

ARPAS-UK Discussion

Future Flight Innovation Zone Somerset

22nd November 2024

GRAHAM BROWN, CHAIR

THE COLLECTIVE VOICE EMPOWERING THE UK DRONE INDUSTRY

- Not for profit trade association founded in 2013
- **A community of professionals and organisations committed to the highest professional standards and actively shaping the future of the drone industry**
- ~ **5000** followers on LinkedIn
- Large sphere of influence, contributing to **key UK industry committees.**



WHY DRONES?

THE IMPACT OF DRONES ON REDUCING HAZARDOUS WORKING CONDITIONS



THE IMPACT OF DRONES ON THE UK JOBS AND ECONOMY



By 2030:

- **£16 billion** net cost saving
- **£45 billion** increase to GDP
- **650,000 jobs** in the UK Drone economy

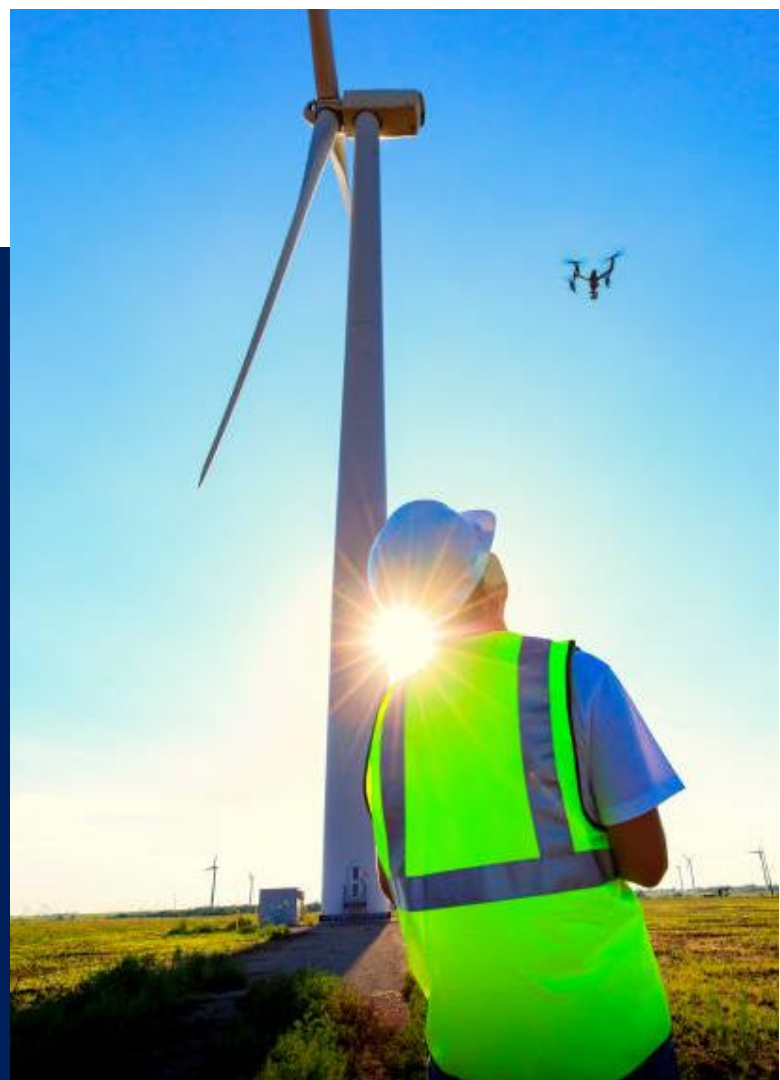
WHY DRONES?

AERIAL DATA CAPTURE AND DATA SCANNING

Drones are a **professional tool** to capture images and data safely, and soon to perform actions such as spraying or transporting goods and people.

- They help teams perform their dull, dangerous, dirty operations in a safer, smarter, cheaper way.
- The quality of the images and the digital output is constantly improving, **drones are part of the digital transformation.**
- Most drones have electric propulsion, they are **part of the CO2-reduction journey.**

“Drone”=RPAS Remotely Piloted Aircraft Systems = UAS Uncrewed Aircraft Systems= innovative aircrafts and related systems used for Aerial Operations (inspection, mapping, videography, surveillance...) up to and including Air Mobility.



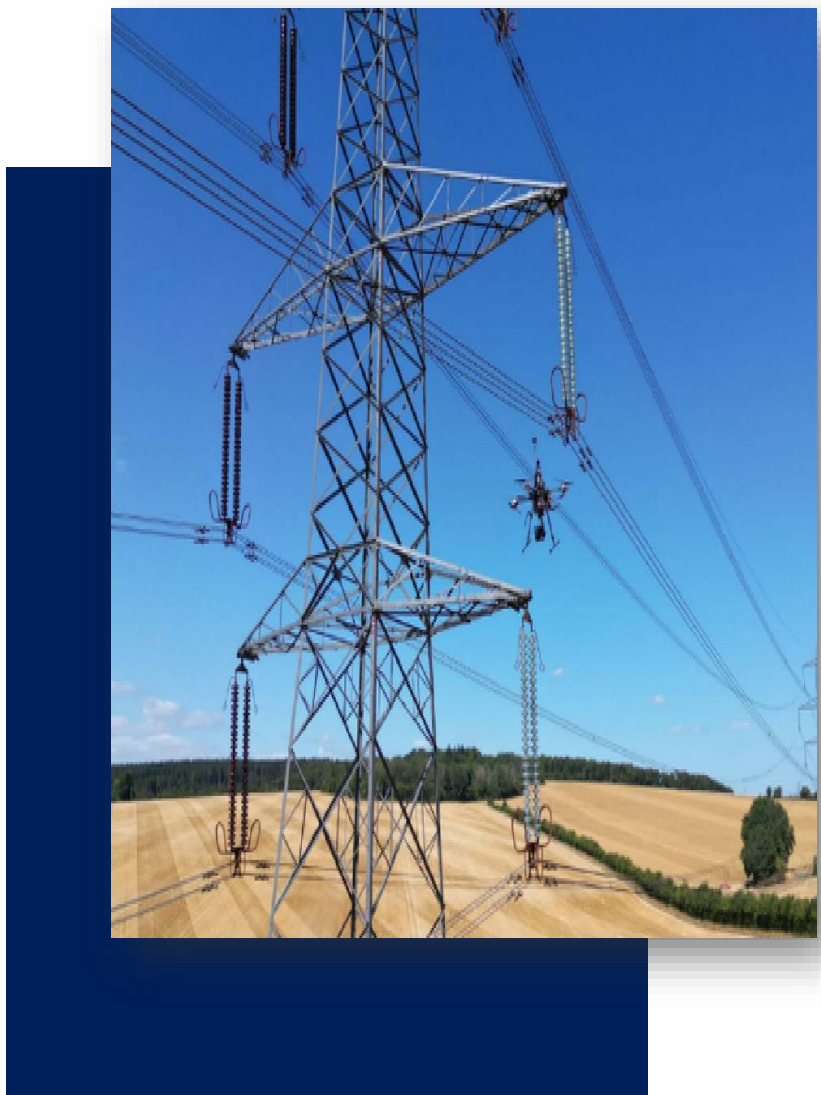
WHY DRONES?

AND BEYOND, TRANSPORT OF GOODS AND PEOPLE: ADVANCED AIR MOBILITY

- eVTOL: electric Vertical Take Off and Landing
- Regional Air Mobility
- Unmanned cargo aircraft
- And the systems to safely share the airspace: tracking technologies, traffic management “UTM” ...



OUR OBJECTIVE: ACCELERATE THE SAFE AND PROFESSIONAL ADOPTION OF DRONES ACROSS END-USER INDUSTRIES IN THE UK



- ❖ Advocate Proportionate Regulations and Standards
- ❖ Drive Market Adoption across Industries
- ❖ Promote Innovation for Sustainable Growth - Education and Stakeholders' Engagement as key Enablers

PROPORTIONAL REGULATION

- ❖ Regulation Special Interest Group (REG SIG)
- ❖ Regular dialogue with the DfT, CAA
- ❖ Access to CAA's engagement mechanisms
- ❖ Representation of our community's interest in key committees and working groups
- ❖ Response to CAA, DfT formal consultations
- ❖ Contribution to British Standards Institute BSI group activities
- ❖ Email us at: regulation@arpas.uk



A BUSY YEAR for REGULATION SIG!

REG SIG Position Paper: Top 10 industry issues & RAG

At the higher, strategic level

1. Future Flight Action Plan roadmap **Status: Green**
2. CAA organisational culture. **Status: Amber.**

At the tactical level, day-to-day operations and CAA Roadmap 2024-25.

1. Project DISCO digital platform to automate Specific Category PDRA submissions and approvals going live in April 2024. **Status: Green.**
2. OSC Operating Safety Cases review time and transparency **Status: Still Red.**
3. Engagement with the community, clear and simple guidelines, one website and news repository, clearly sign-posted, regular communication **Status: from Red to Amber.**
4. The proportionate introduction of SORA AND generic SORAs to enable standardised lower risk operations that industry needs, at scale . Educating all those involved on SORA methodology and risk quantification. **Status: Amber.**
5. The Atypical Air Environment (AAE) policy implementation, with recommended improvements as a stepping stone towards BVLOS. **Status: Green.**
6. Policing of illegal use of drones in the Open and in the Specific Categories. **Status: Red**
7. Flightworthiness approach on systems to enable more complex operations and engagement with peers in this area e.g. BMAA, BGA, LAA, LMA. **Status: Amber.**
8. Tiered Remote Pilot Competency levels with more practical training and UAS-relevant training. **Status: Amber.**
9. Airspace Integration: Mandated Electronic Conspicuity in select mandatory zones, for all airspace users. **Status: Amber.**

CAA workstreams, April 2024

Response in official consultation on Remote ID


ARPAS-UK REG SIG. Progress Review. May 2024. regulation@arpas.uk

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**Engagement with members
and the broader community
on practical issues**

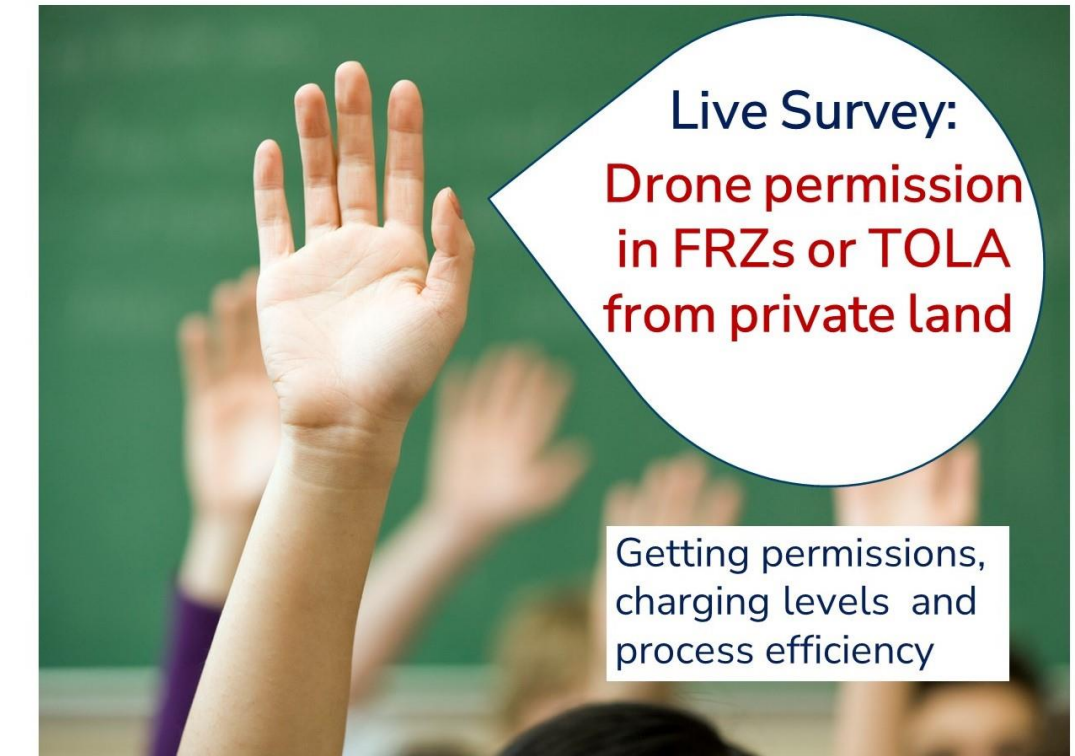
Responses to CAA Consultations. The future is shaped NOW

- ❖ Sep'23: UAS Regulation
- ❖ Jan'24: Remote Pilot Competency
- ❖ Feb'24: Aviation Autonomy
- ❖ Apr'24: Atypical Air Environment policy
- ❖ Aug'24: UK SORA safety methodology
- ❖ Nov'24: Flightworthiness, SAIL marking and RAE-F



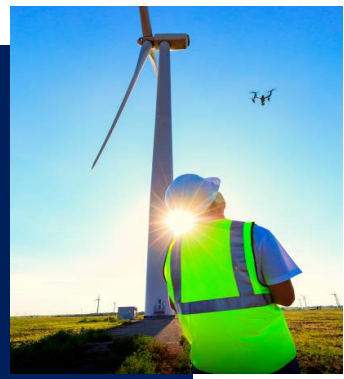
Tips: is CAP2606A, the PDRA01 logbook template, mandatory or optional?

We checked with the CAA



Live Survey:
Drone permission in FRZs or TOLA from private land

Getting permissions, charging levels and process efficiency



Representation of the RPAS community in key government and industry committees

- **ACOG** Airspace Change Organising Group
- **AMS** Airspace Modernisation Strategy (CAA)
- **Aviation Council** represented via GA4Biz
- **BSI** The BSI Group for British Standards
- **BVLOS Operations Forum** led by NATS
- **CHIRP**
- **DIAG** Drone Industry Action Group led by DSIT
- **DSIT** Department for Science, Innovation, Technology
- **EC WG** Electronic Conspicuity Working Group (CAA)
- **ECITB**, Engineering Construction Industry Training Board
- **FAIWG** Future Airspace Industry Working Groups led by DfT, FFC, CAA, CPC
- **FSC** Finance and Services Forum (CAA)
- **Future of Flight Industry Group** Aviation Minister chair
- **GA4Business** BBGA, BHA, AOPA & ARPAS-UK
- **ICAMS** UK Industry Coordination - implementation of AMS.
- **MAC** Mid Air Collision Challenge Group led by the CAA
- **NATMAC** National Air Traffic Management. Advisory Committee led by the CAA
- **NPCC Stakeholder Advisory Group**
- **RPAS Stakeholders' Forum** led by the CAA
- **SAC** Shared Airspace Council
- **SASIG**, aviation forum for local authorities
- **Westminster eForum**
- **YPO**, Government procurement framework

DRIVE MARKET ADOPTION ACROSS INDUSTRIES

- ❖ “Drones in Action” library of compelling User Cases across industries
- ❖ Informing, Inspiring and collaborating with end-user industry trade bodies and their publications
- ❖ Industry-specific best practices
- ❖ Industry-specific webinars and CPDs
- ❖ Industry-specific trade shows, with drone keynote theatres



Use Cases

ARPAS-UK is collecting use cases which focus on promoting end user adoption. Industries include:

1. Agriculture
 2. Construction
 3. Energy
 4. Forestry and Environmental Monitoring
 5. Insurance
 6. Law Enforcement and Public Safety
 7. Logistics and Delivery
 8. Media and Entertainment
 9. Mining
 10. Real Estate
 11. Telecommunications
 12. Disaster Management
- ...and many more...



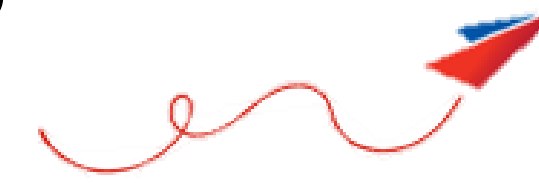
Use Cases

ARPAS-UK is collecting use cases which focus on promoting end user adoption. Industries include:

For the report see:
<https://www.arpas.uk/arpas-uk-publishes-drone-in-action-report/>



Wind Turbine Inspections



The Problem:

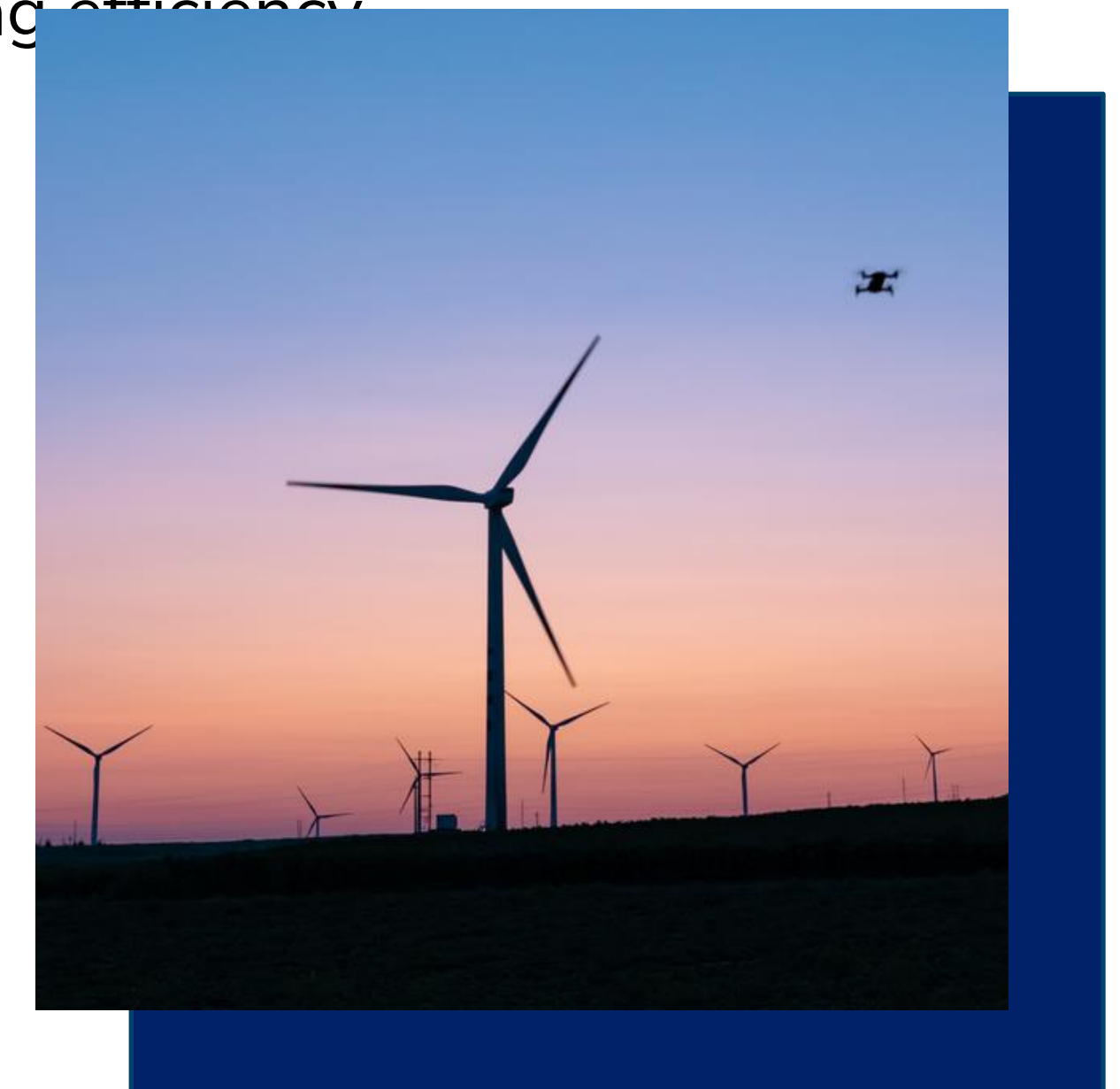
Traditional wind turbine inspections require technicians to climb turbines, which is time-consuming, risky, and limited to inspecting 2-5 turbines per day. Adverse weather and restricted access to certain blade areas further complicate the process.

The Solution:

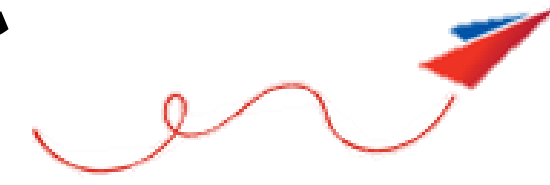
Companies like Roavr Group and Airborne Robotics use drones equipped with high-resolution cameras and sensors to **inspect 10-12 turbines daily**, reducing inspection costs by 25% and **eliminating safety risks** by keeping personnel on the ground. Autonomous drones could increase coverage to 15-20 turbines per day, drastically improving efficiency.

Benefits:

- 25% Cost savings compared to traditional methods.
- Zero risk of falling as inspectors stay on the ground.
- More than **triple efficiency** of turbines inspected per hour.



Emergency Response



Maritime and
Coastguard Agency

The Problem:

Traditional search and rescue methods, such as deploying boats or helicopters, can be slow, costly, and risky, especially in challenging weather or remote locations. Emergency services like the Maritime and Coastguard Agency (MCA) needed faster, safer, and more efficient solutions for lifesaving operations.

The Solution:

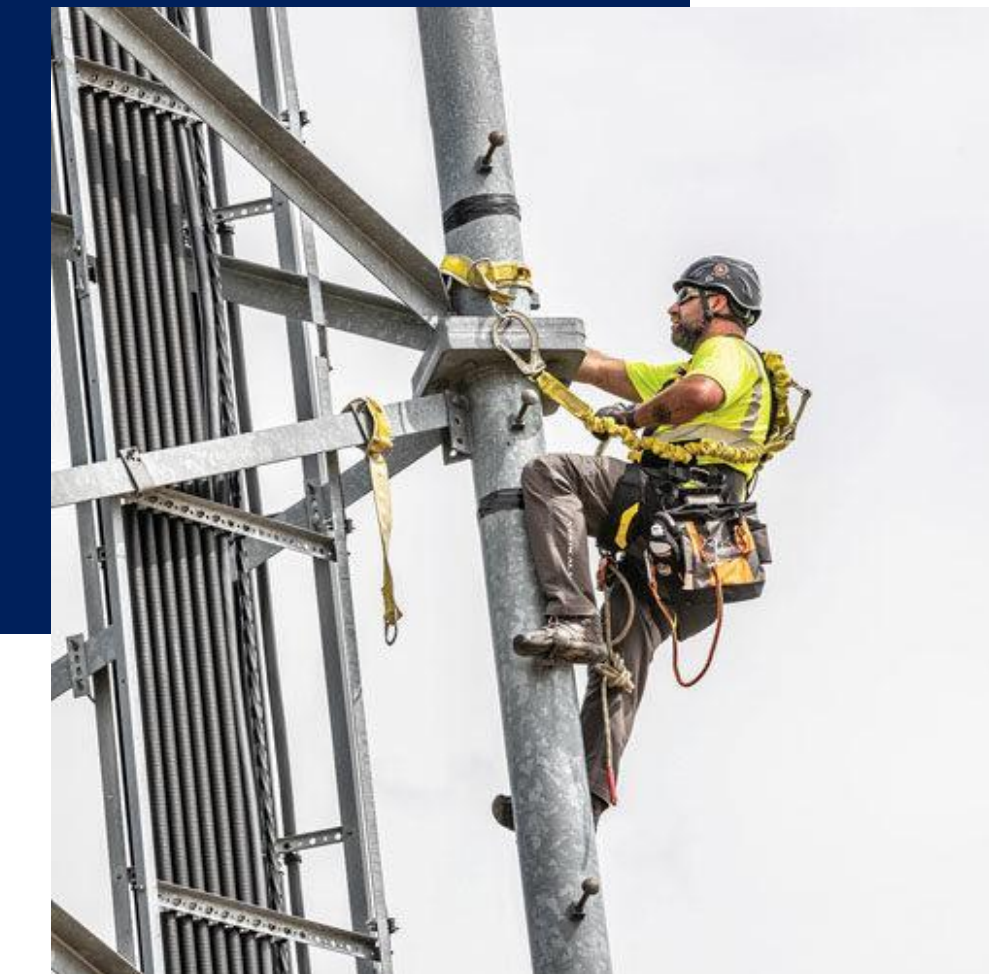
The MCA integrated drones with thermal sensors for search and rescue missions, enhancing aerial capabilities and locating missing persons quickly. This approach **saved over 86 lives**, reduced operational risks, and **cut costs by more than £50 million annually** while complementing traditional helicopter operations.

Benefits:

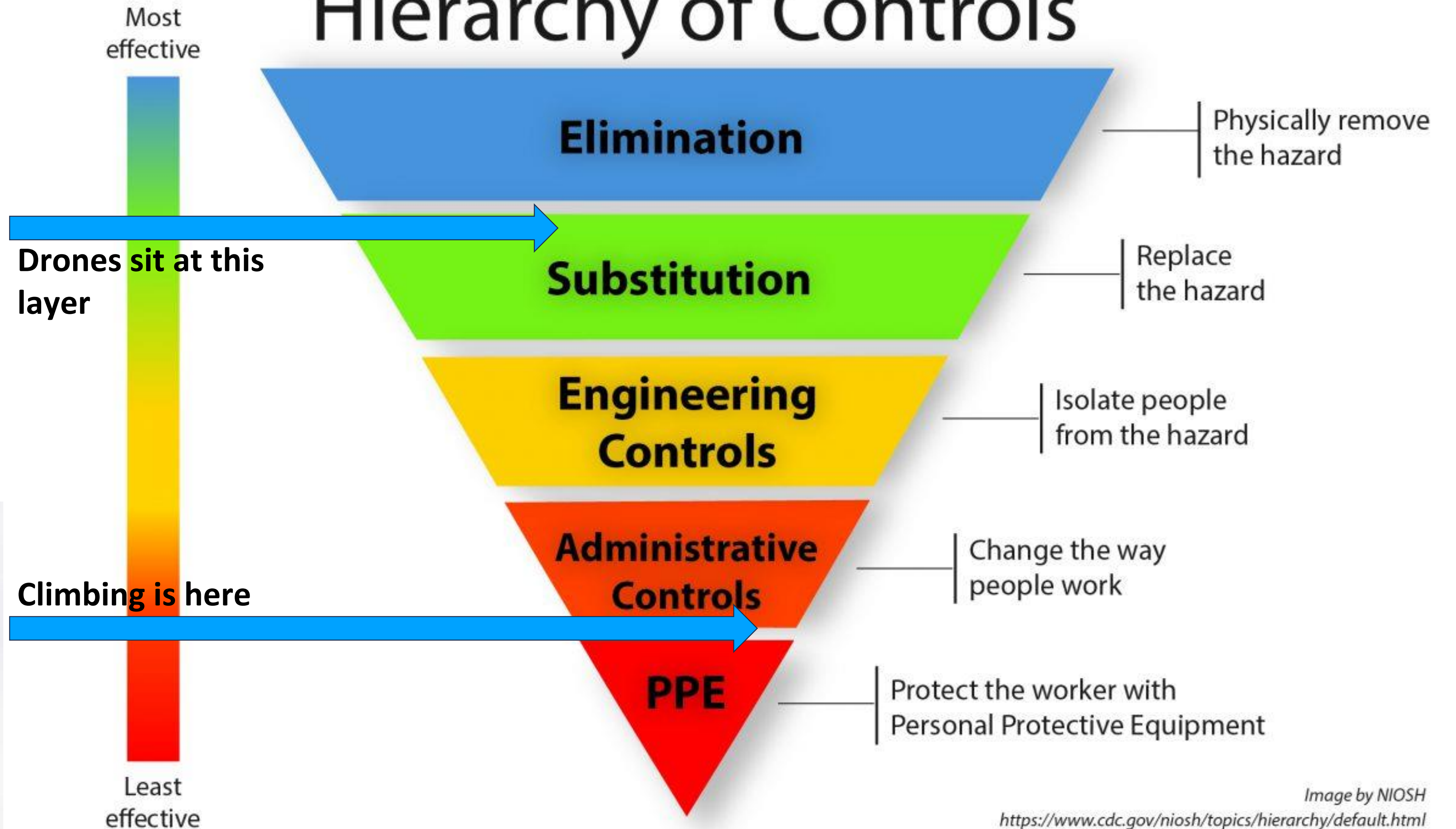
- 86 **lives saved** from drone enhanced missions.
- More than **£50 million savings** annually.



Drone Use



Hierarchy of Controls



What's next?

Waiting for new
Government plans

To be discussed
during the day



What's next?

Waiting for new
Government plans



- Actions with Government and the CAA
- Drive actions through SIGs
- Generate momentum for Education initiatives
 - Consistent content at all levels
 - Broaden the portfolio
 - Share content widely
- Local Government focus



The UK Drone Association
<https://www.arpas.uk/>

Special Interest Groups (SIGs)

- **Regulation SIG:** Established in early 2023
- **BVLOS SIG:** Established during 2023 - cooperation with BVLOS Operations Forum
- **Industry SIG:** Starting with Use Cases covering multiple industries.
- **Local Government(LG) SIG:** Under Review. Looking at the role of LG. Working Groups may include:
 - Drone Policy
 - LG roles
 - LG internal use
 - Encouraging local economy
 - Preparing for eVTOL and Air Taxis
- **Education SIG:** Establishing an Education Special Interest Group (SIG) to create a top-down education strategy in the UK. Our goal is to provide drone educational content into multiple levels of academia and industry through partnering.

USING EDUCATION TO ACCELERATE THE SAFE & PROFESSIONAL ADOPTION OF DRONES BY INDUSTRY

User cases and industry promotion

- Building a **library of use cases showcasing impact**: share your success stories!
- **Project EASE** with Ajuno
- **DroneX** and **GeoBusiness Drone Theatre**, and this year in November **Aerial Cities**: keynotes & speakers' opportunities for members

Education

- **25 webinars altogether**, mostly with you members as speakers, on our YouTube channel
- More than **200 newsfeed** items on our website
- We disseminated **400+ job opportunities**
- **Mentoring project** with Brightside

Local government education activity

- Project **AAM4Gov** - Local government focused education videos
- **Local Government policy paper** with NPCC ongoing (To be released shortly)
- Drone Audit Working Group

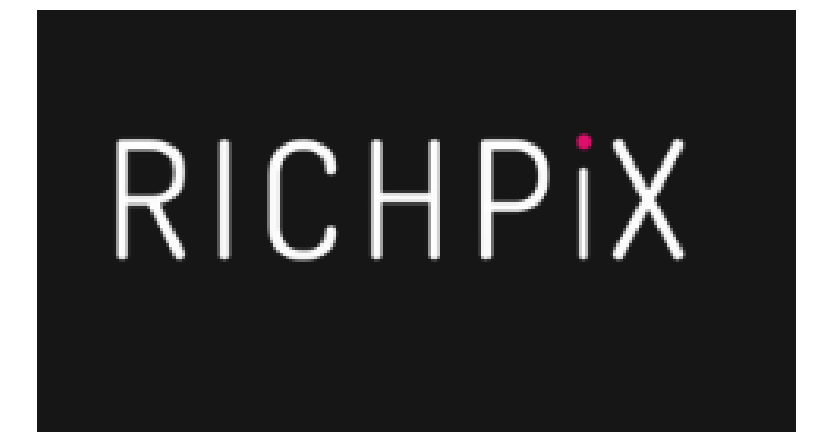
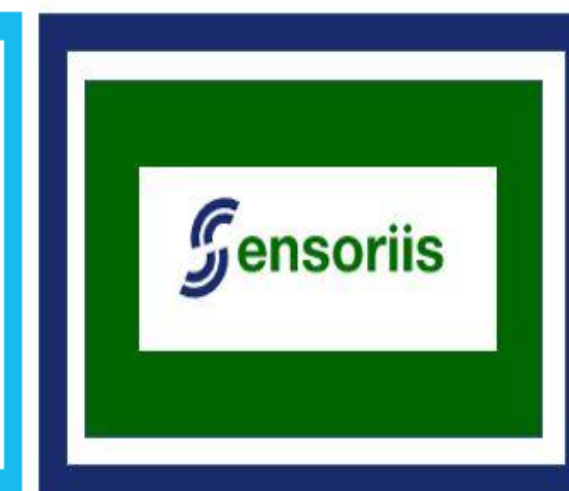


Education Special Interest Group

- **Establishing an Education Special Interest Group (SIG)** to create a top-down education strategy in the UK. Our goal is to provide drone educational content into multiple levels of academia and industry through partnering. The current topics are:
 - **Apprentice Trailblazer with iFATE**
 - **Colleges** } This will provide both discreet drone training and
 - **Universities** } drone modules for existing industry courses
 - **Industry verticals and Engineering Construction Industry Training Board**
 - **Deliverables will include core training for the use of drones by industries and specialist topics on different remote sensors including cameras, lidar thermal, multispectral and in the future robotics.**

EDUCATION: WATCH OUR CPDs AND WEBINARS

Safe adoption of drones | Proportionate Regulations | Innovation for Sustainable Growth
By and for members, but also available to the public



AND MORE WEBINARS TO COME THIS YEAR: WATCH THE BREADTH OF TOPICS WE EMBRACE



UP Rating – A new method for judging pilot competency for test flight operations



The Importance of Cellular Connectivity for Commercial Drones



Proactive vs Reactive Asset Management



Just Culture in UAS



The Insurance Industry explores BVLOS



Drones in Agriculture: an overview





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Potential Drone Use in Local Authorities

1. Property & asset management – Buildings & Infrastructure inspections*
2. Data collection & Digital Mapping*
3. Managing the Environment & Monitoring for pollution and surveys*
4. Planning & monitoring for parks & gardens
5. Agricultural and land use management*
6. Delivery of Health & Social Care*
7. Real time traffic, Infrastructure & events monitoring*
8. Public safety & emergency response – Blue Light Services*

With input from SASIG (part of the LGA)*

ARPAS-UK positions on regulations & standards

We support:

- ✓ The introduction of the **Atypical Air Environment** policy, as an incremental step to facilitate BVLOS operations in lower risk environment.
- ✓ The introduction of **Generic SORA or new PDRAs**, whatever the format is, for example for reduced separation from 3rd parties | BVLOS with airspace observers | BVLOS in atypical environment.
- ✓ More broadly: **standards** and standardised approach **to enable scale and repeatability**
- ✓ **Product technical requirements** to support safety cases of **more complex operations**
- ✓ Mandated **Electronic Conspicuity in specific zones** to enable BVLOS in more complex environments
- ✓ Incremental **Remote Pilot Competency requirements**, with more practical training and reflecting the operational needs for UAS rather than crewed pilots

And:

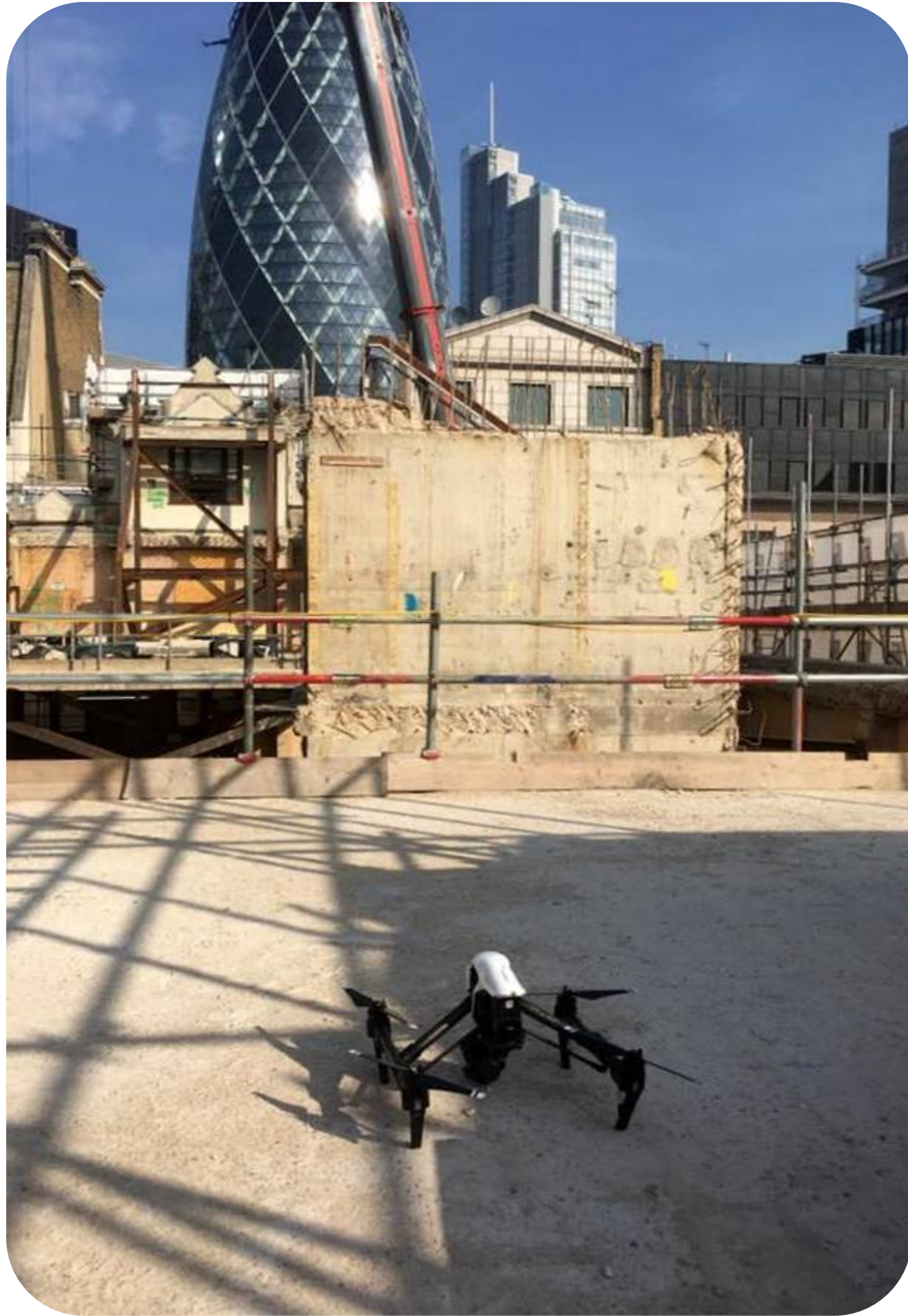
- ✓ **More resources for the CAA**
- ✓ **Clear, consistent and proportionate** policy guidance, with **one single point of truth** and accessible communication and tools – esp. specific category PDRA01 & OSC holders
- ✓ **Engagement** with the community



PROMOTE INNOVATION FOR SUSTAINABLE GROWTH



- ❖ **BVLOS Special Interest Group (BVLOS SIG)**
- ❖ Experts' contribution to key future-facing working groups - Supports the **NATS BVLOS Operators Forum**
- ❖ **Webinars** on future-facing issues and challenges
- ❖ **Engagement with crewed aviation** bodies for inclusive airspace - Member of the Airspace Modernisation Stakeholders Group
- ❖ **Engagement with Local Authorities** for UAS and AAM
- ❖ Contribution to **STEM** and **Education schemes** from school to colleges and universities.



**That's all from us.
Any Questions?**

Contacts:
membership@arpas.uk





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<https://www.arpas.uk/>

KEY OBJECTIVE

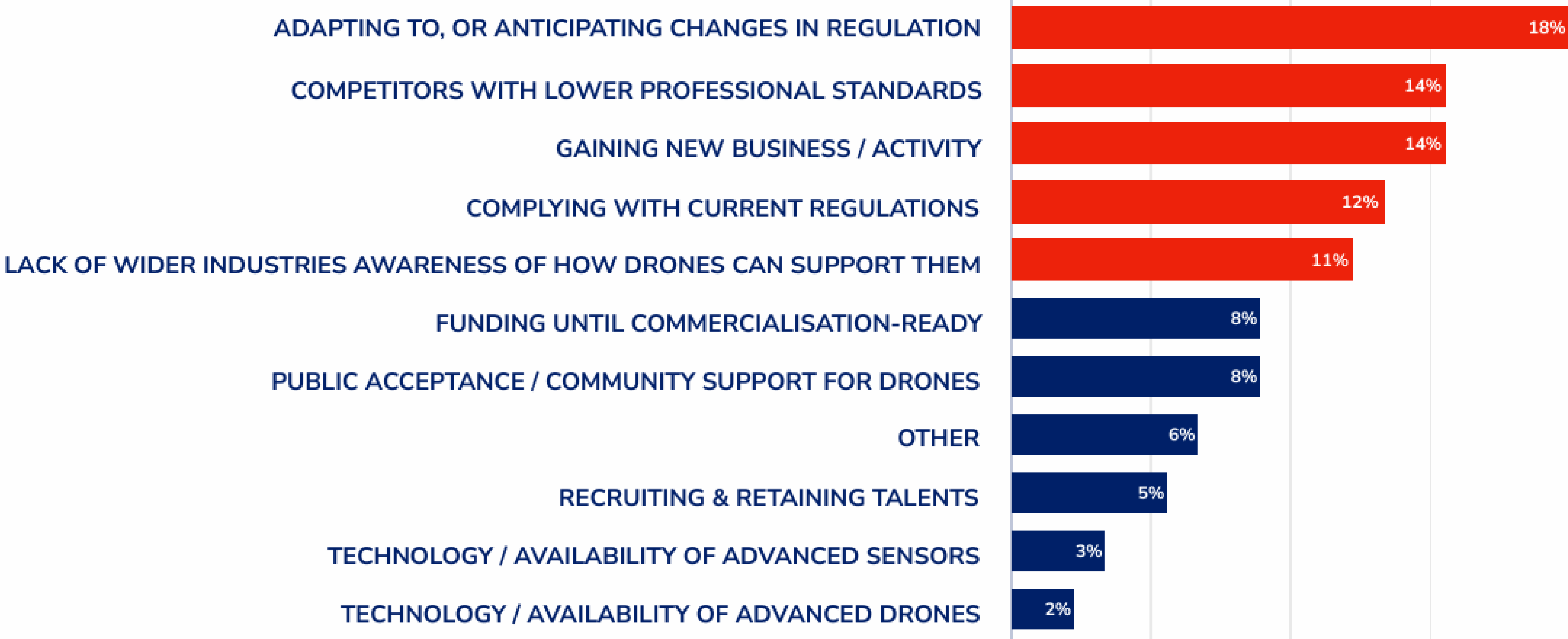
**OUR KEY OBJECTIVE IS TO
ACCELERATE THE SAFE AND
PROFESSIONAL ADOPTION OF
DRONES
BY END-USER INDUSTRIES
IN THE UK.**





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INDUSTRY CHALLENGES FACED BY ORGANISATIONS



HOW CAN WE COLLECTIVELY ACCELERATE THE SAFE ADOPTION OF DRONES BY END-USER INDUSTRIES?



FROM A REGULATORY / COMPLIANCE / CAA ADVOCACY PERSPECTIVE, THE MOST IMPORTANT PRIORITIES ARE:





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Drone Use in Local Authorities

1. Property & asset management – Buildings & Infrastructure inspections*
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With input from SASIG (part of the LGA)*



Project EASE feedback

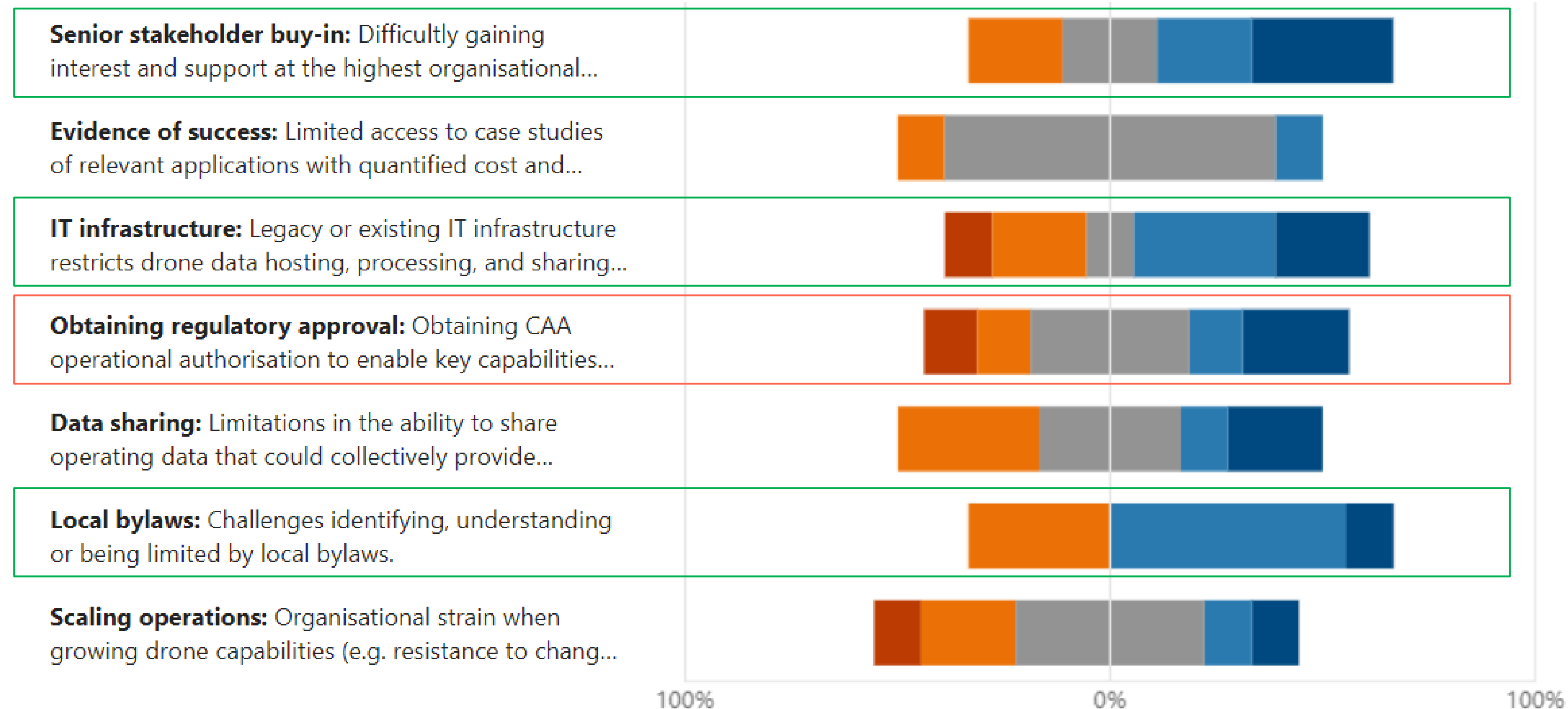
Leading organisations supporting EASE



Understanding your challenges

Key

Very low Low Moderate High Very high



Additional:

- Guidance on drone suppliers not linked to China
- Non-aviation regulatory barriers e.g. planning physical infrastructure

Senior stakeholder buy-in initiatives (poll)

ID	Title	Description	Outcome	Effort	Impact	Opportunities & actions
1.1	Impact focused success stories	Short summary documents of key use cases with clearly quantified benefits.	Those adopting drone capabilities have clear, compelling evidence of success to reference.	Low	Med	ARPAS already started a number, as have 3mile, supporting FFC to create these on 9 themes across drones and eVOTLs. Strong opportunity to use and consolidate both as a 1 st pass.
1.2	Impact focused success stories	Short summary videos of use cases with clearly quantified benefits	Those adopting drone capabilities have clear, compelling evidence of success to reference. More engaging and supports a document.	Med	High	CPC has some videos, some existing within FFC. Opportunity to collate and assess, alongside creating ones for target themes.
11.3	Tools	Adoption guides & critical implementation information (e.g FAQs and KPIs) for end users to refer to as an information bank	End users experience an easier journey integrating drones into operations.	Med	High	Numerous documents available. Need to collate these, assess gaps, developing sector specific documents in gaps.
11.4	Tools	ROI Tool to quantify return on investment for 'custom' user scenarios	Evidence and quantify the benefits of drone integration	High	High	Opportunity to build on Ajuno ROI models and others in industry.
11.5	Tools	Online sharing Platform to communicate and collaborate	Allows the growth of the industry through community benefits.	Med	Med	Airwards creating EASE areas within the online community platform.
11.6	Events	Senior stakeholder networking events, potentially sector specific – with recommendations from successful users to those adopting.	Highlights and addresses common barriers, whilst providing a community excitement to drone adoption.	Med	High	Airwards events have increasingly focused on end-users. UKRI, ARPAS and other partners also have experience of such events. Could collaborate with trade bodies.
11.7	Events	Demonstrate safety of systems (e.g. edge of failure/ drop tests)	Senior stakeholders and decision maker education and comprehension. Conviction and belief in drone solutions.	Med	Med	UKRI events e.g Coventry city council 2022
11.8	CPDs on best adoption practices	Simple management training as a CPD, looking at the principles of effective drone management.	Provides the first step of the stakeholder journey, giving introduction and basic knowledge.	Med	Med	ARPAS-UK hosting Drone CPD programme which could include this. Growth can come from further engagement with expertise.



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