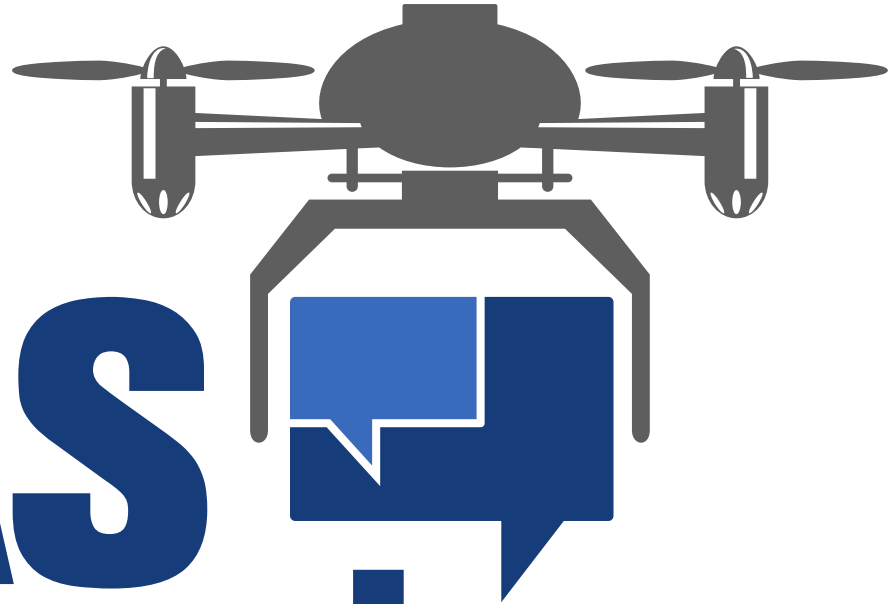


UAS Symposium

Federal Aviation Administration

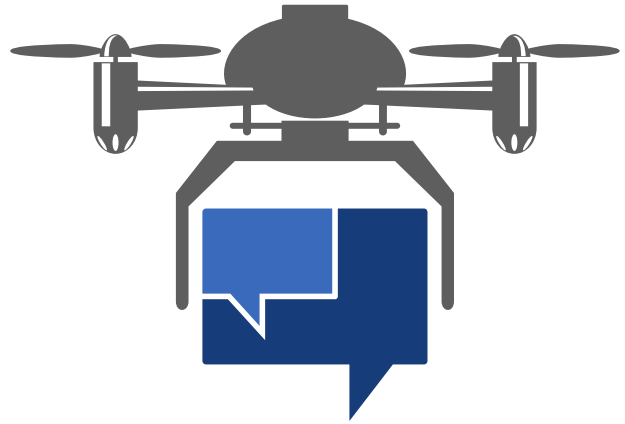
EMBRY-RIDDLE Aeronautical University

Certification Discussion

Rules of the Game

Moderator: Earl Lawrence

- Dorenda Baker
- John Duncan
- Andy Thurling
- Todd Graetz



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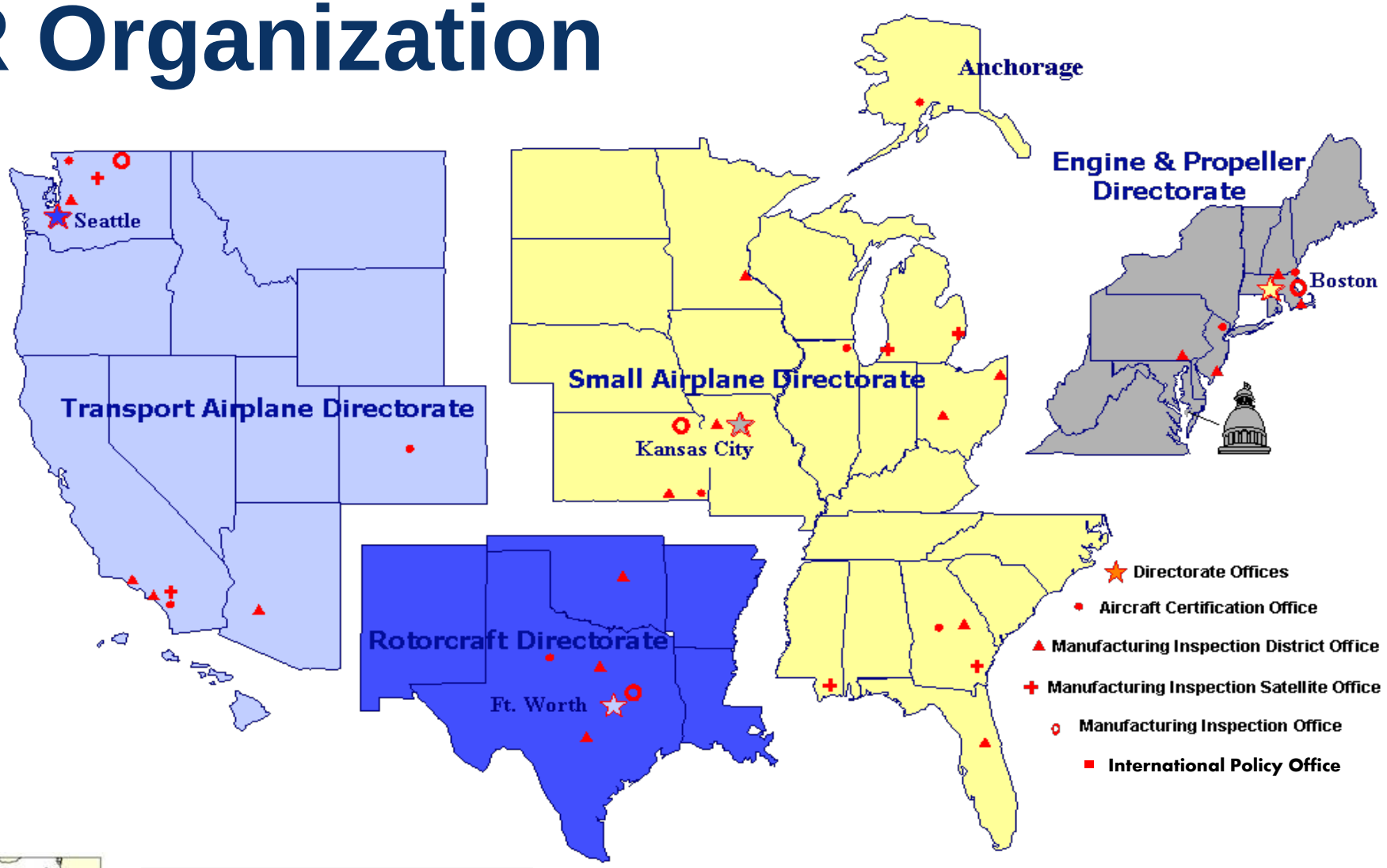
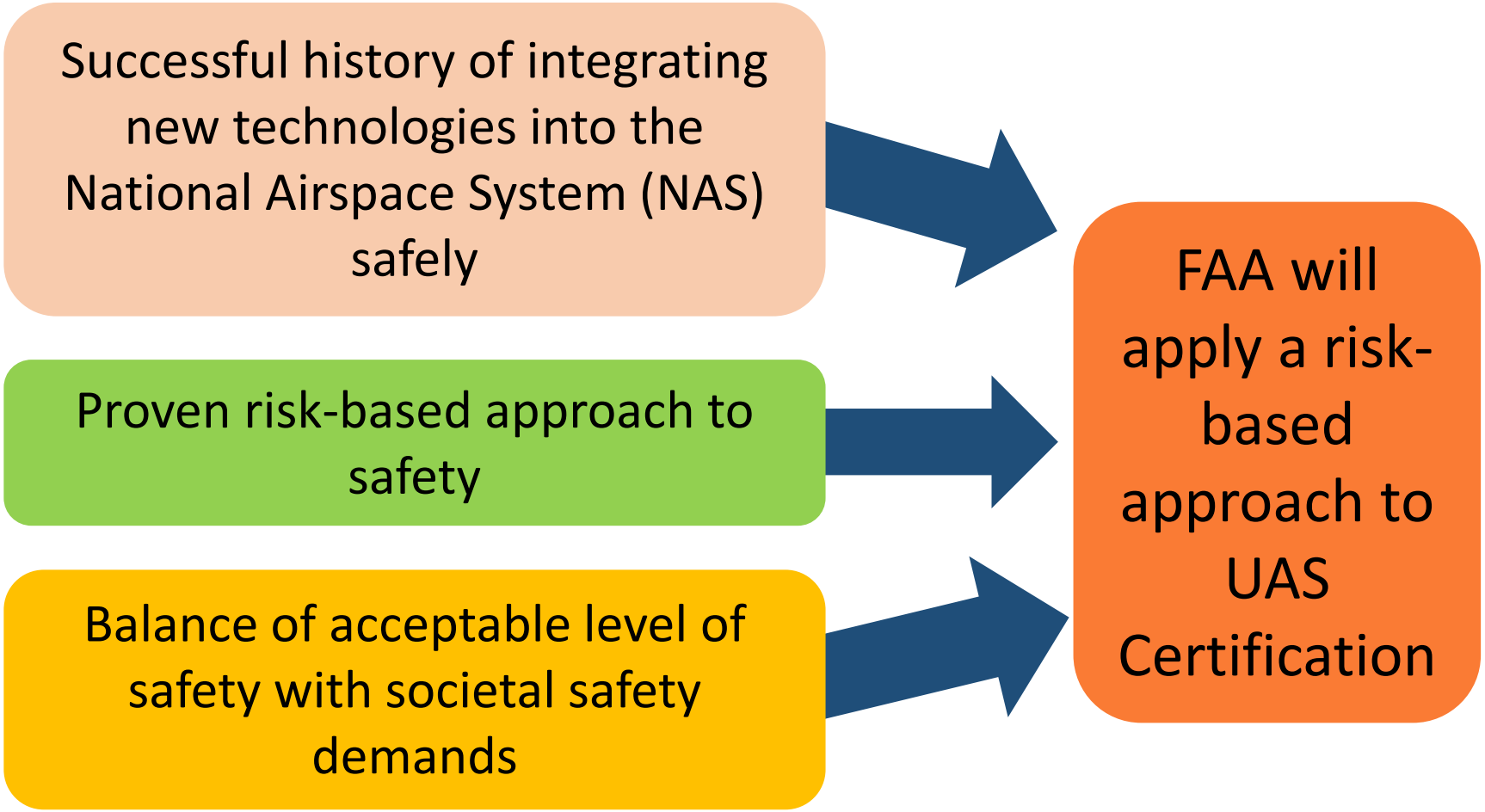
Aircraft Certification Service (AIR)

- Development of Standards and Policy
- Certification and Production (propellers, aircraft parts and appliances;
- Continued operational safety (COS) management

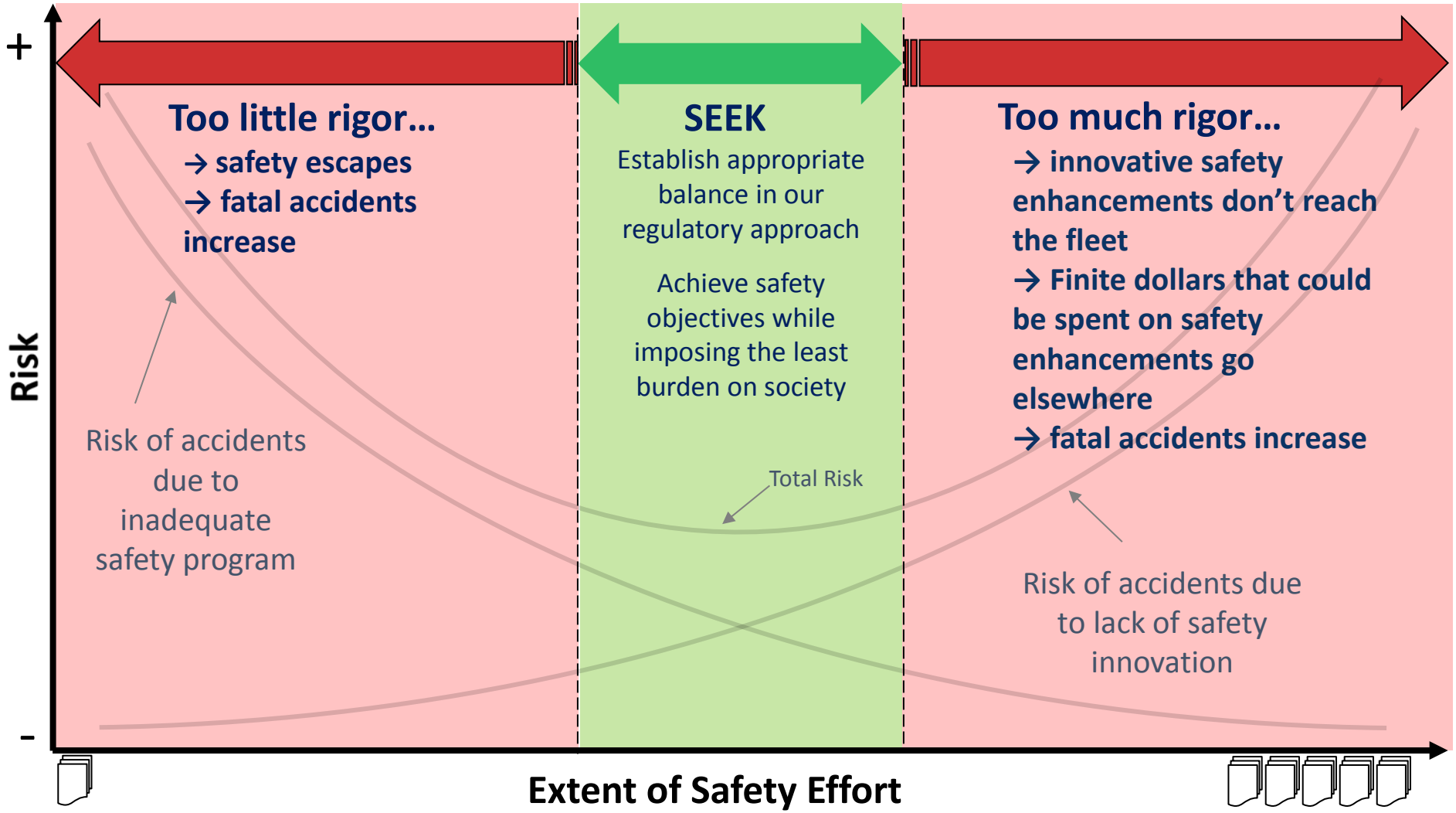
AIR Organization



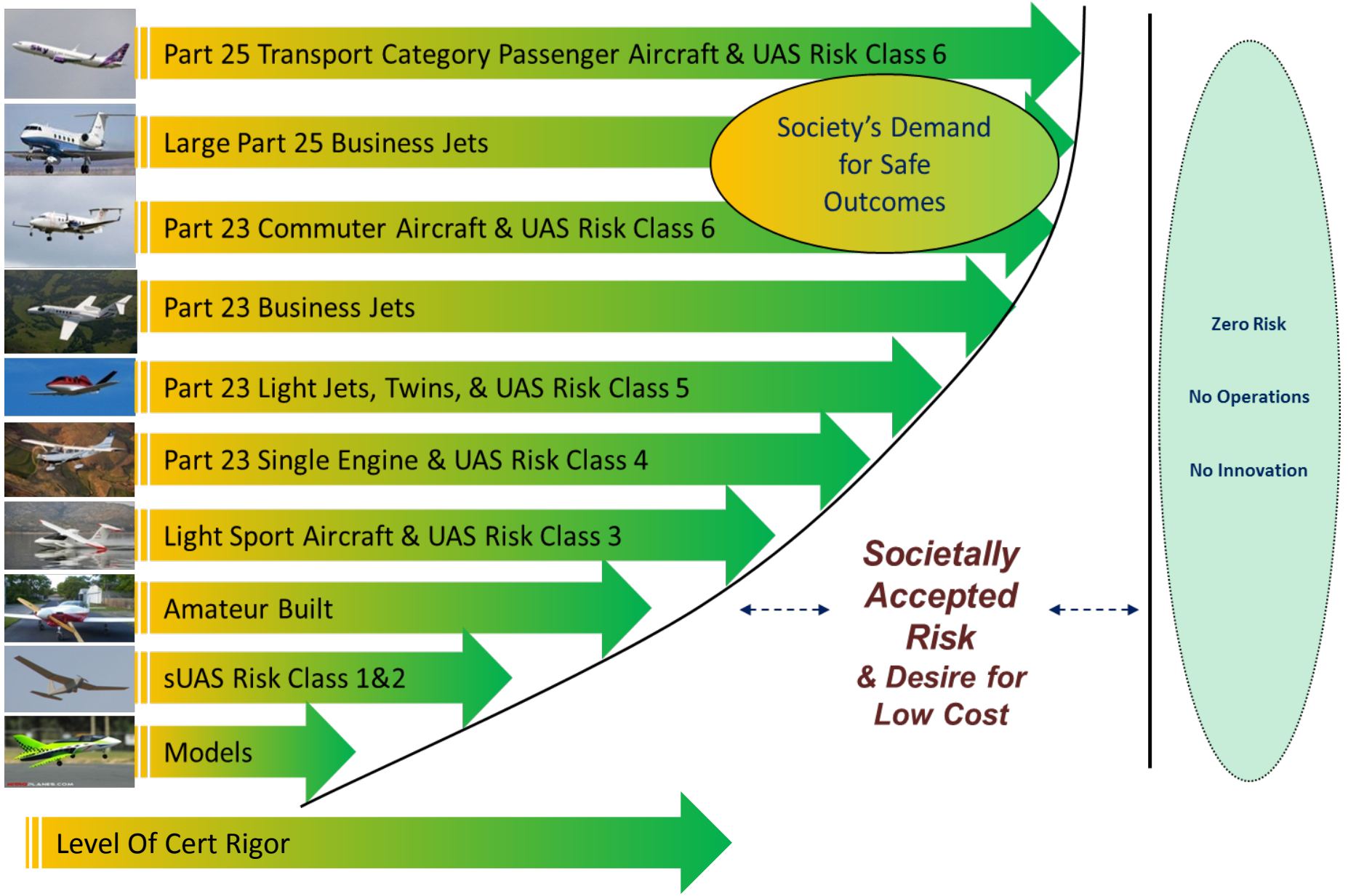
UAS Safety – From Experience



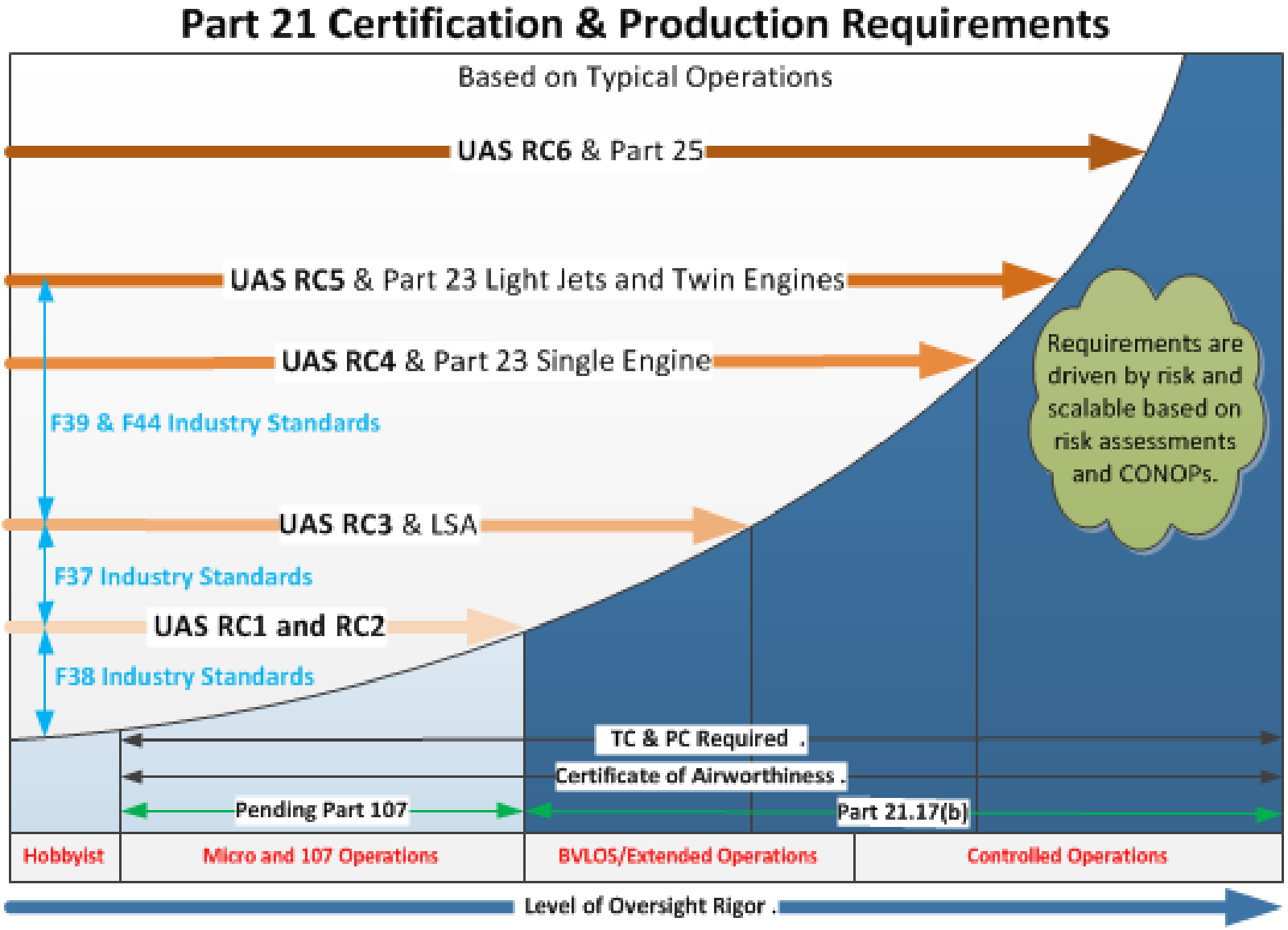
System Safety – The Safety Continuum



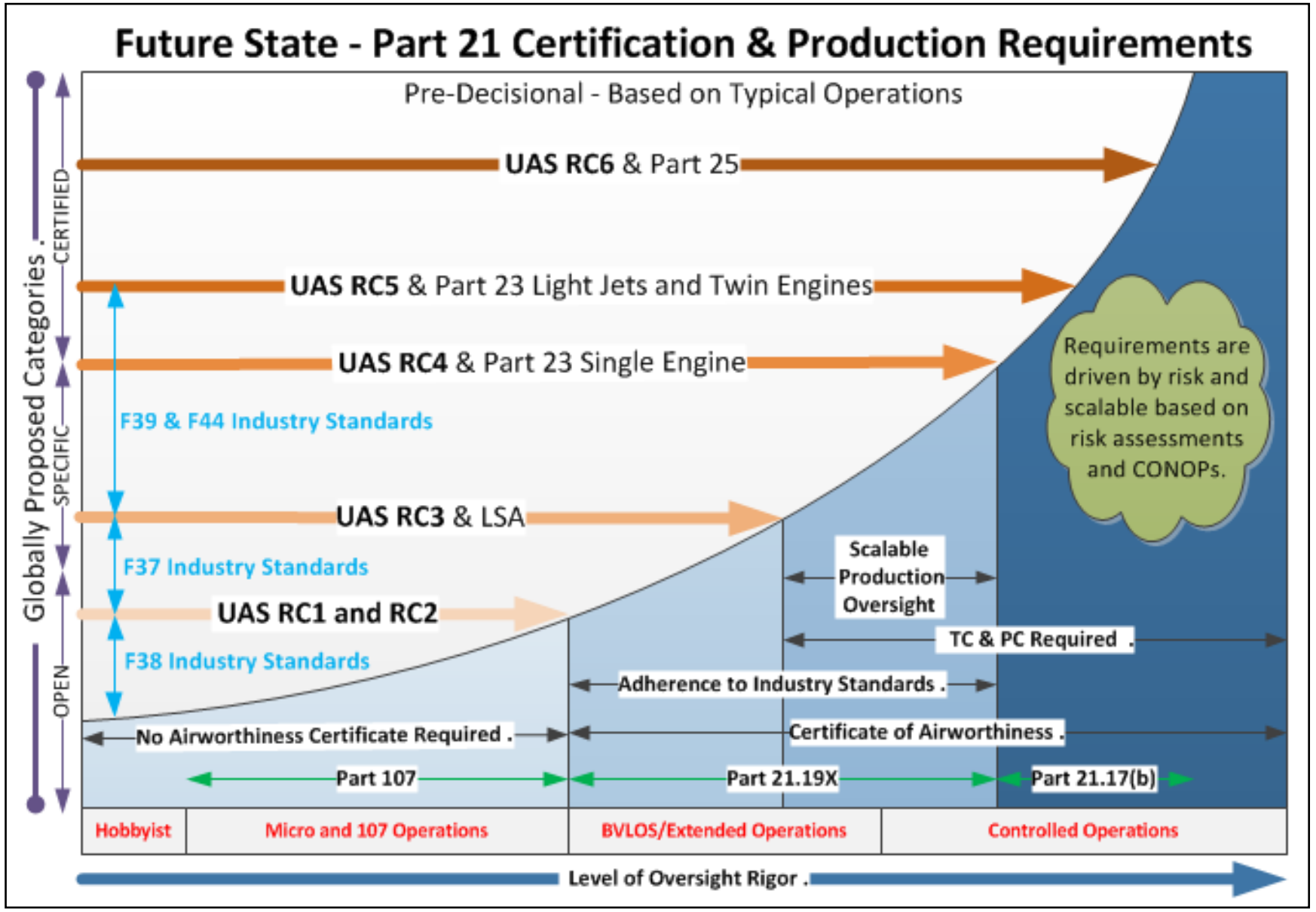
Applying Our Safety Continuum



Existing Regulatory Framework



Future Regulatory Continuum



Scalable Production Oversight

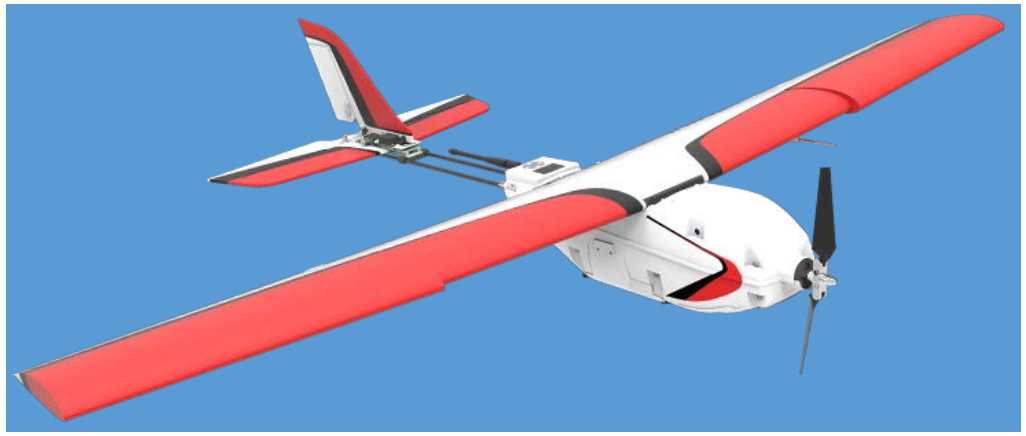
- **Establish production certificate (PC) risk categories similar to the type certificate (TC) risk classes**
  - Current resources will not accommodate PCs for all UAS
  - Scalable approach allows the dedication of FAA resources where the risk is highest

Strategic Goal, Risk-Based Certification

Rising to the Challenge

- **Creating Our Regulatory Continuum Now**
  - Working pathfinders and 13 projects under the current regulatory structure
  - International Collaboration - ICAO, EASA, etc.
- **Ready for the Future**
  - Our certification projects inform future rule changes
  - Considering further changes for low and medium risk UAS
- **Importance of Industry Engagement**
  - Engage **EARLY** and **OFTEN** about new technologies
  - Upfront involvement will help the FAA determine the certification basis and get out of the critical path to certification

Open For Business! https://www.faa.gov/uas/



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FAA Mission & Responsibilities

The FAA's mission is to protect life and property within the National Airspace System (NAS).

The Flight Standards Service fulfills its part of the FAA mission through:

- *Standards* (pilots, mechanics, air carriers, air operators, training facilities)
- *Certification* ("licensing" of those who meet standards)
- *Continued Operational Safety* (risk-based decision-making)

The goal of these functions is to provide protection for operators, passengers, and non-participants (people and property on the ground).

Regulatory Parts – Rules of the Road

Part 91 – General Operating Rules

Part 61 – Pilot Knowledge & Skill Requirements

Part 135 – Air Transportation – Small Aircraft

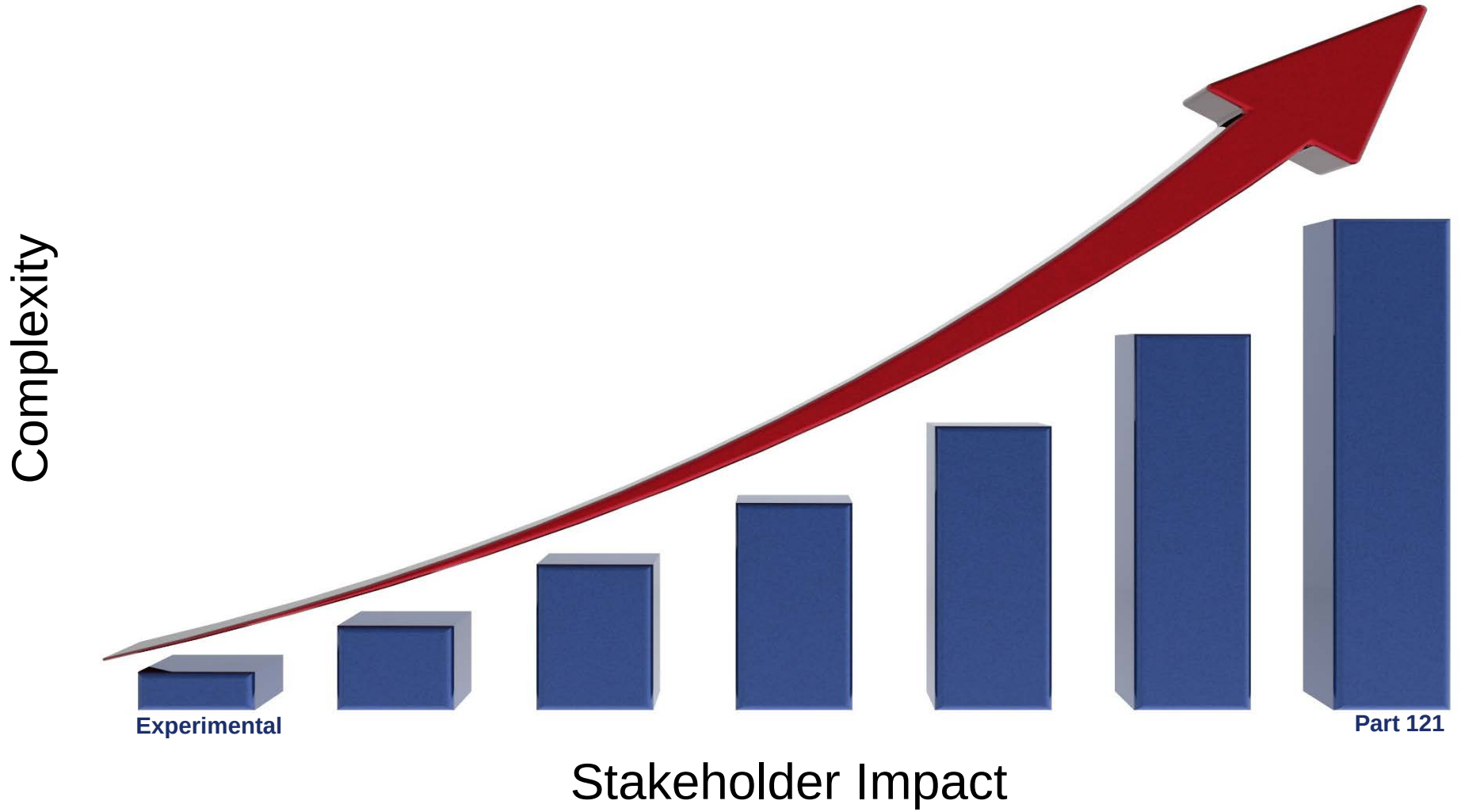
Part 121 – Air Transportation – Large Aircraft

Part 137 – Agricultural Operations

Part 133 – External Load Operations

Part 141 – Pilot Schools

Regulatory Requirements



FAA Vision for UAS Integration

Safe, efficient, and timely integration of UAS into the National Airspace System (NAS)

- The FAA did not envision UAS when today's prescriptive civil aviation safety regulations were developed.

- As UAS activity increased, the FAA recognized the need for integration of these aircraft into the NAS.

  - We have begun to set standards for full integration of UAS, which will eventually be treated like any other aircraft.

  - In the near term, the FAA is accommodating the demand for UAS operations by creating a niche in the NAS (part 107 and section 333 exemptions) to enable UAS activity.

    - This approach allows UAS to operate as the FAA works to create performance-based (vice prescriptive) standards that enable UAS operations.

Looking Ahead

- UAS are becoming more complex and more capable. We expect UAS to further evolve in size and complexity that will be comparable to that of manned aircraft.
- Next steps will involve expanding the scope of operations under part 107.
- To achieve the goal of full integration into the NAS, however, the FAA will have to make broad changes in the structure and scope of existing rules to accommodate UAS.
- These changes will shift regulations from the existing prescriptive approach to a performance-based standard.

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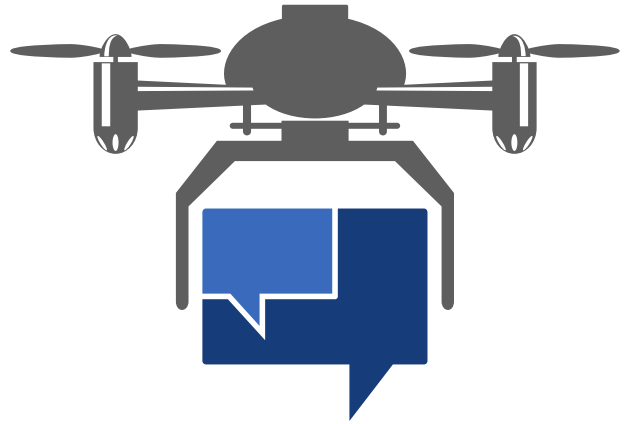

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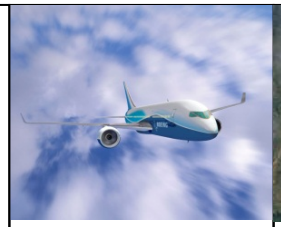
Aviation Lifecycle

Standards	Design	Produce	People	Operations	Maintenance	Continued Operational Safety
Establish safety and certification regulations and policy Provide guidance on ways to meet the intent of the regulations and policy Promote voluntary engagement and cooperation with enhanced safety programs						• **Continual Oversight and Surveillance of:** - Air Carriers - **Manufacturers** - Repair Stations - **Designees** - Airmen - Air Traffic Organization • **Apply tools to manage risk and gain compliance:** - **Airworthiness Directives** - Precursor identification - Data Sharing - **Enforcement**
	• **Determine design meets performance and certification standards** • **Issue design approvals (type certificates)**	• **Evaluate manufacturers quality and production systems** • **Issue production and airworthiness approvals for aircraft, engines, and parts**	• Certify Airmen: ➢ Pilot ➢ Mechanics • **Appoint Designees:** ➢ **Individual** ➢ **Organization**	• Approve Air Carrier operations • Issue recurrent airworthiness certificates	• Approve Repair Stations and Maintenance Facilities • Issue Repair Station Certificates	
	AVS is actively involved throughout the life-cycle of every aviation product					