

Federal Aviation Administration

Innovation Certification Process Overview

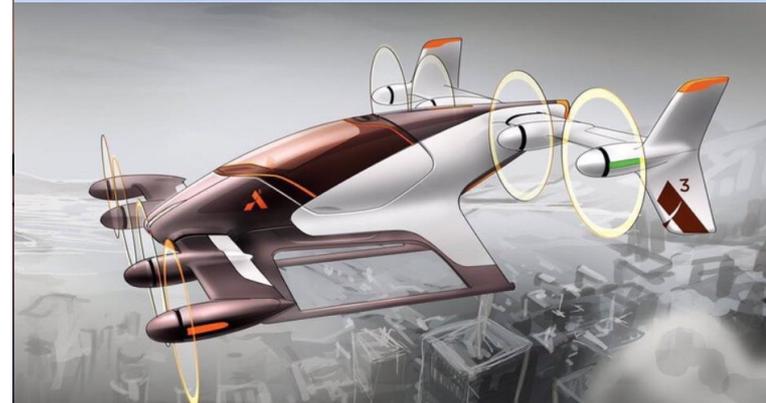
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Federal Aviation
Administration



AIR's Strategic Vision Includes “Foster Innovation”



Figure 4. Framework of AIR Transformation



Figure 3. AIR Transformation Vision Elements

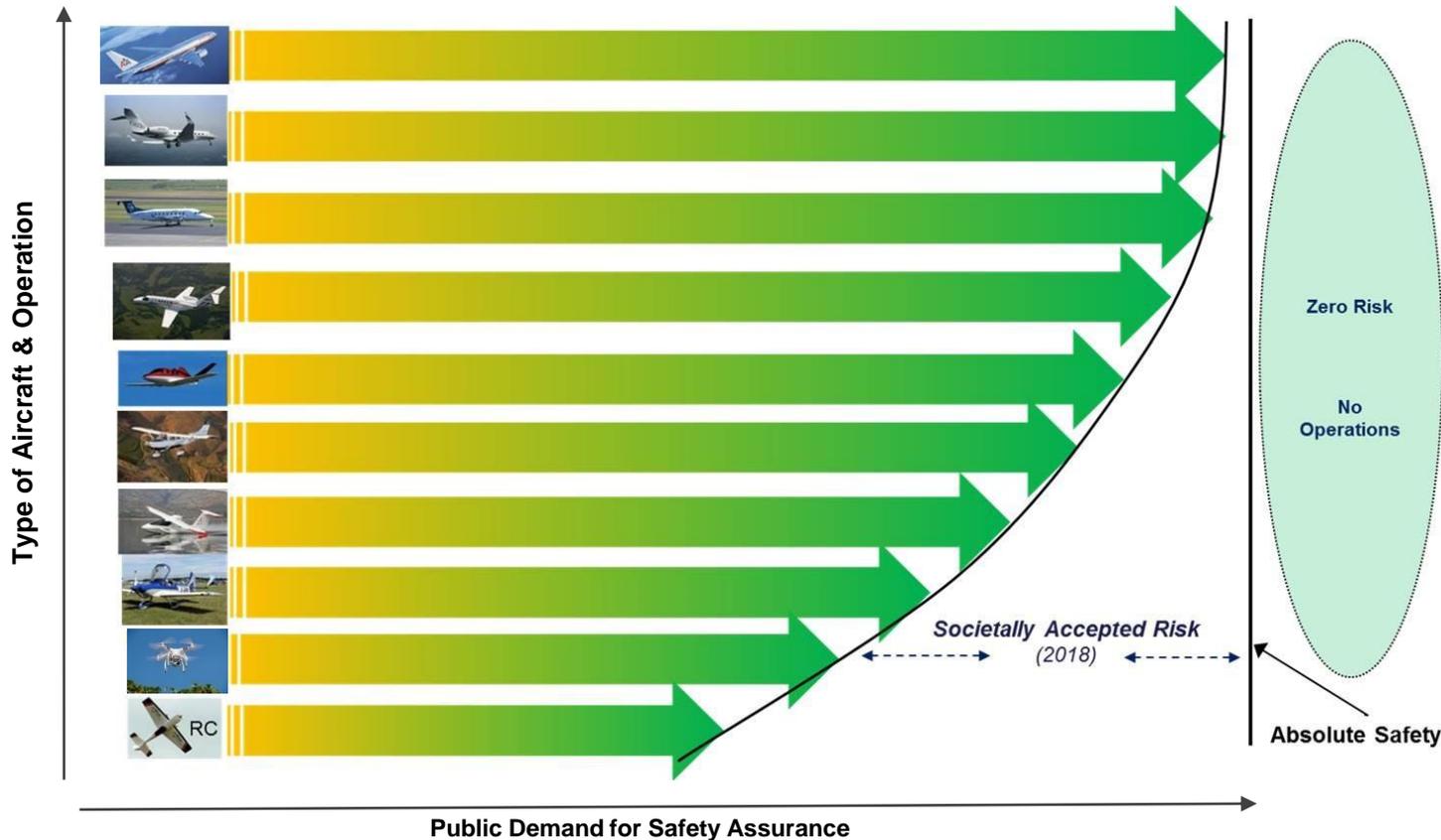
Key Roles for the New “*Center for Emerging Concepts & Innovation*” Organization

- Early engagement
 - Team identification & management
 - Program integration & tracking
 - Strategic issue identification
 - Process/procedure development
- R&D portfolio development & management
- Identification of future policy needs
- Outreach/education and technology scan

Center for Emerging Concepts & Innovation (CEC&I)

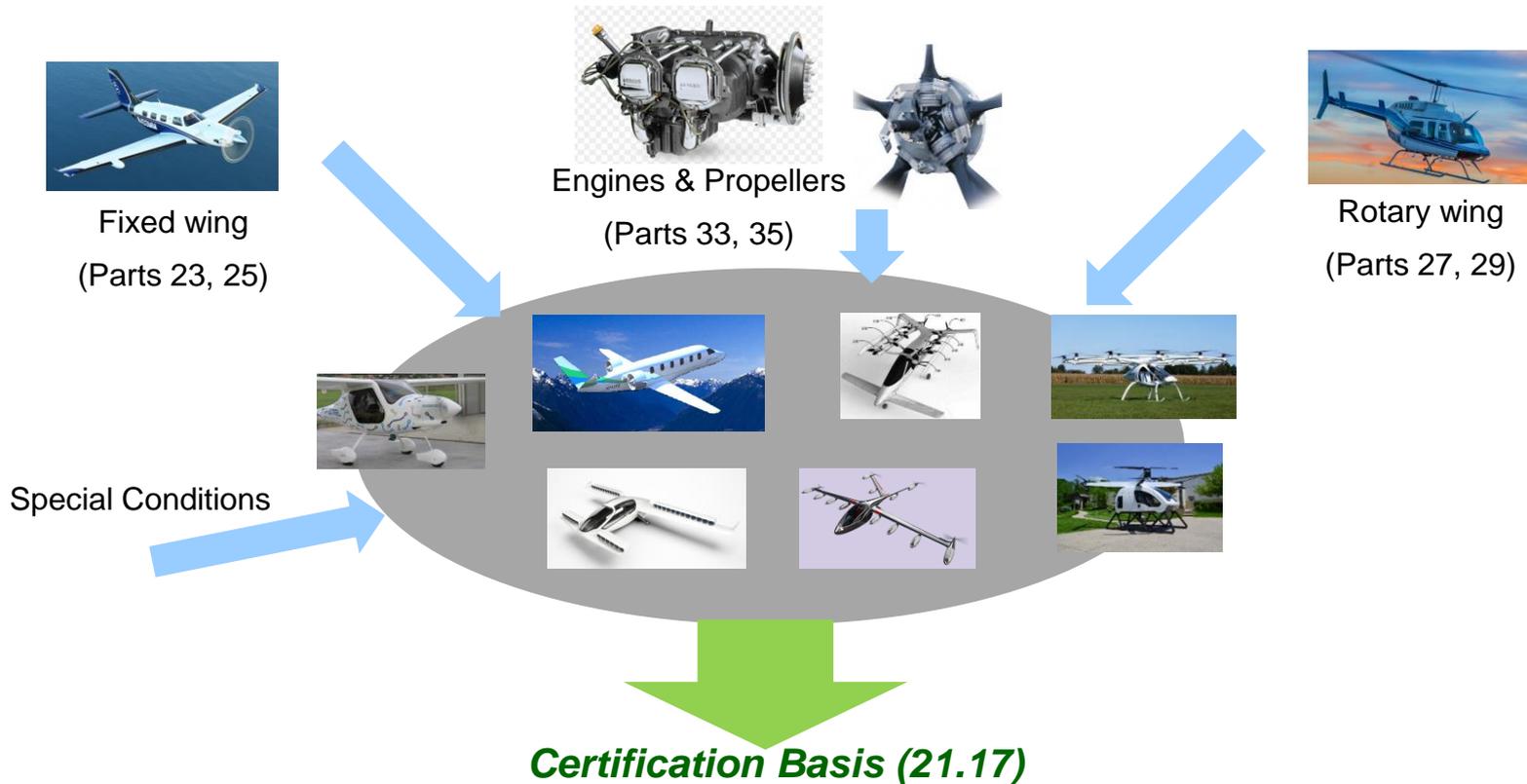
- “Innovation Center” Concept
 - Facilitates safe introduction of new innovative products
 - eVTOL, Super/Hypersonics, Automation, UAS, Hybrid/electric aircraft / propulsion, Fuel Cells, Additive Manufacturing, etc
 - Early engagement with applicants to develop certification requirements and methods / means of compliance
 - Significant early engagement underway with a range of companies
 - Gaining practical experience with concept
 - Benefits to both FAA and applicant

Safety Continuum Provides a Conceptual Framework for Certification Requirements



Certification Requirements Will Be Tailored for the Specific Application

Reflecting safety continuum risks and expectations for vehicle concept



FAA Type Certification

- All FAA Standards Branches working aircraft certification strategy together
- Recognizes differences in acceptable levels of safety and certitude within the Safety Continuum
- FAA Regulatory/Policy Efforts
 - Performance based rules for eVTOL aircraft type certification
 - Special Class Rotorcraft Policy - Draft

Policy - Special Class Rotorcraft

- **§ 21.17 Designation of applicable regulations**

(a) Except as provided in §§ 25.2, 27.2, 29.2, and in parts 26, 34, and 36 of this subchapter, an applicant for a type certificate must show that the aircraft, aircraft engine, or propeller concerned meets -

*(1) The **applicable** requirements of this subchapter that are effective on the date of application for that certificate unless -*

(b) For special classes of aircraft, including the engines and propellers installed thereon (e.g., gliders, airships, and other nonconventional aircraft), for which airworthiness standards have not been issued under this subchapter, the applicable requirements will be the portions of those other airworthiness requirements contained in Parts 23, 25, 27, 29, 31, 33, and 35 found by the FAA to be appropriate for the aircraft and applicable to a specific type design, or such airworthiness criteria as the FAA may find provide an equivalent level of safety to those parts.

- **§ 27.1 Applicability Designation of applicable regulations**

*(a) This part prescribes airworthiness standards for the issue of type certificates, and changes to those certificates, **for normal category rotorcraft** with maximum weights of 7,000 pounds or less and nine or less passenger seats.*

Policy - *Special Class Rotorcraft*

- **Developing Policy Statement to address multi-rotor electric Vertical Take off and Landing (eVTOL) aircraft**
- **Will cover:**
 - Electrically powered rotorcraft with more than two rotors
 - Parts 27 (Normal Category) & Part 29 (Transport Category) rotorcraft that meet 3 or more of the following:
 - depends principally for its support in flight on the lift generated by three or more rotors and creates directional control for horizontal movement by varying the power at each rotor
 - utilizes electric or hybrid-electric propulsion
 - design includes an advanced flight control system (e.g., a fly-by-wire-flight control system)
 - is not capable of traditional autorotation but instead provides an alternate method of safe landing following loss of engine power
 - Will be considered “special class” rotorcraft under 14 CFR § 21.17(b)

Policy - *Special Class Rotorcraft*

- **Benefits of applying § 21.17 (b) versus § 21.17 (a)**
 - Approximately only 60% of Part 27 requirements apply to these special class rotorcraft employing unique, novel, or unusual design features
 - If following 21.17(a), would require processing many special conditions and exemptions, resulting in lengthy administrative process
 - 21.17(b) allows a streamlined process for developing appropriate certification basis
 - 21.17(b) provides greater public visibility of complete certification basis
 - 21.17(b) process will achieve same level of safety
- **Draft Policy Statement to go out for public comments**

Thank You!

