



Towards SAFE and SECURE Urban Air Mobility: The Manufacturer's Perspective

Dr Vassilis AGOURIDAS
Chair of the ASD UAM Committee

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1. ASD Membership

17 Companies



23 National Associations

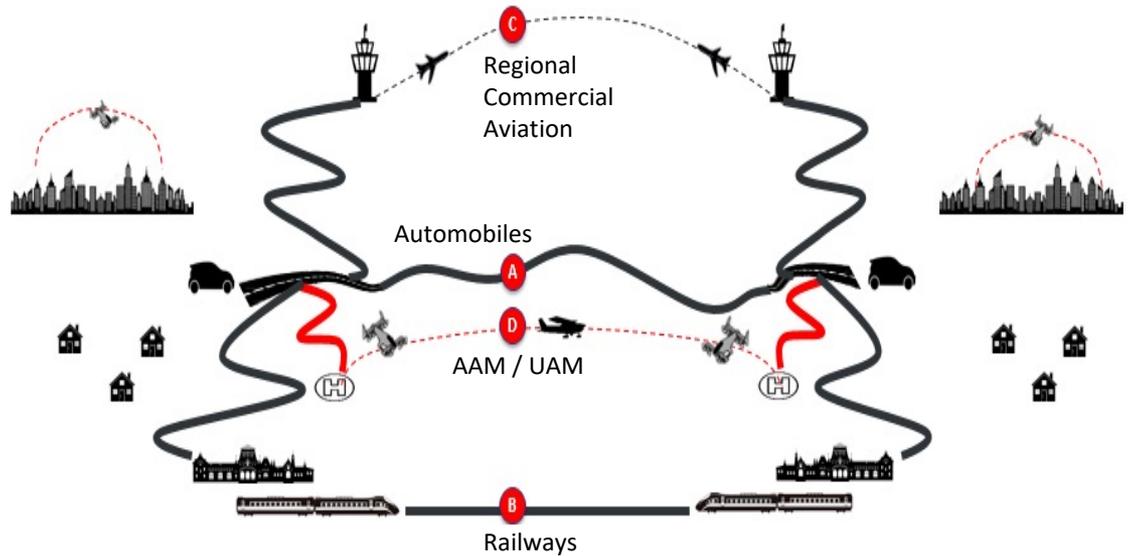


2. Perspectives on the Evolution

Transportation modes

NASA's vision for Advanced Air Mobility (AAM) Mission is to help emerging aviation markets to safely develop:

- a **new air transportation (AAM / UAM)** that moves people and cargo between places previously not served or underserved by aviation – local, regional, intra-regional, urban –
- using revolutionary new aircraft (e-aircraft) that are only just now becoming possible.



D Advanced Air Mobility / Urban Air Mobility

With the progression of technological advancements new solutions could start challenge/reshape sub-regional or regional transportation air modes as known today

2. Perspectives on the Evolution

Distinctive capabilities & New players

Traditional aviation entry barriers are being eroded

Current Architecture Shaped Sector's Distinctive Competences...



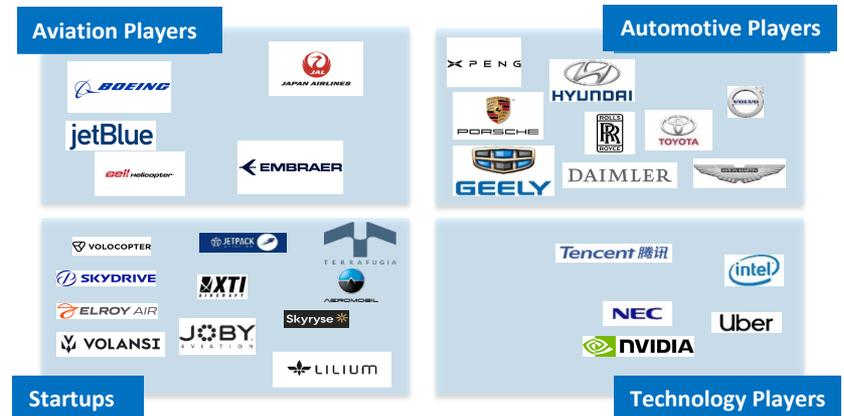
- Current architectures leverage on the capability to properly manage systems like **engine, transmission and rotors**
- Current architecture has clear limits and maximum flight speed, noise and cost reduction

...Technologies Maturity Increase will Open Up New Architectures ... and New Applications



- New architectures leverage on brand new systems (e.g. electric motors, high density batteries, autonomous functionalities) and in turn new capabilities
- News approaches open up extended applications no more constrained by old limitations

- The competitive landscape for new aerial mobility is now quite broadened (cross-sectoral)
- New players could leverage on the advantage provided by:
 - ✓ the ownership of essential capabilities now required by the new market (e.g. large scale manufacturing and supply chain)
 - ✓ the fact that incumbent's know-how is not fully sufficient to address the development of new systems



3. Safety and Security – A Means and Not an End

- There should be a high level of safety, as defined in the regulations and supported by EASA and ICAO.
- Safety is just one part:
 - The whole transportation ecosystem must be included: communication and navigation (ATM and UTM), vehicles (eVTOL and UAS), other aviation (helicopters and international transport), non-aviation (public transport, bikes).
 - VTOL operations are expected to participate in high-frequency transport of people and cargo in the urban environment. This may be different from helicopter operations which are usually on a lower frequency. Nevertheless, helicopters have a role to play in UAM.
- The synergies between civil and defence/security must be understood and fostered. UAM technologies for defence and security can have dual-uses:
 - Civil technologies can be used for defence (e.g., last mile troop deployment) and security (e.g., police and border forces) applications.
 - Defence funds, research and lessons learned can accelerate technology advancements, which can then be fed into the civil sector.
- Industry standards are critical for interoperability.

4. Social Acceptance

Patrick Ky: “[F]or the first time, EASA and the EU have insights into what the general public in Europe thinks about this **entirely new development in the field of aviation.**” ... “For EASA as a regulator this **information is crucial.** It will allow us to set up the **rules and regulations** for this area in a way that is **aligned with the expectations and perceptions of citizens.**”

The infographic is a grid of 10 numbered points, each with an icon and a text description. The points are arranged in two columns. The first column contains points 1, 2, 3, 4, and 5. The second column contains points 6, 7, 8, 9, and 10. Each point is enclosed in a light blue oval. The numbers 1 through 10 are large and orange. The text is in blue. The icons are simple line drawings.

- 1** A POSITIVE INITIAL ATTITUDE TO UAM THROUGHOUT THE EU
- 2** STRONG SUPPORT FOR USE CASES THAT ARE VALUABLE TO ALL
- 3** TOP 3 EXPECTED BENEFITS: FASTER, CLEANER, EXTENDED CONNECTIVITY
- 4** TOP 3 CONCERNS: SAFETY, ENVIRONMENT/NOISE AND SECURITY
- 5** SAFETY: EXISTING AVIATION SAFETY LEVELS ARE THE BENCHMARK
- 6** ENVIRONMENT: PRIORITY IS PROTECTION OF WILDLIFE
- 7** NOISE: ACCEPTABLE AT LEVEL OF FAMILIAR CITY SOUNDS
- 8** NEED TO BUILD CONFIDENCE AND TRUST IN CITIZENS
- 9** GROUND INFRASTRUCTURE: MUST INTEGRATE WELL
- 10** REGULATORY AUTHORITIES: MUST WORK TOGETHER AT ALL LEVELS

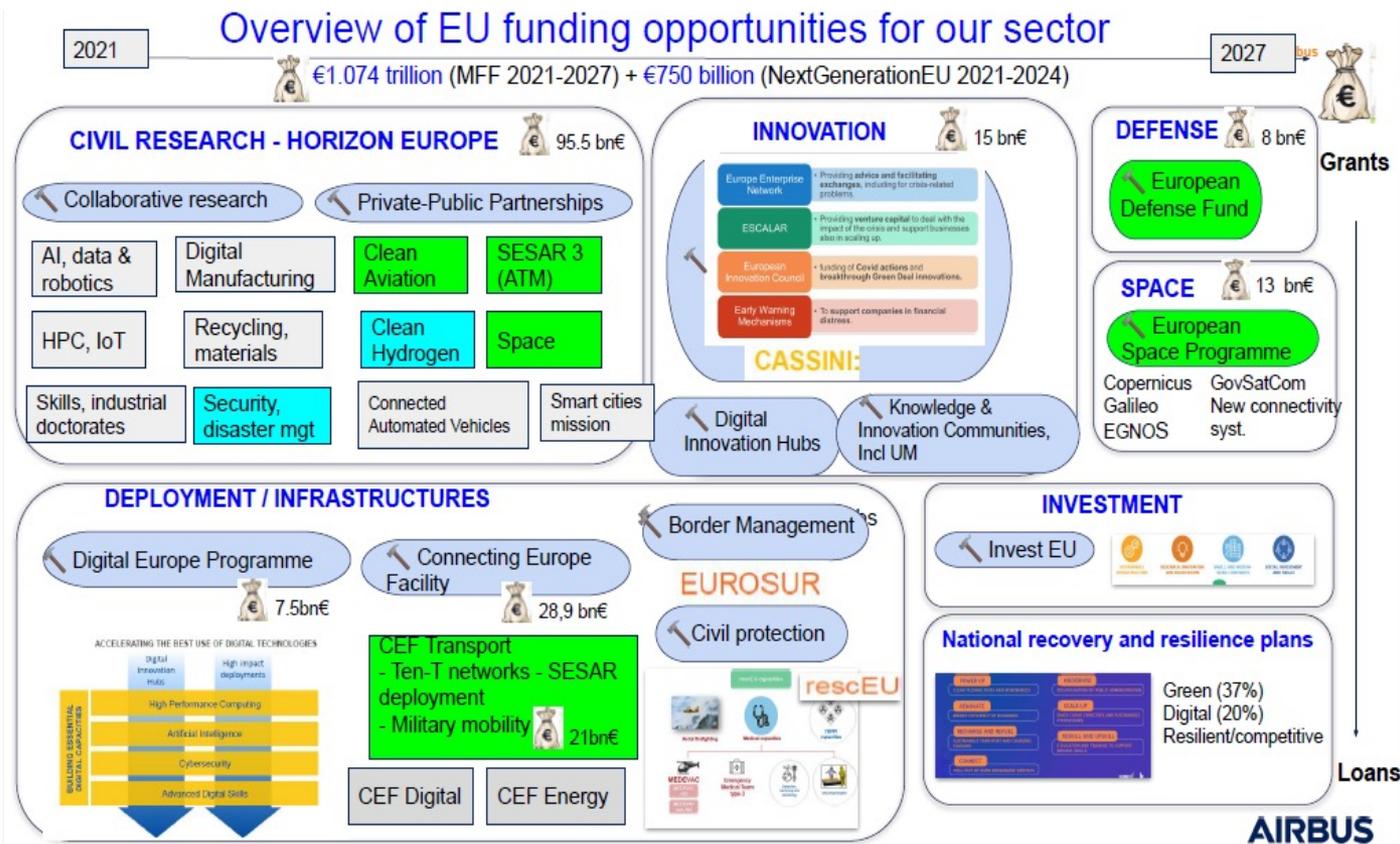
Similar trust level towards local, regional, national and European authorities to address UAM
Expectation by respondents is that local actors will contribute in developing the regulations

4. Social Acceptance - Genuine 'Market Pull'

- The development of UAM services can deliver **societal benefits** to cities and their citizens: Economic, environmental, health and wellbeing outcomes, & transport.
- In developing these **mobility services**, many diverse factors have to be taken into account from a societal perspective, including: safety, noise, visual pollution, wildlife protection, inclusion, affordability, lifecycle assessment topics and privacy.
- This means that UAM services **will not be intrinsically** embraced by society.
- All stakeholders must work together to engage with public authorities, entities and other private actors including citizens, to ensure that **UAM services are responsibly developed**, understood, embraced and even demanded by citizens.
- ASD sees EASA taking the lead in ensuring a dialogue, and where applicable joint work, among all stakeholders, **both aviation and non-aviation**, is taking place.

5. Public Funding on UAM

- Currently EU HE funds are allocated on a broad number of topics, some of which are included in UAM perimeter.
- As there is no specific UAM programme, it would be very difficult to connect a European Strategic Roadmap, to the required funds to ensure competitiveness of European industrial ecosystem.



Key message

-- Creation of a UAM programme funding pot --

There is a need for a stand-alone mobility-driven UAM funding pot

(i.e. complementary to SEJAR JU and other Aviation R&I).

ASD's Response

- High-level Committee established to coordinate UAM topics.
- Creation of 3 Working Groups:
 - UAM Social Acceptance WG (incl. Wider Mobility Ecosystem)
 - UAM Funding and Research WG
 - eVTOL Regulation & Standards WG
- Coordination with other ASD groups:
 - UAS WG
 - UTM WG
- ASD, as the traditional association of aviation and defence manufacturers, is present and very active in this exciting, emerging domain, and its members are keen to ensure and safeguard

NOT ONLY

the right level of safety is established and all stakeholders are engaged,

BUT ALSO

the responsible and sustainable development of this new domain, where Europe can be a leader.



THANK YOU