UAV, UAM, AAM, DRONE:
What's in a name?

What Are They?

- UAM
  - **U**rban **A**erial **M**obility
    - ≤122 meters (400 feet) altitude
    - < 185 kph (100 knots)
    - ≤ 1000kg (2200 lbs) or less max gross weight
    - Typically VTOL
    - Passengers / Cargo / Both
- UAV
  - Unmanned Aerial Vehicle
    - Any class of unmanned vehicle
      - Includes VTOL, Conventional takeoff-landing, helicopters, jets, etc.
      - Strictly Unmanned
      - Cargo Only
- AAM
  - “Advanced Aerial Mobility”
    - NASA “Catch-All” Phrase

Particulars

- Propulsion
  - Electric (as in ‘eVTOL’)
    - Batteries
    - Hybrid
    - Fuel Cell
    - Turbo-Electric
  - Piston / Turbine
    - Cross-shafting
    - Direct Drive

General Regulatory Agency Requirements

- UAM
  - Unpiloted Passenger Carrier
    - No rules currently exist
    - FAA using 14 CFR Part 21.17(b) as starting point
    - Noise Standards
- UAV
  - Under 600 kg (1320 pounds) : 14 CFR Part 107
  - Over 600 kg: 14 CFR Part 23 or Part 21.17B
  - Flight without pilot / Flight with ground Operator (≥600 kg)

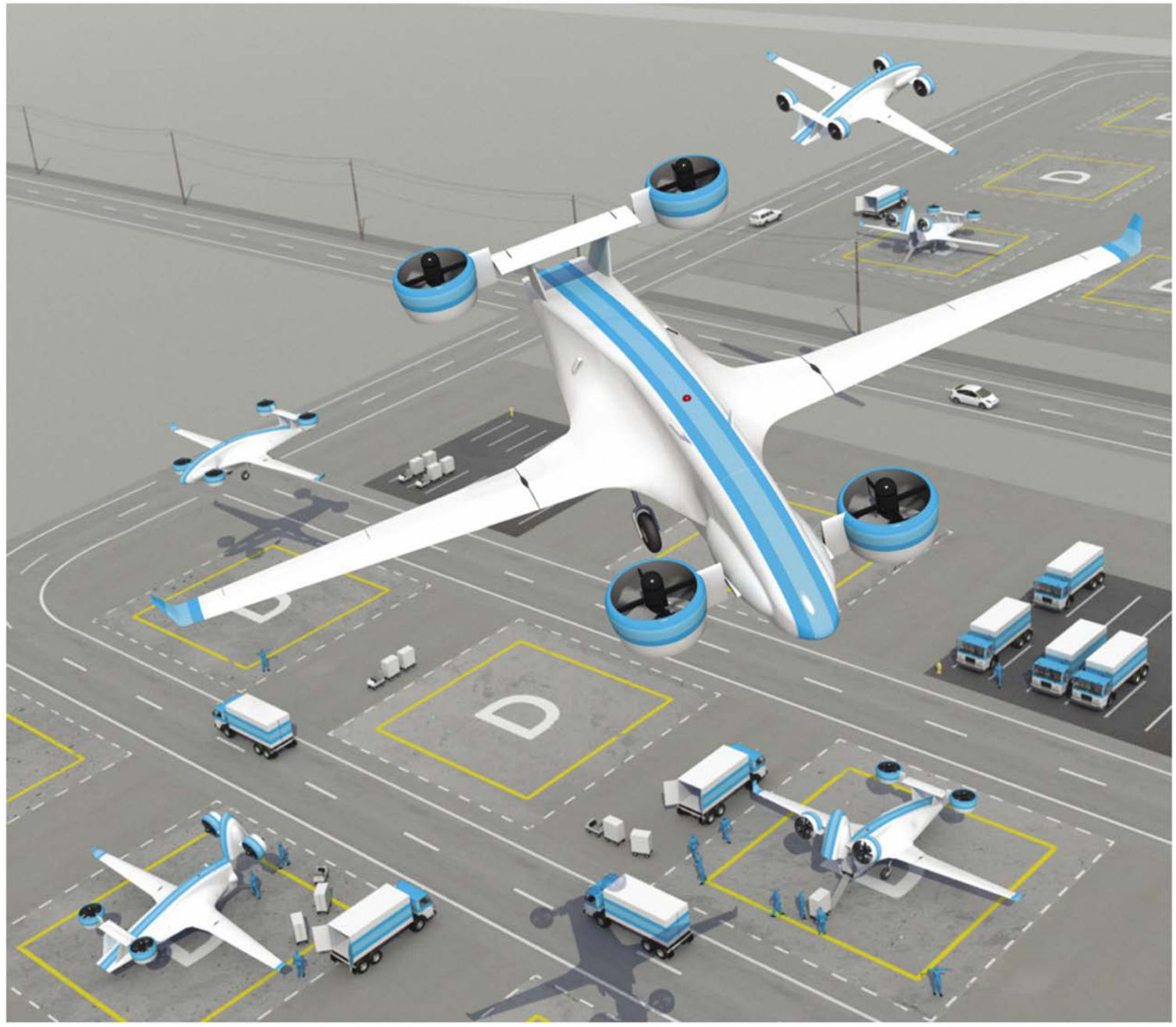
Cost to Certificate*

- UAM/Batteries
  - Estimated between $1B to $1.5B
  - Unknown standards and requirements
    - (Batteries, passenger carriage)
  - UAM/Hybrid (eVTOL)
  - Same but extender motor must be certificated
- UAV/teVTOL
  - > 600 kg: Estimated to be ≤ $50M (abbreviated FAR Part 23)
  - < 600 kg: Estimated to be ≤ 100M (incorporates Part 107)

* In $ USD

Barriers To Certification

- UAM
  - Use of high-energy-density batteries
    - FAA “Little Bomb”; currently will not allow for flight onboard passenger aircraft
  - Need for consolidated, approved and homogenized standard for UTM
  - Flight in Part 107 airspace (≤ 122 meters) @ up to 185 kph
  - Approval of propulsion
    - Electric motors
    - Generators (for hybrid or teVTOL)
  - Flight with or without pilot
- UAV
  - Approval of flight over heavy density population cities
  - Inclusion of parts of FAR 33 (motors), 35 (propellers/rotors), 27 (helicopters), etc



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