

# A Renewed European Roadmap for Scalable Drone Deployment

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## Building on the EU Drone Strategy 2.0 to enable real operations across the Single Market

### Rationale

AME is pleased to see the continuous support from European institutions to the drone sector over the past years. The EU Drone Strategy 2.0 has played a key role in positioning Europe as a global leader in the development and safe integration of drone technologies. Through forward-looking regulation, sustained investment in research and innovation, and large-scale demonstrators, Europe has successfully validated the potential of drones across multiple use cases.

However, a shift is now needed.

**The challenge is no longer technological validation, but enabling real, repeatable and scalable deployment of drone and Innovative Air Mobility (IAM) operations across Europe, in a homogeneous, interoperable and standardised way.** Ensuring this transition is essential for Europe to maintain its global leadership in the sector.

In this context, a review of the current strategy is necessary, including a comprehensive assessment of existing flagships, to ensure alignment with the principles required to enable deployment at scale. A renewed EU Drone Strategy represents a timely opportunity to build on existing achievements and address the structural barriers that continue to limit operational rollout, ensuring that Europe moves from successful demonstrations to real operations across the EU.

Despite Europe's leadership in regulation and innovation, deployment remains uneven and limited across Member States. This is not due to a lack of solutions, but due to systemic challenges that affect the entire ecosystem:

- 1) Lack of EU-wide harmonisation and uneven authority capacity at EU, national, and local levels
- 2) Gaps in funding between innovation and deployment
- 3) Fragmentation between civil, security and defence domains
- 4) Fragmented governance and lack of multi-stakeholder integration
- 5) An overly complex U-space framework, coupled with a slow roll-out
- 6) Lack of full alignment in standards development

Addressing these challenges requires a shift from fragmented initiatives to a **coordinated European approach focused on execution, scale and market uptake.**

Against this backdrop, we advocate introducing a **single European Deployment Roadmap**, aligning regulatory, operational, industrial and funding efforts under a shared objective: **scaling drone operations across Europe in a consistent, predictable and interoperable way.**

This roadmap should act as a **common reference point for all stakeholders**, ensuring coherence across initiatives and providing a clear direction for implementation. It should define **deployment-driven milestones**, align EU and national actions, prioritise solutions ready for operational rollout, and ensure consistency across civil, security and defence use cases. Crucially, it should also establish a **clear and coordinated funding framework across all maturity stages**, ensuring continuity from research and innovation to deployment and commercial scale-up.

## Key enablers for deployment at scale

To respond to the challenges outlined above, the following key enablers will need to be addressed in a European Deployment Roadmap to achieve real, repeatable and scalable deployment of drone and IAM operations.

### 1) EU-wide harmonisation and authority capacity

The effective functioning of the EU drone single market depends on the ability to ensure consistent, predictable and timely implementation of rules across Member States.

Today, **significant differences remain in technical capacity, processing time and interpretive approaches among national authorities**. This results in fragmentation, delays and reduced scalability of operations across Europe.

Achieving **EU-wide harmonisation in practice, not only in regulation**, is therefore a key priority for enabling deployment at scale.

Furthermore, it is essential to recognise the crucial role of local authorities and municipalities in the effective deployment of IAM operations. These entities are key actors in territorial integration, public acceptance, and urban space management, yet they often lack the necessary technical, regulatory, and financial resources. Therefore, a European strategy should include targeted support measures, such as clear regulatory guidance, dedicated funding, and capacity-building tools, to enable local administrations to actively and confidently participate in the implementation of IAM services.

#### A renewed drone strategy should:

- Strengthen **harmonised implementation of EU rules**, ensuring consistency across Member States
- Ensure that **EU, national, and local authorities are adequately equipped** to address current and future operational demands
- Accelerate **digitalisation of authorisation and oversight processes**, improving efficiency and transparency
- Promote **common approaches and tools** to reduce divergence and increase predictability for operators.

Crucially, this should include the systematic and harmonised use of Qualified Entities with different levels of privilege as a practical mechanism to support authorities, including cities and ports, enhance capacity and ensure consistent application across the Union.

### 2) Enabling deployment through targeted funding

Europe already has a range of funding instruments supporting drone-related activities, including Horizon Europe, the SESAR 3 Joint Undertaking, and the Connecting Europe Facility.

However, these instruments are **not yet sufficiently aligned nor deployment-oriented** to support scaling across Europe, and their structure remains fragmented across programmes and policy areas.

Drones are no longer a future concept. They are already being used across logistics, infrastructure, emergency response and security operations. The challenge is not to enable their emergence but to enable their deployment at scale across all use cases, including those spanning civil, security and defence domains.

In this context, the upcoming evolution of European ATM and U-space programmes provides a key opportunity. Building on the experience of SESAR 3, a future programme should place stronger emphasis on:

- Integration of drone and IAM operations into the broader aviation system
- Deployment-oriented activities and scalability of solutions up to TRL 8
- Alignment between research, validation and operational implementation
- Support for IAM training for key stakeholders such as local authorities, cities and ports, to help promote advanced drone operations

A coordinated and structured approach to funding and programme design is essential to ensure that mature solutions are not only developed but effectively deployed across Europe.

#### A renewed drone strategy should:

- **Recognise drones** as an established component of Europe's transport, logistics and service ecosystem, ensuring appropriate prioritisation also in EU programmes with a civilian focus
- Ensure **continuous support** across all stages of market uptake, from high-TRL validation to operational rollout
- Provide a **clear and structured overview** of available funding instruments, improving accessibility and coherence for deployment-ready actors
- Strengthen **alignment between existing instruments and operational programmes** to create a coherent and predictable funding pathway across all applications.

### 3) Enabling scale and resilience in dual-use, security and defence

In addition to civilian deployment needs, drones are increasingly critical for security, defence and resilience missions across Europe.

However, beyond funding gaps, a key limitation lies in the **lack of a clear and structured framework to manage the transition between civil, dual-use and defence applications**.

Today, solutions often evolve across these domains, but:

- The boundaries between civil and dual use are not clearly defined
- There are limited mechanisms to transition solutions from civil to security or defence use
- Funding, procurement and operational frameworks remain largely disconnected.

This fragmentation limits scalability, slows down deployment and weakens Europe's ability to fully leverage its technological base.

#### A renewed drone strategy should:

- Enable clear **dual-use pathways from development to deployment**
- Define **transparent criteria and interfaces** between civil, dual-use and defence applications
- Support **mechanisms for transition and transferability** of solutions across domains
- **Align funding, procurement and operational frameworks** to enable continuity
- Establish a **European Deployment Facility for drone and IAM operations**, designed to bridge the gap between mid-TRL development and operational deployment. This facility should support the transition from validated solutions to large-scale rollout, ensuring continuity between existing programmes such as Horizon Europe, SESAR and the European Defence Fund, and enabling faster and more coordinated deployment across Europe.

Together with civilian funding instruments, this should form a coherent European framework supporting deployment across all use cases and domains.

#### 4) From fragmented governance to a unified ecosystem through multi-stakeholder integration

Drone operations already take place in a shared low-altitude environment involving civil aviation, military aviation, law enforcement, emergency services and local authorities.

However, these actors continue to operate through **largely separate institutional and operational frameworks**, resulting in:

- Fragmented situational awareness
- Lack of visibility, linked to varying requirements depending on the type of airspace users
- Limited interoperability between systems and procedures
- Inability to fully leverage data across domains, including for security and counter-UAS applications

This fragmentation is a key barrier to scaling operations and unlocking the full value of drone services.

At the same time, recent large-scale demonstrations have shown that integrated operational models are both feasible and effective, combining civil, security and defence actors within a common framework.

**A renewed drone strategy should:**

- Establish a **unified operational approach to low-altitude airspace**, integrating civil, security and defence actors
- Enable **shared situational awareness through electronic conspicuity and cross-domain data exchange**
- Align operational, regulatory and technological frameworks to support **interoperability by design**.

The challenge is no longer to demonstrate integration, but to make it the standard operating model across Europe.

### **5) U-space as a catalyst for airspace transformation**

U-space represents a native digital, automated and scalable approach to airspace management, built around dynamic authorisation, real-time data exchange and highly automated service provision. As such, it is a **key enabler for the safe and efficient deployment of drone operations**, providing mechanisms to mitigate operational risks through structured services and digital coordination.

However, to fully deliver on this potential, **greater clarity and acceleration of deployment are needed**.

**A renewed drone strategy should:**

- Clearly define the **role of U-space in risk mitigation**, including the risks addressed, their mitigation, and the operational impact of these services
- **Prioritise and accelerate the deployment of U-space**, as it represents a critical enabler for scaling operations safely
- **Ensure that U-space implementation is simplified, proportionate and harmonised** across Member States, reducing unnecessary complexity and interdependencies that may hinder operational deployment
- **Ensure that U-space is implemented as a value-adding operational framework for operators**, providing clear benefits in terms of safety, predictability and scalability, rather than an additional burden.

At the same time, U-space should not be treated as an isolated framework but leveraged as a key enabler to accelerate the digital transformation of European airspace management.

This implies:

- Promoting digital, automated and API-driven service architectures
- Preserving the scalability and flexibility inherent to U-space design
- Avoiding the introduction of unnecessary procedural or structural constraints that could limit automation and efficiency
- Encouraging cross-fertilisation between U-space and ATM to support a more integrated and future-proof airspace system

U-space should both enable drone operations today and help shape the airspace system of tomorrow.

## **6) A strategically coordinated European approach in standardisation**

Standardisation is a key enabler of interoperability, regulatory implementation and industrial competitiveness in the drone ecosystem. As such, it is not only a technical matter, but a strategic choice with implications for Europe's industrial position and long-term autonomy.

Europe already benefits from a well-established standardisation framework, notably through EUROCAE, which operates in close coordination with EASA and maintains a UAS Standardisation Rolling Development Plan aligned with EU regulatory needs. At the same time, non-European standards, which often reflect a different technological and operational approach, are increasingly used in regulatory contexts as pragmatic solutions to address short-term gaps. This has implications across the entire ecosystem, including system design, manufacturing, interoperability and market development.

This **lack of full alignment in standards development** can lead to fragmentation, inconsistencies in implementation, and reduced scalability of solutions across Europe.

**Ensuring a coherent and strategically aligned approach to standardisation, underpinned by financial support for standards development and stretching across the entire multi-modal transport system**, is therefore essential to support interoperability, industrial competitiveness and the development of a strong European drone ecosystem, enabling solutions to scale efficiently across the Single Market.

In this context, European standardisation frameworks, with strong European participation, are well positioned to ensure alignment between standards, regulation and operational implementation.

#### A renewed drone strategy should:

- Ensure clear **strategic coordination of standardisation activities** at the European level
- **Prioritise European standards**, particularly those developed through EUROCAE, where aligned with regulatory needs
- **Strengthen European standardisation frameworks** aligned with operational and regulatory requirements
- Promote a **consistent approach to standards development** to avoid fragmentation.

A coherent and strategically aligned European approach to standardisation is essential to enable deployment at scale while maintaining industrial leadership and technological autonomy.

## Conclusion: From strategy to implementation

A renewed EU Drone Strategy should build on the strong foundations already established by the European Commission and its partners. By aligning regulatory capacity, funding, governance and standardisation under a shared European roadmap, Europe can unlock real, scalable drone and IAM operations across the Single Market – delivering economic, societal, environmental and security benefits while maintaining its global leadership.

It is time for Europe to recognise the drones and IAM ecosystem in all its diversity – from manufacturers, operators, software developers and service providers to local authorities – as an integral component of the aviation sector. Moving the focus towards effective implementation, scale and operational deployment will be key to achieve this shift.

AME looks forward to discussing and refining these proposals with the European institutions and the whole community, supporting the development of a coherent and deployment-oriented renewed EU Drone Strategy.