

National Aeronautics and Space Administration

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Airspace Structuring

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Big Picture

One mile of surface transportation takes you one mile, whereas one mile of aviation land can take you **anywhere**



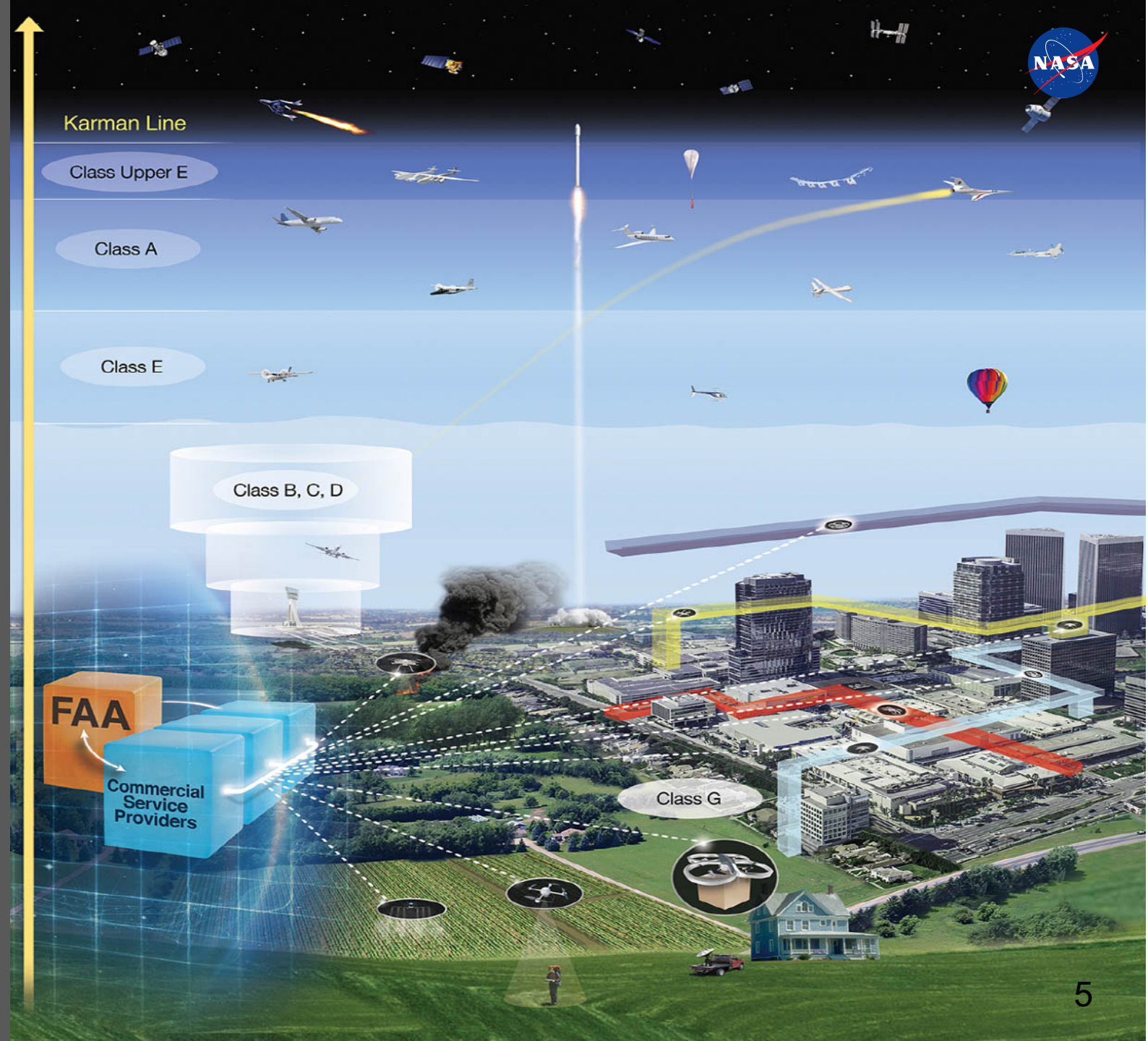
Airspace
“System”
should be
ready
when
vehicles
are ready



-
- FAA
- Commercial Service Providers
- 4

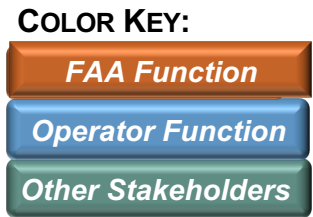
Multiple Dimensions of “Architecture”

Support nominal and
off-nominal operations



Manage by Exception Everywhere

- Performance-based
- Leverages UTM paradigm in entire airspace—from ground to heavens!
- Scalability everywhere



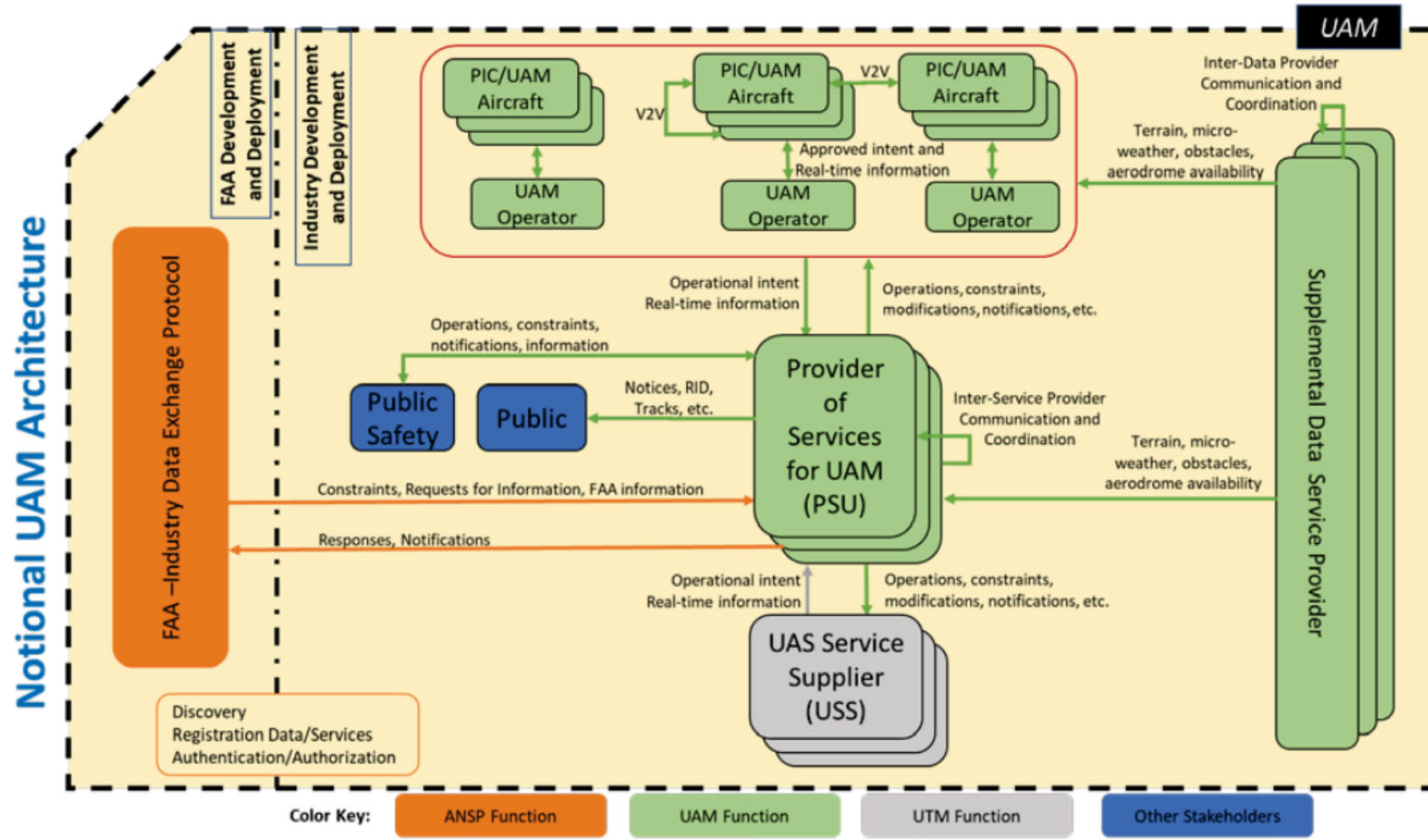
- Enables airspace controls
- Facilitates requests
- Supports response in emergencies impacting NAS

- Federated Structure
- Cloud-based system
- Automated System
- Supports UAS with services (e.g. separation, weather, flight planning, contingency management, etc.)

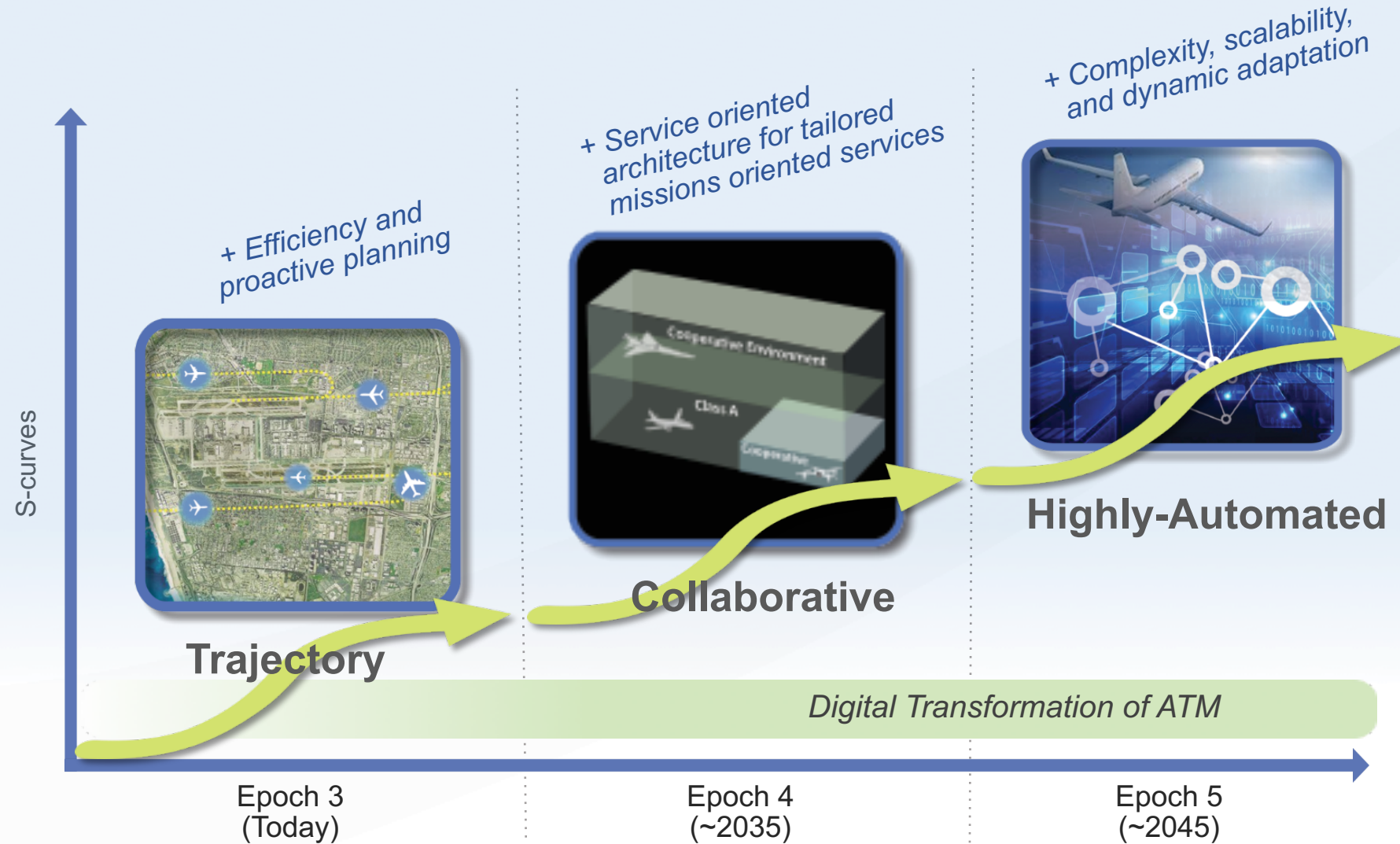
- Supplies supplemental data to USS and UAS Operator to support operations

- Individual Operator
- Fleet Management
- On-board capabilities to support safe operations

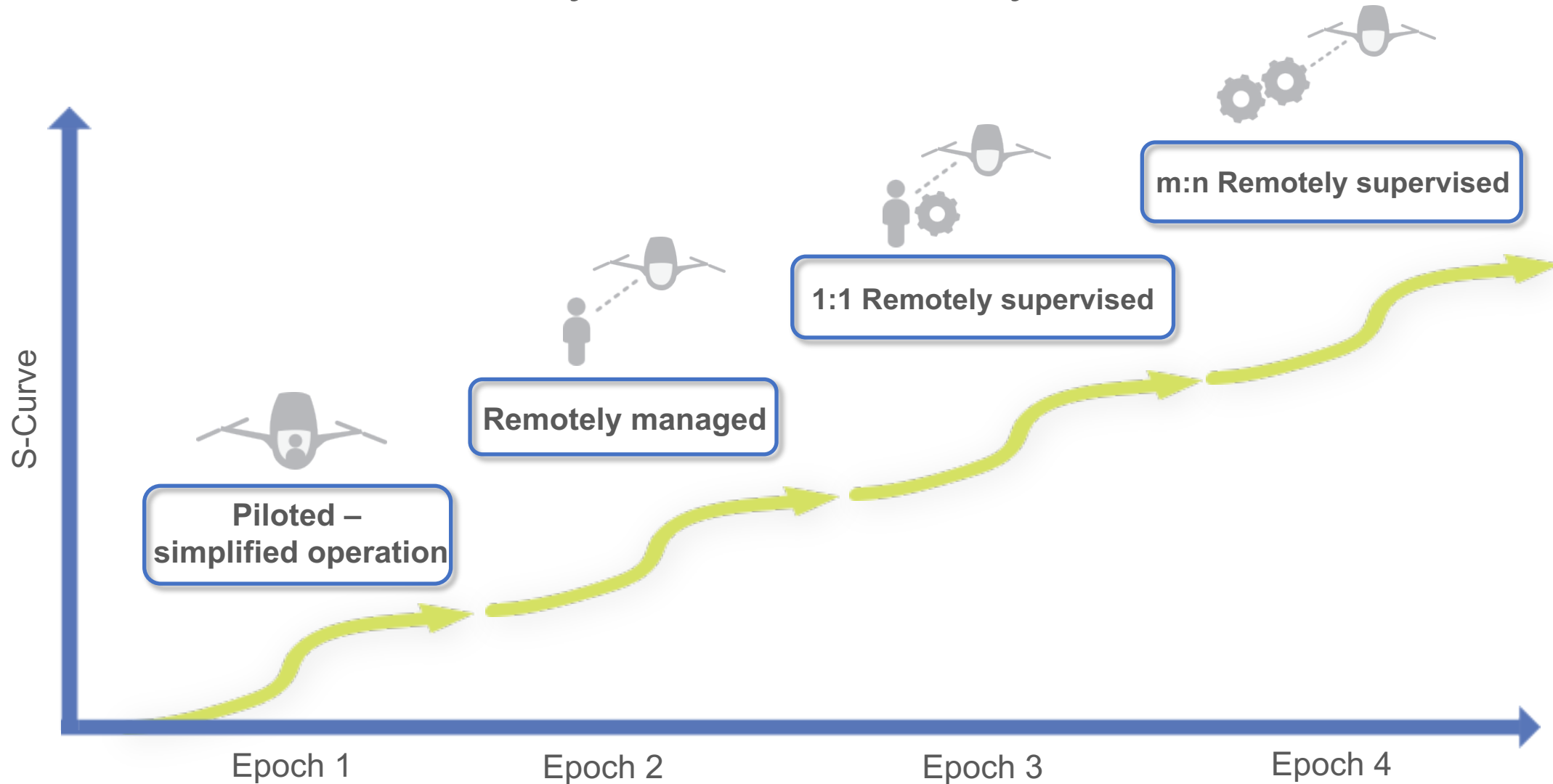
Notional UAM Architecture



Evolution of Airspace Operations and Safety

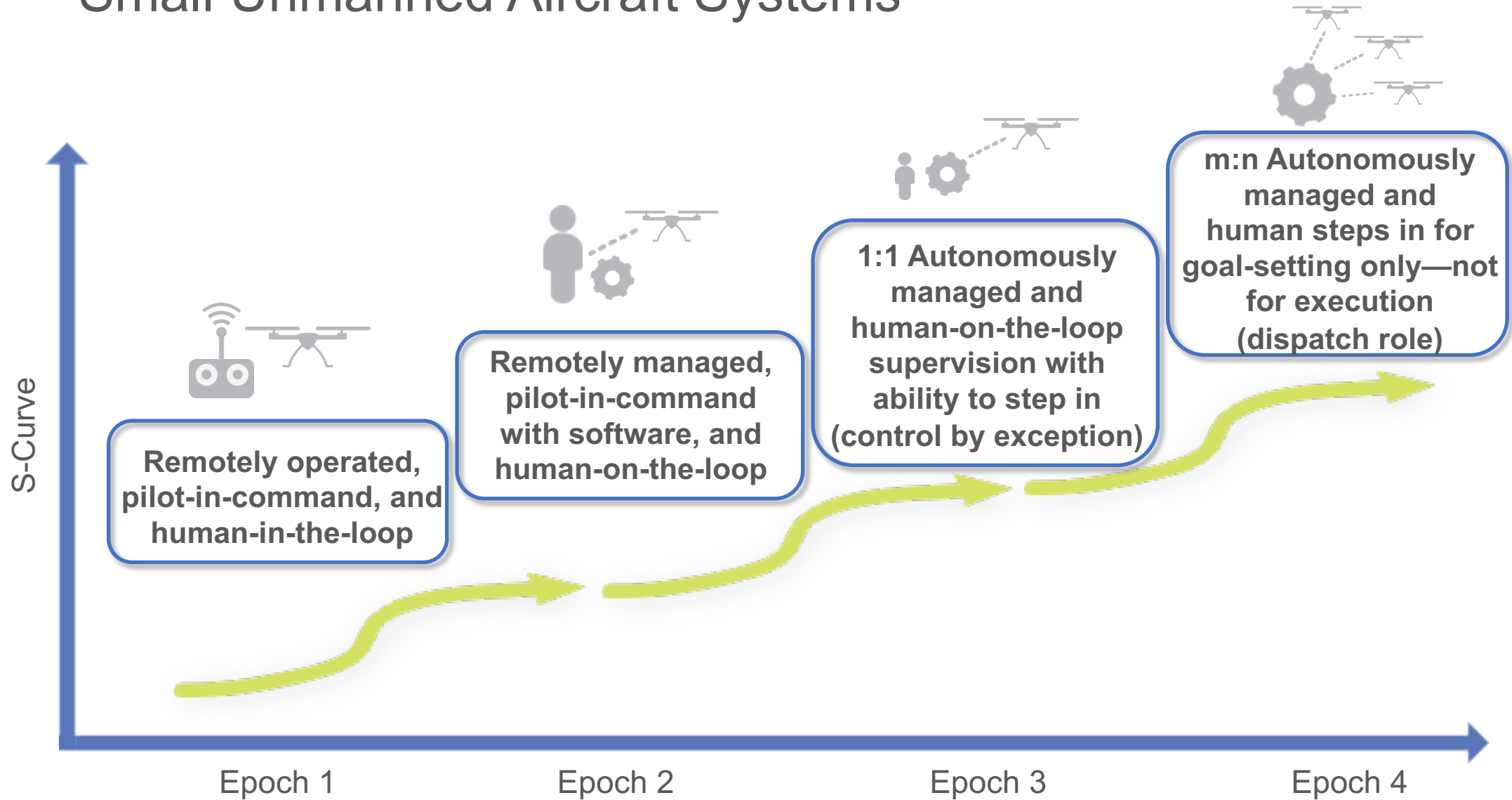


Advanced Air Mobility/Urban Air Mobility



Note: managed vs supervised denotes different levels of responsibility and decision making, with supervision at a higher level than management; supervision is like a dispatch role

Small Unmanned Aircraft Systems

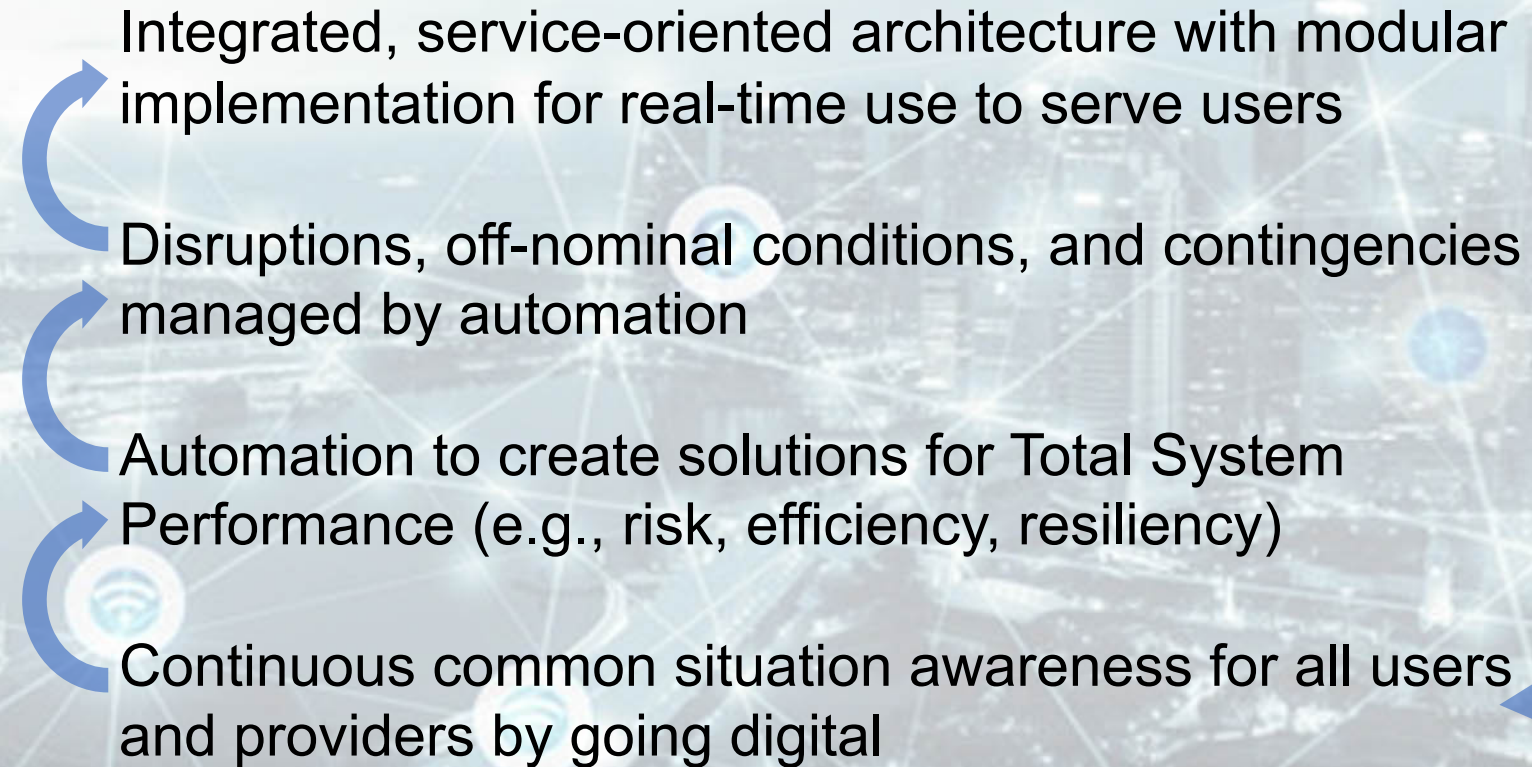




Innovation in aviation while respecting its safety tradition.

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Airspace System Must Continue to Evolve with Relatively Quicker Cycles

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- Integrated, service-oriented architecture with modular implementation for real-time use to serve users
 - Disruptions, off-nominal conditions, and contingencies managed by automation
 - Automation to create solutions for Total System Performance (e.g., risk, efficiency, resiliency)
 - Continuous common situation awareness for all users and providers by going digital

Progression to Complete Transformation

2030

