Unmanned Aircraft System (UAS) Integration
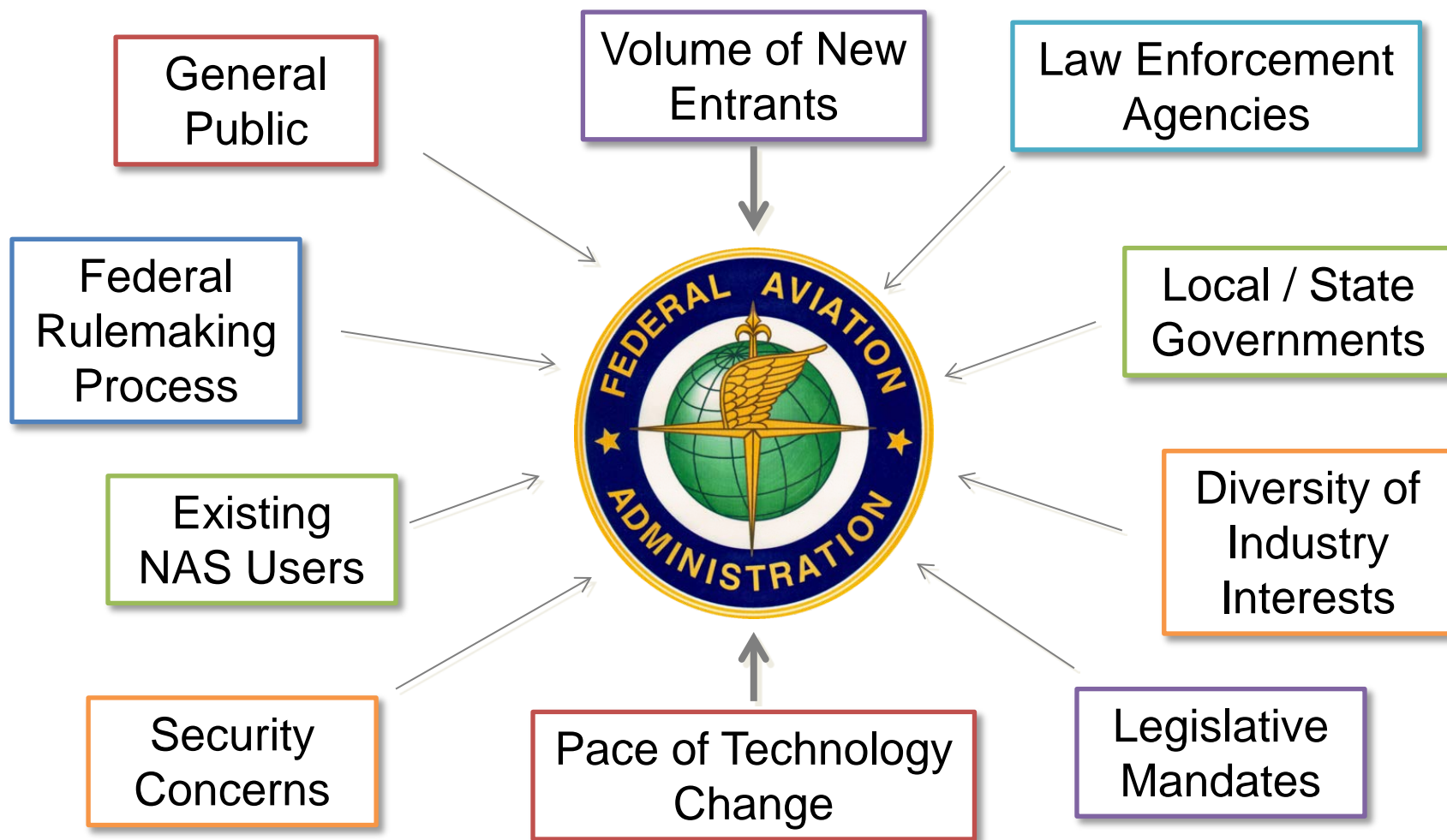
Progress Update

Presented by: Bill Crozier, Deputy Director,
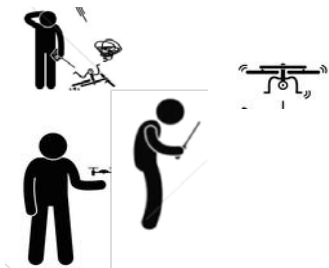   FAA UAS Integration Office

Date: October 6, 2016

Current Environment

General Public

Volume of New Entrants

Law Enforcement Agencies

Federal Rulemaking Process

Local / State Governments

Existing NAS Users

Diversity of Industry Interests

Security Concerns

Pace of Technology Change

Legislative Mandates

Growing Stakeholder Community

Remote Pilots

Service Providers

Existing NAS Users

Manufacturers

Local Governments

Congress

Law Enforcement

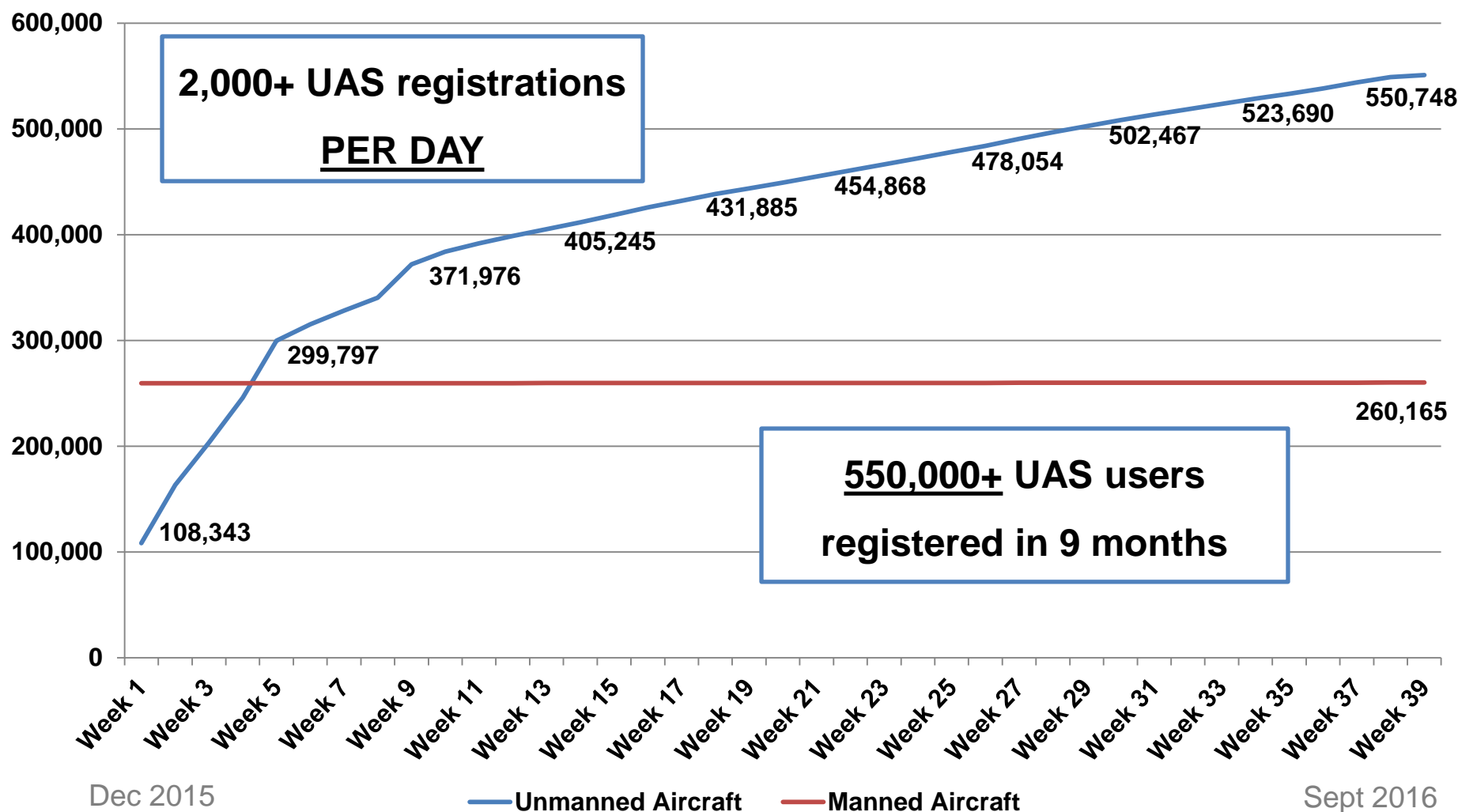**Tribal Governments**

General Public

Unmanned vs. Manned Aircraft Registration
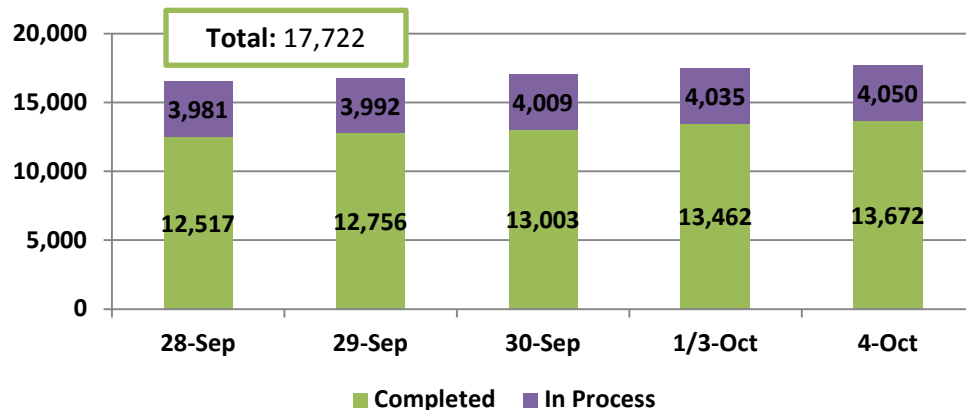
2,000+ UAS registrations PER DAY

550,000+ UAS users registered in 9 months

- Unmanned Aircraft
- Manned Aircraft

Dec 2015

Sept 2016

108,343
299,797
371,976
405,245
431,885
454,868
478,054
502,467
523,690
550,748
260,165

Part 107 Progress

Remote Pilot Knowledge Test (cumulative)

Legend: Passed (blue), Failed (red)

Date	
27-Sep	~7,800
28-Sep	~8,100
29-Sep	~8,100
30-Sep/2-Oct	~8,500
3-Oct	~8,500
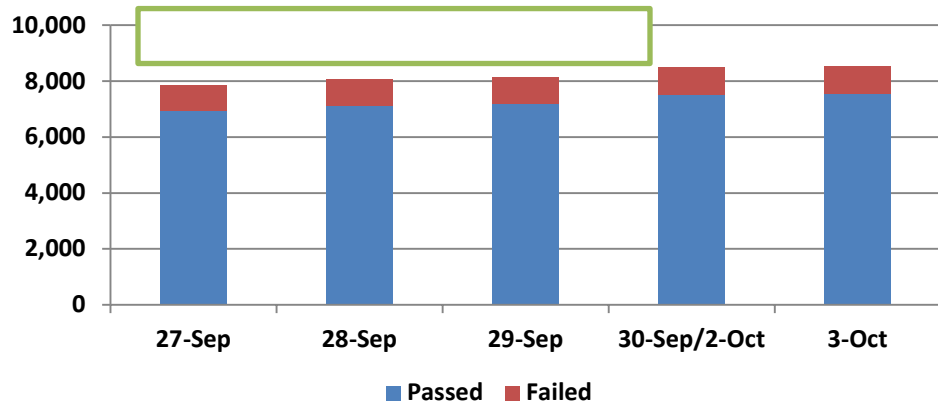
Airspace Authorization Requests

- Class B: 174
- Class C: 280
- Class D: 598
- Class E Surface: 165

Total Received: 1,217
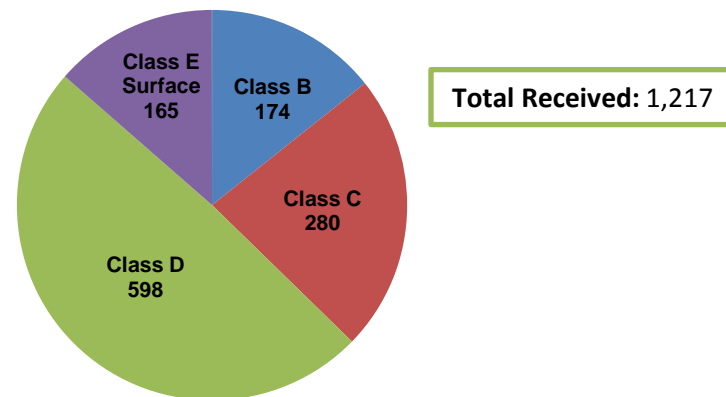
Remote Pilot Applications in IACRA (cumulative)

Total: 17,722

Legend: Completed (green), In Process (purple)

Date	In Process	Completed
28-Sep	3,981	12,517
29-Sep	3,992	12,756
30-Sep	4,009	13,003
1/3-Oct	4,035	13,462
4-Oct	4,050	13,672

Top 5 Waiver Requests

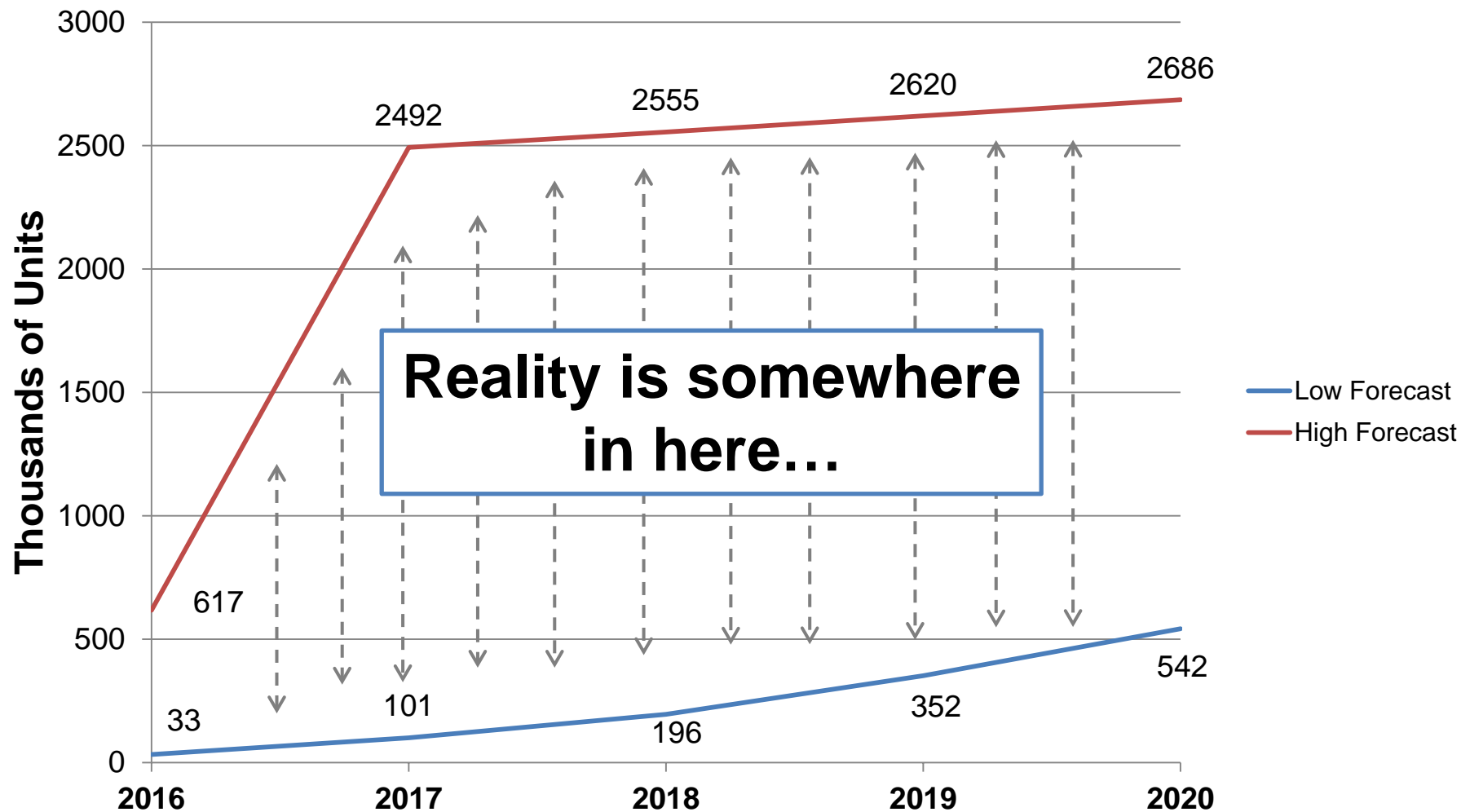| Request	Percent
Night Operations	65%
Operations over People	46%
BVLOS Operations	27%
Visual Observer	13%
Operations from a Moving Vehicle	13%

Total Received: 708
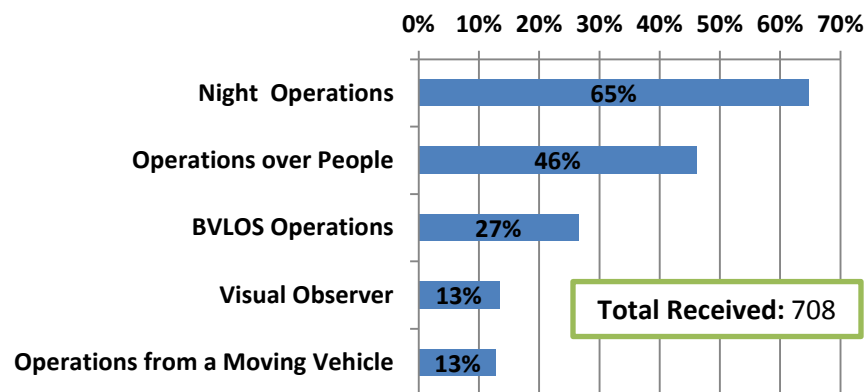
Remote Pilot Forecast
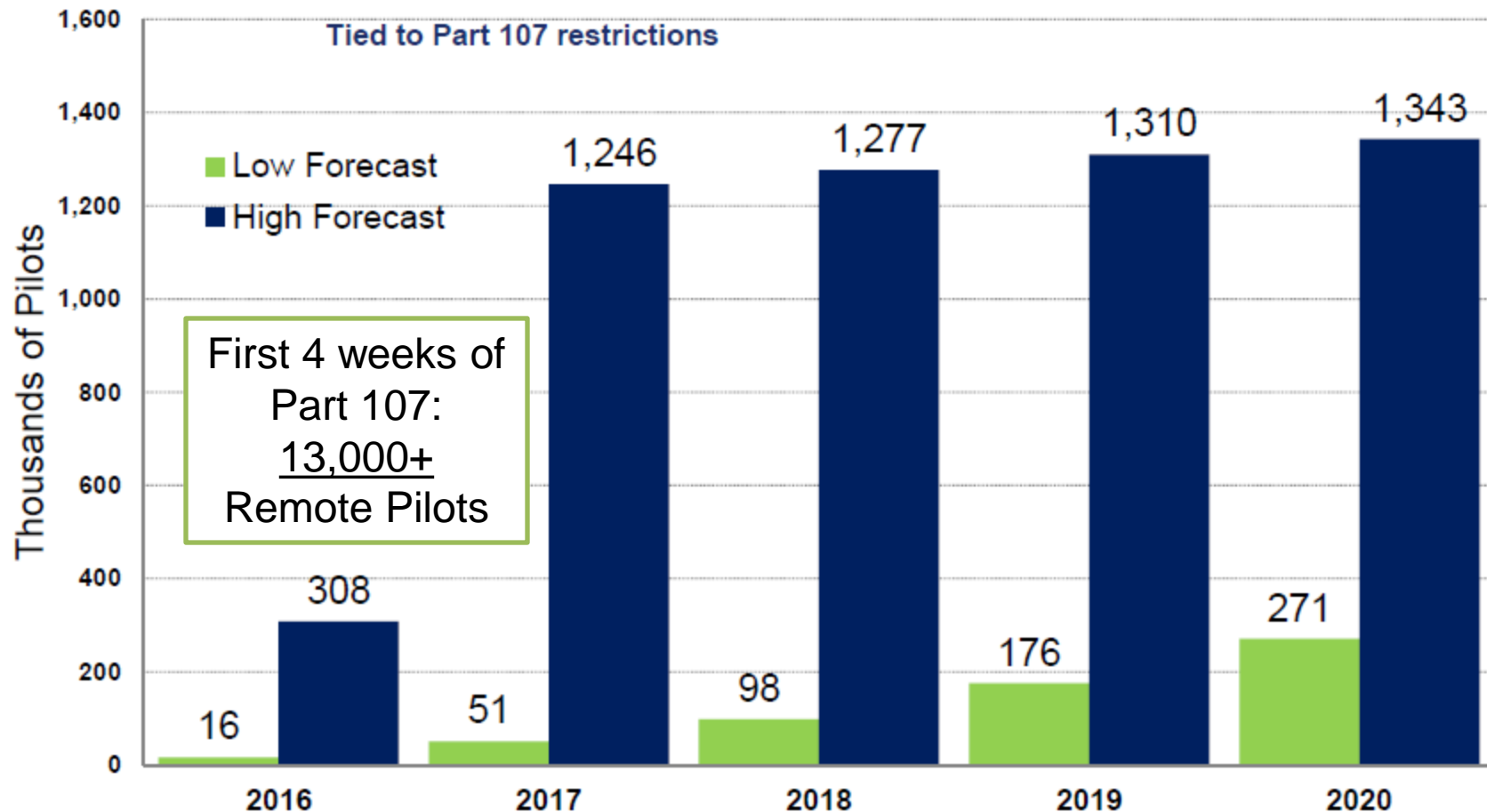
Small UAS (non-model) Fleet

UAS Strategic Priorities

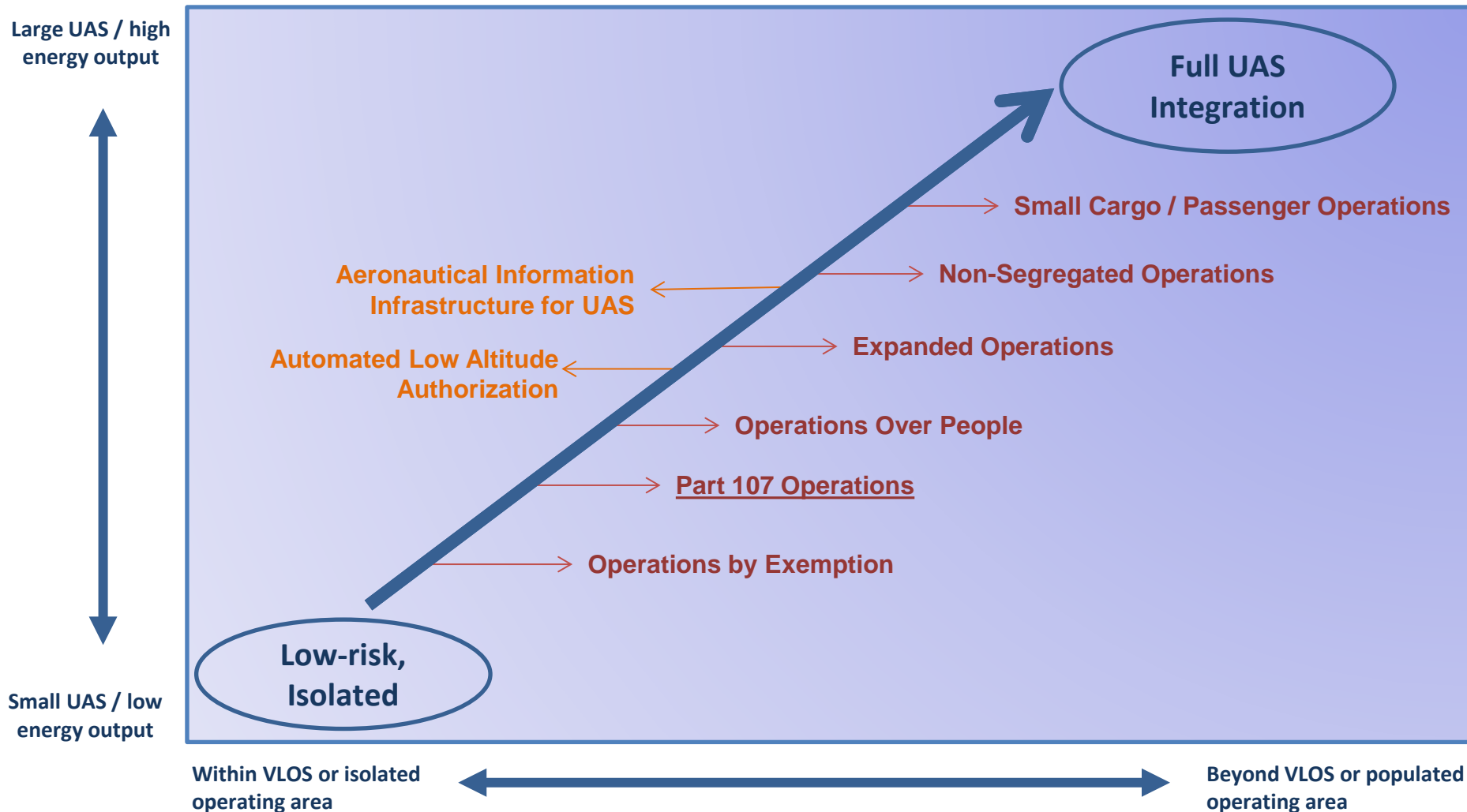**Safety:** *Enable safe UAS operations within the NAS*

Adaptability: *Create an environment where emergent technology can be safely and rapidly introduced into the NAS*

Global Leadership: *Shape the global standards and practices for UAS through international collaboration*
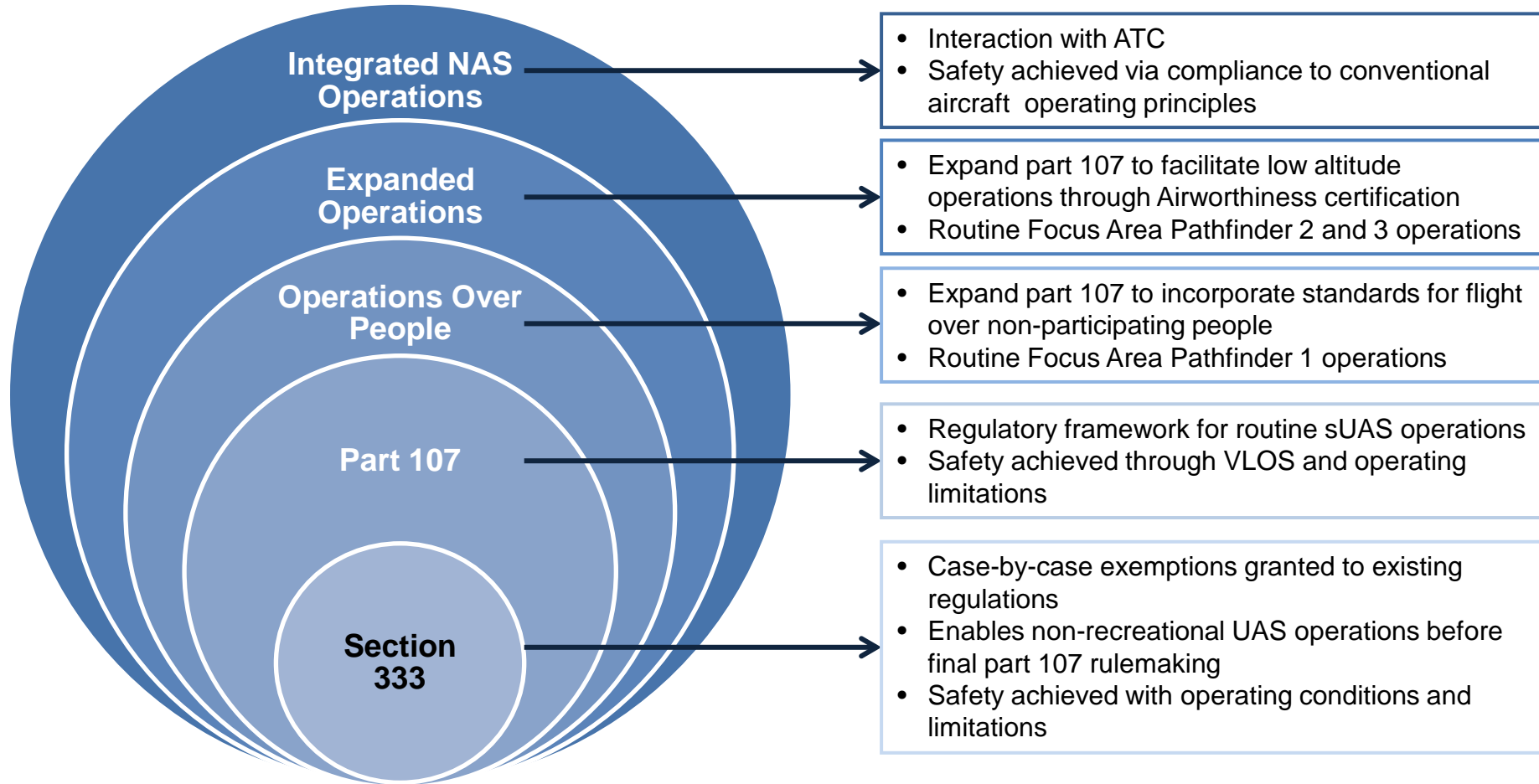
FAA UAS Integration Strategy

Large UAS / high energy output

Small UAS / low energy output

Full UAS Integration

Small Cargo / Passenger Operations

Non-Segregated Operations

Aeronautical Information Infrastructure for UAS

Expanded Operations

Automated Low Altitude Authorization

Operations Over People

Part 107 Operations

Operations by Exemption

Low-risk, Isolated

Within VLOS or isolated operating area

Beyond VLOS or populated operating area

Building the Regulatory Framework

Integrated NAS Operations
- Interaction with ATC
- Safety achieved via compliance to conventional aircraft operating principles

Expanded Operations
- Expand part 107 to facilitate low altitude operations through Airworthiness certification
- Routine Focus Area Pathfinder 2 and 3 operations

Operations Over People
- Expand part 107 to incorporate standards for flight over non-participating people
- Routine Focus Area Pathfinder 1 operations

Part 107
- Regulatory framework for routine sUAS operations
- Safety achieved through VLOS and operating limitations

Section 333
- Case-by-case exemptions granted to existing regulations
- Enables non-recreational UAS operations before final part 107 rulemaking
- Safety achieved with operating conditions and limitations

Focus Area Pathfinder Operations
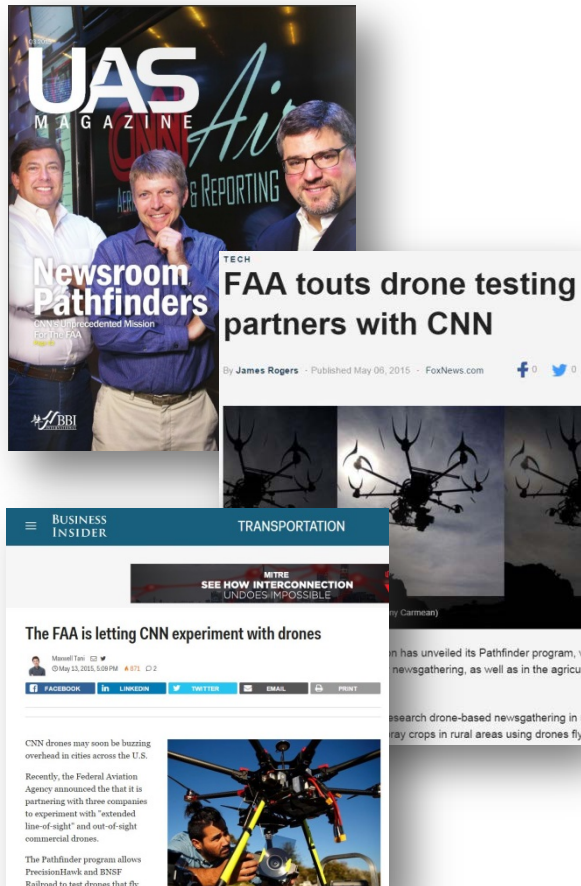
Pathfinder 1: CNN **Pathfinder 2: PrecisionHawk** **Pathfinder 3: BNSF**
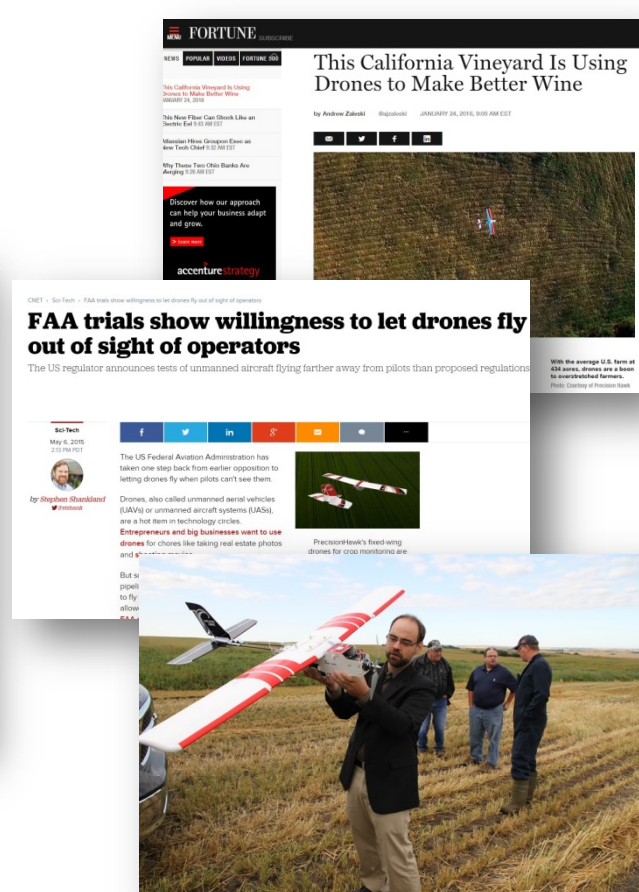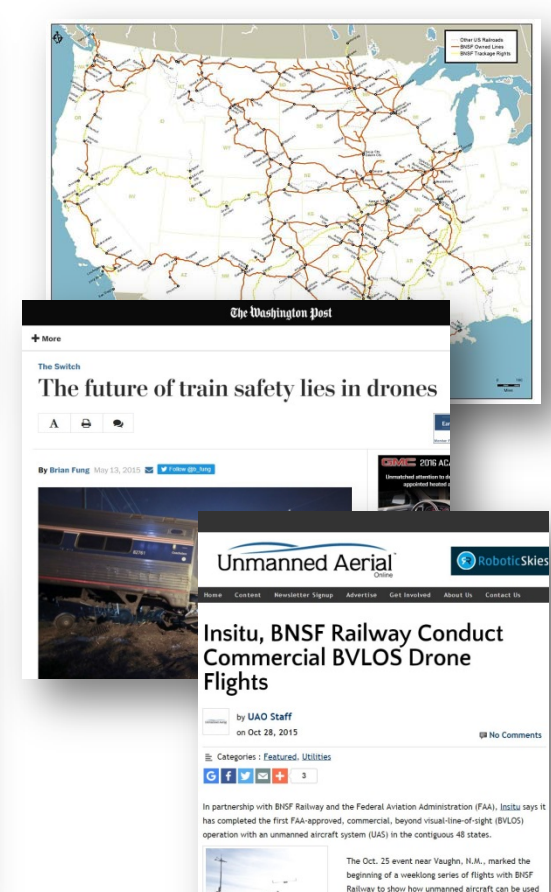
Ops over People **EVLOS Ops** **BVLOS Ops**

ASSURE University Team

Drone Advisory Committee (DAC)

Manufacturers

Government

Other Airspace Users

Academia/ Research & Development

Operators
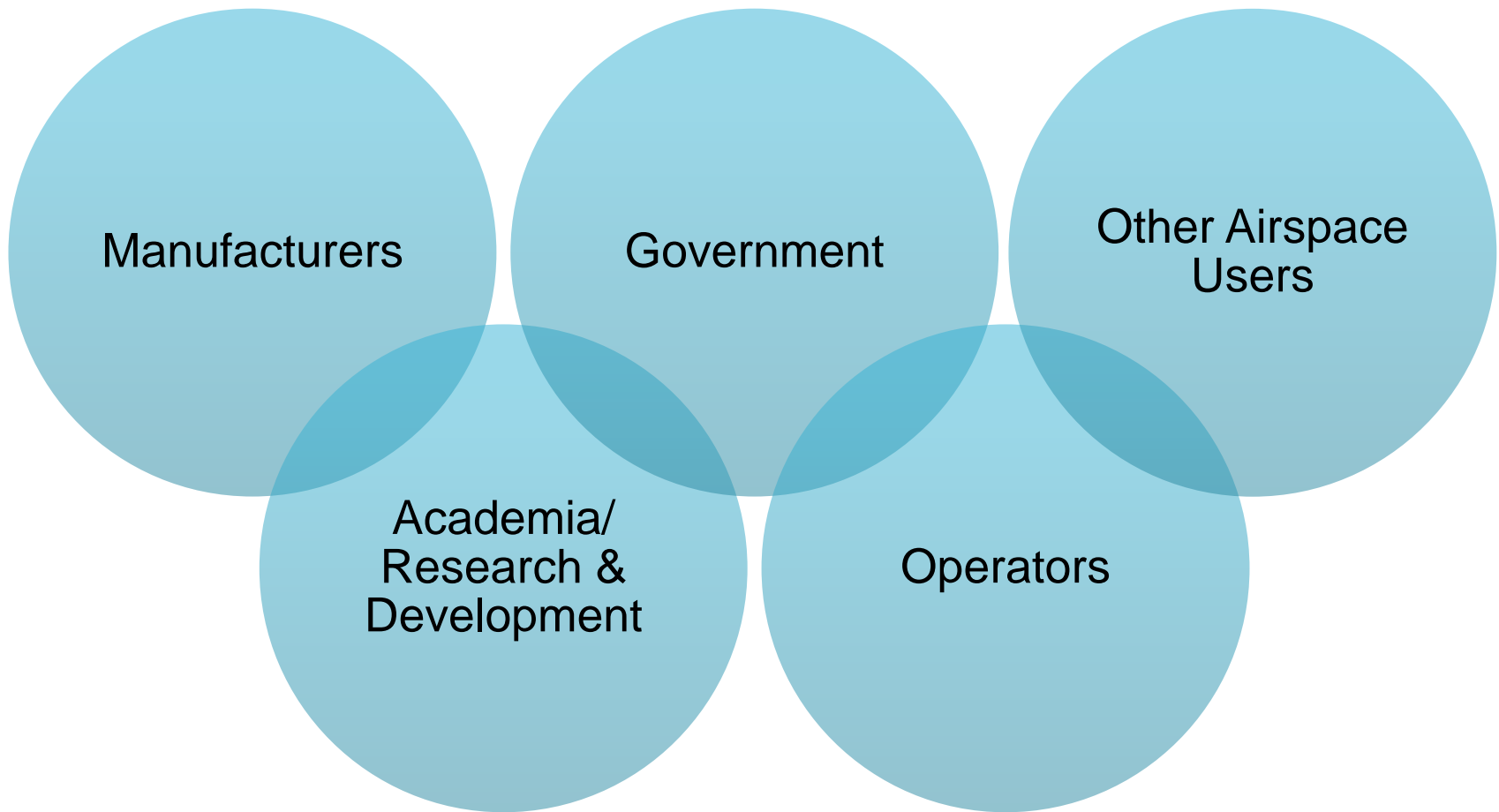
Consensus-Building is Key to Speed