

UK Drone Pathfinder Programme



Drone Pathfinder Programme

- Part of a wider programme of work, both government led and across the UK's public and private sectors, aimed at enabling integration of drones into UK airspace
- Aims to rapidly drive progress in drone technology and regulation, enabling industry and the public sector to fully exploit this technology
- Identify the commonalities between use cases and facilitate live testing of operational concepts
- Initial Pathfinder projects: BVLOS linear infrastructure surveys across electricity and gas networks, Infrastructure Inspection construction industry

<https://cp.catapult.org.uk/case-studies/pathfinder/>

Drone or Unmanned Aircraft System (UAS)

- In the context of the Drone Pathfinder Programme, the word 'drone' is another term for unmanned aircraft
- Unmanned aircraft come in a variety of shapes and sizes, ranging from small handheld types up to larger aircraft, and they may be of a fixed wing design, rotary winged, or a combination of both
- Unmanned Aircraft may also be referred as:
 - Drones
 - Remotely Piloted Aircraft Systems (RPAS)
 - Unmanned Aerial Vehicles (UAV)
 - Small Unmanned Aircraft (SUA)
- They all share the common characteristic that the person responsible for piloting the aircraft is not onboard it. Just like any other aircraft however, an unmanned aircraft must always be flown in a safe manner, both with respect to other aircraft in the air and also to people and properties on the ground.

The Pathfinder objectives and outputs

Pathfinder Programme Objectives

“Articulating the challenges faced in bringing a new BVLOS drone-based service to market in the UK”

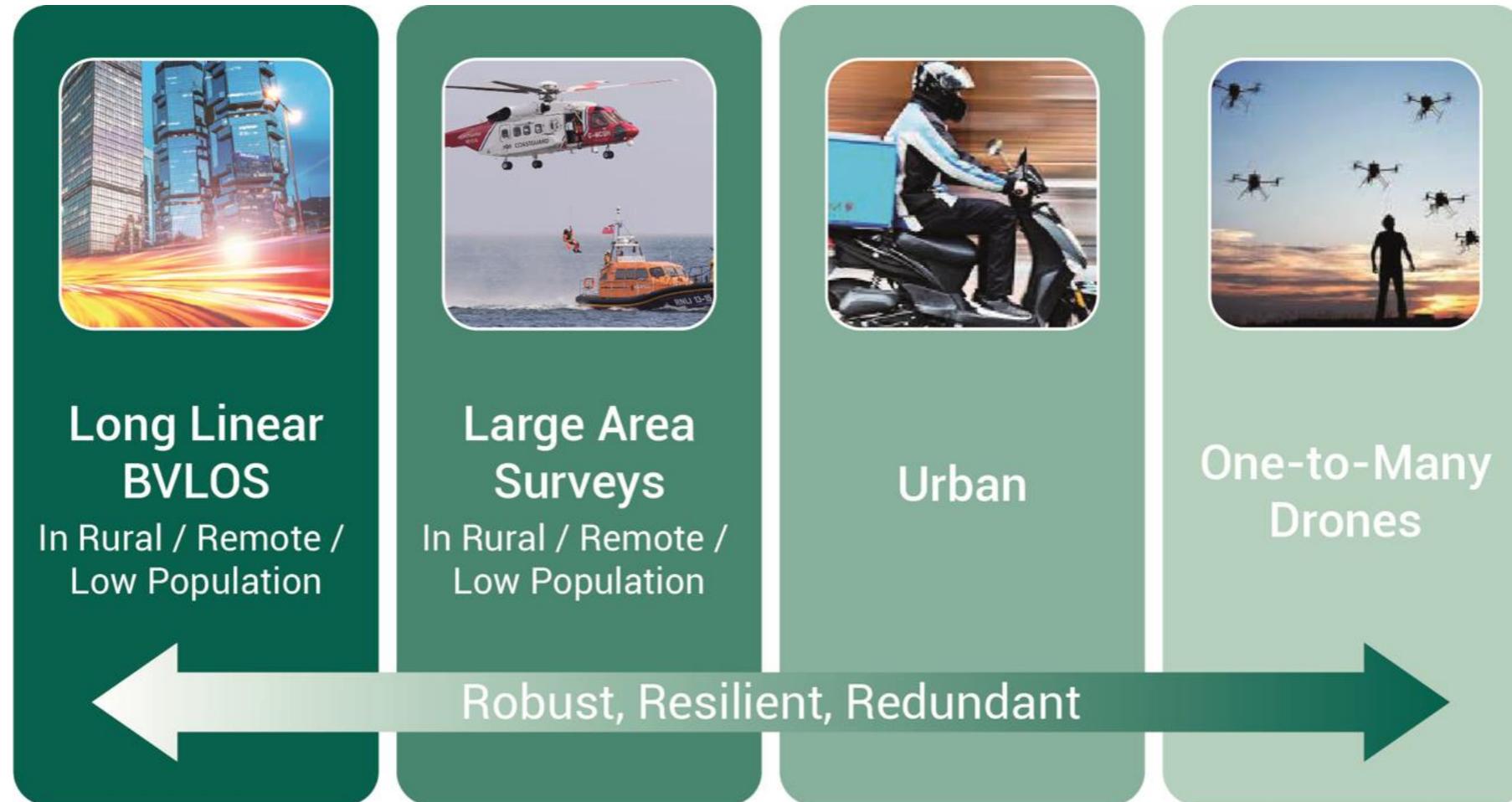
1. Routine BVLOS operations in unsegregated airspace
2. Cross-cutting capabilities
3. Safe, secure and sustainable operations

Outputs

- Standard scenario template:
 - Long linear operations in Rural/Remote Locations/Low Population
 - Large area operations in Rural/Remote Locations/Low Population
 - Urban operations
 - One-to-many drone operations
- Common themes/aspects to enable cross-cutting applications
- Safe, robust, resilient, redundant challenges answered



Operational challenges



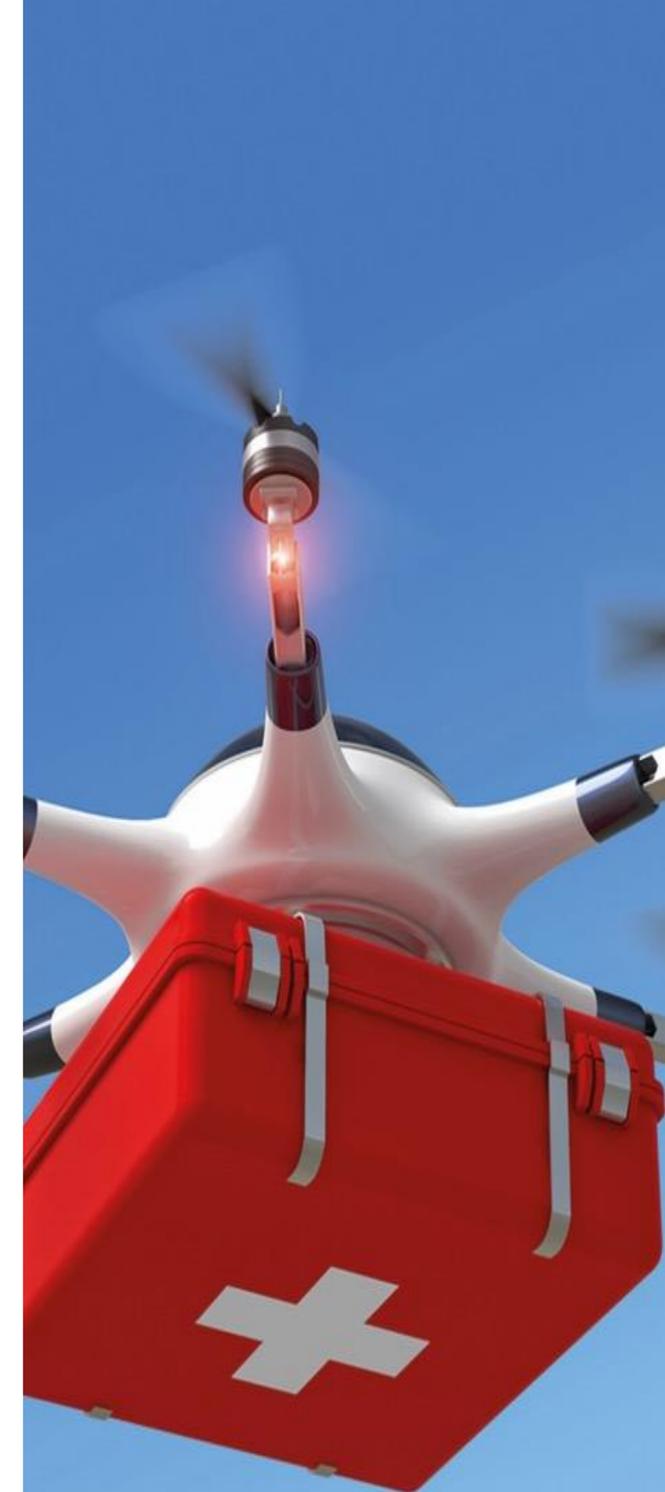
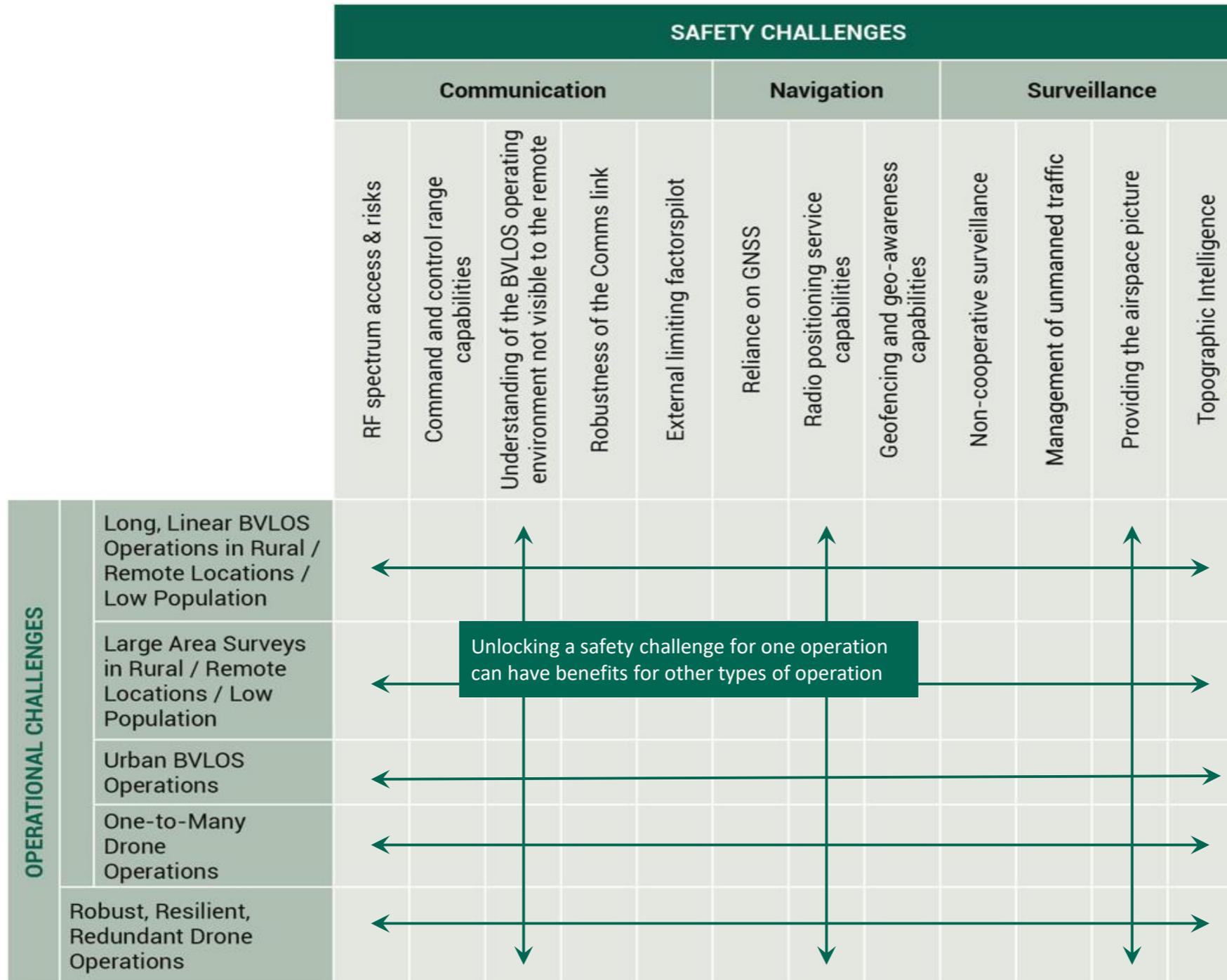
Safety challenges

| | |
|----------------------|--|
| COMMUNICATION | RF spectrum access & risks |
| | Command and control range capabilities |
| | Understanding of the BVLOS operating environment not visible to the remote pilot |
| | Robustness of the Comms link |
| | External limiting factors |

| | |
|-------------------|---|
| NAVIGATION | Reliance on GNSS |
| | Radio positioning service capabilities |
| | Geofencing and geo-awareness capabilities |
| | Non-cooperative surveillance |

| | |
|---------------------|--------------------------------|
| SURVEILLANCE | Management of unmanned traffic |
| | Providing the airspace picture |
| | Topographic Intelligence |

Pathfinder challenges – the Approach



Pathfinder Programme workshops

Academic workshop, 3rd December, Connected Places Catapult

- How the Pathfinder Programme challenges, and academia research can align
- How current and planned academic research fits into the industry agenda
- Barriers and opportunities for collaboration

Past events:

Data & drones workshop

- Data captured from drones and how it compares with other available data sets
- How this data can be successfully integrated into a business and which processes are required to do so
- Benefits can be derived from it and any barriers and opportunities for its exploitation

Pathfinder Programme workshops

Environment and Agriculture workshop

- Current and proposed use of drones in both public and private sectors in the Environment and Agriculture sectors
- Understand any current limitations and challenges in the use of the technology (operations, regulations, commercial, etc.)
- Identify use cases for the technology
- Discuss next steps required to enable the identified use cases

Slides from past events can be found at:

<https://cp.catapult.org.uk/case-studies/pathfinder/>

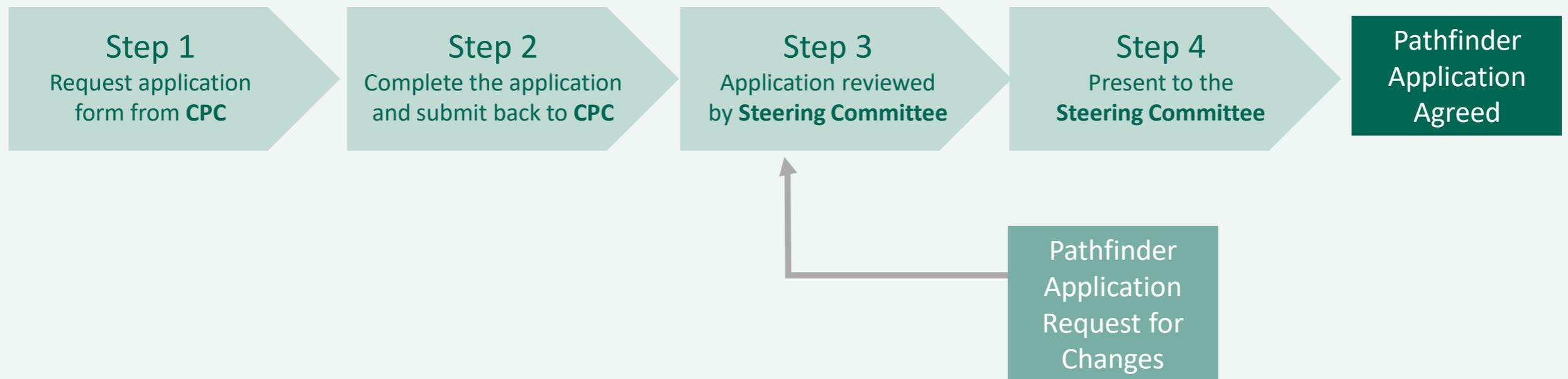
How to become a Pathfinder

- **Pathfinder documents** - will be available on the Drones Government Pathfinder webpage and on request at drones@cp.catapult.org.uk
 - Pathfinder Programme Framework
 - **Part A:** Purpose of the Pathfinder Programme
 - **Part B:** Governance
 - Pathfinder Programme Application Guidance Part C
 - Terms of Engagement of Pathfinder Projects Part D
 - Pathfinder Application Form
- **Pathfinder Programme Application Guidance Part C:**
 - Pathfinder Challenges – Scope of the Pathfinder Programme Project
 - Who can apply – consortiums including service provider(s) and end-user(s)
 - Assessment criteria:
 - Within scope
 - Deliverable
 - Beneficial

How to become a Pathfinder

- **Ongoing Pathfinder involvement:**
 - Permanence on the Programme
 - Outputs/Reporting requirements
 - Communications

How to apply



For any enquiries please contact Connected Places Catapult at drones@cp.catapult.org.uk

Welcome to a new Pathfinder

Sees.ai and partners

Local BVLOS operations in controlled environments

