

# Certification of UAS



Federal Aviation  
Administration

## A Risk-Based Approach



# UAS Symposium

Date: April 20, 2016



Federal Aviation  
Administration

**EMBRY-RIDDLE**  
Aeronautics & Space  
University.



# Aircraft Certification Service (AIR)

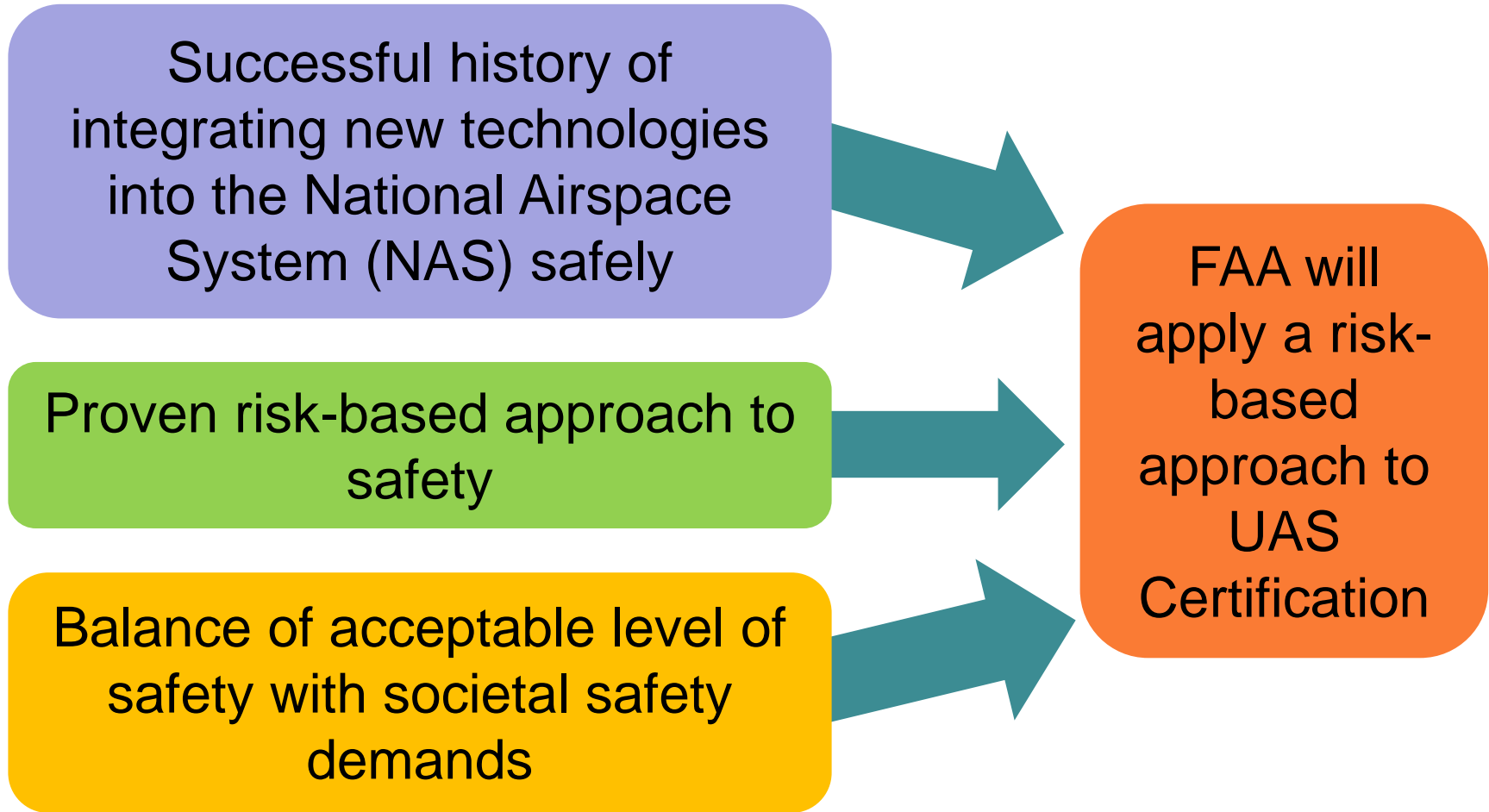
- Development of Standards and Policy
- Certification and Production of aircraft, engines, propellers, aircraft parts and appliances;
- Continued operational safety (COS) management



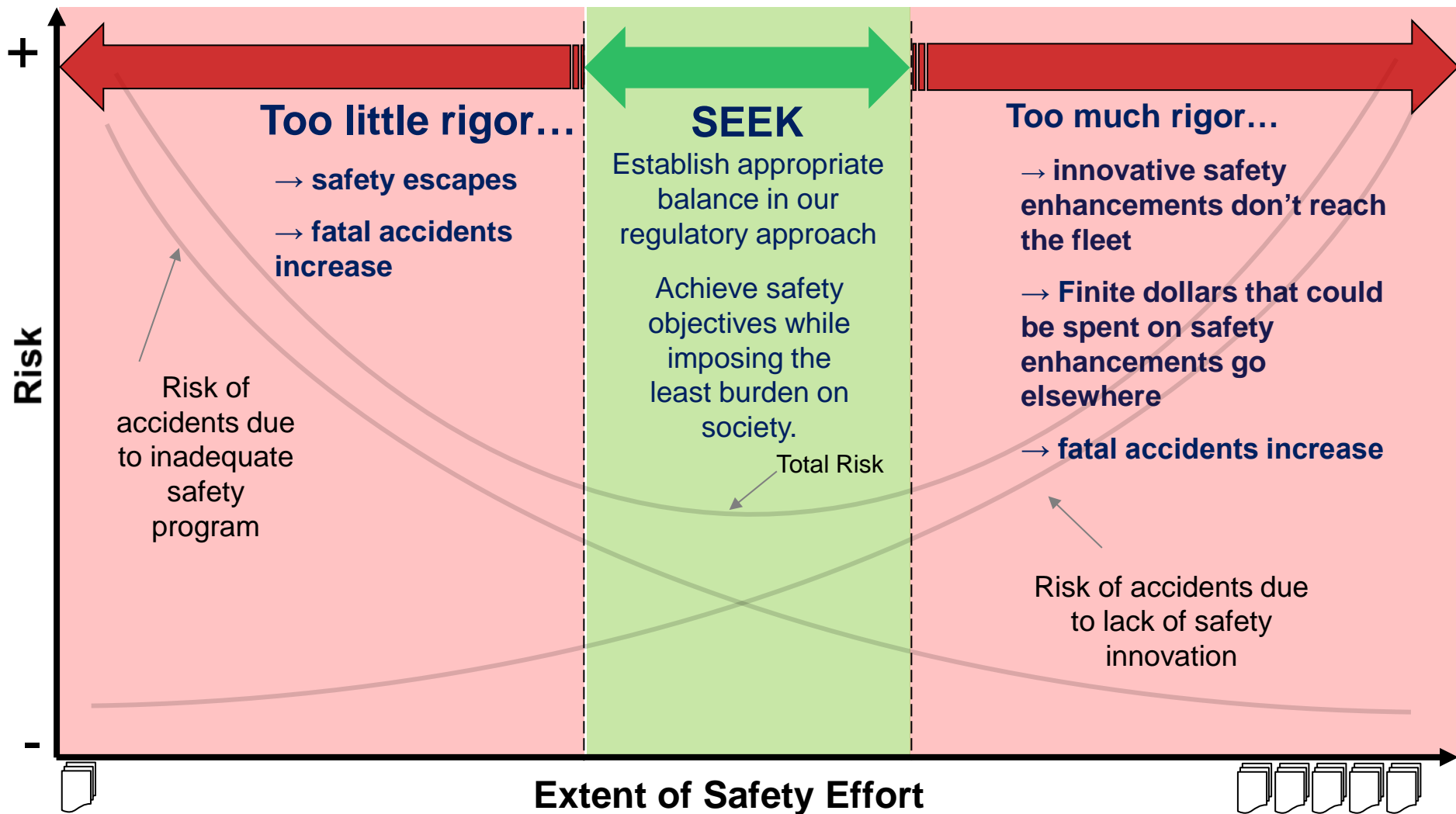
# AIR Organization



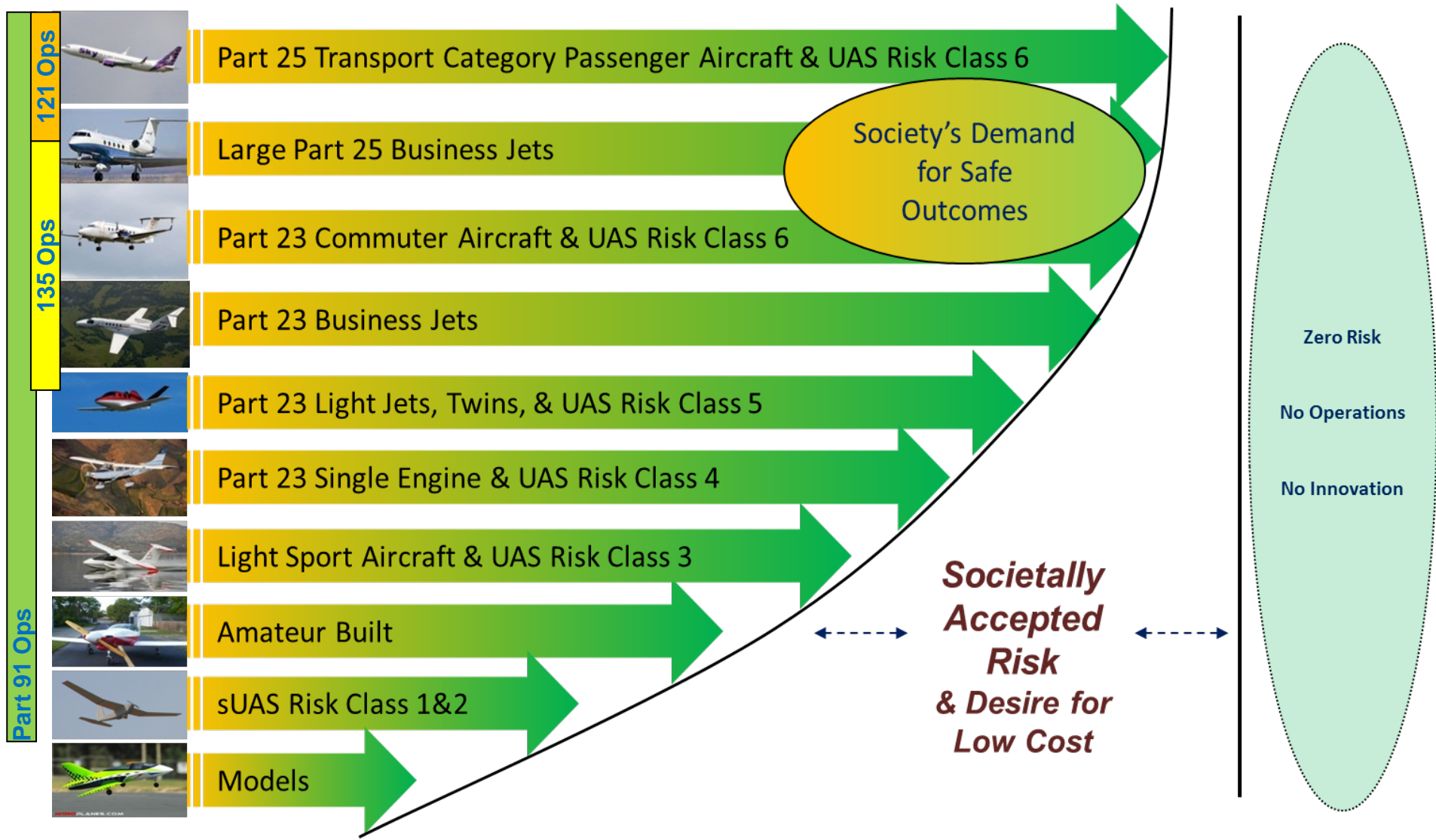
# UAS Safety – From Experience



# System Safety – The Safety Continuum



# Applying Our Safety Continuum



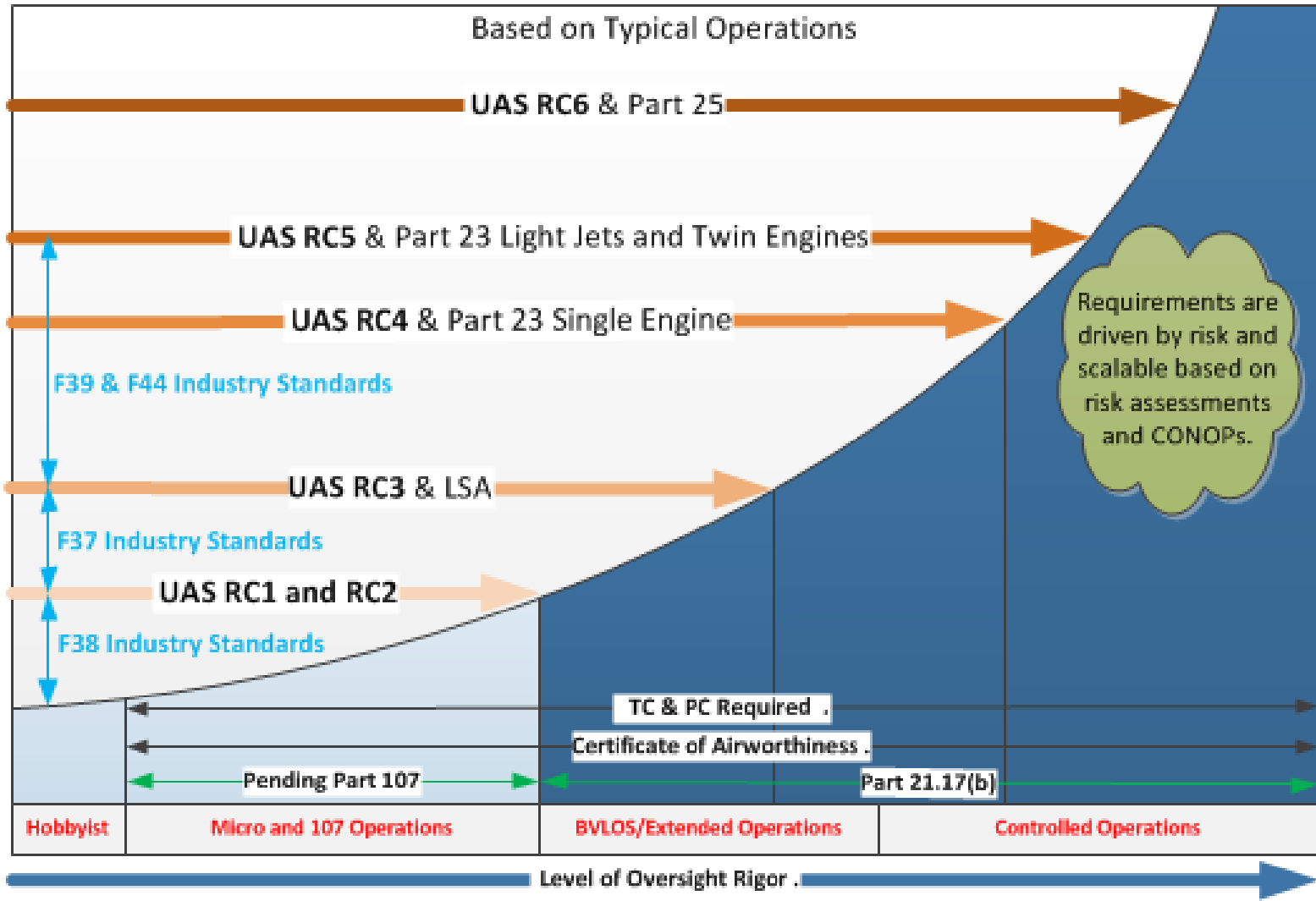
Level Of Cert Rigor

SIUM

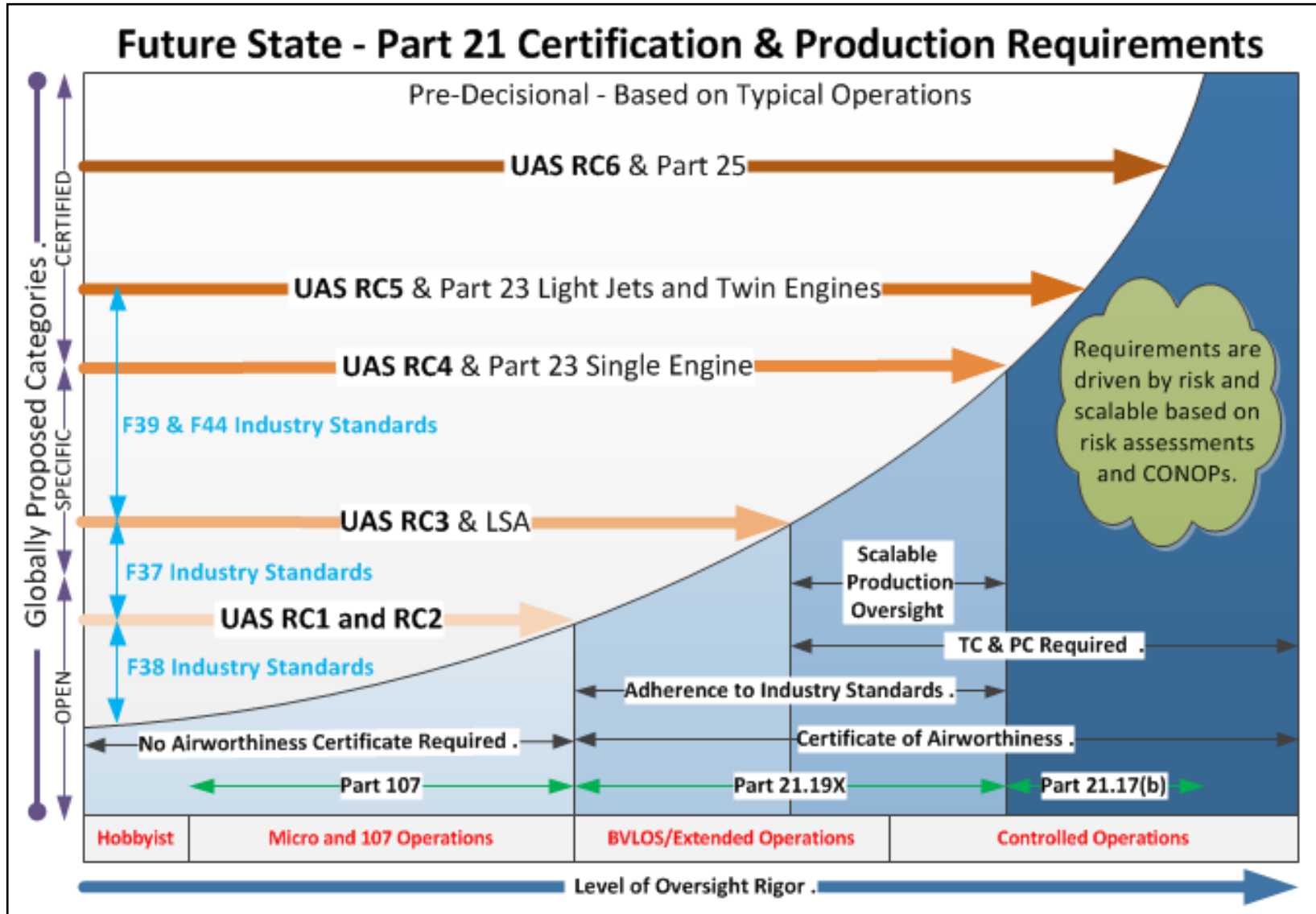
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# Existing Regulatory Framework

## Part 21 Certification & Production Requirements



# 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**

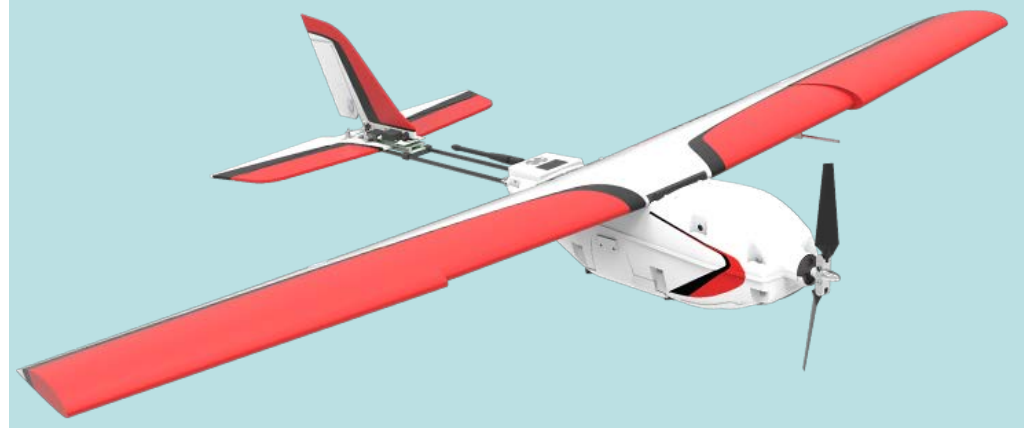
- Our certification projects inform future rule changes
- Considering further changes for low and medium risk UAS

- **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

<https://www.faa.gov/uas/>





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FAA UAS SYMPOSIUM

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# Type Certification AC Covers Near, Mid, & Far Term

**1-3 Year**

**Few Design  
Requirements**

**Highly Limited  
Operations**

**Specific  
CONOPS**

**Highly Limited  
TC**

**3-5 Year**

**More Design  
Requirements**

**Well Defined  
Operations**

**More Flexible  
CONOPS**

**Somewhat  
Limited TC**

**5-10 Year**

**Highest Design  
Integrity**

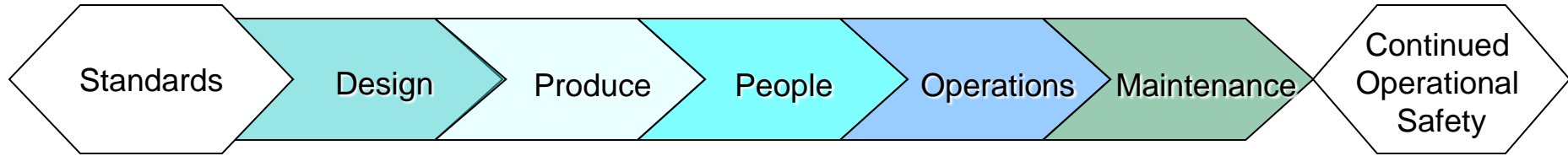
**Integrated  
Operations**

**Multiple  
CONOPS**

**Typical TC**



# Aviation Lifecycle



<p>Establish safety and certification regulations and policy</p>						<ul style="list-style-type: none"> <li>• Continual Oversight and Surveillance of:             <ul style="list-style-type: none"> <li>- Air Carriers</li> <li>- Manufacturers</li> <li>- Repair Stations</li> <li>- Designees</li> <li>- Airmen</li> <li>- Air Traffic Organization</li> </ul> </li> <li>• Apply tools to manage risk and gain compliance:             <ul style="list-style-type: none"> <li>- Airworthiness Directives                 <ul style="list-style-type: none"> <li>- Precursor identification</li> <li>- Data Sharing</li> <li>- Enforcement</li> </ul> </li> </ul> </li> </ul>
<p>Provide guidance on ways to meet the intent of the regulations and policy</p>	<ul style="list-style-type: none"> <li>• Determine design meets performance and certification standards</li> </ul>	<ul style="list-style-type: none"> <li>• Evaluate manufacturers quality and production systems</li> <li>• Issue production and airworthiness approvals for aircraft, engines, and parts</li> </ul>	<ul style="list-style-type: none"> <li>• Certify Airmen:             <ul style="list-style-type: none"> <li>➢ Pilot</li> <li>➢ Mechanics</li> </ul> </li> <li>• Appoint Designees:             <ul style="list-style-type: none"> <li>➢ Individual</li> <li>➢ Organization</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Approve Air Carrier operations</li> <li>• Issue recurrent airworthiness certificates</li> </ul>	<ul style="list-style-type: none"> <li>• Approve Repair Stations and Maintenance Facilities</li> <li>• Issue Repair Station Certificates</li> </ul>	
<p>Promote voluntary engagement and cooperation with enhanced safety programs</p>	<ul style="list-style-type: none"> <li>• Issue design approvals (type certificates)</li> </ul>					
<p>AVS is actively involved throughout the life-cycle of every aviation product</p>						



# Design and Production Approval

