Panel Presentation
“Envisioning Urban Air Mobility”

A³ by Airbus

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Increasing traffic in existing and new sectors

Number of flights per year - commercial a/c, package logistics, and urban mobility

Year

- Package Logistics
- Urban Mobility
- Commercial A/C
How do we enable this?
System Must Support Local Needs

Hobby Drones
Film and Journalism
Surveying, Industrial
Agriculture
Search and Rescue
Package Delivery
Urban Air Mobility
Rotorcraft and GA
Commercial Aircraft

Enabling Infrastructure: ATM System, landing pads, communications network, emergency services, etc.

Rules and Policies

Laws, Culture, Physics
Key Questions for Airspace Design

- **Safety**
  - How well does the airspace react to unauthorized or bad actors?
  - How crowded is the airspace? Is there traffic, congestion, or clumping?
  - How many emergency landing zones do we need? Where should they be?

- **Security**
  - How do security requirements affect aircraft cost and capabilities?

- **Economics**
  - How many aircraft can the airspace handle? How quickly can a flight depart?
  - What happens when an aircraft needs to divert (for any reason)?
  - Are the paths as efficient as possible? How do these paths change with rules?
  - Is the airspace open to the widest possible number of players?
Example: How close to buildings should aircraft be allowed?
Example: Separation and Detect/Avoid
Studies: LOS & Collision Assessment

![Graphs showing collision and loss of separation rates.](image-url)
Study: DAA
Regulation and research investment

- Work with transport planners to understand expected vehicle densities in different environments
- Work with safety regulators to set acceptable safety thresholds
- Use tool to determine required performance characteristics for DAA → feed to avionics mfgs.
- Use tool to validate proposed solutions in dense airspace scenario
Example: Communications
Communications selection is driven by needs

- **Purpose** → **Remote ID** + **Command and Control** + **Monitor and Track** + **Payload interface**
- **Geography** → **Pop Density** + **Terrain** + **Infrastructure**
- **Vehicle** → **Payload Capacity** + **Electrical Power** + **Dimensions** + **Sense & Avoid**
- **Mission Profile** → **Route** + **Altitude** + **Location** + **Airspace density**
- **Payload** → **Airspace Rules** + **Routing**
A variety of architectures must be supported
Must solve the mixed equippage problem

- Satcom
- ADS-B + SAA

- 5G - long distance
  LTE, cellphone pipe - hobbyist
  Aviation bands
  EMS bands

- Satcom
  5G
  Ground station pipe
Enabling policymakers, operators, service providers, and manufacturers to build fundamental infrastructure that will scale aviation activities for decades to come.
Thank you!

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