

Urban Air Mobility: Regulatory Pathways and Readiness for Integration in South Africa

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Introduction to Urban Air Mobility (UAM)

What is UAM?

Urban Air Mobility (UAM) refers to the **use of small, electric or hybrid-electric aircraft, often highly automated, designed to transport passengers or goods at low altitudes within urban and suburban environments**, which has been developed in response to traffic congestion in the cities.

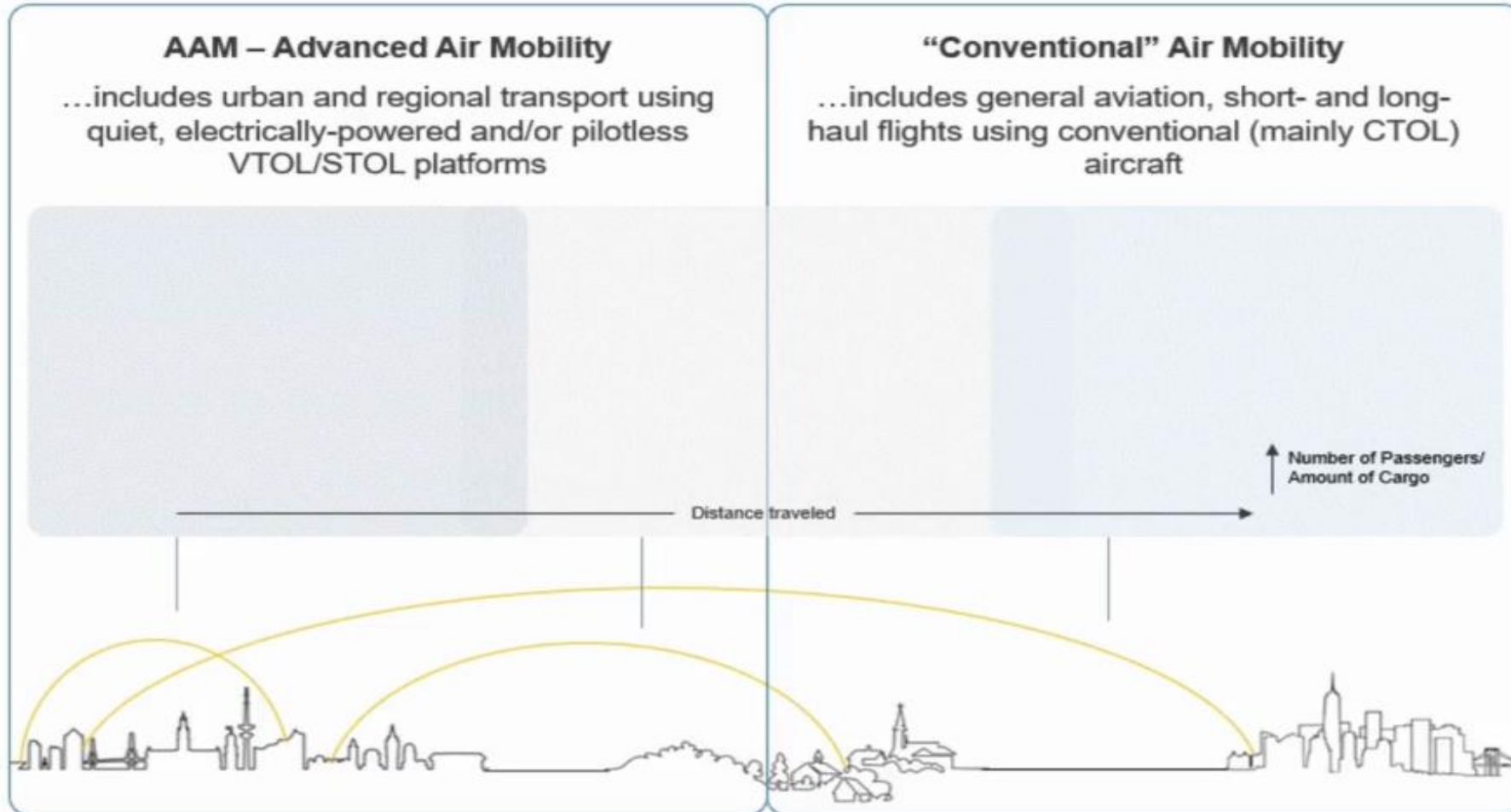
In China, UAM is a key component of the **"low-altitude economy"**



Introduction to Urban Air Mobility (UAM)

DRONE INDUSTRY INSIGHTS

ADVANCED AIR MOBILITY AND ITS ROLE IN AIR TRANSPORTATION



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https://www.linkedin.com/posts/drone-industry-insights_aam-uam-airmobility-activity-7163078299861135360-PSuR/

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Project Overview: Guidance Materials for UAM Certification



This presentation highlights work that forms part of the International Forum for Aviation Research (IFAR) project titled “*Navigating the Skies: A Guide to Certification for Urban Air Mobility*”.

Problem Statement

- The rise of UAM has created an **urgent need for comprehensive Guidance Material (GM)** for the certification and approval of UAM systems.
- Current regulations **lack standardised set of guidelines and requirements** specific to UAM aircraft and operations.
- This regulatory **gap hinders safe certification and delays UAM integration** into urban airspace.
- **ICAO recognised the need for UAM guidelines and regulatory frameworks** at the 41st Session Working Paper (https://www.icao.int/Meetings/a41/Documents/WP/wp_292_en.pdf).

Project Overview: Guidance Materials for UAM Certification

Project Objectives

- To produce detailed GM that will advise the Industry on the planning and implementation processes of UAM and assist Civil Aviation Authorities in addressing the development of UAM regulations.

- Three (3) GMs will be addressed:

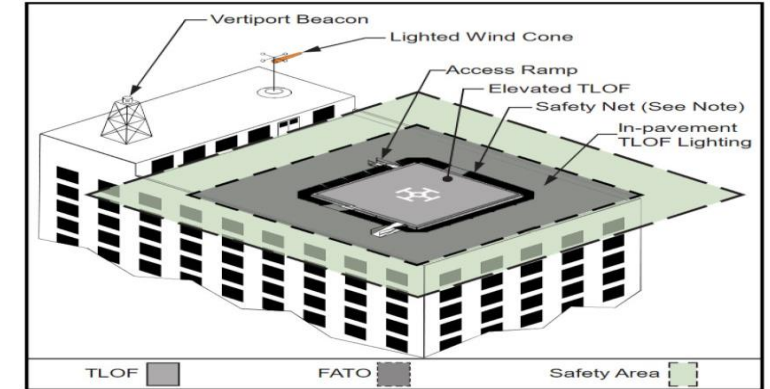
1. The type certification of UAM aeronautical products



2. The approval of UAM concept of operations

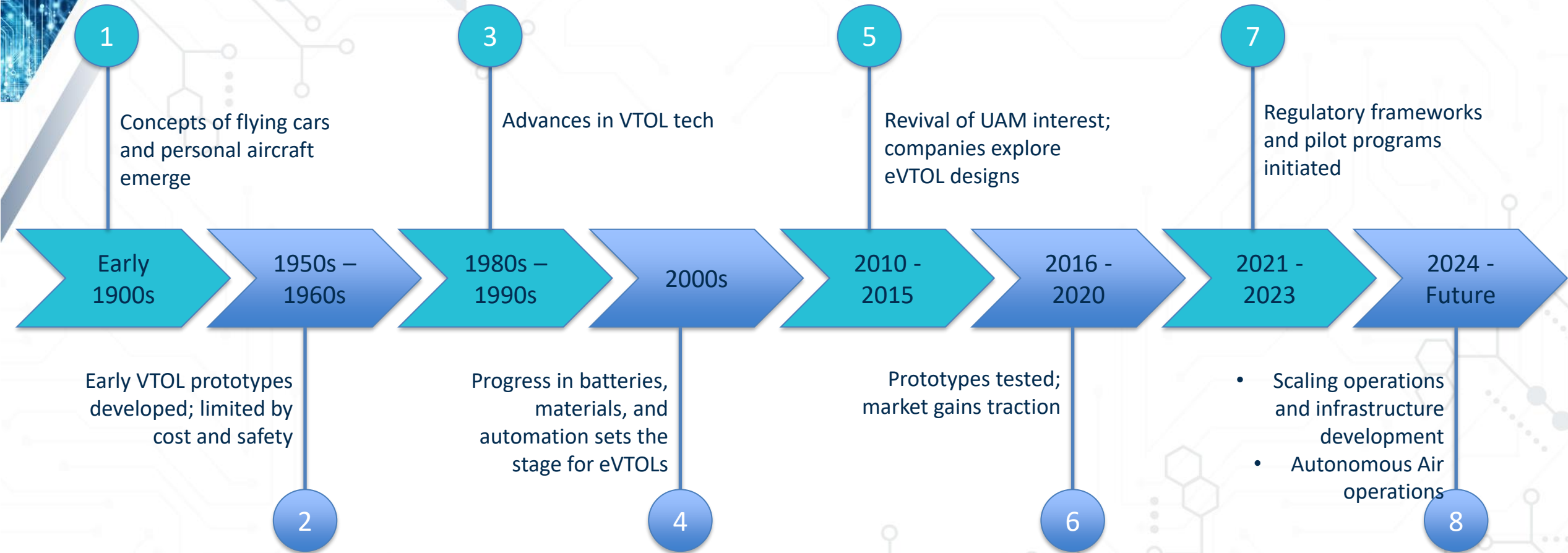


3. The certification/approval of UAM infrastructure



- Participating IFAR Members

The evolution of the UAM system



Facilitators and Obstacles

Technological Enablers:

Key technologies that support UAM include:

Electric Vertical Takeoff and Landing (eVTOL) vehicles

Artificial intelligence (AI)

5G connectivity

Autonomous flight systems

Challenges:

UAM faces several challenges, including:

Safety and regulatory concerns

Air traffic management

Noise

Community Acceptance

Weather Challenges

Environmental Impacts

Infrastructure Needs

Security



Global UAM Landscape

1

Leading Countries

United States (FAA), European Union (EASA), United Arab Emirates (GCAA) and China are leading UAM development.



EASA
European Aviation Safety Agency

الهيئة العامة للطيران المدني
GENERAL CIVIL AVIATION AUTHORITY



**Federal Aviation
Administration**



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Global UAM Landscape

1

Leading Countries

United States (FAA), European Union (EASA), China, and United Arab Emirates (GCAA) are leading UAM development.

2

Key Players:

Joby Aviation, Lilium, Volocopter, Ehang, and Uber Elevate.

all-electric aircraft capable of carrying **four passengers** with a pilot



[Joby Aviation](#)



[Lilium Jet](#)

a **five-seat eVTOL jet** with a unique **ducted fan design**.



a **multicopter design** with 18 rotors called **VoloCity**



[Volocopter](#)

Global UAM Landscape

1

Leading Countries

United States (FAA), European Union (EASA), China, and United Arab Emirates (GCAA) are leading UAM development.

2

Key Players:

Uber Elevate, Joby Aviation, Lilium, Volocopter, and EHang.

3

Current UAM Trials:

Cities piloting UAM services and regulatory testbeds.

Dubai, UAE

- Partnered with Joby & Volocopter
- Demonstration flights at Expo 2020
- Developing vertiports & UAM corridors

Paris, France

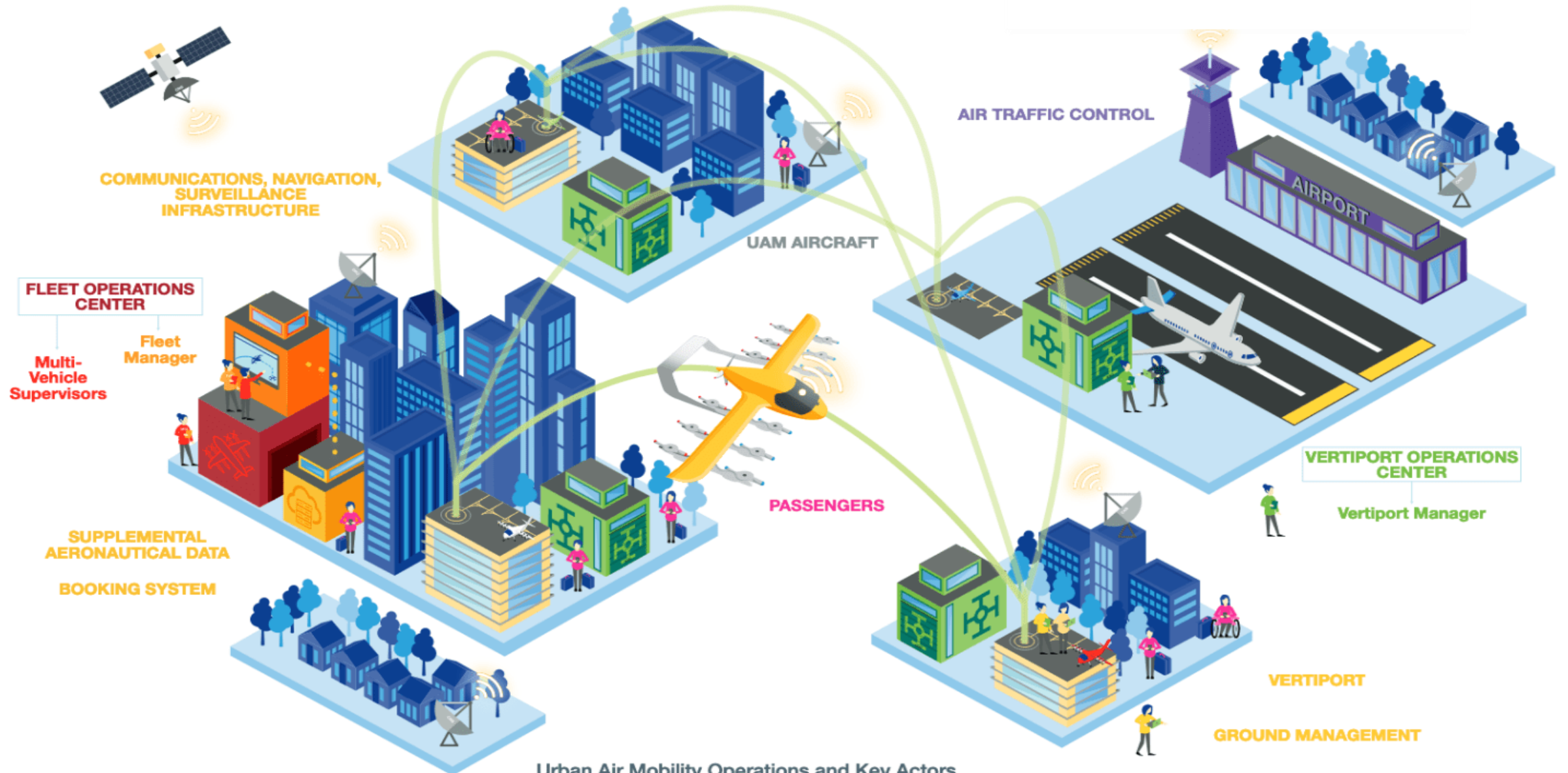
- Leading up to the 2024 Olympics
- created test zones for eVTOLs at Pontoise Airport.
- Validating EASA SC-VTOL standards
- Partners: Volocopter, Groupe ADP

Seoul, South Korea

- K-UAM Grand Challenge
- Public flights over Han River
- Government-led UAM corridors



UAM Concepts of Operation



Urban Air Mobility Operations and Key Actors

Regulatory Frameworks for UAM

Why Regulation Matters?

Regulation ensures safety and security, facilitates integration with air traffic, and promotes operational standardisation.

Existing Drone Regulations

Existing drone regulations serve as a precursor to UAM, including

- FAA Part 135,
- EASA's Special Condition VTOL,
- GCAA UAM Guidelines, and
- South African Civil Aviation Regulations (SA-CAR) Part 101 (RPAS Regulations).



UAM in Africa

- Africa is rapidly embracing UAM to address urban mobility and infrastructure challenges. Countries like Rwanda, Ghana, Kenya, Nigeria, Côte d'Ivoire, and South Africa are leading with innovative deployments.
- Zipline's drone success across five African countries has delivered over 180,000 medical shipments and demonstrated the viability of aerial logistics, laying the groundwork for broader UAM applications.
- Kenya's Fabari Aviation (Kenya Airways) has partnered with Eye (Embraer) to acquire up to 40 e

111,827,955

miles flown

1,604,055

deliveries made

17,570,356

items delivered

<https://www.zipline.com/about>



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UAM in South Africa – The Current Regulatory Landscape



Existing Laws

South African Civil Aviation Act No. 13 of 2009, Civil Aviation Regulations, 2011 – Part 101 (RPAS), and Air Services Licensing Act No. 115 of 1990 (Commercial Air Transport).



Limitations

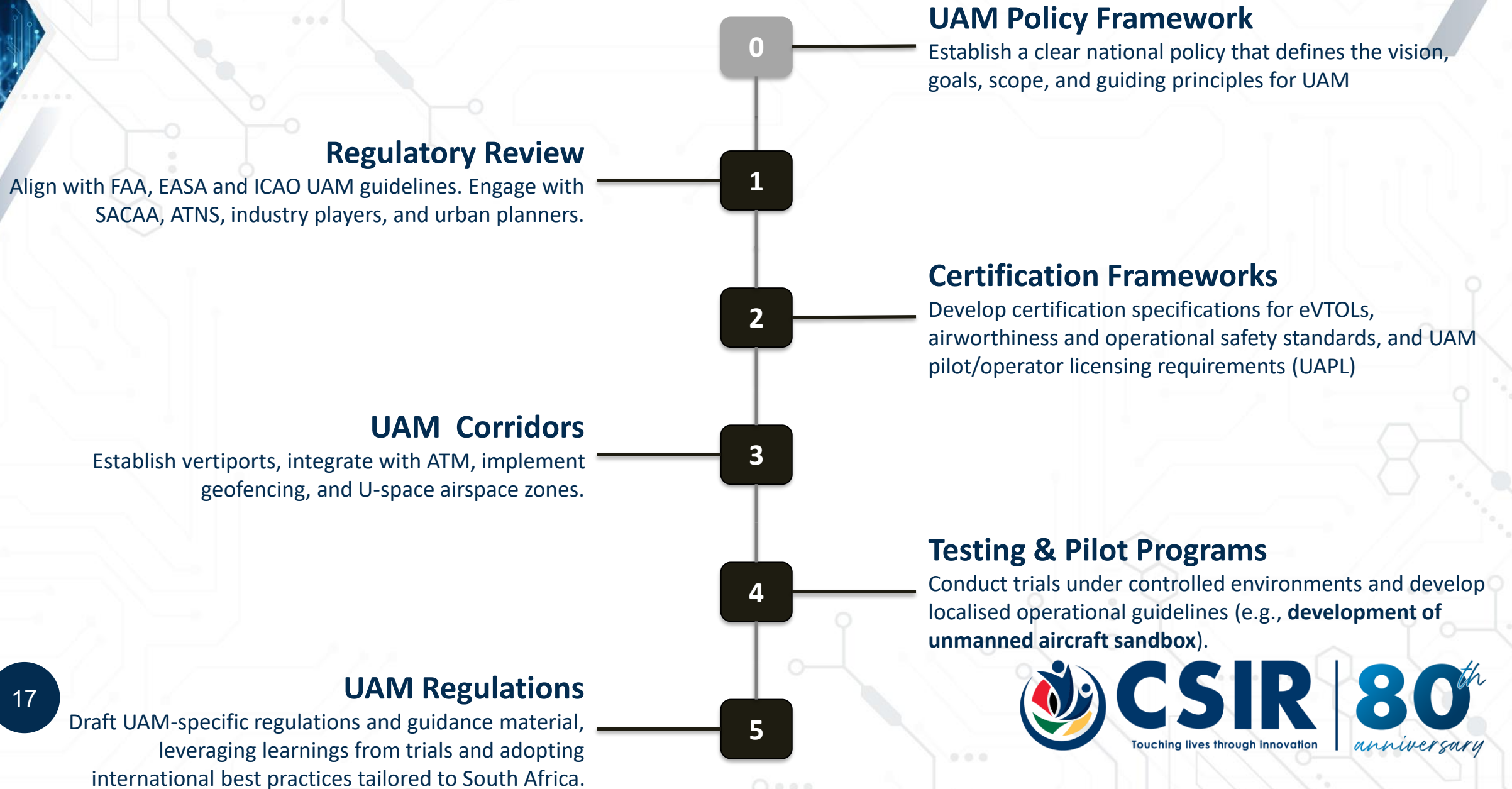
Current regulations are for RPAS, not specifically for UAM. There is no dedicated certification process for eVTOLs or UAM operations.



Identification of Gaps in Standards and Guidelines

Area	South African Gap	Global Benchmark
UAM-Specific Regulations	No UAM-specific airworthiness or operational standards	EU's SC-VTOL standards, US FAA's UAM criteria
Airspace Integration	Lack of UAM-focused airspace management	EU's U-space, US UAM corridors
Pilot/Operator Certification	No distinct UAM licensing framework	EU and US certification for UAM operators
Infrastructure Guidelines	No guidelines for vertiport design	EU prototype standards, US vertiport regulations
Privacy, Security, Environment	No policies for UAM privacy, security, and environment	UAE's privacy measures, US/EU noise/environmental standards
International Collaboration	Minimal UAM collaboration and harmonisation	US-UK-AUS-CAN UAM alignment
R&D and Innovation	Limited R&D for UAM	Singapore's Smart Nation, UAE's proactive testing
Public Acceptance Roadmap	No public acceptance and deployment roadmap	EU public studies, phased US deployment

Pathway to UAM Implementation in South Africa



Conclusion

1. **UAM** holds transformative potential for African cities but requires a **strong and adaptable regulatory foundation**.
2. While the **technology is advancing rapidly**, the supporting **ecosystem remains underdeveloped** for large-scale deployment.
3. Key challenges include **regulatory readiness, government oversight, public acceptance**, and the need for **comprehensive infrastructure**, both digital and physical, for safe airspace integration.
4. **Clear and cohesive regulations** for vehicle certification, air traffic management, and operational standards are essential.
5. **Collaboration** among regulatory authorities, industry leaders, and civil society is critical to drive responsible policy development.
6. **South Africa is well-positioned** to lead UAM adoption in Africa by proactively shaping its regulatory landscape and supporting innovation through research and public-private partnerships.

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Thank you