digital flight and landing clearances and provide the MVSor with strategic and tactical deconfliction alerts and warnings in real-time. This system, combined with UAS Service Suppliers (USS) data, as well as the combination of Wisk sensor data from each aircraft on-board air to air radar, is expected to deliver a comprehensive airspace picture for both cooperative and non-cooperative aircraft, enabling the aircraft to automatically avoid traffic and providing heightened situational awareness, reinforcing airspace safety through real-time information sharing.

FIGURE 5. FLEET OPERATIONS CENTRE SITUATIONAL AWARENESS BOARD

Wisk's Autonomous Aircraft Philosophy

Wisk purposefully designed its aircraft as an autonomous system, rather than being adapted from a traditional crewed aircraft. This integrated approach ensures humans and automated systems work together to operate the aircraft safely and effectively. Autonomous aircraft have the potential to reduce operational costs and make air travel accessible to a broader population, while significantly improving safety by leveraging the complementary strengths of humans and machines.

Key safety advantages in autonomy include minimising human error, as automation ensures consistent performance under varying conditions and is designed to handle complex emergencies using pre-defined protocols. This reduces the risks associated with pilot fatigue and stress-related decision-making. Additionally, onboard safety and health monitoring systems continuously review flight data to proactively enhance contingency responses, helping avoid potential incidents that humans might overlook. Wisk's autonomy framework follows the Joint Authorities for Rulemaking on Unmanned Systems (JARUS) methodology[4], which categorises automation levels and defines associated human supervision roles for each phase of flight:

- **Level 0 – Manual Operation:** Human supervisor fully manages function execution without aircraft system support.
- **Level 1 – Assisted Operation:** The system assists by providing information, while the human supervisor executes the function.
- **Level 2 – Task Reduction:** The system actively reduces the human supervisor's workload by managing specific tasks.
- **Level 3 – Supervised Automation:** The system executes the function, with the human supervisor available to monitor and intervene.
- **Level 4 – Manage by Exception:** The system performs the function and only alerts the supervisor if issues arise, allowing for non-real-time monitoring.
- **Level 5 – Full Automation:** The system fully executes the function, without real-time intervention from the supervisor, either due to limitations or restrictions within the Operational Domain.

Wisk's autonomous system incorporates a range of automation levels, from Level 1 (Assisted Operation) for functions like communication with Air Traffic Control (ATC) to Level 5 (Full Automation) for core "aviate" and "navigate" tasks such as trajectory following. Critically, the safety-critical functions within "aviate" and "navigate" demonstrate Level 4 (Manage by Exception) and Level 5 behaviors. While a human supervisor at the Fleet Operations Centre (FOC) remotely oversees and manages the aircraft's mission, ensuring safe and reliable operation, the system's overall design is best described as Level 3 (Supervised Automation) due to the continuous human-on-the-loop supervision. This Level 3 designation reflects the current operational model, even with the presence of higher automation levels in key subsystems.

[4] See JARUS paper Methodology for Evaluation of Automation for UAS Operations

A Day in the Life of Wisk's Autonomous Aircraft

Below is a description of the events undertaken for Wisk operations during a typical day in the life of the UAM use case. Operations and procedures are not expected to vary significantly across other use cases, which is a key benefit of autonomy.

Pre-Flight and Mission Validation

The day begins with the Wisk aircraft being placed ready to undergo a series of preparatory procedures before takeoff. Ground crew members perform a detailed pre-flight inspection to ensure the aircraft's readiness, including visual checks and system diagnostics. Simultaneously, the MVSor in the FOC initiates the flight acceptance process of the previously dispatched mission, reviewing all mission parameters, weather forecasts, and the aircraft's intended route. This process is autonomous, which allows a high throughput. The Aircraft also performs pre-flight validation ensuring the available energy and flight path are within conformance. Once the flight is accepted and the MVSor has flight clearance, the MVSor issues a command for the aircraft to commence its automated pre-flight checks. The aircraft's built-in systems perform comprehensive diagnostics on its propulsion, navigation, communication, and control systems during this sequence. If all conditions are met and the flight plan remains validated based on any last-minute changes, the aircraft proceeds to lift off vertically.

Takeoff and Transition

In the initial phase of flight, the aircraft is configured for thrust-borne vertical takeoff. This mode engages the six forward-mounted, tilting propulsion units in their vertical position while additional lift is provided by the six aft-mounted, fixed vertical propulsion units. The aircraft ascends vertically, maintaining stability and control in this configuration until it reaches an altitude for safe forward transition. At this point, the aircraft transitions to wing-borne flight for efficient horizontal travel. This transition involves tilting the forward propulsion systems to a locked horizontal position, allowing the aircraft to rely primarily on its wings for lift while disengaging the aft vertical propulsion units, which are then stowed in positions to minimise aerodynamic drag.

FIGURE 6. REPRESENTATION OF WISK AIRCRAFT IN FLIGHT

En-Route

Once in wing-borne flight, the aircraft follows a pre-defined route established within regulatory parameters and optimised for obstacle avoidance, similar to traditional instrument flight procedures. The avionics system onboard the aircraft ensures that the flight plan is adhered to, while also communicating with the FOC. The FOC subsequently maintains communication with any USS and is expected to connect to Airservices Flight Information Management System (FIMS). A combination of data from the USS and the FIMS connection will provide continuous updates on airspace status, including real-time information about the aircraft's destination vertiport, alternate landing sites, and environmental factors such as weather conditions. The aircraft leverages its onboard detect-and-avoid radar along with an ADS-B transponder and receiver to maintain local tactical awareness. Situation awareness inside the FOC combined with other external systems allow the aircraft operator to maintain a high degree of airspace understanding of their own aircraft and other airspace users. During the flight, the MVSor remains in constant contact with the respective airspace authority, primarily via digital communication systems and/or voice as a backup for any flight adjustments.

Throughout this flight sequence, the aircraft relies on an integrated flight management system that includes the Mission Management System (MMS) and Vehicle Management System (VMS) function. The MMS is responsible for overseeing the entire flight plan, coordinating navigation, mission parameters, and contingency plans through an internal database of flight routes, terrain data, obstacle information, and designated emergency landing zones (ELZs). This system also records detailed flight and maintenance data, enabling post-flight analysis, maintenance scheduling, and future operational optimisation. Meanwhile, the VMS manages the real-time control of the aircraft's flight surfaces and propulsion systems, using a multi-source navigation solution to ensure precise adherence to the MMS-defined flight path.

FIGURE 7. VERTIPORT IN AN URBAN SETTING (COURTESY SKYPORTS INFRASTRUCTURE)

Final Approach and Landing

As the aircraft approaches its destination, it initiates its descent, starting with wing-borne flight and transitioning smoothly back to thrust-borne configuration for a controlled vertical descent and landing. This final descent stage mirrors the takeoff procedure, with the forward propulsion units tilting back to the vertical position and the aft propulsion units re-engaging to provide the lift needed for a stable and safe vertical touchdown at the designated vertiport.

Contingency Management and Emergency Procedures

If any contingency situation arises, the VMS can autonomously execute a range of pre-defined manoeuvres, ensuring safe flight continuity without the need for immediate input from the MVSor. Actions such as missed approach and diversion to another landing location or the execution of an emergency landing are managed autonomously, with MVSor oversight or direct input if needed. This level of autonomy, coupled with expected support from the future FIMS capabilities and external airspace monitoring, allows the Wisk aircraft to conduct efficient, reliable, and safe operations from takeoff to landing, embodying the cutting-edge capabilities of the AAM sector.

Non-aircraft related contingency requirements, such as delays or disruptions are managed by the FOC and dedicated operations, logistics, maintenance, or services staff. The FOC employs a range of automated software tools and specialist staff to ensure the efficient and regular scheduled operations of the Airline continues to run smoothly or manages any disruption of contingency events efficiently.

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The Australia Context

AAM operations in Australia present distinct opportunities that complement ongoing efforts in the United States and Europe. A unique feature of Australian urban planning is that most major cities are situated near the coastline, with approximately 85% of the population residing within 50 km of the coast. This geographic advantage offers an ideal setting for AAM to establish high-density, short-haul routes connecting city centers efficiently.

Beyond urban areas, Australia's vast and dispersed regional communities face challenges in accessing essential services such as medical care, goods delivery, and emergency response. AAM has the potential to bridge this gap by linking remote areas with major urban hubs, improving accessibility and reducing transport costs.

A critical enabler for the growth of an autonomous AAM industry is the expansion of enhanced electronic conspicuity regions, particularly in high-airspace-usage areas like urban centers. Expanding these regions, as recommended in the ongoing review of Australia's airspace framework, will significantly enhance safety and operational efficiency.

Australia's AAM policy environment, driven by the Federal Government, exemplifies a cohesive, whole-of-government approach that aligns efforts across key stakeholders, including industry, the Civil Aviation Safety Authority (CASA), and Airservices Australia. CASA has fostered an innovative regulatory framework, through the RPAS and AAM Strategic Regulatory Roadmap, that balances safety with technological advancement, while Airservices Australia is developing the Flight Information Management System (FIMS). Wisk believes that this FIMS, under future evolutions, is expected to play an increasing role in integrating autonomous vehicles with other airspace users by facilitating digital clearances, seamless data exchange, and real-time conflict resolution.

Together, these elements—forward-thinking policies, robust regulatory support, and technological innovation—position Australia as a strategic market for Wisk outside the United States and a global leader in advanced air mobility.

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Advanced Air Mobility System Components

The AAM system combines aircraft, ground equipment, facilities, continued airworthiness, airspace procedures, and a coordinated team to ensure safe, efficient movement and delivery operations. As autonomous capabilities increase, these core components of this ecosystem will evolve in form and function but remain essential to the system's success.

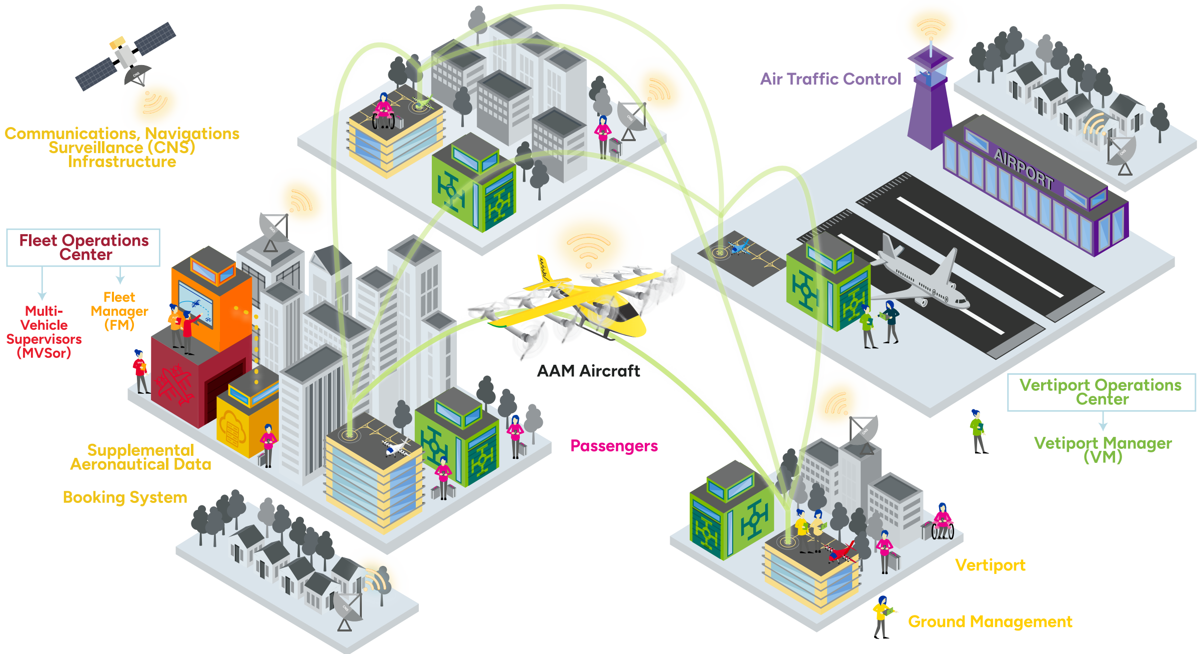

FIGURE 8. COMPONENTS OF THE WISK ADVANCED AIR MOBILITY SYSTEM

The AAM system is a complex network of interconnected stakeholders, each essential to safe, efficient, and scalable operations. Core participants include aircraft and vertiport operators, who directly manage interactions with passengers, logistics providers, and medical services. Maintenance providers ensure aircraft airworthiness through regular servicing at technical hubs, while training providers and external suppliers support personnel readiness and parts availability. Regulatory bodies such as Civil Aviation Safety Authority (CASA) and service providers like Airservices Australia enforce civilian safety standards and manage airspace, while the Defence Aviation Safety Authority (DASA) oversees military applications to ensure consistent airworthiness and safety. Additionally, the Airservices Flight Information Management System (FIMS) provides crucial airspace data, supporting routing, awareness, and de-confliction for seamless airspace integration. Together, these roles create a cohesive ecosystem that supports the safe and reliable operation of AAM systems in Australia, expanding accessibility and operational reach across diverse environments.

These essential organisations and their roles include the following:

- **Aircraft Operator:** Responsible for managing AAM aircraft operations, maintenance, and training systems, including a FOC and MVSors. They coordinate fleet planning, logistics, and passenger services, with ground crew at each vertiport with support from a maintenance organisation.

- **Vertiport Operator:** Oversees vertiport sites, whether dedicated or makeshift, ensuring their readiness and coordinating closely with aircraft operators for safe and efficient operations. In military settings, vertiport management may be undertaken by the aircraft operator or specialised units.
- **UAS Service Supplier (USS):** Provides a critical role in the AAM ecosystem by providing essential services to support the safe and efficient integration of autonomous and remotely supervised aircraft into the airspace. A USS acts as an intermediary between operators, airspace users, and air traffic management systems, such as the FIMS, providing essential data services to AAM operators, including aeronautical data, weather, and flight deconfliction. The USS supports Wisk's connection to civil airspace systems via the FIMS, enabling real-time tactical deconfliction for autonomous flights. Wisk as the Aircraft Operator may also seek to become a private USS for the purposes of direct connection to the FIMS to enable tactical deconfliction.
- **Maintenance Support and Supply Chain:** Wisk will establish Technical Hubs within its network for centralised maintenance, including inspections, repairs, and component replacements. Maintenance teams will be ready to deploy for unscheduled needs, and an organised logistics system will ensure availability of spare parts and specialised equipment for AAM operations.

Key Systems Components

Navigation

Wisk's Generation 6 aircraft utilise an array of redundant navigation systems to provide a highly accurate position fix. This position data is then used in concert with internal terrain, obstacle, and flight path route databases to ensure flight safety.

Navigation Data Sources
Navigation data is sourced primarily from satellite-based systems, augmented by inertial navigation systems (INS). An initial position solution is derived from redundant global navigation satellite system (GNSS) receivers and then resolved to a higher accuracy using a satellite-based augmentation system (SBAS) such as the Southern Positioning Augmentation Network (SouthPAN).

In case of a failure or outage of the GNSS, a redundant INS positioning solution is available to ensure standards associated with accuracy, integrity and availability are met. Contingency procedures for partial failures of positioning or navigation systems are designed to ensure safe completion of flights

Flight Path Routes
Using performance-based navigation (PBN) principles and leveraging instrument flight procedure design techniques, Wisk aircraft will operate on flight path routes that extend from the touchdown and lift-off area (TLOF) to the destination TLOF. The aircraft's navigational database will also include these and supplementary routes for diversion destinations, and contingency operations.

These routes will be developed for each operational network by qualified persons approved within each regulatory jurisdiction's safety oversight system. They will be designed using techniques currently employed for the development of required navigation performance (RNP) authorisation required (AR) procedures. These designs will incorporate appropriate obstacle clearance, environmental, noise and community considerations. Depending on the demand for flights on a particular route and the capacity of airspace, multiple flight path routes may be developed for vertiport pairs within a market.

Aeronautical Information

Wisk's aircraft and flight operations will rely on high-integrity, high-accuracy datasets to maintain safe operations. The Wisk FOC will initially connect to the FIMS through a UAS Service Supplier (USS) to access shared information. As FIMS capabilities expand, Wisk will connect directly to access tailored AAM support, including digital coordination and airspace management across urban and regional areas. Additionally, Wisk will interface with the Civil Military Air Traffic Management Systems (CMATS) under the OneSKY Australia initiative, enabling digitally integrated airspace coordination for AAM and conventional air traffic. To support autonomous flight, Wisk will also use specialised datasets, such as terrain elevation models, vertical obstructions, and aviation charts.

4D Navigation and Temporal Coordination

Wisk aircraft monitor and communicate flight progress in both positional and time-based terms into the FOC digitally via the MVSor terminals. This data is fed into the FOC local tactical deconfliction systems, surveillance databases, as well as transmitted to relevant vertiport ground crews and other resource management systems. As such, the FOC, MVSor, FIMS, vertiport ground crew and operators as well as USS or third-party providers will have a 4D understanding of the aircraft's current and future positions during the flight.

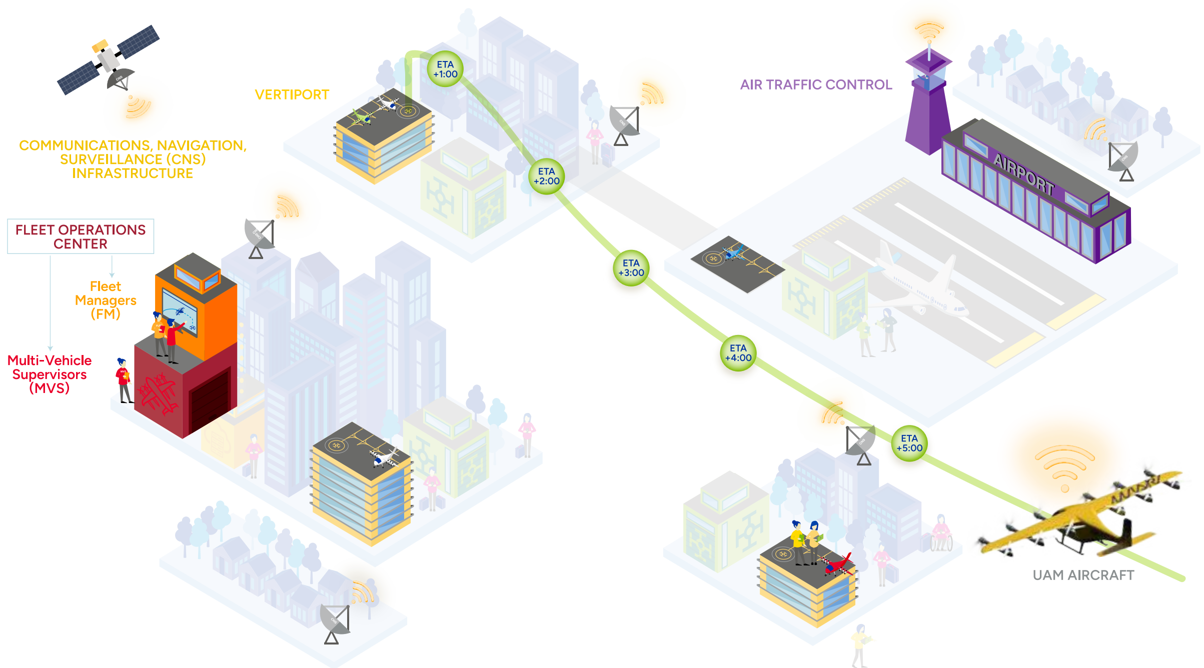

FIGURE 9. TIME-BASED METERING ALONG NORMAL FLIGHT PATH

The 4D trajectory concept is based on the integration of time into the 3D aircraft trajectory. It aims to ensure flight on a practically unrestricted, optimum trajectory for as long as possible in exchange for the aircraft being obliged to meet a very accurately arrival time over a designated point. During any period of data link degradation, the predictive nature of the flight path and known aircraft performance allow projected location and timing to be calculated to enable ongoing situational awareness.

Figure 12 shows how aircraft will use time-based metering along the normal flight path. Third party data sources from ADS-B or surveillance data complements this surveillance network to aid in localised deconfliction.

Hazard and Obstacle Avoidance

Wisk's aircraft systems, in coordination with onboard databases and pre-flight planning procedures, ensure deconfliction with known operational hazards. While the MVSor has the capability to intervene, intervention is not typically required, aligning with Wisk's one-to-many supervisory model. Real-time updates of hazards (Weather, Final Approach and Takeoff (FATO) and vertiport availability, local obstacles such as cranes, and other NOTAM events etc.) are also expected to be provided by UAS Service Suppliers (USS) and form part of the local dispatch criteria for each flight.

For autonomous aircraft, traditional in-flight traffic collision avoidance—commonly managed through see-and-avoid techniques or TCAS / ACAS systems—is addressed by the aircraft's Detect-and-Avoid (DAA) system. Wisk aircraft utilise onboard DAA sensors, ADS-B signals, and other available data sources to identify potential conflicts and autonomously execute predictable avoidance manoeuvres as necessary.

Integration with systems like the FIMS is anticipated to enhance real-time situational awareness for other airspace users and provide tactical digital deconfliction alerts to the MVSor.

Electronic Conspicuity

The safety of all aviation is greatly enhanced in an environment with mandated electronic conspicuity, particularly in the UAM operational context. This electronic awareness improves safety by reducing mid-air collision risks and supporting both autonomous and traditional aircraft in urban airspace. Electronic conspicuity enables real-time, accurate position data, providing a high level of assurance for the detection of nearby aircraft that is part of a wider Detect and Avoid system. The value of Automatic Dependent Surveillance-Broadcast (ADS-B) as one form of electronics conspicuity has also been identified in the Australian Government UTM Action Plan released in December 2024, as a critical enabler for safety, greatly improving and enhancing safety when multiple aircraft are flying in the same airspace.[5]

Remote Identification

Remote Identification (ID) serves as a critical enabler to enhance electronic conspicuity, especially for small, non-commercial drones operating outside established UTM frameworks. By broadcasting a drone's identity, location, and flight data to nearby devices, network Remote ID improves situational awareness for other airspace users, including crewed and uncrewed aircraft. This capability significantly reduces the risk of mid-air conflicts and unauthorised operations, supporting a safer integration of diverse aircraft into shared airspace. Remote ID also enables effective monitoring and compliance, fostering trust and accountability in low-altitude airspace operations for all users.

[5] https://www.drones.gov.au/policies-and-initiatives/policies/uncrewed-traffic-management

Communication Systems

When operating in an integrated airspace environment, it is essential that aircraft have robust communication systems. For Wisk's aircraft, that includes communication systems between the aircraft and its FOC as well as ground crew, third parties and the airspace authorities.

Command and Control Datalinks

C2 datalinks between Wisk aircraft and MVSors will be via a satellite-based communication connection. These datalinks provide a means for the MVSor to maintain situational awareness and to supervise multiple aircraft. All C2 links are robust, redundant and the Wisk systems are fault tolerant to minimise any impact of C2 system disruption.

Flight Clearances & Approvals

In a FIMS-enabled environment, the flight clearance and approval process gains significant advantages. Such a system leverages advanced technology for real-time data exchange, automated flight plan submissions and expedited approval procedures. This results in quicker clearances, optimised flight paths based on current conditions, and enhanced safety. Future versions of FIMS are expected to provide improved situational awareness, allowing for real-time monitoring and adjustments during flights, making air travel more agile, secure, and responsive to changing conditions. Wisk is expected to make full utilisation of the FIMS environment with electronic clearances available to the MVSors and digital communications between MVSors and FIMS, enabling real-time route monitoring and adjustment, prior to flight and during execution.

Voice Communications

Conventional Air Traffic Management (ATM) relies on human controllers issuing instructions and communicating with human pilots verbally. For autonomous AAM operations, which are designed without a human pilot on board, the ground based MVSor will retain the capability to communicate with ATC using VoIP, VHF networks, or a combination of both.

Airservices Australia analysis indicated that the number of drone and AAM flights will increase dramatically between 2024 and 2043 to over 60 million combined flights. Almost 1 million of these flights are expected to be for AAM flights, with these flights being in addition to the existing growth in domestic aviation flights over the same period.[6] To address this, the integration of digital communication, enabled by future versions of the FIMS as part of an integrated digital airspace framework, is expected to play a crucial role. Machine-readable digital instructions will allow autonomous AAM aircraft to seamlessly integrate into current ATM systems, operating in a manner like existing instrument flight rule (IFR) aircraft.[7]

Cybersecurity Measures

Cybersecurity is of paramount importance in the realm of autonomous aircraft, where the integration of advanced technologies and connectivity exposes these systems to a plethora of potential threats. The safe and efficient operation of autonomous aircraft hinges on the integrity and security of their onboard systems and the communication networks they rely on. RTCA DO-326 and DO-356 are instrumental in addressing these concerns.

[6] https://www.airservicesaustralia.com/airservices-australia-charts-course-for-60-million-drone-flights-by-2043/
[7] https://www.drones.gov.au/policies-and-initiatives/policies/uncrewed-traffic-management (Page 46)

DO-326 *Airworthiness Security Process Specification* outlines a comprehensive framework for ensuring the airworthiness of aircraft in terms of cybersecurity. It covers risk assessment, security assurance, and the development of security solutions to safeguard critical systems. DO-356 *Airworthiness Security Methods and Considerations* extends this focus ensuring the protection of the airworthiness of an aircraft from intentional unauthorised electronic interaction. These standards underscore the critical need for robust cybersecurity measures to prevent unauthorised access, data breaches, and system manipulation.

The importance of cybersecurity is magnified when aircraft are remotely monitored from an FOC. These centres serve as mission control hubs, where operators oversee and supervise simultaneous flights, navigation, and communication systems. Wisk is aware of the importance of cybersecurity for autonomous systems and is developing systems to ensure that unauthorised access to flight operation systems is protected both on the ground and in the air. As such, the implementation of cybersecurity best practices and adherence to DO-326 and DO-356 are critical for safeguarding these systems. This entails robust authentication methods, encryption, intrusion detection systems, and continuous monitoring to identify and mitigate any cyber threats promptly. Maintaining the security of autonomous and autonomous aircraft and their associated flight operation centres is essential for ensuring passenger safety and the continued growth of autonomous aviation.

Contingency and Emergency Procedures

Wisk's approach to contingency and emergency management relies primarily on the onboard autonomy of its aircraft, with notifications provided to operational personnel and oversight from an MVSor located in the FOC. Wisk aircraft are designed with sufficient autonomy to handle contingency or emergency events and safely complete flights, even in the absence of a C2 datalink.

In such scenarios, the onboard avionics suite will automatically execute pre-programmed contingency and emergency procedures, such as diversion to an alternate vertiport or landing at an Emergency Landing Zone (ELZ). If the C2 link remains operational, the MVSor can intervene to provide additional support or adjustments as required. For instance, if a Wisk aircraft experiences a lost C2 link state, it will autonomously initiate protocols to reestablish the link, notify ATC of the condition via transponder, and continue to execute its cleared flight plan and land at the agreed destination. Simultaneously, the MVSor will inform ATC of the situation using ground-based communications and the future FIMS system for digital coordination.

To ensure safe and coordinated operations, the FOC staff will work with relevant vertiport operators to prepare for the aircraft's arrival. This integrated approach between autonomous systems, FOC personnel, and external stakeholders ensures the continuity of safe operations during unexpected events.

7

Airline Operations

The Wisk Airline will operate its Generation 6 aircraft under an Air Operator's Certificate (AOC) issued by the national aviation authority in accordance with the appropriate rule part (e.g., Civil Aviation Safety Regulation (CASR) Part 133).[8] The Wisk Airline will be supported by supplementary organisational units, including a Maintenance Repair and Overhaul organisation operating under a separate approval (e.g., CASR Part 145) and training organisation, as appropriate.

Wisk Urban Air Mobility (UAM) operations will involve the deployment of a fleet of aircraft to urban areas, with Wisk operating scheduled services between established vertiports within a defined network. This approach provides a framework for the introduction of autonomous aircraft operations and ensures efficient allocation and planning of the airline resources, including fleet, equipment, and personnel.

Routes and timings will be matched to meet anticipated demand on specific routes, providing customers with a predictable and convenient service. Passengers will have flexible booking options including booking flights well in advance of the intended travel date and close to the departure times.

Managed from the FOC, Mission Managers oversee all aspects of flight planning, manifest handling, and monitoring to ensure seamless integration into existing logistics networks. Future operations will include vertiports with autonomous loading and unloading capabilities, lowering costs, and supporting a resilient logistics network. Wisk's low-noise AAM aircraft will allow 24-hour operations along optimised routes, meeting high-demand needs while minimising community impact and offering sustainable alternatives to traditional logistics methods.

Fleet Operations Centre (FOC)

The FOC is the main operational centre for the Wisk Airline. The FOC plays a critical role in the day-to-day management and coordination of the airline's aircraft fleet. Its primary functions are centred around ensuring the safe, efficient, and punctual operation of flights, the coordination of scheduled and unscheduled maintenance activities, and the management of off-nominal and contingency events. The FOC will also provide a means of communications with passengers on board Wisk aircraft.

The FOC will be the physical facility that hosts the airline's operational personnel, but while it will be located within the jurisdiction of the airline operations, it may not be located in the same area as the operating aircraft. For larger national or regional markets, a tiered approach to FOCs may be implemented with multiple FOCs covering individual time zones or regional centres with redundancy and oversight provided by sibling FOCs or a parent FOC located further afield. Initial operations in Australia will commence with a single FOC.

[8] CASR Part 133 regulates passenger-carrying operations for powered lift aircraft in Australia

FOC Personnel and Roles

FOC personnel are responsible for planning and monitoring aircraft operations. Their roles include fleet management, aircraft supervision, remote passenger hospitality, logistical manifest optimisation, continuing airworthiness, operational oversight, safety management and fleet analysis.

Key members of the FOC include:

Operations Manager: The Operations Manager (OM) is responsible for all airline operations along assigned routes (or within a region) on behalf of the Director of Operations (accountable executive) and is the most senior airline personnel inside an FOC. Generally, there will be only one Operations Manager per shift. However, where an FOC covers multiple regions, the role may be split into Regional Operations Managers, each responsible for a subset of the entire FOC area of responsibility. The Operations Manager will oversee and supervise crew duties and rest periods and will also liaise with fleet, maintenance, and ground support managers to maintain an on-time and effective fleet. The Operations Manager will ensure regulatory compliance during daily operation and execution of the Emergency Response Plan (ERP), when appropriate.

Fleet Manager: The Fleet Manager (FM) is responsible for the provisioning, posturing, and strategic utilisation of aircraft and fleet resources. The Fleet Manager is responsible for overall fleet planning, scheduling, and validating compliant aircraft assignments and will convert Wisk business needs into scheduled flight operations by coordinating with other members of the airline such as market and revenue teams. The Fleet Manager reports to the Operations Manager and is assisted by a Mission Manager.

Mission Manager: The Mission Manager (MM) performs continuous planning and validation of flight scheduling leading up to the flight release, execution and flight following. The MM has a deep understanding of the network and maintains situational awareness of activities that affect schedule actualisation. The MM is the principal flight dispatch authority for the airline. The MM is responsive to schedule and flight disruption and oversees multiple MVSor and their respective flight execution. The MM reports to the FM.

Maintenance Controller: The Maintenance Controller (MC) is the senior maintenance person on shift and manages all maintenance staff across the airline's vertiport locations and liaises with the technical hub manager to ensure the overall serviceability, sustainment of logistics and spare parts as well as airworthiness of the airline's fleet. The MC oversees the conduct of scheduled and unscheduled maintenance as well as flights operating under a Minimum Equipment List (MEL) condition and works closely with the FM and or MM for the disposition of maintenance flights.

Ground Support Manager: The Ground Support Manager (GSM) is responsible for ensuring the airline meets its scheduled on-time performance metrics with the available vertiport-based airline personnel and equipment. The GSM manages all ground support staff across the respective networks covered by the FOC, as well as remote hospitality teams inside the FOC. The GSM liaises with the Fleet Manager, Mission Manager and Maintenance Controller for efficient flight operations and problem solving during disrupted operations.

Multi-Vehicle Supervisor: The Multi-Vehicle Supervisor (MVSor) is responsible for the safety of their assigned flight(s) and will retain and exercise operational control of multiple aircraft simultaneously. The MVSor is the pilot in command and initiates and supervises flights from takeoff to landing and is the primary point of contact for ATC.

Remote Hospitality Crew: A Remote Hospitality Crew (RHC) representative is located inside the FOC for communication with passengers as / if the need arises. The RHC liaise with ground crew and emergency response staff on behalf of the operation manager to assist in passenger journeys during disruption or emergencies.

Information Technology, Communication Support Team: The ITC Support team maintains effective communication and network connectivity inside the FOC. They also work closely with each vertiport operator, communication service providers, and the Wisk Cybersecurity team located both locally and globally to ensure minimal disruption to the Airline network.

Integrated Operating Picture

Key to the FOC's ability to perform its duties is the Integrated Operating Picture (IOP). The IOP is a set of real-time operational parameters shared among aircraft operators, air navigation service providers (ANSPs), UAS Service Suppliers (USS), and vertiport operators. The information that makes up the IOP enables robust flight planning, strategic and tactical deconfliction, fairness in airspace access and meeting future airspace capacity requirements.

This information includes:

- Real-time aircraft position, velocity, and future (4D) trajectory
- Aircraft flow information
- C2 datalink spectrum reservations
- Weather information
- Cyber master caution warning
- Vertiport reservation information

In the FOC, the IOP will feed into our overall situational awareness display, individual MV-Sor control stations, fleet management system, maintenance management system, and our remote passenger hospitality interface.

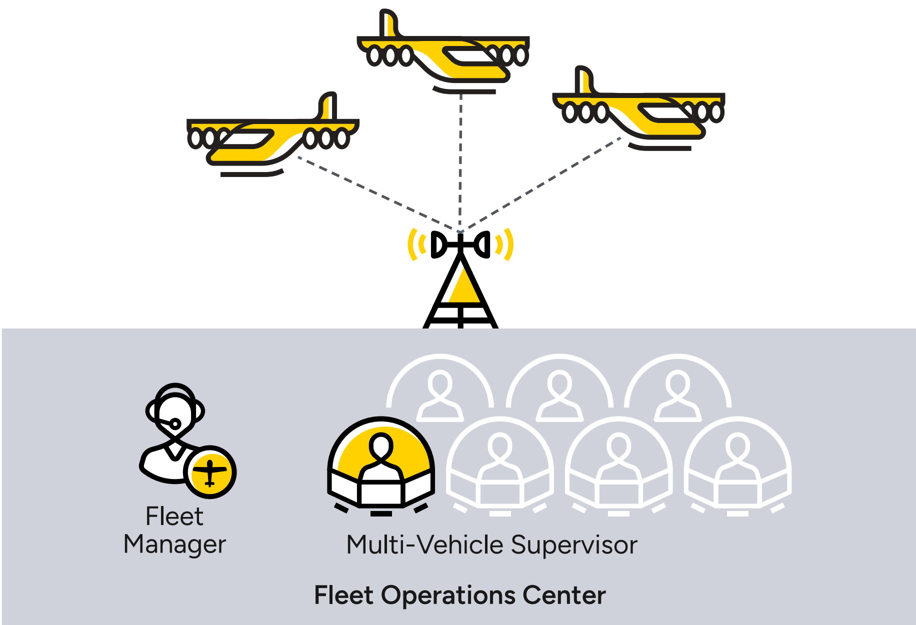

FIGURE 10. FLEET OPERATIONS CENTRE PERSONNEL

Fleet and Resource Management

Prior to the conduct of any flight activity the flight schedule is managed and coordinated by the FM allocated in the FOC. The FM oversees the strategic deployment and utilisation of aircraft and fleet resources including forecast demand and changes in fleet disposition. The FM is responsible for fleet planning, scheduling, and ensuring regulatory compliance with aircraft assignments. By coordinating with the FOC operations team, the FM translates requirements into flight schedules and supervises a small team of MMs to maintain operational control and manage flight dispatch. The FM is the primary point of contact with vertiport and logistics operators for planned landing reservations and logistics cargo manifest scheduling as well as other long planning elements related to scheduling.

The MM is responsible for immediate pre-flight, flight following, and post-flight planning and validation to ensure sustained mission success. The MM maintains tactical situational awareness of factors impacting schedule actualisation and handles tasks like flight and mission planning, aircraft manifest validation, weight and balance checks, and dispatch assessment. The MM maintains qualifications in line with agreed flight dispatch requirements.

Fleet Management & Aircraft Supervision

Within the FOC, an FM, assisted by a MM and software automation tools, will plan and schedule flights and perform a role akin to flight dispatch. Like current flight planning, scheduling, and dispatch, the MM will depend on detailed information about the forecasted passenger demand, the airspace and vertiport capacities, as well as supplemental information such as Notice to Airmen (NOTAM) and weather.

Preflight Planning: Flight Plan Definition
Based on available information, the Fleet Operations System (FOS) software tools managed by the MM automatically create flight plans for each flight based upon the demand schedule developed by the FM up to six months in advance of the flight. The demand schedule is the reservation systems enabling the landing and gate reservation to be booked with the respective vertiport operators.

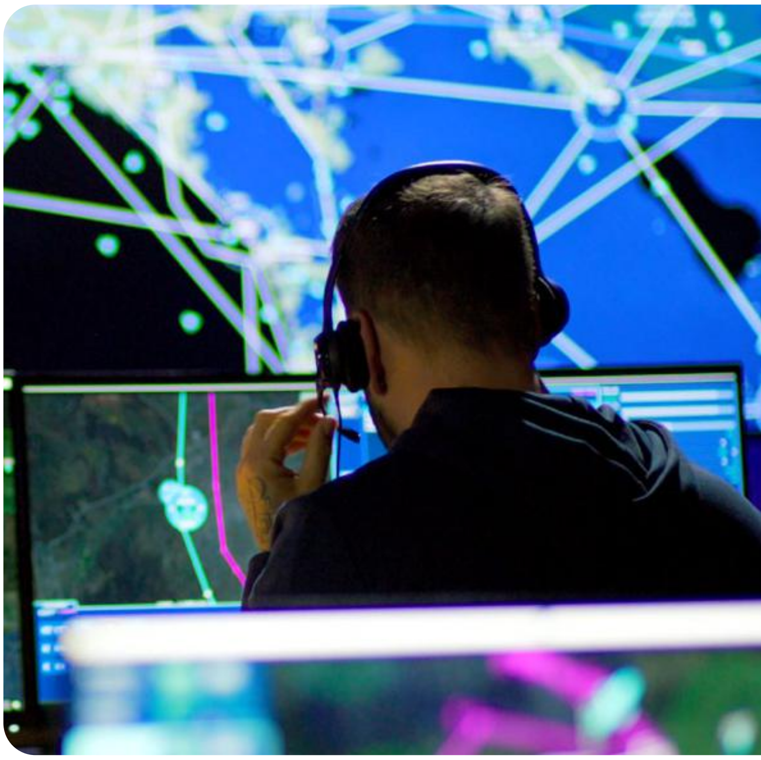

FIGURE 11. EXAMPLE WISK MISSION MANAGER (FLIGHT DISPATCHER)

The flight plan coordinates all the resources (e.g., aircraft, MVSor crew, routes and vertiport landing availability) required for the flight. Flight plans are developed based upon previously developed and approved routes. These routes are complete in all respects for departure, en-route and approach procedures for each location. The FOS selects a suitable flight route from the database and generates a 4D flight plan with specific spatial and temporal buffers for the flight. The flight plan is aware of predicted energy consumption, energy reserves, and diversion landing sites (including contingency landing zones (CLZs)). The location of the emergency landing zones and all flight routes remains on the aircraft, which enables an independent check of the flight planning criteria prior to take off and allows the aircraft to access critical flight data in flight even during a lost communication situation.

As the aircraft departure time approaches, the FOS software (managed by the MM) updates flight plans with the most current airspace and weather information to ensure the flight meets the dispatch criteria.

Strategic deconfliction of traffic flow information is submitted via the USS to the Flight Information Management System (FIMS) for all flights both current and planned and are continuously monitored to identify conflicting routes and resources across the network. Other USS coordinate across other AAM providers to minimise network disruption. This deconfliction process commences months ahead of the scheduled flight time to ensure landing and gate availability is uninterrupted as demand and situations change.

After Departure: Conformance Monitoring and Dynamic Rerouting

Aircraft will rely on the integration of the FIMS and USS to ensure safe and efficient airspace use. Through these systems, AAM flights will undergo continuous conformance monitoring, with features like path stretching, speed adjustments, and 4D flight trajectory tracking to maintain adherence to predefined flight paths. These tools enable predictive and proactive management of air traffic, ensuring smooth coordination between aircraft, airspace users, and vertiports. Real-time data sharing between FIMS, USS, and the FOC supports seamless communication and decision-making, providing MVSor with the situational awareness needed to manage deviations while reducing the need for manual interventions.

Dynamic routing enables tactical deconfliction during operations, functioning similarly to an ATC vector command. When necessary, Wisk anticipates that FIMS will issue a digital rerouting request to the MVSor, who will evaluate and authorise the command before it is uploaded to the aircraft. This process ensures safe adjustments to flight paths in response to evolving traffic, weather, or other airspace conditions. Despite these coordinated measures, the Detect-and-Avoid (DAA) system onboard each Wisk aircraft remains independent and operates as a safeguard. This system ensures the aircraft can autonomously detect and avoid hazards or conflicts without reliance on external systems, providing an additional layer of safety in all operational scenarios.

Continuing Airworthiness, Maintenance Program, and Technical Maintenance Hub Facilities

The Wisk Airline's maintenance and airworthiness framework is central to ensuring the safety, reliability, and operational readiness of its fleet. This system integrates **Part 145 Maintenance, Repair, and Overhaul (MRO)** and **Part 133 Airline Operations**, creating a seamless capability to address both scheduled and unscheduled maintenance needs for the Wisk Airline. Continued airworthiness is ensured through a comprehensive maintenance framework, led by maintenance controllers at the FOC and supported by maintenance teams stationed at technical hubs.

Wisk's continued airworthiness management system combines real-time aircraft monitoring with automated software analysis to track each flight and upload mission data to a central maintenance database, which documents life limited parts and aircraft usage. In-flight alerts are rapidly addressed by maintenance teams across the network. Scheduled maintenance primarily occurs at technical hubs, where a maintenance-centric aircraft design enables quick swapping of line-replaceable units, minimising aircraft downtime and keeping fleet readiness high.

The **maintenance management system** integrates:

- Real-time aircraft monitoring with automated software analysis to track each flight
- A central maintenance database for monitoring parts and usage
- Scheduling and tracking maintenance activities
- Managing aircraft availability and downtime
- Post-flight analysis and diagnostics
- Predictive maintenance insights through aggregated fleet-wide data

This integrated approach allows for rapid response to in-flight alerts and emerging issues, minimising aircraft downtime and maximising fleet readiness.

Technical Maintenance Hub Facilities and Ground Support

To support its maintenance and logistics needs, Wisk will establish **dedicated technical maintenance hubs** within each operating network. These hubs will serve as central locations for the reception and post-production assembly of new aircraft, as well as scheduled maintenance activities. Each hub will be overseen by a qualified Technical Hub Manager and equipped with advanced machinery and tools for comprehensive operations.

Key capabilities of the technical hubs include:

- Specialised areas for component maintenance and spare part storage
- Facilities for line-replaceable unit handling and quick aircraft turnaround
- Integration with adjacent vertiports for maintenance-related operations, whether co-located with commercial vertiports or not

Maintenance teams will fly aircraft to these hubs as needed, which also provide storage capacity for additional containerised aircraft based on fleet needs.

Aircraft Ground Operations

Ground operations at vertiports will be conducted by trained personnel and systems to ensure the smooth turnaround and servicing of aircraft. Ground crew responsibilities include:

Passenger Handling: Escorting and transporting passengers between the terminal / land-side areas and the aircraft, often using small electric vehicles. Ground crew will also secure passengers and their baggage in the aircraft prior to departure.

Battery Conditioning and Charging: Managing the thermal management units for regulating battery temperatures and connecting / disconnecting charging equipment.

Preflight Checks: Conducting visual inspections of airframes, propulsion systems, and control surfaces, as well as verifying battery condition, charge levels, and the proper loading of baggage and cargo. Ground crew will confirm the aircraft is airworthy before departure.

Repositioning Aircraft: Towing aircraft between hangars, TOLFs, and parking stands.

Scheduled maintenance will not be performed at vertiports, and provisions for unscheduled maintenance will be limited. However, maintenance-qualified personnel will be dispatched to handle Aircraft on Ground (AOG) situations during operations. In such cases, the MC at the FOC will coordinate the dispatch of equipment, parts, tooling, and specialised maintenance personnel to the vertiport. Vertiports will provide facilities for partial disassembly, functional testing, and designated maintenance areas to support these tasks as effectively as possible.

FIGURE 12. GROUND CREW ESCORTS PASSENGERS TO THE AIRCRAFT

8

The Operating Environment

Social and Community Considerations

Wisk believes that community acceptance is paramount when developing, establishing, and deploying a new UAM network. Attaining a comprehensive social licence directly impacts the success of the service as well as the health, security, and sustainability of the local community.

The communities where vertiports will be situated have a vested interest in the activities and noise levels associated with air travel. Ensuring their buy-in and addressing their concerns is not only a matter of social responsibility but also a practical necessity. Communities that are supportive of new services can lead to increased passenger numbers, improved infrastructure, and economic growth for the area. Conversely, opposition or discontent within the community can lead to operational challenges, regulatory hurdles, and even legal obstacles that hinder the airline's objectives.

Thus, fostering community acceptance through effective communication, addressing environmental concerns, and collaborating with local stakeholders is essential and necessary for the long-term success and positive impact of new airline services.

Regulatory Framework

Regulators will need to modify existing regulations to enable autonomous AAM operations. Current certification and operations rules may be used when appropriate, but special provisions will be needed to address the novel nature of these platforms (e.g., electric propulsion, Detect-and-Avoid (DAA), autonomy, crew qualifications, experience and licences.) In addition to the development of industry standards for these new technologies, regulators will need to be provided with the assurance that these standards and any associated means of compliance achieve the required level of safety.

While AAM operators may be approved under current rule parts (e.g., CASR Part 133), flight operations rules may need to be modified to enable a safe evolution of the operational environment for autonomous UAM operations. The Civil Aviation Safety Authority's RPAS and AAM Strategic Regulatory Roadmap identifies the need for changes to airspace management, licensing and aircraft systems standards in the medium and long term. The development of these new requirements needs to start now and only with sustained and collaborative efforts will we be able to realise these objectives. Wisk stands ready to support CASA on the regulatory projects identified in the roadmap and working with other AAM industry leaders through Working Groups and other avenues, and look forward to identifying and developing an appropriate path to safe commercial operations. The use and development of regulatory sandboxes[9] to assist in exploring new ways of addressing the needs of UAM will be a great method for moving the industry forward.

Technical advances in the communications, navigation, surveillance, and information infrastructure currently in development will enable AAM operations and a higher flight tempo than current procedures can support. Globally, regulatory changes will be needed to allow the new AAM ecosystem to thrive and grow in a safe manner. Organisations like the International Civil Aviation Organisation (ICAO) will continue to play a key role in facilitating and encouraging harmonised rules and operations.

National aviation authorities engaging in these efforts will benefit from alignment on regulatory development initiatives.

[9] Regulatory sandboxes enable the regulator to work with industry to test and understand novel products, services, and concepts, and identify and assess new risks. This will be done in a safe, controlled, and time-limited environment to inform development of AAM regulations. These sandboxes help to update and develop regulations and maintain an acceptable level of safety. RPAS and AAM Strategic Regulatory Roadmap

Flight Rules

Wisk aircraft will operate primarily under Instrument Flight Rules (IFR), allowing them to follow established routes and Instrument Flight Procedures (IFPs) to minimise traffic conflicts. Wisk, in consultation with Airservices and the Office of Airspace Regulation,[10] will seek to establish compatible IFR routes, that cover the entire route from lift-off to touch down to assist in the deconfliction of shared airspace across the AAM network. The IFR structure, combined with robust CNS (communication, navigation, and surveillance) infrastructure, enables efficient ATC separation services, reducing controller workload. Long-term solutions will require a fully integrated digital airspace framework that includes all airspace users.

In due time, and in order for the safe and efficient utilisation of airspace at scale, autonomous aircraft are likely to extend the IFR concept, enabling the potential to operate under new regulatory framework termed Automated Flight Rules (AFR).[11] Although AFR requirements remain under development, the aim is to create standards that govern aspects unique to autonomous operations, such as pilot-in-command responsibilities, traffic separation, and flight procedure design. Establishing AFR will support the safety and efficiency goals that are central to advancing remotely piloted and autonomous systems.[12]

Fixed Network and Flight Path Route Design

While on-demand, flexible operations using autonomous aircraft may represent the ultimate vision of aviation futurists, Wisk's initial and long-term operations are anticipated to be conducted within a structured network of vertiports, utilising predefined flight paths and adhering to published schedules. Wisk envisions operating alongside both crewed and uncrewed AAM operators, making the adoption of performance-based standards a critical element for the industry. These standards will ensure the necessary flexibility to accommodate new aircraft systems and enable the industry to grow and develop, while placing the responsibility on the industry to design and operate to the performance standards expected.

As noted above, autonomous aircraft will fly specially designed flight path routes extending from lift-off to touchdown point. These flight path routes will be designed with directness in mind, but they will consider impacts on and from community, environment, and existing aviation stakeholders. Variations within the overall route network established within a single operating environment will also allow for changes in weather conditions (seasonal or intermittent) and for minimising the impact on existing aviation routes/flight paths and the community at large.

Using existing flight procedure design techniques, autonomous aircraft operators will establish flight path routes using their aircraft's navigation system performance, local obstacle data, existing airspace and flight path data, and local community and environmental information. These procedures will be validated initially using simulation and surrogate aircraft. Revalidation will occur on a regular basis using, as approved, operational aircraft, specifically approved aircraft or further simulation and surrogate aircraft.

[10] https://www.casa.gov.au/operations-safety-and-travel/airspace/airspace-regulation/office-airspace-regulation#Airspaceadministration
[11] RTCA White Paper on Future Design Framework, December 2023. This document explores a comprehensive framework for the integration and certification of advanced aviation systems, focusing on the evolving needs of urban air mobility and autonomous aircraft.
[12] https://gama.aero/wp-content/uploads/EPIC_Enabling_Supervised_Flight-GAMA_FullDoc_09-05-2024.pdf This document outlines a strategy for enabling supervised flight operations through digital innovation, focusing on advancements in aviation autonomy and operational efficiency.

Aeronautical Data Service

Autonomous aircraft operations will require a wide variety of validated, high-integrity data to ensure safe operations. These data will include:

- Geospatial information
- Terrain and obstacle information
- Suitable weather information
- Codified route and RNP Navigation Specification information
- NOTAM information

FOCs will consume the information as a key input to optimising operations. While some of the datasets provided by supplemental data service providers will contain non-flight-critical data, Wisk assumes that information sets containing safety-of-flight-critical data will require regulatory oversight. As a general assumption, aeronautical data used for operations will leverage existing standards and formats.[13]

Airspace & Air Traffic Control Services

Wisk operations will seek to integrate into the future airspace system through the use of UTM and existing ATM control measures. CASA 2024 RPAS & AAM Roadmap identifies this as an objective by the end of 2029. Nominally, Wisk aircraft operate between 2000-2500ft AGL (Above Ground Level) making this integration element highly beneficial and an important enhancement to safety.

Authorities will review and potentially reclassify airspace for future systems concepts as well as the establishment of specific separation standards.

Wisk aims to capitalise on the highly structured, digitised, and automated nature of its operations, achieving most airspace management functions through a combination of long-term strategic planning and schedule deconfliction, supported by in-flight tactical deconfliction services and onboard DAA systems. In the future, enhanced Flight Information Management System (FIMS) capabilities are expected to play a pivotal role, providing tactical deconfliction assurance both prior to departure and during flight. This advancement will not only facilitate the growth of the AAM industry but also significantly alleviate the workload on traditional ATC systems. Wisk envisions a future where the currently distinct UTM and ATM frameworks evolve into a seamlessly blended airspace system, ultimately achieving a fully integrated airspace extending from ground to space, underpinned by advanced digital ATC services.

[13] For example, RTCA DO-200A, Standard for Processing Aeronautical Databases, serves as a general standard for database processing.

Vertiport Design and Operations

Vertiports are the fixed locations where VTOL-capable aircraft will take-off, land, load and unload passengers, and be serviced (e.g., battery charging).

Based on emerging market trends, vertiports may be operated by existing airport operators, design-build-operate companies and dedicated vertiport operators operating under lease or other long-term contractual arrangements. These organisations will be responsible for day-to-day vertiport operations including facility serviceability and availability, resource allocation, management of vertiport data and distribution of status information. They will partner with AAM aircraft operators to ensure the efficient execution of flights.

Ground handling services, such as aircraft marshalling, towing, and charging will be provided by personnel from either the aircraft operator, the vertiport operator or a third-party. Currently, ground handling service organisations operate under the conditions established by the aircraft operator and are not subject to direct aviation safety regulatory oversight.

Vertiport operators are not likely to provide any form of air traffic control services such as aircraft separation, sequencing, or clearance. Vertiports, both in controlled and uncontrolled airspace, will provide vertiport status information to operators and is expected to be made available directly through the FIMS environment or through an intermediary USS. For more information about Vertiport operations and concept of operation see the Wisk Skyports concept paper here.[14]

FIGURE 13. PLANNED VERTIPORT CHECKING AND WAITING AREAS INSIDE A VERTIPORT TERMINAL AREA (COURTESY: SKYPORTS INFRASTRUCTURE)

[14] https://wisk.aero/news/press-release/wisk-skyports-partnership-conops/

Landing Hazard and Airspace Management

The management of the FATO area is critical to ensuring the safe landing and departure of aircraft. Maintaining a hazard-free environment in this zone is essential to prevent potential conflicts with obstacles, both on the ground and in the air. This responsibility may be facilitated by emerging remote tower capabilities, enabling a single vertiport operator to manage multiple landing locations efficiently. Advanced software will play a pivotal role in monitoring the FATO and vertiport area. These technologies can detect and assess potential hazards, such as foreign objects on the ground or uncooperative air traffic, in real-time, offering enhanced situational awareness. This automated approach not only bolsters safety by reducing human error but also ensures that landing operations are seamless, even in high-tempo, multi-vertiport networks, making it a cornerstone of scalable AAM operations.

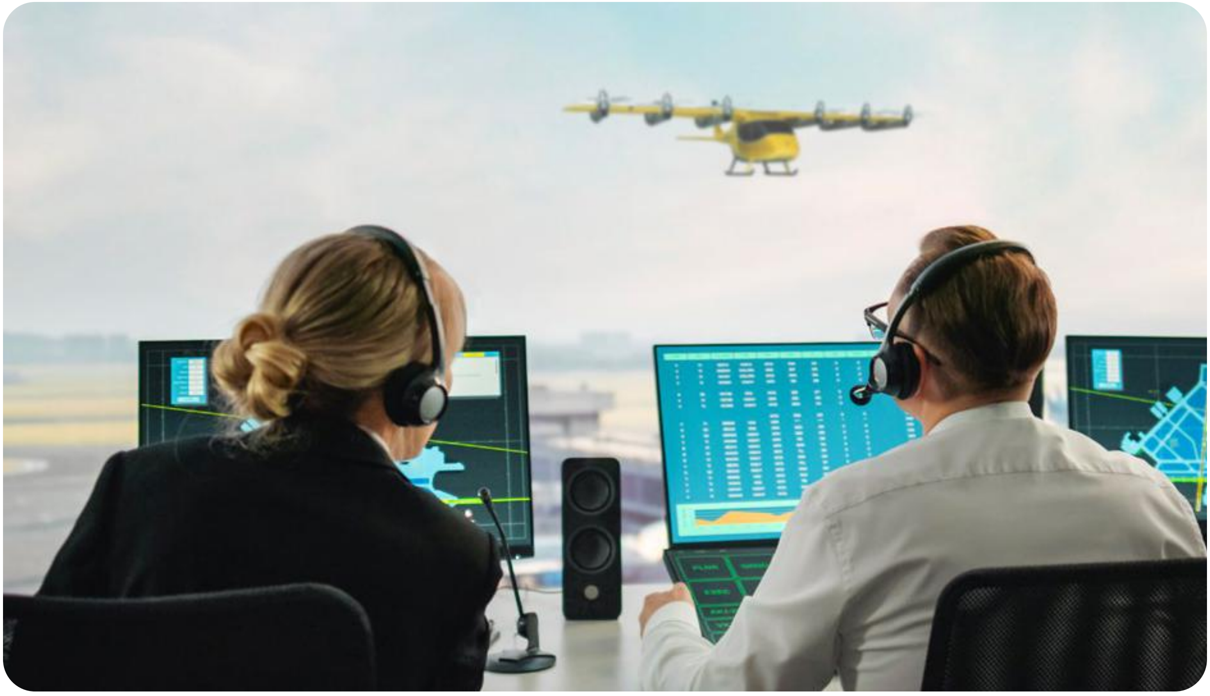

FIGURE 14. REPRESENTATIONAL REMOTE TOWER CONCEPT

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Summary

The Wisk approach for AAM in Australia presents a comprehensive vision for integrating autonomous air transportation into the nation's broader transportation landscape. Through advanced aircraft systems, robust regulatory engagement, and community-focused approaches, Wisk aims to establish a safe, efficient, and scalable solution to address Australia's unique transportation needs while setting a global standard for advanced air mobility.

The Opportunity for Advanced Air Mobility in Australia

Australia's distinct geographic and demographic characteristics make it an ideal environment for AAM adoption. Coastal urban areas, remote regional communities, and vast rural expanses highlight the dual demand for enhanced urban connectivity and critical regional accessibility. The country's relatively low air traffic density, coupled with progressive regulatory initiatives led by CASA and Airservices Australia, positions it as a prime proving ground for AAM aviation. AAM has the potential to address transportation challenges by reducing urban congestion, improving access to essential services, and lowering logistical costs in isolated areas, all while contributing to sustainability goals through electric propulsion technologies.

Wisk's vision aligns with these opportunities by leveraging cutting-edge autonomy, scalable operations, and collaboration with key stakeholders.

Autonomous Operations and Safety Framework

Wisk's aircraft are autonomous and supervised remotely by Multi-Vehicle Supervisors (MVSor) located in a FOC. These supervisors provide high-level oversight, enabling a one-to-many operational model that maximises scalability while maintaining safety. The aircraft independently handle tasks such as navigation, obstacle avoidance, and contingency management, reducing reliance on human intervention and minimising risks associated with human error.

Key safety and operational highlights include:

- **Autonomous Redundancy:** Onboard systems independently handle contingencies like communication failures or re-routing.
- **Advanced Detect-and-Avoid (DAA) Systems:** Integration of sensors and situational awareness technologies ensures collision-free operations.
- **Cybersecurity Resilience:** Compliance with aviation standards ensures secure communications and data integrity throughout the network.
- **Integration with Air Traffic Systems:** Wisk aircraft will leverage data from emerging systems like the Flight Information Management System (FIMS) and UAS Service Suppliers (USS) for seamless integration with traditional and low-level airspace users.

This operational model enhances safety while enabling scalable and cost-effective expansion of AAM services.

Key Use Cases

VTOL aircraft are designed to support a range of applications, each tailored to Australia's unique needs:

- **Urban Air Mobility (UAM):** Alleviating urban congestion through passenger air taxi services connecting cities and suburbs
- **Regional Air Mobility (RAM):** Enhancing access to critical services and economic opportunities in rural and remote communities
- **Cargo and Logistics:** Supporting supply chain resilience and military logistics in challenging environments
- **Medical Transport:** Providing rapid response capabilities for emergency medical evacuation and critical supply deliveries

These diverse applications demonstrate the adaptability of AAM systems to meet the needs of various stakeholders, from government agencies to airline or military operators and local communities.

Community and Regulatory Collaboration

A critical component of AAM's success is securing public trust and regulatory alignment. Wisk emphasises community engagement to address concerns related to noise, environmental impact, and safety. Proactive communication and collaboration with local stakeholders are central to fostering acceptance and achieving a social licence to operate.

From a regulatory perspective, Wisk anticipates working closely with CASA and Airservices Australia to align with existing frameworks while advocating for the evolution of policies to accommodate autonomous systems. The development of digital tools like FIMS will streamline airspace management and enable real-time deconfliction, ensuring safety in increasingly dynamic environments.

Scalable Infrastructure and Future Growth

Wisk's AAM model is underpinned by scalable infrastructure, including fixed-route networks, vertiports, and centralised FOC operations. By initially focusing on structured networks, Wisk can optimise operations, minimise community disruptions, and build confidence in autonomous systems. Long-term scalability is supported by:

- Advanced flight planning and dynamic rerouting capabilities
- Technical maintenance hubs to ensure continuous airworthiness
- Partnerships with vertiport operators for seamless ground operations working alongside other AAM operators and maintainers

This infrastructure supports the growth of AAM services, from initial deployment to widespread adoption, while maintaining safety and operational efficiency.

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Conclusion

This document outlines a vision for integrating autonomous air mobility into Australia's transportation ecosystem. By leveraging cutting-edge autonomy, and fostering regulatory and community collaboration, Wisk is assisting in shaping the global AAM industry.

This document serves as a starting point for ongoing evolution, designed to adapt and grow in collaboration with stakeholders to meet Australia's unique transportation needs while contributing to a scalable, sustainable, and inclusive future for air mobility in Australia.

Looking ahead, Wisk is committed to working closely with the Australian Government and industry stakeholders through initiatives like the UTM Action Plan, CASA UAS and AAM Roadmap, the Future Airspace Framework, Aviation White Paper outcomes, and the soon-to-be-released AAM Roadmap. Wisk's ongoing involvement in CASA's Technical Working Group and Airservices Australia's Uncrewed Services Advisory Network (USAN) reflects its dedication to evolving the policies and frameworks that will enable advanced air mobility to flourish. These collaborations will ensure that Australia's ecosystem is prepared to capitalise on the benefits of advanced air mobility, supporting innovation, fostering economic growth, and delivering tangible benefits to communities, industries, and the environment. Through this shared commitment, Wisk seeks to work with Industry and Government to pave the way for a new era of aviation.

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Glossary

Glossary

AAM (Advanced Air Mobility): A transformative aviation sector focusing on the integration of electric Vertical Takeoff and Landing (eVTOL) aircraft and other advanced technologies to provide efficient, autonomous air transportation in urban, regional, and remote areas.

ACAS (Airborne Collision Avoidance System): A broad term for systems, including TCAS (Traffic Collision Avoidance System), that detect and avoid potential collisions with other aircraft.

ADS-B Transponder: A system that automatically broadcasts an aircraft's position, altitude, and velocity to improve situational awareness for air traffic management and other aircraft.

AFR (Automated Flight Rules): Rules intended to govern automated and autonomous flight operations, ensuring compliance with CASA regulations for safe, unmanned aviation; AFR is not yet implemented in Australia and remains under development.

AGL (Above Ground Level): A vertical measurement indicating the altitude of an aircraft relative to the ground surface beneath it.

ANSP (Air Navigation Service Provider): An organisation responsible for managing and providing air traffic services and other navigation-related functions to ensure safe and efficient operations within a defined airspace.

AOC (Air Operator's Certificate): A certification issued by CASA that authorises an operator to conduct specific commercial aviation activities in compliance with Australian safety regulations.

AR (Authorisation Required): A designation for airspace or procedures requiring specific authorisation for access or operations to ensure safety and compliance.

ASTM (American Society for Testing and Materials): A global organisation that develops and publishes voluntary consensus standards for materials, products, systems, and services across various industries, including aviation.

ATC (Air Traffic Control): A service that manages and directs aircraft movements on the ground and in controlled airspace to ensure safety and efficient operations.

ATPL (Airline Transport Pilot License): The highest level of pilot certification, required to serve as the captain of multi-crew aircraft.

C2 (Command and Control): Systems and processes used to plan, direct, and monitor operations, ensuring real-time oversight and decision-making for aviation activities.

CAA (UK) (Civil Aviation Authority): The United Kingdom's aviation regulator responsible for ensuring the safety, security, and economic regulation of civil aviation.

CASA (Civil Aviation Safety Authority): Australia's national aviation regulator responsible for ensuring safety standards and operational compliance in the aviation industry.

CASEVAC (Casualty Evacuation): The rapid transportation of injured personnel from the point of injury to a medical facility, often using non-medically equipped vehicles or aircraft.

CASR (Civil Aviation Safety Regulations): A set of regulations established by CASA (Civil Aviation Safety Authority) to govern aviation operations in Australia, including aircraft certification, licensing, and airspace management.

CLZs (Contingency Landing Zones): Pre-identified or designated landing areas intended for use in unplanned or unexpected situations, providing a contingency option for operations, particularly in AAM and regional settings.

CMATS (Civil Military Air Traffic Management System): An integrated air traffic management system being jointly developed and implemented by Airservices Australia and the Royal Australian Air Force (RAAF) to unify civil and military air traffic management under a single national solution, enhancing efficiency, safety, and coordination across Australia's vast and complex airspace.

CNS (Communication, Navigation, and Surveillance): An integrated system supporting the management of aircraft operations through reliable communication, navigation aids, and surveillance technologies.

CPL (Commercial Pilot License): A certification required to operate aircraft professionally and earn remuneration for flying services.

DAA (Detect-and-Avoid): A capability that allows aircraft to detect potential conflicts with other air traffic or obstacles and autonomously manoeuvre to avoid them.

DASA (Defence Aviation Safety Authority): Australia's military aviation safety regulator, responsible for overseeing and ensuring the safety of all Defence aviation operations, personnel, and systems, operating under the Defence Aviation Safety Framework. DASA aligns with civil aviation standards where appropriate to maintain interoperability and uphold national safety standards.

EASA (European Union Aviation Safety Agency): Europe's regulatory authority responsible for aviation safety across the European Union, developing standards and oversight processes.

ELZs (Emergency Landing Zones): Specific areas identified for immediate use during emergencies, where eVTOL and AAM aircraft can safely land, often leveraging existing infrastructure or open spaces.

ERP (Emergency Response Plan): A documented plan outlining procedures and responsibilities to manage and mitigate aviation emergencies, ensuring safety and recovery operations.

EUROCAE (European Organisation for Civil Aviation Equipment): A European body that develops technical standards for electronic systems and equipment used in aviation to ensure interoperability and safety.

EUROCONTROL: An intergovernmental organisation that coordinates and optimises air traffic management across European airspace, ensuring safety, efficiency, and harmonisation among member states and aviation stakeholders.

eVTOL (electric Vertical Takeoff and Landing): A class of aircraft powered by electric propulsion systems capable of vertical takeoff, hovering, and landing.

FAA (Federal Aviation Administration): The United States government agency responsible for regulating and overseeing all aspects of civil aviation, including safety, airspace management, and certification.

FATO (Final Approach and Takeoff): For the operation of a rotorcraft at an aerodrome, means the area of the aerodrome from which a take-off is commenced; or over which the final phase of approach to hover is completed. (Source CASA (CASA (Civil Aviation Safety Authority), AC139.R-01 V3.1)

FIMS (Flight Information Management System): A digital system developed by Airservices Australia to manage real-time flight information and support integration between traditional and advanced airspace users.

FM (Fleet Manager): The person responsible for the provisioning, posturing, and strategic utilisation of aircraft and fleet resources.

FOC (Fleet Operations Centre): A centralised control hub where operations personnel oversee, coordinate, and manage autonomous aircraft operations. FOC personnel include maintenance, remote hospitality, flight planning, dispatch, remote pilots MVSors (Multi-Vehicle Supervisors).

FOS (Fleet Operations System): A software system used to manage and monitor the operational performance and scheduling of an aircraft fleet.

GAMA (General Aviation Manufacturers Association): An international trade association that advocates for the general aviation industry and promotes safety, innovation, and regulatory standards for aircraft and related systems.

GNSS (Global Navigation Satellite System): An umbrella term for satellite-based systems that provide global positioning, navigation, and timing services, encompassing multiple systems such as GPS (United States) and Galileo (European Union), offering enhanced accuracy and reliability by combining signals from multiple constellations.

GSM (Ground Support Manager): The person responsible for ensuring the airline meets its scheduled on-time performance metrics with the available vertiport-based airline personnel and equipment.

ICAO (International Civil Aviation Organisation): A United Nations specialised agency that establishes global standards and policies for civil aviation safety, security, efficiency, and environmental protection.

IFP (Instrument Flight Procedure): A defined and CASA-approved procedure that enables aircraft to navigate safely during instrument-based arrivals, departures, or approaches.

IFR (Instrument Flight Rules): Rules governing flight operations where navigation is conducted primarily using instruments, typically in low-visibility conditions.

INS (Inertial Navigation System): A navigation system that calculates an aircraft's position, velocity, and orientation using accelerometers and gyroscopes without external references.

IOP (Integrated Operating Picture): A set of real-time operational parameters shared among aircraft operators, ANSPs (Air Navigation Service Providers), USS (UAS Service Supplier), and vertiport operators.

ITC (Information Technology, Communication) Support: The team that maintains effective communication and network connectivity inside the FOC (Fleet Operations Centre).

JARUS (Joint Authorities for Rulemaking on Unmanned Systems): An international group that develops standards and regulatory frameworks for unmanned and autonomous systems.

MC (Maintenance Controller): The senior maintenance person on shift and manages all maintenance staff across the airline's vertiport locations and liaises with the technical hub manager to ensure the overall serviceability, sustainment of logistics and spare parts and airworthiness of the airline's fleet.

MEL (Minimum Equipment List): A list approved by CASA specifying the minimum operational equipment an aircraft must have to safely undertake a flight.

MM (Mission Manager): The person who performs continuous planning and validation of flight scheduling leading up to the flight release, execution and flight following.

MVSor (Multi-Vehicle Supervisor): An individual responsible for remotely supervising multiple autonomous aircraft in real time from an FOC (Fleet Operations Centre).

NASA (National Aeronautics and Space Administration): The United States government agency responsible for civilian space exploration, aeronautics research, and the development of advanced technologies for space and Earth sciences.

NOTAM (Notice to Air Missions): Critical notifications issued to pilots and operators about temporary or permanent changes to airspace, flight routes, or aerodrome operations.

OM (Operations Manager): The person responsible for all airline operations along assigned routes (or within a region) on behalf of the Director of Operations (accountable executive) and is the most senior airline personnel inside an FOC (Fleet Operations Centre).

CASR Part 101: A regulatory section in CASR (Civil Aviation Safety Regulations) covering the operation of RPAS (Remotely Piloted Aircraft Systems).

CASR Part 65: A regulatory section in CASR (Civil Aviation Safety Regulations) concerning the certification and operation of air traffic control personnel and flight dispatchers.

PBN (Performance-Based Navigation): A framework for navigation that specifies aircraft performance requirements rather than relying on traditional ground-based navigation aids.

RAM (Regional Air Mobility): The use of advanced aircraft to provide efficient and flexible air transportation between regional destinations, enhancing connectivity.

RHC (Remote Hospitality Crew): A person located inside the FOC (Fleet Operations Centre) for communication with passengers as / if the need arises.

RHC (Remote Hospitality Crew): Personnel providing passenger services and support remotely for uncrewed aircraft operations.

RNP (Required Navigation Performance): A navigation specification that combines precision and performance standards, allowing aircraft to follow predefined flight paths.

RPAS (Remotely Piloted Aircraft Systems): Uncrewed aircraft that are piloted remotely by a person from a ground control station or another location.

RSS (Remote Supervision Segment): A system that enables operators to monitor and manage remote aircraft operations from a ground-based control centre.

RTCA (Radio Technical Commission for Aeronautics): A United States-based organisation that develops consensus-based standards for aviation systems and equipment, supporting regulatory frameworks and operational safety.

SBAS (Satellite-Based Augmentation System): A system that enhances GNSS (Global Navigation Satellite System) accuracy and reliability by broadcasting correction signals, improving navigation performance.

SESAR (Single European Sky ATM Research): A European initiative aimed at modernising and harmonising air traffic management (ATM) systems to enhance safety, capacity, efficiency, and environmental performance across European airspace.

SMS (Safety Management System): A systematic approach to managing safety, including policies, risk management, safety assurance, and promotion, to ensure continuous improvement in safety performance.

SouthPAN (Southern Positioning Augmentation Network): A satellite-based augmentation system improving GNSS (Global Navigation Satellite System) performance in the Southern Hemisphere, particularly in Australia and New Zealand.

TCAS (Traffic Collision Avoidance System): An onboard aircraft system that detects nearby aircraft and provides alerts or manoeuvres to prevent mid-air collisions.

TLOF (Touchdown and Lift-Off Area): The surface over which the touchdown and lift-off is conducted. Note: A TLOF may be collocated with a Final Approach and Takeoff (FATO) or a stand. (Source CASA, AC139.R-01 V3.1)

UAM (Urban Air Mobility): A subset of AAM focusing on the use of advanced aircraft technologies for short-range transportation within urban areas.

USS (UAS Service Supplier): An organisation that facilitates safe AAM integration by connecting operators, airspace users, and air traffic systems, providing services like aeronautical data, weather, and flight deconfliction via systems such as the FIMS (Flight Information Management System).

UTM (Uncrewed Traffic Management): A framework for integrating and managing unmanned and autonomous systems in low-altitude airspace.

Vertiport: A dedicated landing and takeoff facility for eVTOL (electric Vertical Takeoff and Landing) aircraft, often integrated with passenger and logistical services.

VHF (Very High Frequency): A radio frequency range (30-300 MHz) commonly used for reliable and clear voice communication between pilots and air traffic controllers.

VoIP (Voice over Internet Protocol): A technology enabling voice communication over internet networks, replacing traditional radio or phone communication systems in aviation.

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