



Supporting ATM/UTM Integration

ICAO Drone Enable 2022

Adrian Solomon

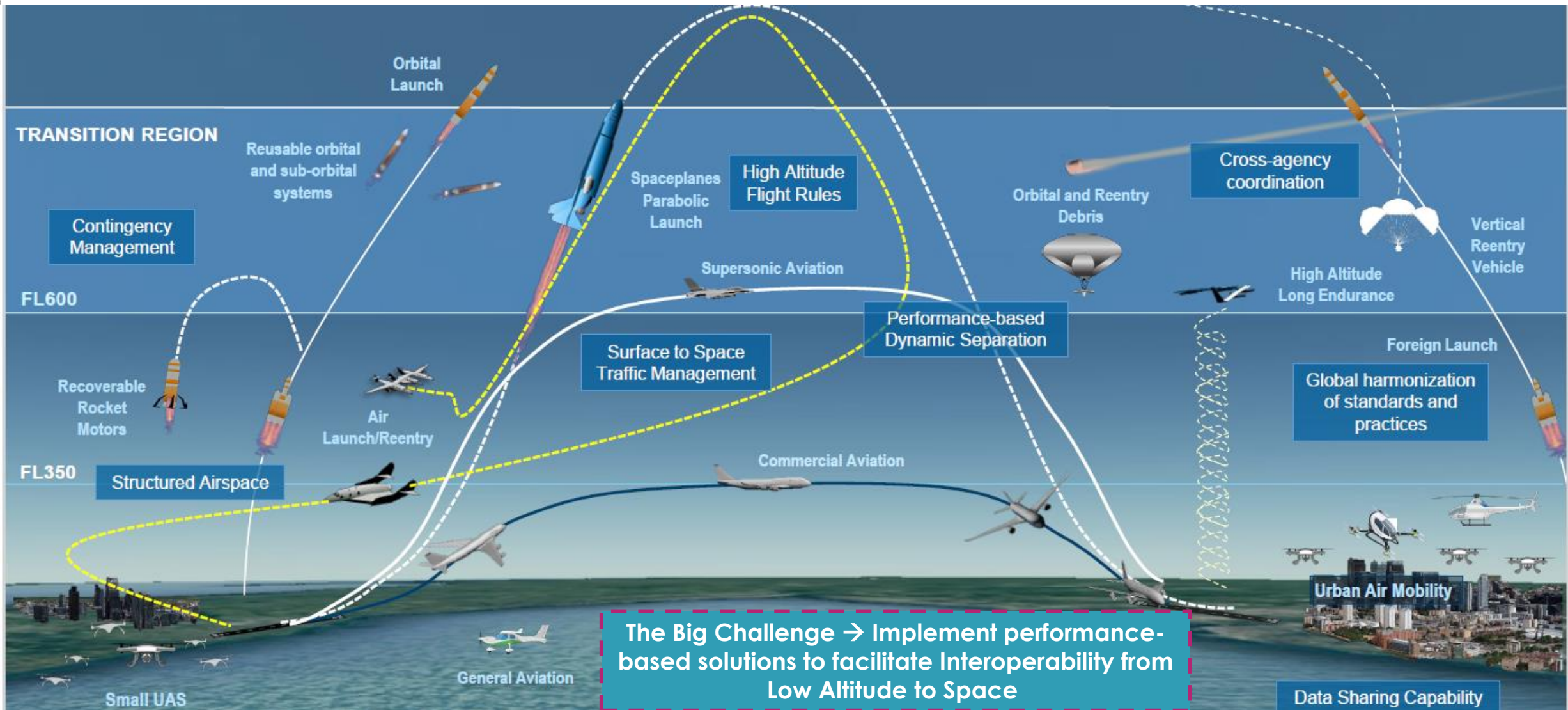
UTM Systems Engineer, Digital Aviation, Americas

November 2022



Airspace is Complex, yet Interrelated...

This document may not be reproduced, modified, published, translated, in any way, in whole or in part or disclosed to a third party without the prior written consent of Thales. - © Thales 2018. All rights reserved.



Courtesy: Mitre Corporation

Real-world UAS Integration is much more than "UTM."

This document may not be reproduced, modified, adapted, published, translated, in any way, in whole or in part or disclosed to a third party without the prior written consent of Thales - ©Thales 2015. All rights reserved.

What Industry Calls "UTM"

What Thales Calls "UAS Integration"

These are essential building blocks for future mobility (UAM / AAM).



UAS Services

E-registration, Weather, Geographical, AIM, Authorization, Surveillance, Datalink, ...

UAS Digital Infrastructure

Authority application, Pilot application, Remote ID, ...

UAS Operator Infrastructure

Aircraft, Ground control station, UAS Service Suppliers (USS), ...

UAS Advanced Services

SDSPs, Strategic deconfliction, Counter-UAS, Detect-and-avoid, ...

Safety-Critical Cloud Services

FIMS, Separation advisory service, Ground & air risk, Traffic & surveillance, Health & monitoring, ...

Physical & Remote Infrastructure

Surveillance, Communications systems, Ops center, Backhaul network ...

Cybersecurity

Encryption, Asset protection, Monitoring, Incident response, ...

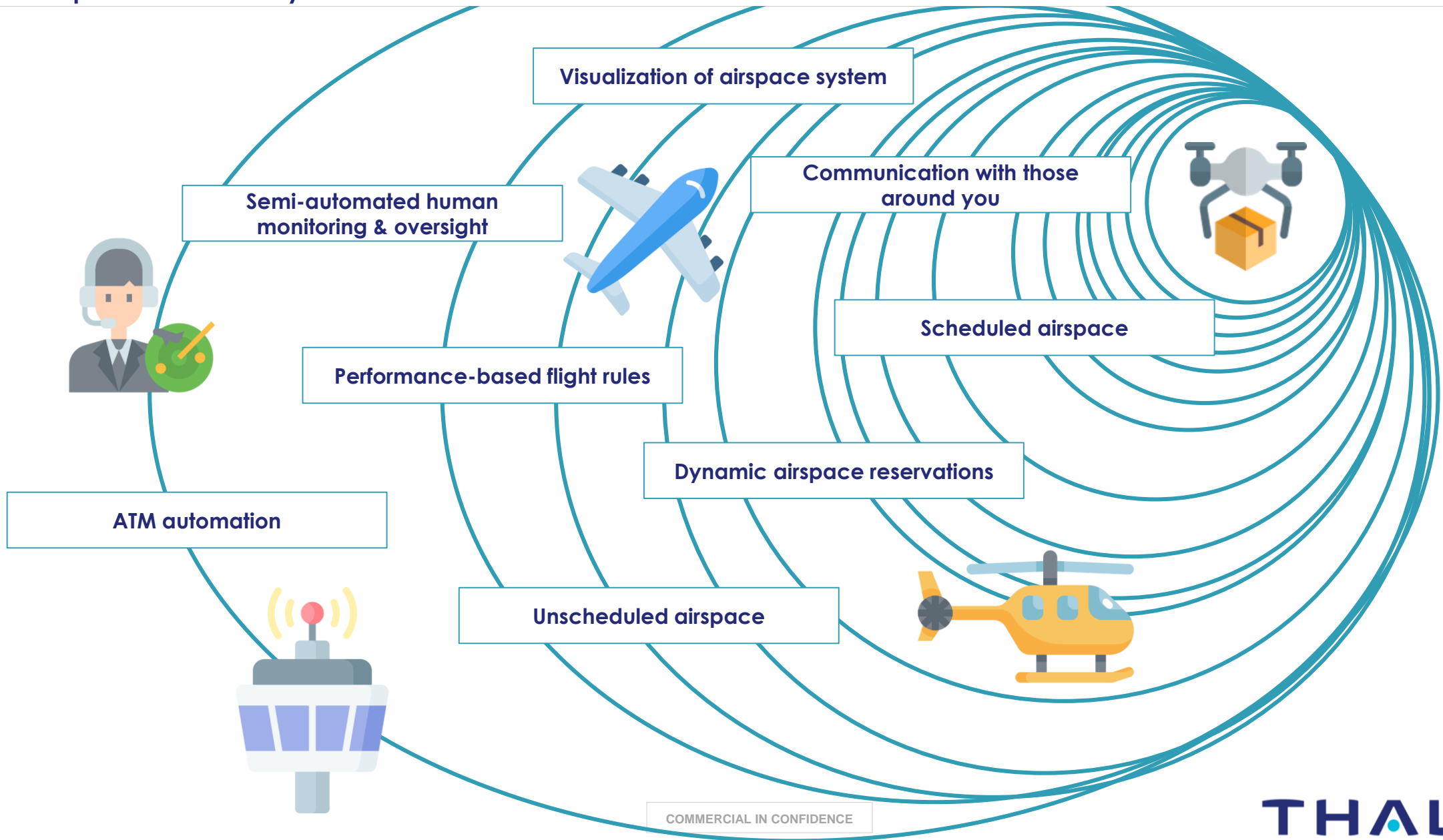
Support Systems

Maintenance, System testing, User management, Troubleshooting, Data storage, ...

COMMERCIAL IN CONFIDENCE

THALES

UAS create a ripple effect throughout the ATM system / do not act independently.



This document may not be reproduced, modified, adapted, published, translated, in any way, in whole or in part or disclosed to a third party without the prior written consent of Thales - ©Thales 2015. All rights reserved.

COMMERCIAL IN CONFIDENCE

THALES

Thank You.

www.thalesgroup.com

COMMERCIAL IN CONFIDENCE



Integration of vehicles with very different performance profiles

Integration of manned aviation with unmanned aviation



Integration of unscheduled airspace use with scheduled airspace use

OPEN

Ushering in a new era of transportation...

**Aviation is being reshaped by many powerful forces
which are fundamentally impacting ATM**

New Players



More Demand



New Technologies



Complex operational environment requiring **innovative digital solutions**
and **better collaboration** between all aviation stakeholders
For **Global Aviation Optimization**

Changes foreseen in Airspace Management operating model



Service Oriented Architecture

Open standards and ATC operations de-coupled from infrastructure; distributed / federated systems



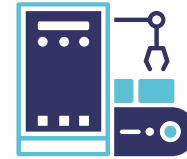
Higher levels of connectivity and data sharing

All actors are integrated into ATM network; Sharing of data allows better and new services



Virtualisation & remote provision of services

Remote towers, virtual centers & cloud-hosted data services provision as technical enablers; delegation of service provision



Increased level of automation

Single pilot operations and connected highly automated vehicles; Change in the role of the human: from high level of interventions to supervision role

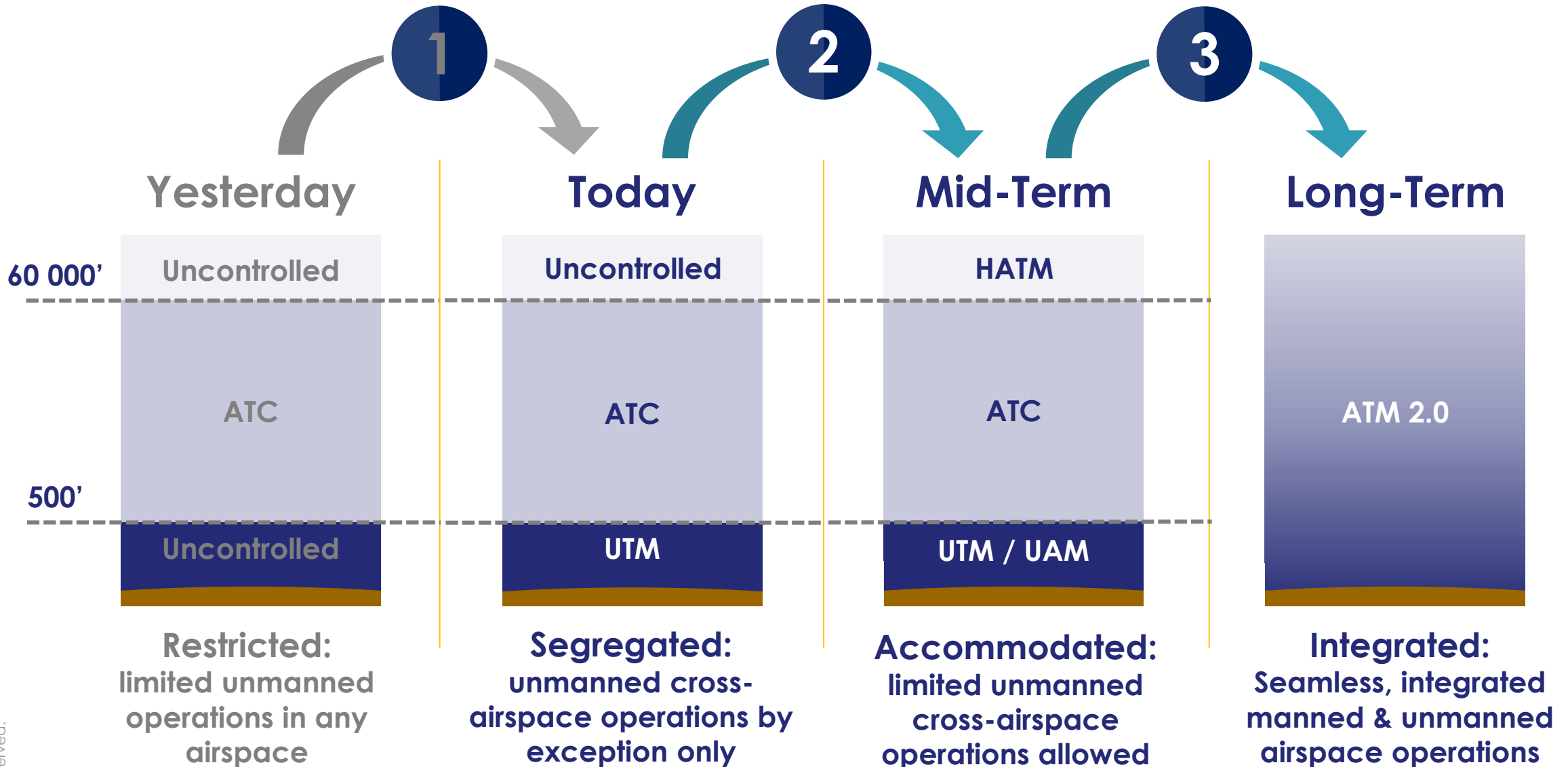


Introduction of digital tech

Artificial intelligence, machine learning on big data, new architectural patterns & use of APIs are part of the definition of the digital sky

Airspace Management will Evolve In Steps Due to New Entrants

Responding to growing demand to accommodate high variety of vehicles & operation types



This document may not be reproduced, modified, adapted, published, translated, in any way, in whole or in part or disclosed to a third party without the prior written consent of Thales - © Thales 2015. All rights reserved.