

DRIVING THE SUSTAINABLE & RESPONSIBLE TRANSITION OF URBAN MOBILITY TO THE THIRD (VERTICAL) DIMENSION

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AIRBUS, Urban Mobility

Overview of UIC2

28 February 2022

Urban Air Mobility Initiative Cities Community

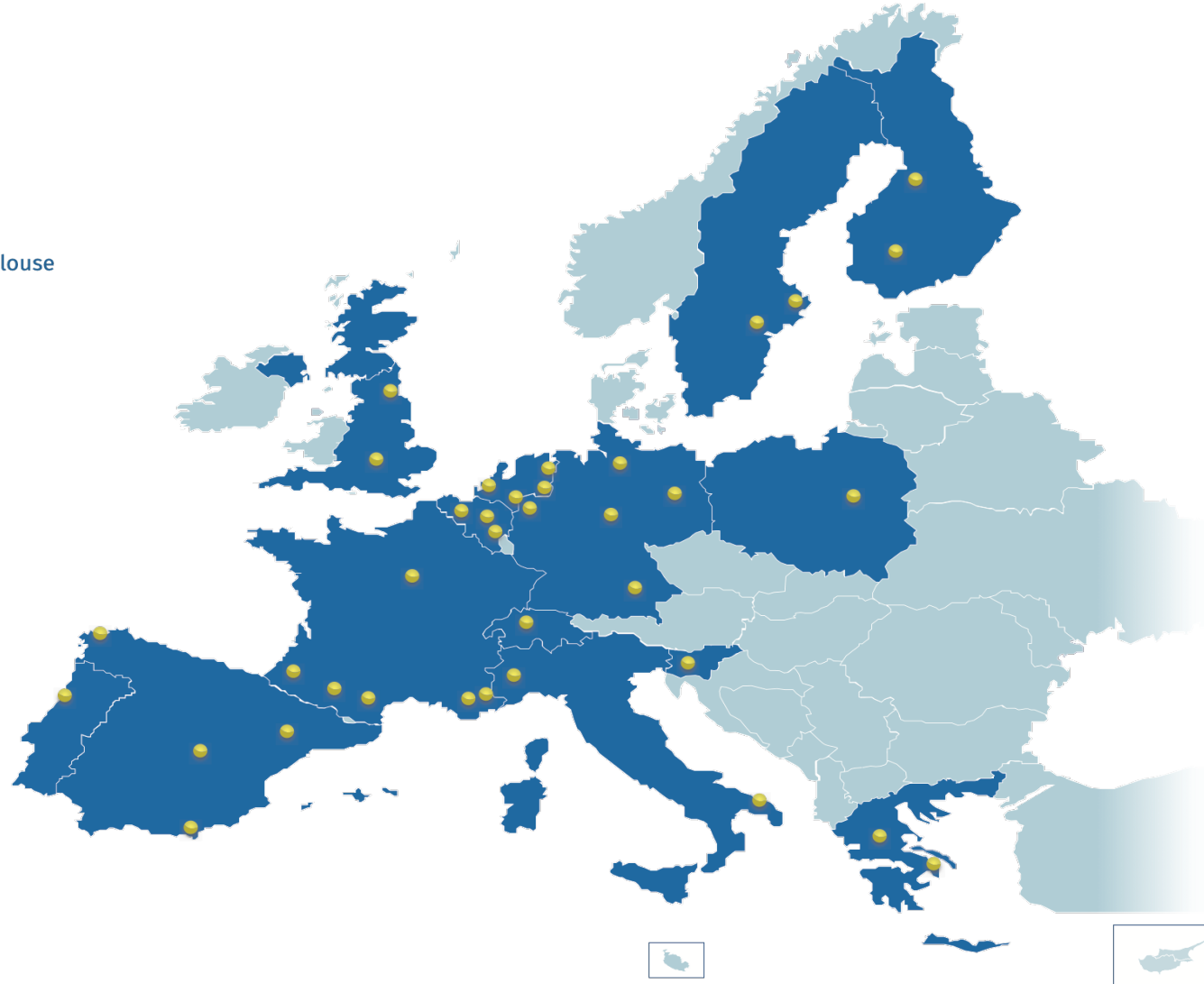
The voice of cities and regions in urban air mobility

DRIVING THE SUSTAINABLE & RESPONSIBLE TRANSITION OF URBAN MOBILITY TO THE 3RD DIMENSION

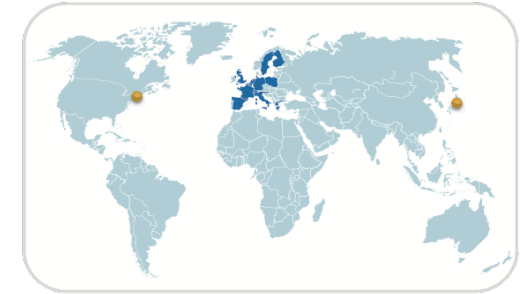
City & Region Members

-  Antwerp, Hasselt & Liege (MAHHL)
-  Oulu, Tampere
-  Aix-Marseille, Albi, Ile de France, Region N. Aquitaine, Region Sud, Toulouse
-  Aachen (MAHHL), Berlin, Hamburg, Ingolstadt, Region Northern Hesse
-  Egaleo, Trikala
-  Bari, Turin
-  Amsterdam, Enschede, Heerlen & Maastricht (MAHHL)
-  Metropolia GZM
-  Porto
-  Ljubljana
-  La Coruna, Madrid, Malaga, Zaragoza
-  Norrkoping, Stockholm
-  Canton of Geneva
-  Durham, Oxfordshire County

Latest update: 17 Feb. 2022



International City & Region Partners



Mie Prefecture 

Commonwealth of Massachusetts 

Knowledge Partners



An initiative of the Smart Cities Marketplace  #EUSmartCities

Mobility solutions in smart cities

Motto of UAM initiative:

Smart mobility in smart cities:

WALK.
RIDE.
DRIVE.
FLY.



Source: Modified from Frost & Sullivan

Typical multimodal mobility solutions in smart cities/regions do not consider air mobility

Urban? Suburban? Regional? Advanced?....

'Urban' is simply used as a semantic to indicate...

**Very-low altitude airborne traffic*,
above populated areas, at scale,
that is sustainably integrated with
surface mobility systems**

** Traffic manifested by various types of suitable airborne vehicles*



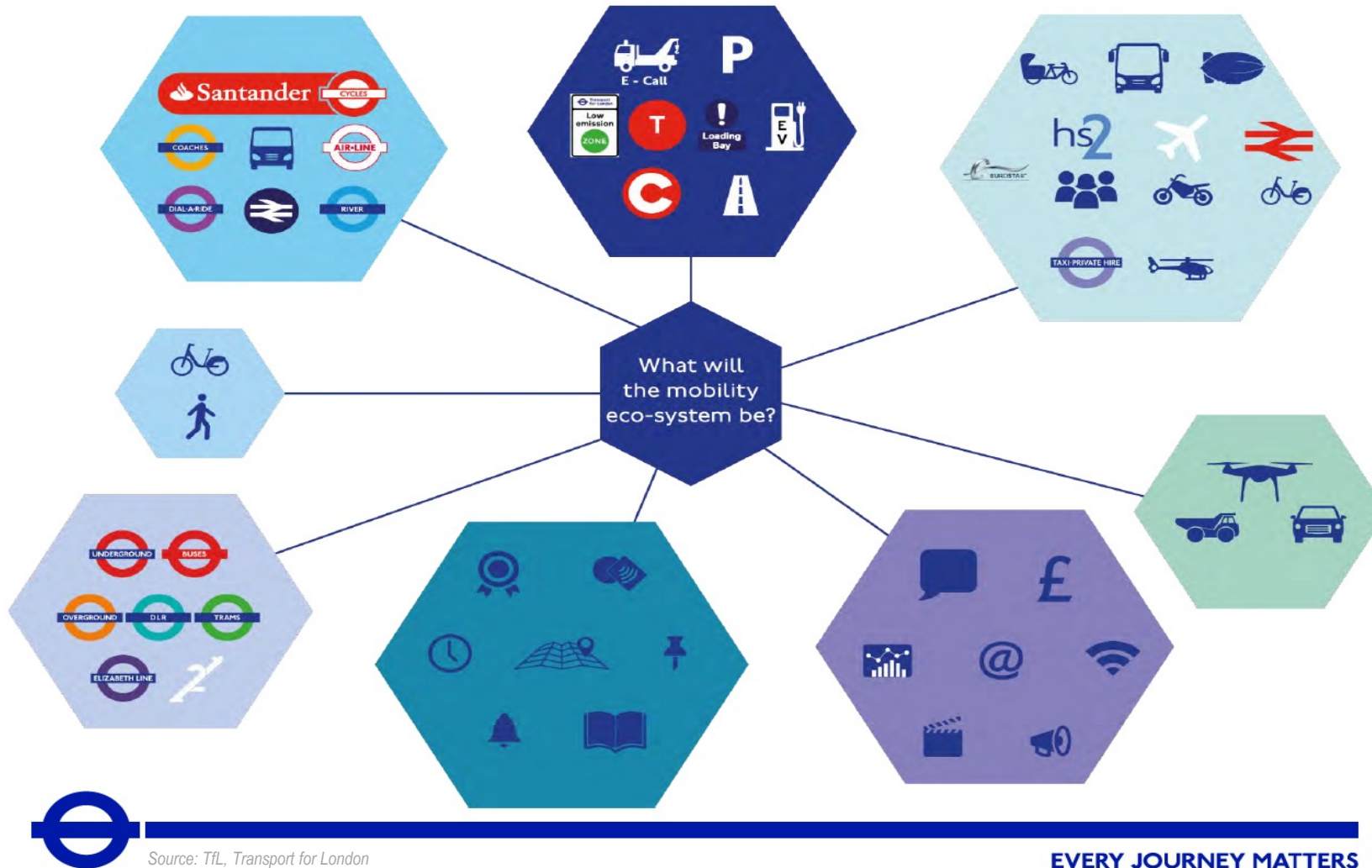
City-centric & Citizen needs-driven

**Sustainable Urban Mobility
 Policy & Demonstrators**
 focused on UAM by addressing:

1. UAM interfaces with *public transport**
2. Mobility as a Service
3. Ground infrastructure for UAM
4. ATM / UTM concepts for UAM in accordance with the U-Space framework

* Or other interfaces: e.g. logistics platform, emergency services hubs, etc.

Illustration of the urban mobility ecosystem



Urban air traffic is only fractional when compared to the total footprint of urban traffic

...nevertheless,
‘Co-Existence’
&
Integration
are a prerequisite



Source: TfL, Transport for London

EVERY JOURNEY MATTERS



What is MaaS?



Mobility as a Service

- Journey planner
- Booking
- Ticketing
- Real-time information & support

- Resulting in optimised use
- of public, private & shared fleets
 - transport network capacity

The imperative for
air and ground
traffic integration



UIC2 cities and regions, experience, lessons learnt and reflection

The SUMP-UAM Practitioner Briefing

<https://www.eltis.org/in-brief/news/new-sump-practitioner-briefing-urban-air-mobility>





Source: Airbus Boeing Joint Paper: A New Era of Aviation, 2020

Modernizing ATM

TODAY: SEPARATE UTM & ATM

NEAR TERM: UTM & ATM CONVERGENCE

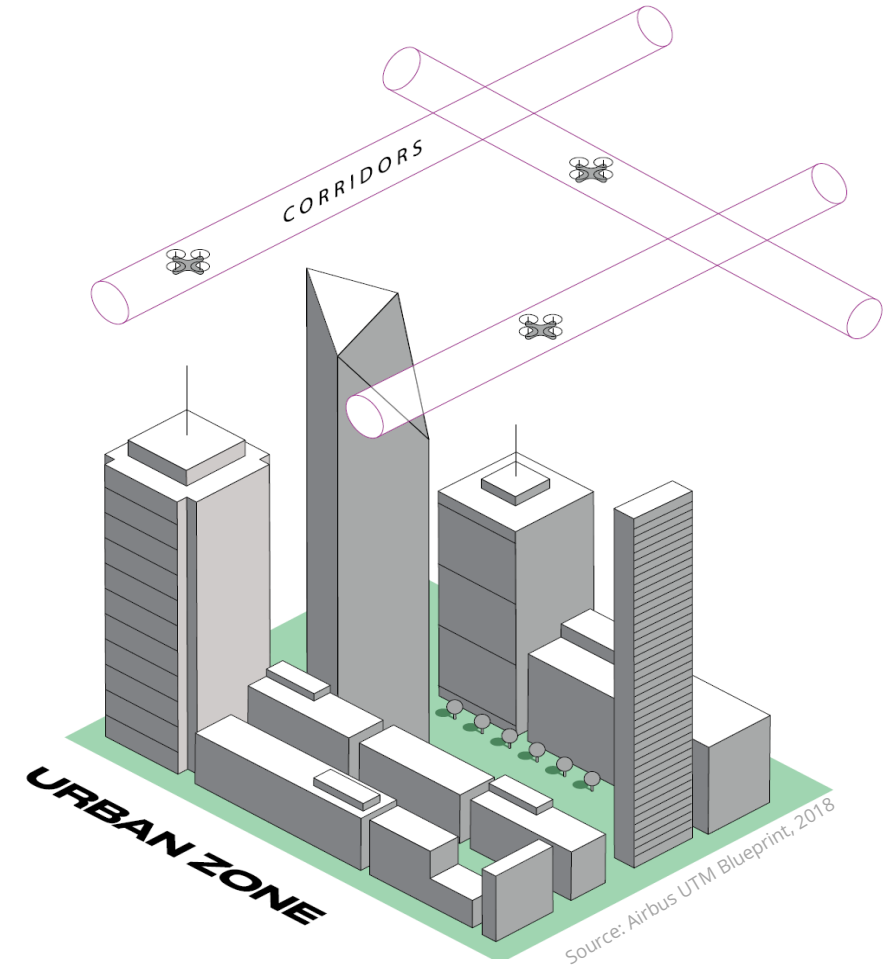
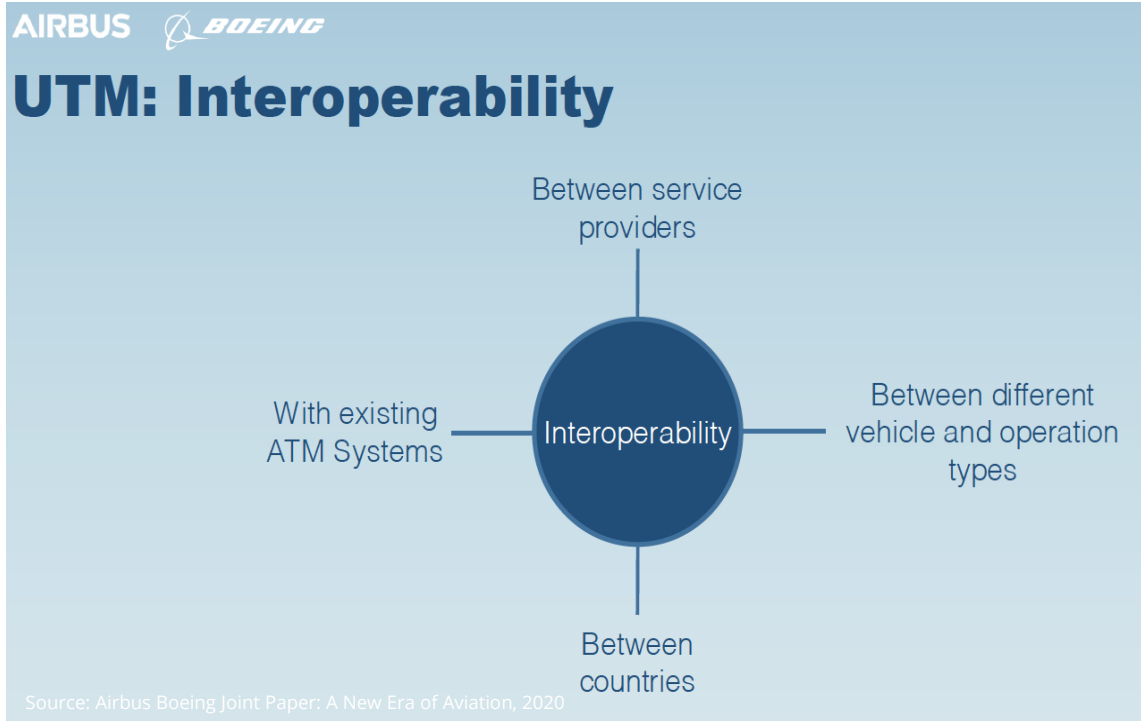
FUTURE: UTM & ATM INTEGRATED AIRSPACE



ATM: Air Traffic Management
UTM: Unmanned Traffic Management

■ ATM ■ UTM ■ Integrated

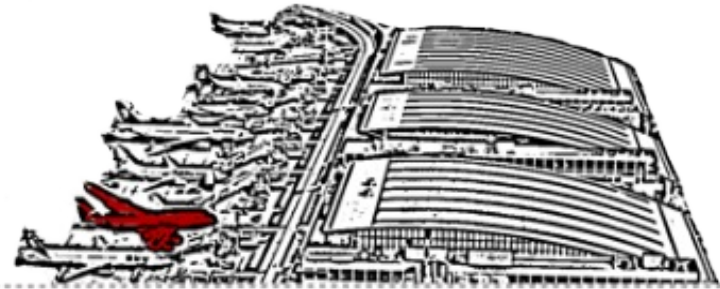
Urban traffic goes to the third dimension!



'Urban' implies more than increased levels of safety and security

Urban air traffic sets . . .

- ✓ Airspace digitalisation
- ✓ New infrastructure (*aviation + mobility*)
- ✓ New interfaces (*aviation + mobility*)
- ✓ New business / services
- ✓ New mindset for policy and regulatory approaches (*e.g. embracing innovation*)



Source: Free and Hanseatic City of Hamburg, 2020



New perspectives for industry

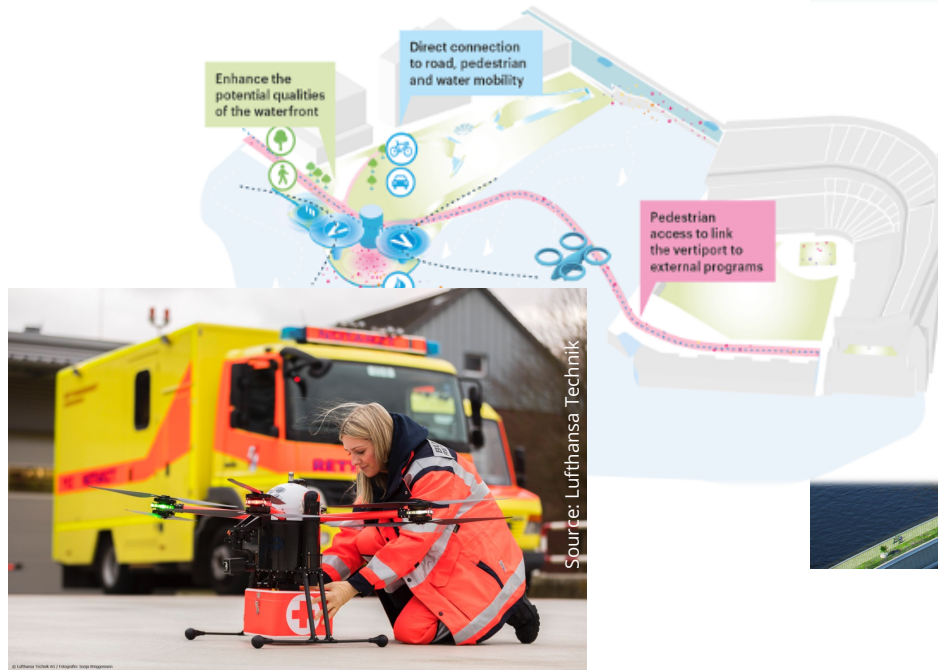
New economic spaces above cities

New perspectives for mobility

. . . a new 'status quo'

UAM offers cities new opportunities . . .

- ✓ **But** also new tasks and responsibilities for them
- ✓ At the same time, **cities**, as a layer of government closest to citizens, are an essential player in having an **influential / deciding role** in the governance of the urban airspace / U-Space



Source: AIRBUS



Multilevel Governance of the Urban Sky



www.amsterdamdroneweek.com/manifesto



Manifesto on the Multilevel Governance of the Urban Sky by the UAM Initiative Cities Community – UIC²

Amsterdam, 01 December 2020

The UAM Initiative Cities Community (UIC²) of the EU's Smart Cities Marketplace – formerly known as EIP-SCC Urban Air Mobility (UAM) Initiative – is thankful to the European Commission for supporting it through its smart cities marketplace platform since October 2017.

The members of the UIC² recognise the importance for harmonised and universal U-Space regulation at EU level. We acknowledge the need for approval of urban flight operations at national level, in alignment with U-Space regulation. Moreover, we recognise the need for national and regional competent civil aviation authorities to lead the legal implementation and approval of urban flight operations in accordance with the principles of subsidiarity and proportionality.

The members of the UIC² also recognise and request that the **role of the cities and regions as one of the competent authorities in the governance of the urban airspace, is explicitly acknowledged and referenced** in the prospective U-Space legislative clauses of Member States. This is an imperative in the context of multilevel governance of U-Space and responsive decentralised policy implementation.

In specific, the UIC² members request that:

1. Cities/Regions have a deciding role for allowing the operation of UAM services of public interest (e.g. future public transport, postal-deliveries, emergency services) in alignment with the needs and preferences of their citizens.
2. Cities/Regions have a deciding role in establishing to what extent UAM/U-Space operations can be conducted in their territories.
3. Cities/Regions have a deciding role where UAM/U-Space flight operations are permitted within their territories (e.g. geo-fencing, day- / night-time restrictions, noise and visual abatements).
4. Cities/Regions have a deciding role where take-off and landing sites are to be built.
5. Prosecution of infringements of the public use of the urban airspace over a city/regions remains a local task.

The members of the UIC² trust that the above requests will be treated with consideration and attention in: a) the forthcoming European U-Space Regulatory Framework by acknowledging the imperative for multilevel governance of U-Space; and b) the legislative processes of U-Space Regulation by Member States.

Background

The UAM Initiative of the Smart Cities Marketplace has enabled cities and regions to become UAM role models and to discuss their opinions and concerns directly with European and State Member authorities and policy making bodies, including DG-Move, EASA, Eurocontrol and SESAR JU. For example, the German UIC² members are building a partnership, since 2019, that is supported by the BfWL (Federal Ministry of Transport and Digital Infrastructure) to focus on open exchange and collaboration as well as standard-setting for more future UAM cities and regions.

The efforts and engagement of UIC² alongside with the European Commission's support have resulted in fruitful interactions and concrete actions towards sustainable and integrated urban mobility, some of which are highlighted below:

- The invitation to UIC² to become member of U-Space Network of Demonstrators in October 2018. This has helped us to be in contact and discuss with ANSPs (Air Navigation Service Providers), industry actors and national authorities regularly;
- The invitation to UIC² Task Forces (representatives, including Mayors/Vice-Mayors) to meet with the former Commissioner of Transport (Violeta Bulc, DG-Move) in May 2019. This has allowed us to share the progress of the community's work as well as the specific challenges faced by the local authorities in sustainably nurturing and safely advancing the UAM ecosystem.
- The invitation to UIC² to participate in U-Space regulation drafting workshops at EASA headquarters in May 2019. This allowed UIC² to further emphasise the

importance of the role of cities and regions in the governance of urban airspace.

• The preparation of an EIB (European Investment Bank) Advisory Hub assignment for UAM since 2019, and its launch in February 2020 to both support UIC² members towards the development of their business models and carry out an early market assessment of the UAM sector.

• The development of two UAM-dedicated calls for funding in the context of sustainable urban mobility under the H2020 framework (2019-2020); namely, the UAM Research and Innovation Action (RIA, MG-3.6) and the UAM Coordination and Support Action (CSA, UG-1.12) calls. These enabled some UIC² members and their industrial and academic partners to participate in consortia and be awarded respected funding for their projects starting in Q1 2021.

• The invitation and assignment to the UIC², in December 2019, of the task to develop the Practitioners Briefing on UAM in the context of the Sustainable Urban Mobility Plan process (SUMP-UAM). The ongoing city/region-led work sheds light, based first-hand experience from the UIC², into the challenges, opportunities, lessons learnt and initial recommendations to effectively integrate UAM aspects in the SUMP processes of cities and regions across Europe.

UIC² highly acknowledges and appreciates the European Commission's support and dedication towards this community that has led to its recognition as the leading city/region-driven community on UAM.



Cities and Regions already supporting ...

... as of 10 Dec 2021

Organisations / Associations already supporting ...

International (outside the EU) Cities and Regions already supporting ...

Extract from the Commission Implementing Regulation (EU) 2021/664 of 22 April 2021 on a regulatory framework for the U-space.
<https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32021R0664>

Article 18

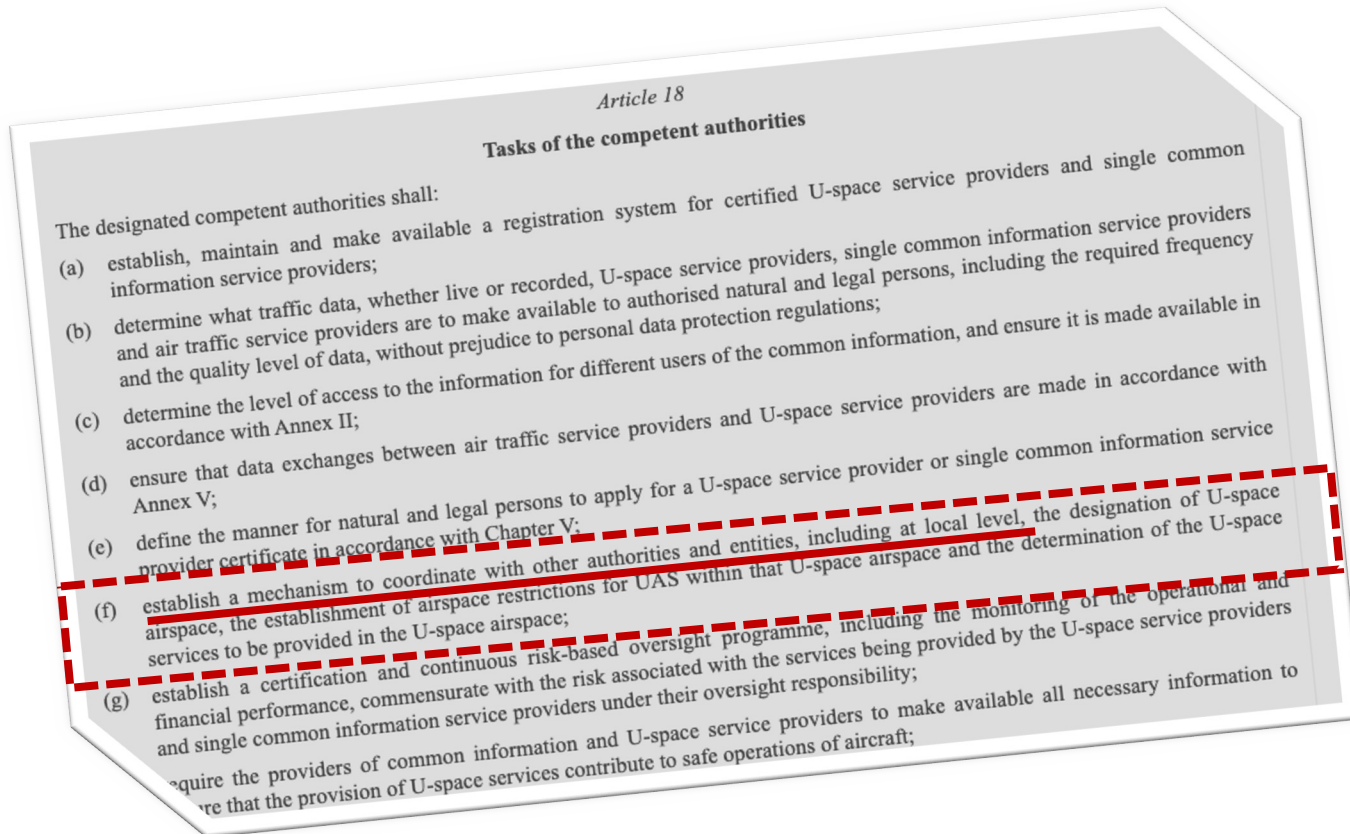
Tasks of the competent authorities

The designated competent authorities shall:

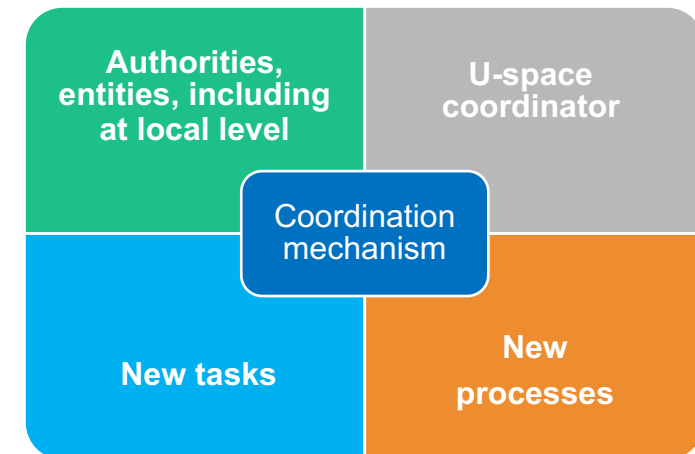
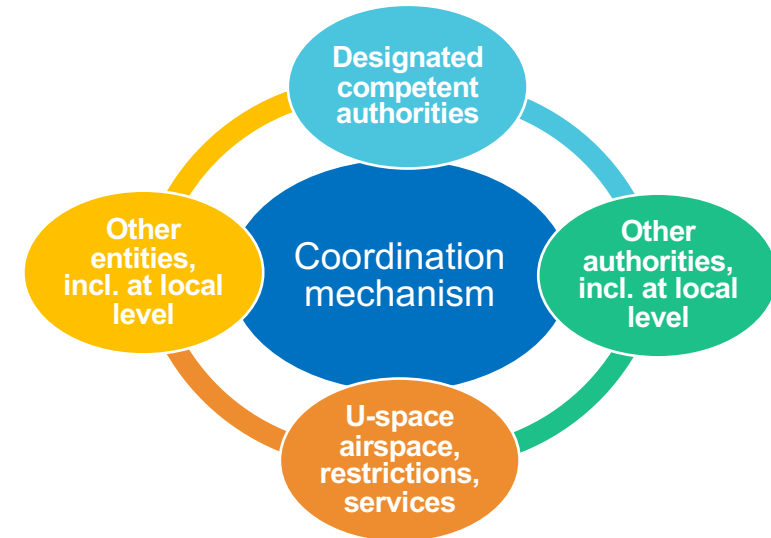
- (a) establish, maintain and make available a registration system for certified U-space service providers and single common information service providers;
 - (b) determine what traffic data, whether live or recorded, U-space service providers, single common information service providers and air traffic service providers are to make available to authorised natural and legal persons, including the required frequency and the quality level of data, without prejudice to personal data protection regulations;
 - (c) determine the level of access to the information for different users of the common information, and ensure it is made available in accordance with Annex II;
 - (d) ensure that data exchanges between air traffic service providers and U-space service providers are made in accordance with Annex V;
 - (e) define the manner for natural and legal persons to apply for a U-space service provider or single common information service provider certificate in accordance with Chapter V;
 - (f) establish a mechanism to coordinate with other authorities and entities, including at local level, the designation of U-space airspace, the establishment of airspace restrictions for UAS within that U-space airspace and the determination of the U-space services to be provided in the U-space airspace;
 - (g) establish a certification and continuous risk-based oversight programme, including the monitoring of the operational and financial performance, commensurate with the risk associated with the services being provided by the U-space service providers and single common information service providers under their oversight responsibility;
- require the providers of common information and U-space service providers to make available all necessary information to ensure that the provision of U-space services contribute to safe operations of aircraft;

Extract from the Commission Implementing Regulation (EU) 2021/664 of 22 April 2021 on a regulatory framework for the U-space.

<https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32021R0664>



A novel approach to build up the coordination mechanism
(based on draft NPA 2021-14 published on Dec. 2021)

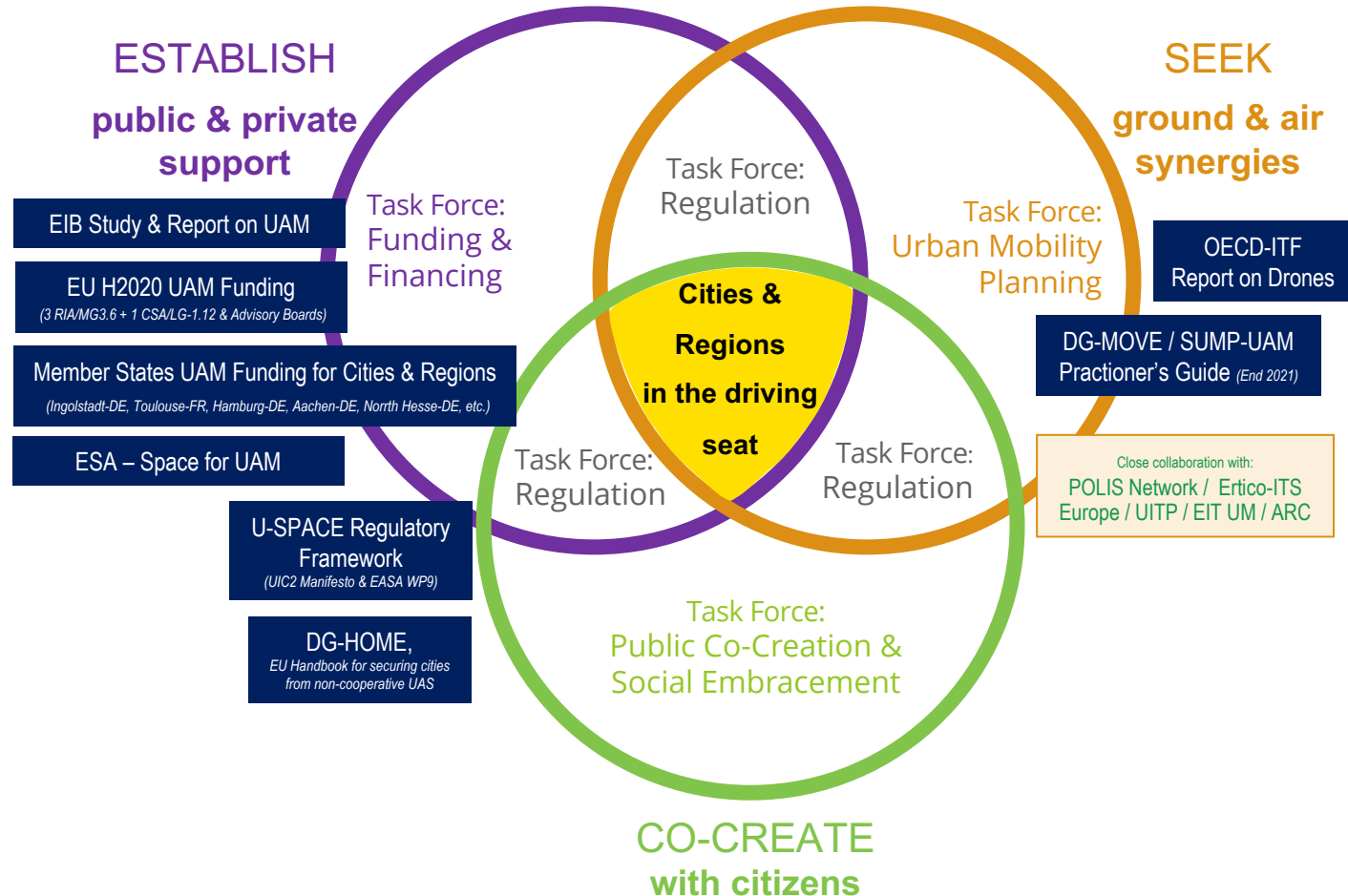


Towards a sustainable & responsible transition to UAM

A three-fold approach is required

Reminder of Prerequisites

- ✓ **integrated sustainable urban mobility solutions**
- ✓ **demonstrable benefits to citizens**
- ✓ **socially & environmentally acceptable solutions**



UIC2 serves as a city-centric platform to:

- ✓ Ensure a **holistic** approach to urban mobility
- ✓ **Proactively** engage with citizens
- ✓ **Co-create** with public and private actors (incl. citizens)



World Economic Forum AAM/UAM Cities and Regions Coalition

with support by the UIC2 (European Pillar)

The World Economic Forum's Advanced & Urban Air Mobility (AAM/UAM) Cities and Regions Coalition will be announced in March 2022 at Amsterdam Drone Week.

The coalition will create a forum for **extending** the conversations that have taken place within UIC2 in Europe to a worldwide level.

Its goals are to support policy makers in **responsibly** integrating new aerial platforms into urban and regional transportation networks.

Cities and regions will **set the agenda** for the groups work and will be supported by industry as needed.

The Forum is seeking to announce a group of high ambition city/region partners as founding members at the March launch.

These cities and regions will have the opportunity to be leaders in the area of AAM/UAM and will help shape its implementation as a **service** by:

- **Undertaking** policy development exercises.
- **Implementing** pilot programs to assess the real-world impacts of policies.
- **Sharing** their findings with other cities and regions to help identify best practices.

It is all about a Social Business Ecosystem

i.e. it's not about what technology can do for us but what we want technology to do for us!



Thank you!



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AIRBUS