Airbus Innovation Days 2019

Bringing the Urban Air Mobility Market to Life

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Head of Airbus Urban Mobility

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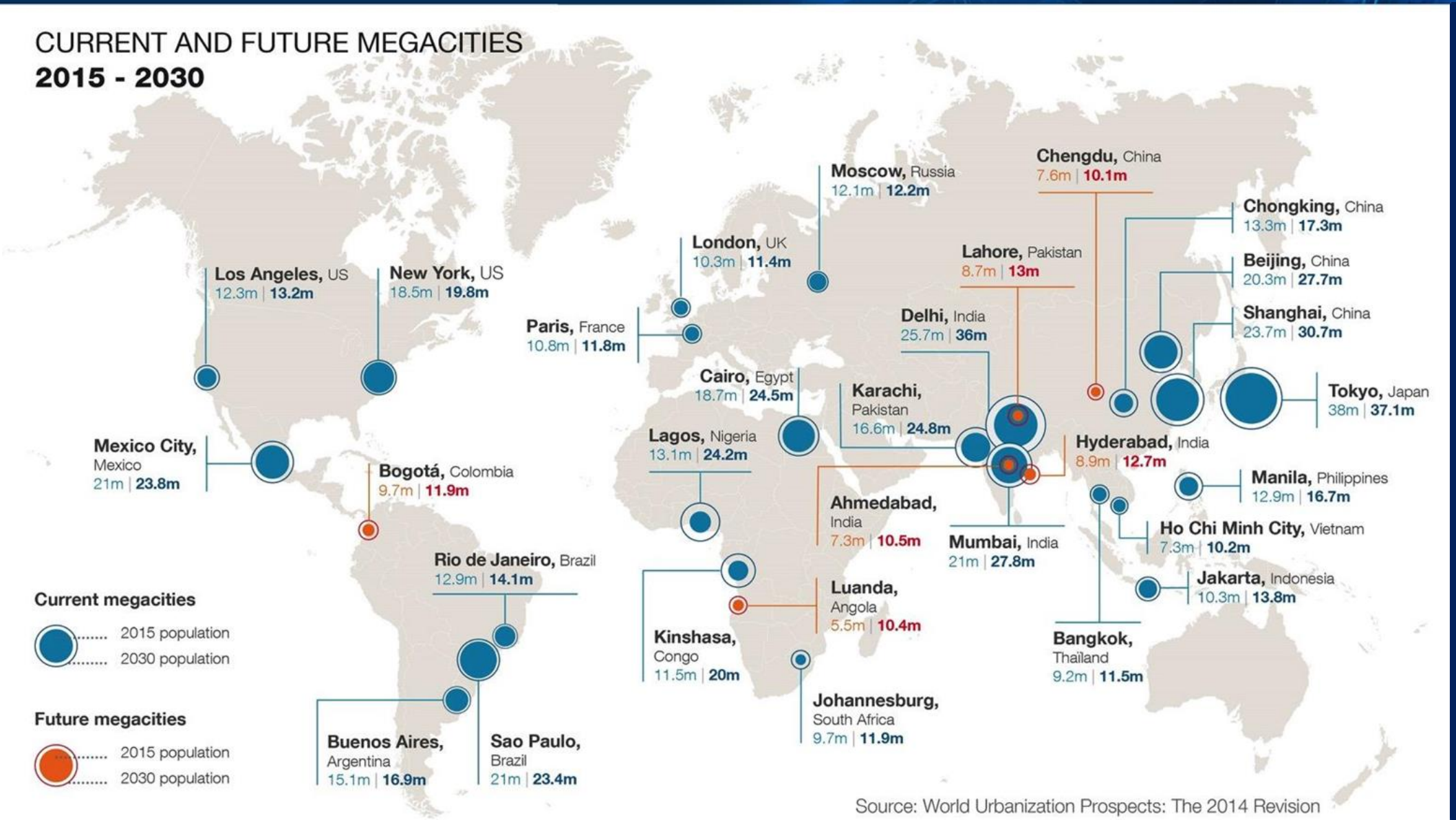
Urban migration & megacities are on the rise



By 2030, 5 billion people will live in cities.

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It takes 2 hours from São Paulo airport to city centre by ground versus 10 minutes by helicopter

The third dimension gives a new perspective on urban mobility

The case of Japan:
rural areas can also benefit from urban air mobility

Through aerial solutions, rural areas could have better access to emergency and disaster relief services.

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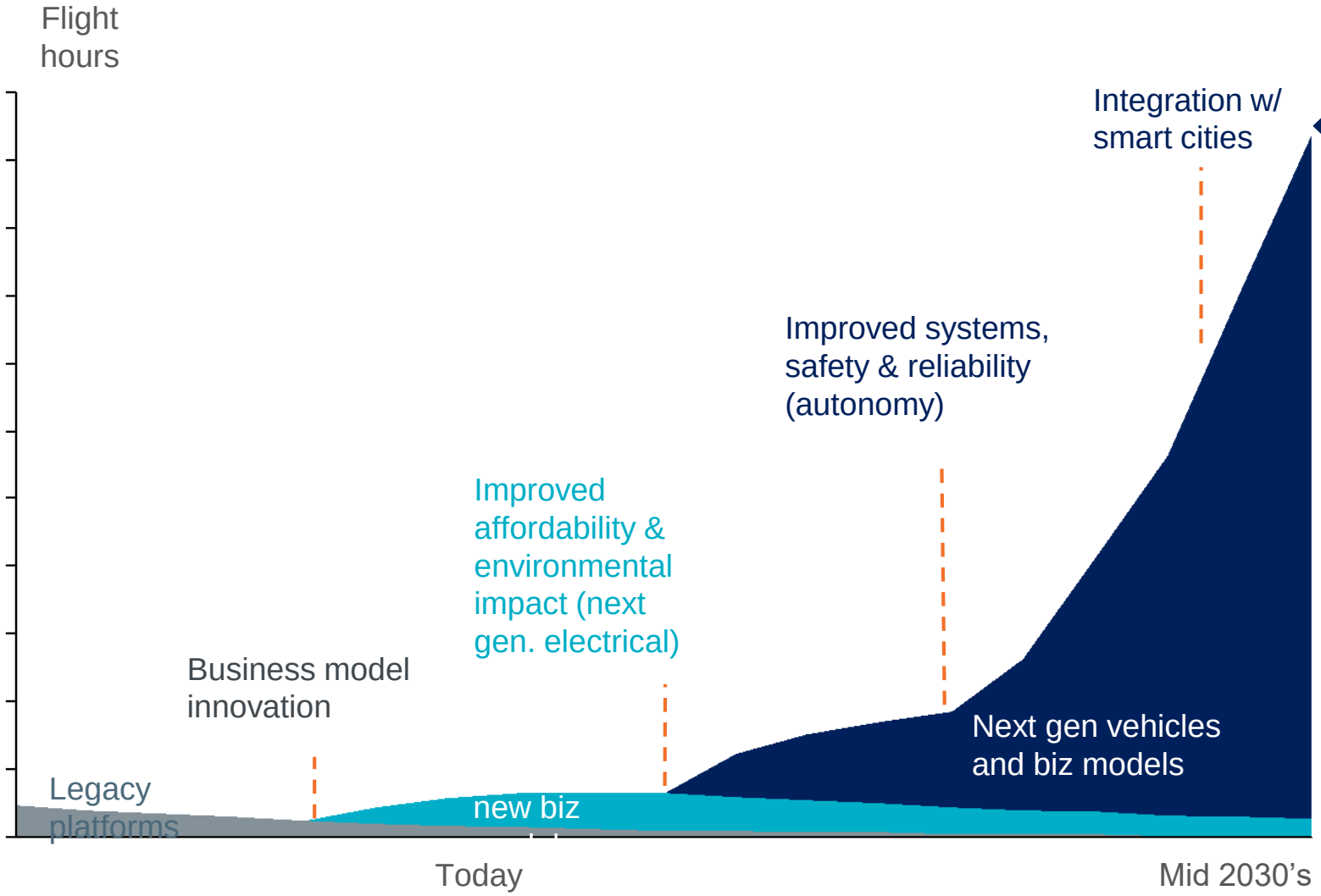
Techno-economic evolutions will shift urban air mobility from a premium to mass-market solution

Techno

- All-electric and distributed propulsion
- Advanced flight management system
- Self-piloted
- Fully automated Air Traffic Management



Economic

- On-demand or scheduled
- Shared or individual
- High utilization
- Large scale production
- Low direct operation cost

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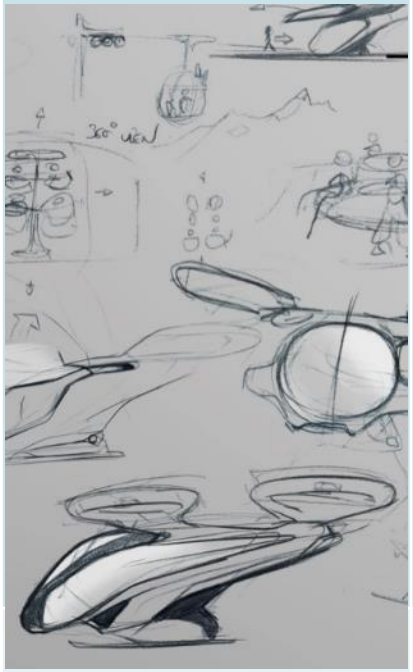
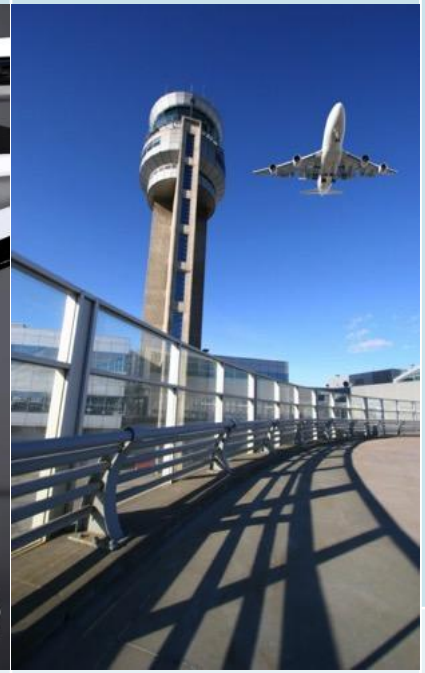
Creating the market is about the entire value chain

Urban Aircraft	Support & Service	Flight Operations	Air Traffic Management	Ground Infrastructure	Passenger Solution
					
Design, Development and Production	**Maintenance, Repair, Overhaul Spare parts**	**Operation of the Urban VTOL Acquisition or leasing of VTOL**	**Develop and operate ATM solution for Urban VTOL**	**Installation and maintenance of VTOL pads**	**Booking application for flight trips**

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Strong collaboration with regulators is a prerequisite

EASA European Aviation Safety Agency	SPECIAL CONDITION Vertical Take-Off and Landing (VTOL) Aircraft	Doc. No: SC-VTOL-01 Issue: 1 (proposed) Date: 15 October 2018

Proposed Special Condition for small-category VTOL aircraft

Introductory note

The following Special Condition has been classified as an important Special Condition and as such shall be subject to public consultation, in accordance with EASA Management Board decision 12/2007 dated 11 September 2007, Article 3 (2.) of which states:

"2. Deviations from the applicable airworthiness codes, environmental protection certification specifications and/or acceptable means of compliance with Part 21, as well as important special conditions and equivalent safety findings, shall be submitted to the panel of experts and be subject to a public consultation of at least 3 weeks, except if they have been previously agreed and published in the Official Publication of the Agency. The final decision shall be published in the Official Publication of the Agency."

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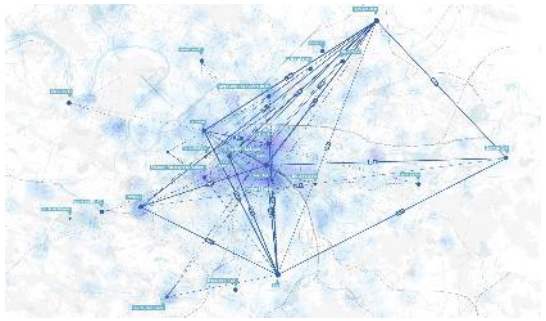
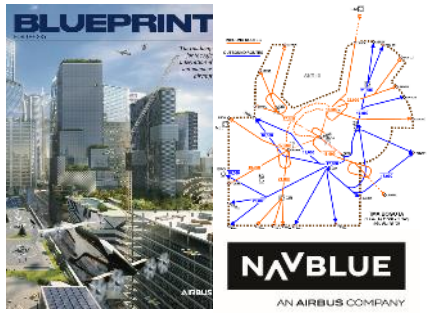
Airbus has a comprehensive portfolio of existing capabilities

Airbus Urban Mobility



City mobility planning and simulation

UAM infrastructure catalogue and solutions



Airspace design & analysis consultancy, and ATM-UTM services with NavBlue

Voom B2C platform or full operation

Airbus existing vehicles (Helicopters)

Airbus future vehicles (eVTOLs)

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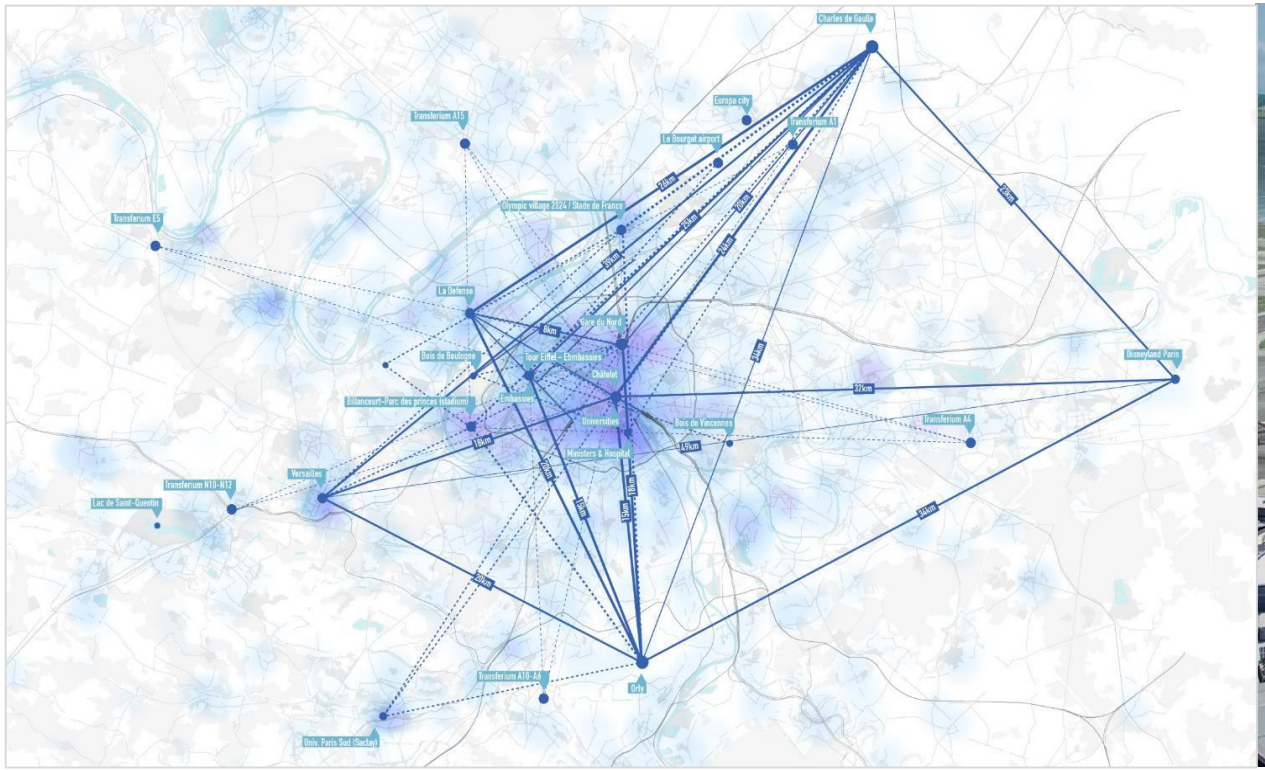
We are developing mobility simulation capabilities for cities to provide infrastructure guidance



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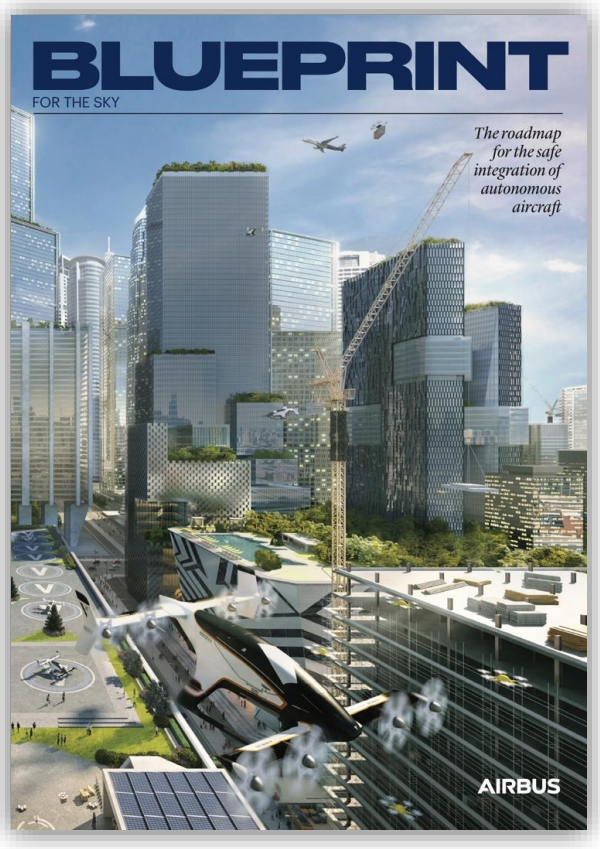
Airbus unmanned traffic management (UTM) is architecting our future airspace

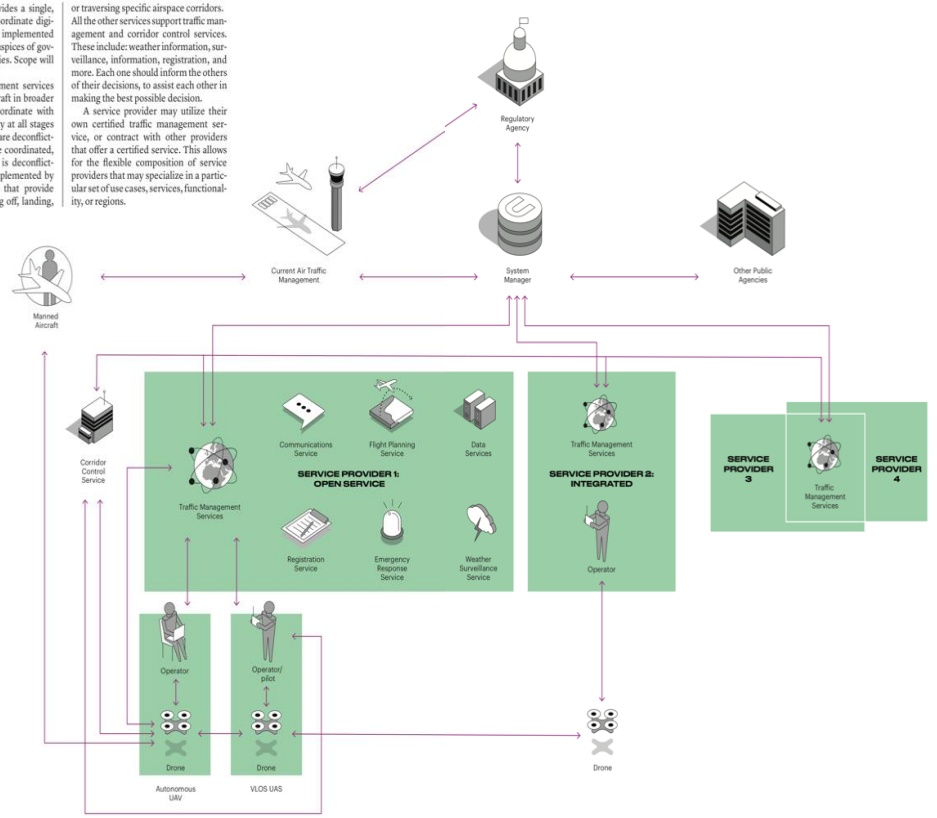


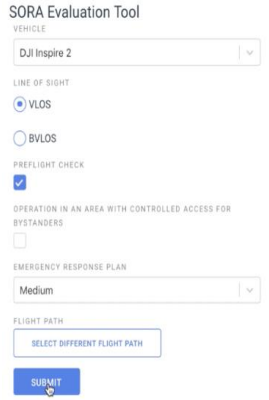
A UTM Service Stack

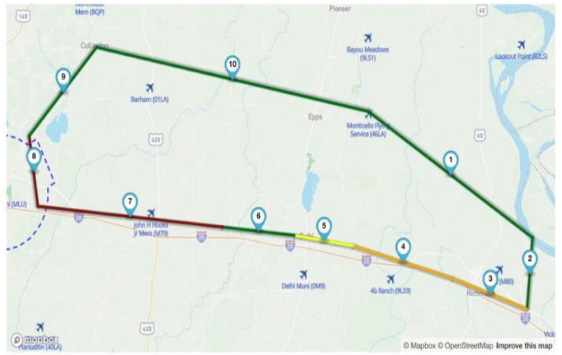
The system manager provides a single, authoritative system to coordinate digital traffic services. This is implemented and operated under the auspices of government regulatory agencies. Scope will vary between countries.

Digital traffic management services manage the flights of aircraft in broader airspace. The services coordinate with each other to ensure safety at all stages to ensure that flight plans are deconflicted, aircraft maneuvers are coordinated, and emergency response is deconflicted rapidly. These are complemented by corridor control services that provide guidance for drones taking off, landing, or traversing specific airspace corridors. All the other services support traffic management and corridor control services. These include: weather information, surveillance, information, registration, and more. Each one should inform the others of their decisions, to assist each other in making the best possible decision.

A service provider may utilize their own certified traffic management service, or contract with other providers that offer a certified service. This allows for the flexible composition of service providers that may specialize in a particular set of use cases, services, functionality, or regions.







SAIL VI

Flight Segment	Initial GRC	Final GRC	ARC	SAIL	Quant. Air Encounter Prob	Atypical
6	1	1	ARC-b	II	Minimal Data	True
7	4	4	ARC-d	VI	3.24×10^{-5}	False
8	4	4	ARC-d	VI	7.30×10^{-4}	False
9	1	1	ARC-b	II	8.41×10^{-5}	False
10	1	1	ARC-b	II	Minimal Data	True

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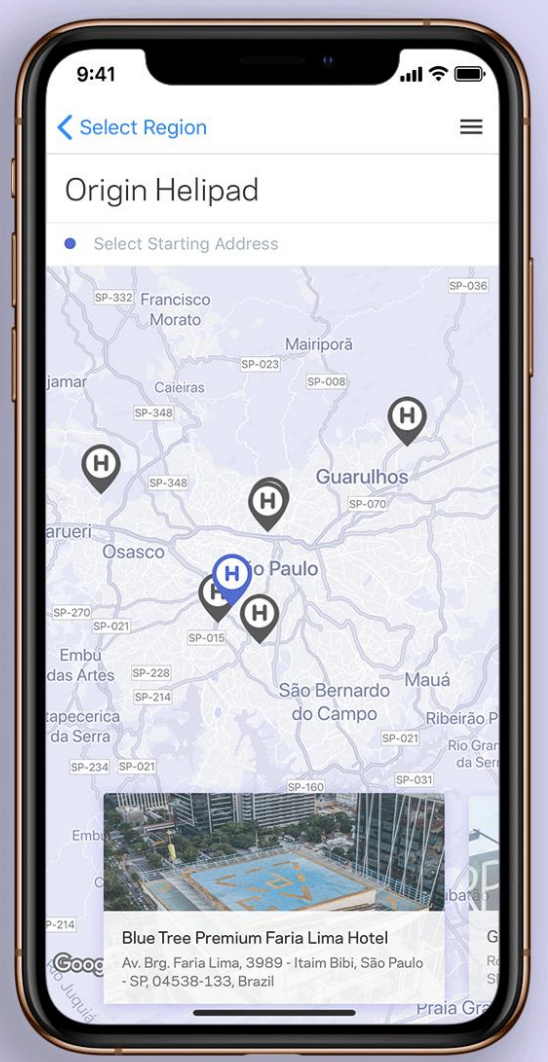
Voom is providing urban air mobility today

Travelers connect to the Voom platform via an app



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Partnerships and alliances help acquire customers

Hotels

Hilton HOTELS & RESORTS

FASANO

GOCIL

Airlines

DELTA

Azul

American Airlines

AIRFRANCE KLM

Voom

A B2C urban air mobility service

Ground services

movida rent a car

lyft

Uber

B2B customers

Google

Palantir

wework

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We are transforming the learnings of two tech demonstrators into a market-ready vehicle

Vahana

April 2019:
Third Full Transition Flight

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We are transforming the learnings of two tech demonstrators into a market-ready vehicle

CityAirbus

April 2019:
First “hop”

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We are transforming the learnings of two tech demonstrators into a market-ready vehicle

Pop.Up

A concept vehicle to explore multi-modality in urban settings

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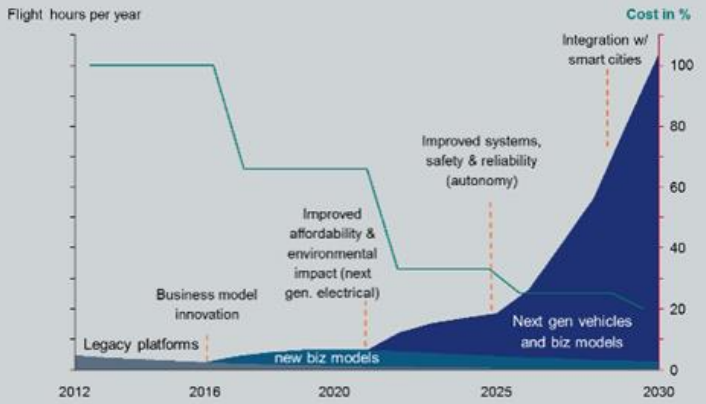
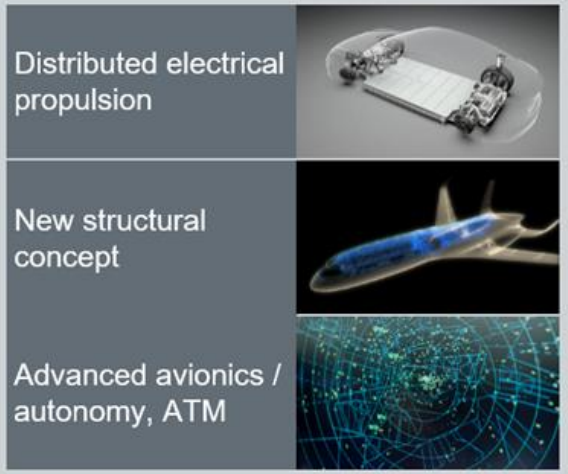
An integrated approach is required to bring UAM to life

A strong market need

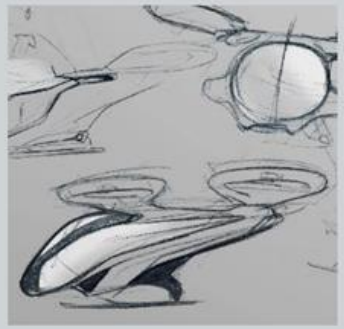


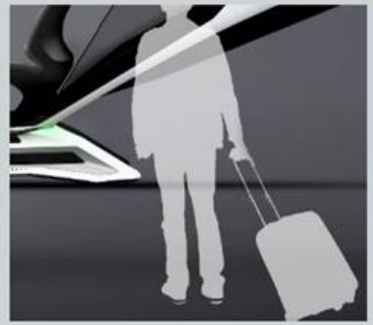
Technology



Manageable projects

An ecosystem approach engaging with partners and authorities early on



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Let’s go vertical