Challenge of Unfailing Safety

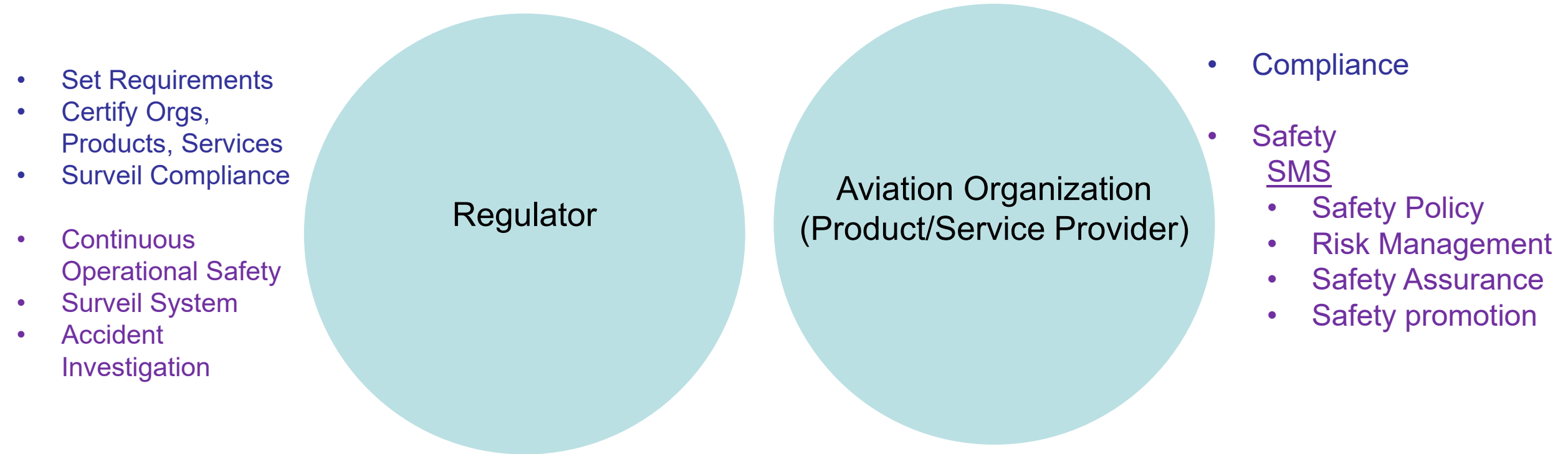Presented to: Aeronautics and Space Engineering Board

Date: 9 October 2024

Bruce DeCleene
Director, Office of Senior Technical Experts
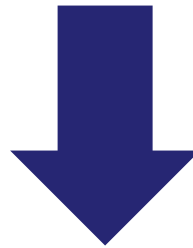Aircraft Certification

Federal Aviation Administration

System Overview: Compliant and Safe

- Set Requirements
- Certify Orgs, Products, Services
- Surveil Compliance

- Continuous Operational Safety
- Surveil System
- Accident Investigation

Regulator

Aviation Organization (Product/Service Provider)

- Compliance

- Safety
  SMS
  - Safety Policy
  - Risk Management
  - Safety Assurance
  - Safety promotion

Federal Aviation Administration

Paradoxical Observations

- **Compartmented responsibilities provide focus and accountability**

- **Humans are curious and creative**

- **Design for failure and rare operations increases complexity**

- **Advancing tools can manage increasing complexity**

- **Risk can hide in the cracks between compartments**

- **Humans are fallible**

- **Increasing complexity impedes human interventions**

- **Advancing tools impede human experience and oversight**

Cooperation / Diligence / Redundancy / Independence / Simplicity

Federal Aviation Administration