



Innovation Hub Pathfinder Community Update

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1. **Gateway** to **make it easier for aviation innovators** to work with us as regulators

2. **Sandbox** to **maximise regulatory readiness** by enabling the exploration and testing of Innovation concepts in a safe space.



3. **Regulatory Lab** to **anticipate and respond to complex emerging aviation challenges** in order to shape the future regulatory landscape.

CAA Safety & Airspace Regulation Group

including UAS, Airspace, Aerodromes, Spectrum, ATM...

CAA International

utilising policy and regulatory experience to deliver training and consultancy internationally

CAA Consumer & Markets Group

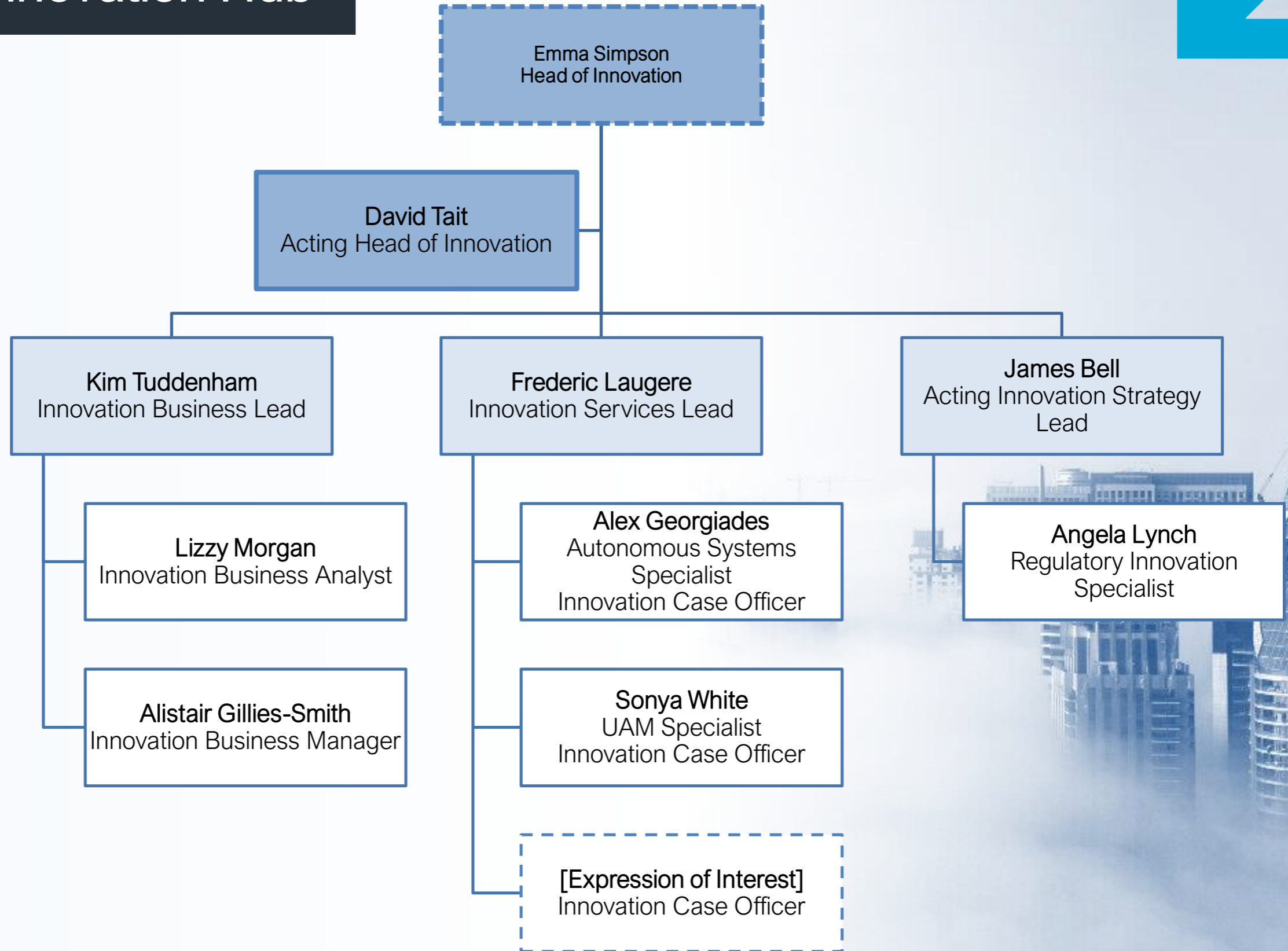
CAA Aviation Security

CAA Strategy & Policy

HM Government

Supporting the development and implementation of government policy and strategy

CAA Innovation Hub



Purpose of the Gateway

- To provide a **single point of contact** for innovators
- To **communicate** with innovators
- To ensure **coordination** with the right parts of the CAA
- To **educate and promote** aviation innovation

Current Work

- Positive engagement with accelerators & incubators, including Barclays Eagle Lab, Catapults
- Rebuilding our website, to better suit our needs and enable better communication
- Developing our metrics reporting, to better communicate progress

Sandbox Update

Purpose

- To provide innovators with a 'safe space' to **test their concepts**
- To form **partnerships** that enable new products to come to market
- To improve **regulatory readiness** in preparation for regulatory approvals

6 Participants at Launch

- Altitude Angel, Amazon, NATS, Nesta, NBEC, Volocopter
- Good progress, already learnings for them and us!

New Participant

- BVLOS Sandbox - Sees.ai
 - Sandbox Challenge (Aug 19) - BVLOS in Non-segregated Airspace
 - Enable drone service providers to remotely deliver services on industrial sites from a central control room.

Insights from the BVLOS Call

Applications should ...

- Be **relevant** to the challenge
- Have sufficient **technical maturity**
- Have completed full **platform integration**
- Be backed by an appreciation of **existing rules and guidance**
- Be backed by relevant **research**
- Have a **realistic schedule**



Sandbox Processes and Development:

- Learning from experience – developing internal processes
- Improving our capability to support innovators
- Understanding what works, what is good, what needs improving
- Expanding!...
 - Expression of Interest – Innovation Case Officer (Q1 2020)

<https://careers.caa.co.uk/job/Gatwick-Register-Your-Interest-Case-Officer-Innovation/554875201/>



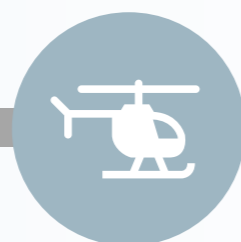
Scoping and Positioning

Investigations into new innovations, to steer further action

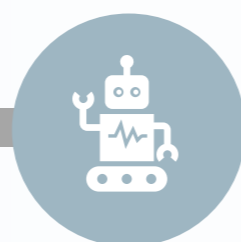
- Background and key issues / opportunities
- National and international activities
- Exploring the CAA positions
- Making recommendations
- Examples...



UAS Traffic
Management



Urban Air
Mobility



Automation
& AI



Social
Licence



Sandbox Challenges

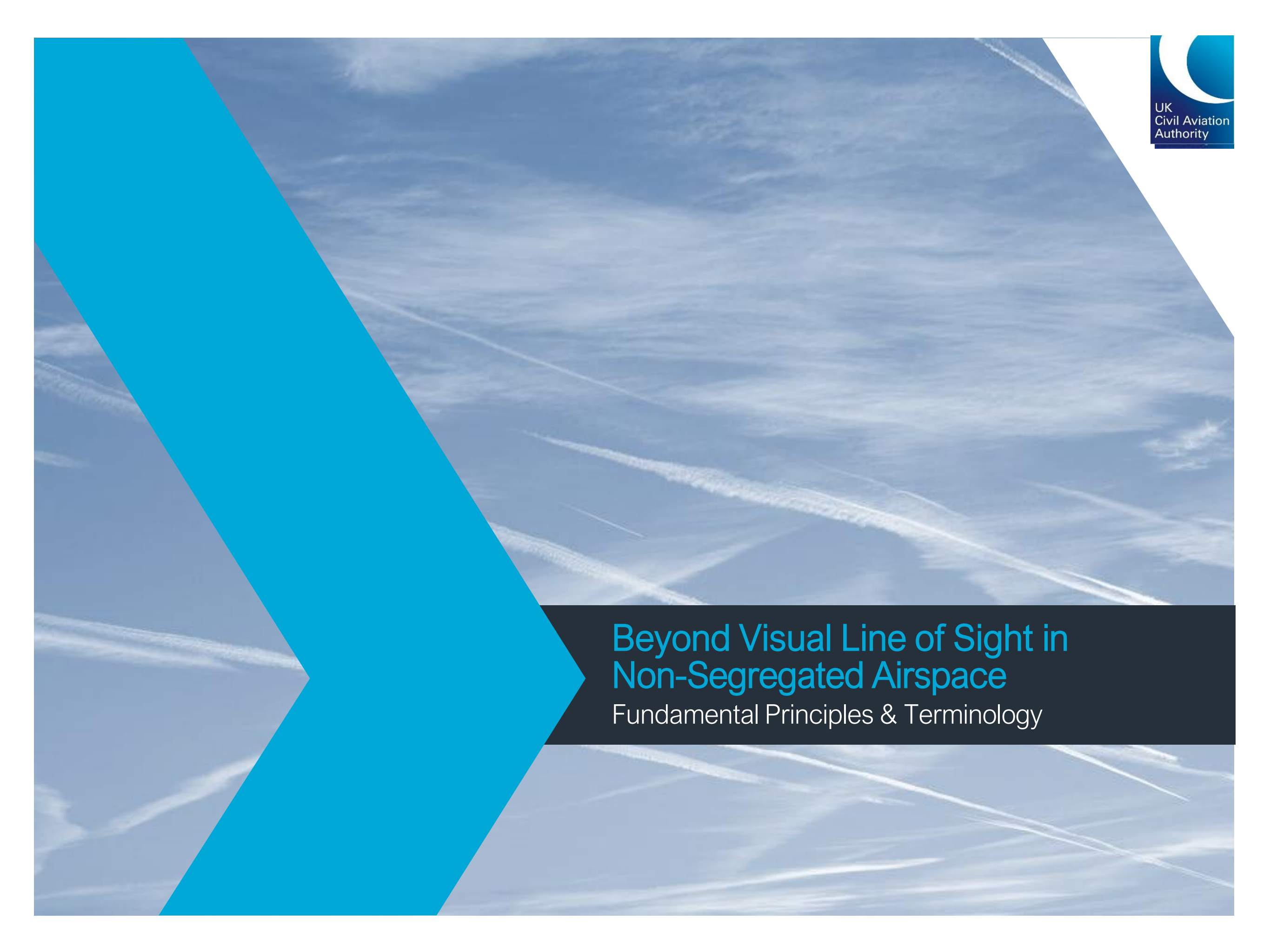
The Challenges articulate to industry what the CAA is seeking to test and the support which will be made available to innovators in answering these questions.

Aug 2019: BVLOS in Non-Segregated Airspace

- Developed through partnership with the Pathfinder programme.
- Continue to support research & analysis, Sandbox outputs.
- Development of regulatory guidance

TBC – Early 2020: UAS Traffic Management

- Evidence generation to support deployment and policy making for UTM
- Sandbox Call in development
- Publish early 2020



Beyond Visual Line of Sight in Non-Segregated Airspace

Fundamental Principles & Terminology

BVLOS in Non-Segregated Airspace

The Need

To agree on fundamental principles and terminology as a baseline for a BVLOS programme

To educate on these principles to a national & international audiences

To start a conversation on unlocking BVLOS in non-segregated airspace

The Result

Non-Segregated BVLOS Sandbox Call

Innovation Hub Guide,
“BVLOS in Non-Segregated Airspace”

Future work to focus on Detect & Avoid solutions



BVLOS Can Be...



What is BVLOS?



Visual Reference

By choice or by circumstance

Conduct of the flight

Avoiding obstacles, terrain
and other aircraft

Beyond Visual Line of Sight

An operation in which the remote pilot or RPA observer does not use **visual reference** to the remotely piloted aircraft in the **conduct of flight**

- ICAO



No Aviation
Threat



Segregated
Airspace



Equivalent to
See & Avoid



Detect & Avoid Ecosystem Solutions

Some combination of systems, collectively providing the functional capabilities of Detect & Avoid



Ground-based Infrastructure



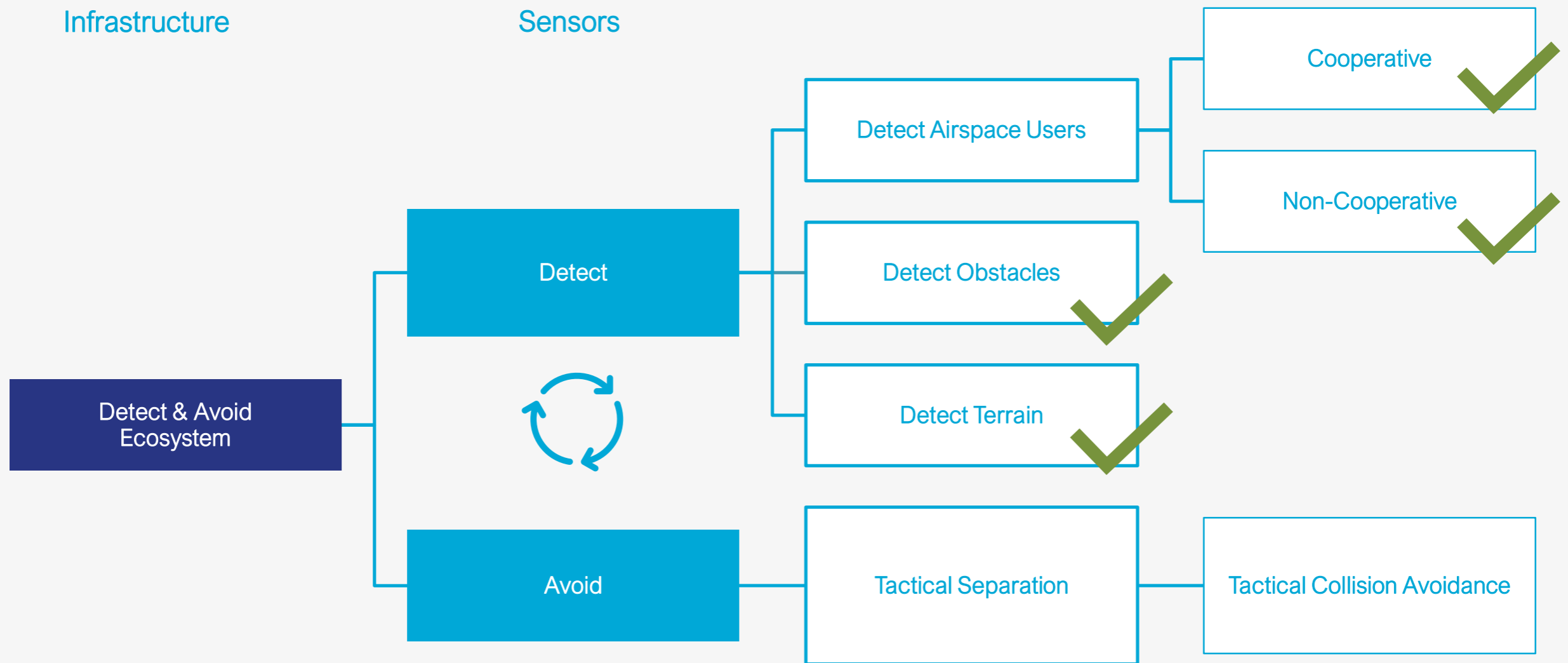
UTM



On-Board Sensors



Electronic ID



Recommended Development Pathway

There is still a need for segregated airspace...



Segregated Testing



'Simulated'
Trials in a safe
environment



Trials in Target
Environment



Approval*



Increasing evidence to safely & iteratively
mature a robust safety case*

BVLOS in Non-Segregated Airspace



CAA Publication Reference
CAP1861



Available today via the Innovation Gateway
or <https://publicapps.caa.co.uk/cap1861>



Innovation Hub Pipeline of Products



Novel Operations in a Specific Trials Area (NOSTrA)

CAP1835

Non-binding, good practice guidance to enable innovators to try out novel and innovative aviation technologies and operations in a sustainable manner, in UK airspace



BVLOS in Non-Segregated Airspace: Fundamental Principles and Terminology

CAP1861

Articulating and educating to a baseline understanding, and introducing a potential framework for approval of DAA systems



Airspace Trials

TBC

Providing guidance for the new airspace trials process set out in CAP1616. Allowing sponsors to establish temporary airspace for testing of innovative technology and airspace management.



'Social Licence'

TBC

The positive and active reception of innovative practices, principles and business approach by the communities and stakeholders affected by the new operations.

...and more in future, based on lessons learnt from Sandbox & Reg Lab activities



UAS Unit

Update to the Pathfinder Community

UAS Unit Update

BVLOS Internal Review Meetings

- Oversight of BVLOS permission holders (currently x12)
- To help define the risks, and take appropriate action to mitigate them

New UAS Team Members

- Expanding both the sector and policy teams

Service Agreement

- Continue to work to 28-day assessment of all applications
- Extension if support required from other CAA areas (e.g. Airspace)

Innovation Hub

- Working closely to assess emerging technology for BVLOS



www.caa.co.uk/innovation

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