University of Reading

Police Drones: Uses, Challenges, Futures

Research report

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Dr Anna Jackman

Contents

1. OVERVIEW

- Drones are used by at least 40 of the UK's 48 police forces and have emerged as part of standard emergency operational response
- Police drones are used for a growing range of applications, including aerial searches, securing buildings, and thermal flyovers
- Police forces associate drones with a range of benefits, including the rapid provision of situational awareness, enabling access to dangerous and remote sites, reducing risks to officers on the ground, and offering cost saving aerial support
- Police forces are experimenting with and trialling novel applications, including live-streaming, 3D mapping, and outfitting drones with novel sensors
- Police forces identify challenges and barriers impacting their drone use, including resourcing, changes to regulation, and flights limited to Visual Line of Sight (VLOS)
- Alongside operationally using drones, police are responsible for tackling reckless and malicious drone (mis)use. While they adopt education-led approaches and have legislative powers at their disposal, they continue to face challenges around policing drone misuse
- As drone technology advances, police envision and imagine a range of potential future use cases for drones, from Beyond Visual Line of Sight (BLOS) flight to drones in every police car, to 24/7 drone coverage and the pairing of drones with other technologies
- Police forces identify several key issues for regulators, policy-makers and decision-makers to address, including the frequency of regulatory change, the distinctness of emergency service drone usage, and the centralisation of police drone training and resourcing
- This report explores operational uses and benefits of police drones; challenges of and barriers to police drone use; encountering and responding to drone misuse; the future of police drone use; and key issues for regulators, policy-makers, and relevant decision-makers.

2. INTRODUCTION

Drones are aircraft without a pilot on board and which can be 'controlled remotely by a pilot or fly with various levels' of automation and autonomy.[1] While drones include land, maritime and aerial craft, this report focuses on aerial drones, as these are the platforms 'primarily used' by UK police forces.[2] Drones 'come in a variety of shapes and sizes' including rotary and fixed-wing platforms, and range in size from 'small hand-held' devices to large aircraft.[3] While many drones carry cameras, they can also be outfitted with additional equipment, such as 'high-powered cameras (up to 30× optical and 200× digital zoom)', sensors (e.g. thermal imaging), and 'lights and speakers'.[4]

Praised as comparatively affordable tools enabling the rapid provision of situational awareness and live 'feeds to commanders and control rooms', [5] drones increasingly form part of 'standard' operational responses and are understood as 'essential emergency service tools of the trade'.[6] In this vein, a growing number of emergency services and responders in the UK are 'turning to drones'.[7] Of 42 UK police forces that responded to a 2020 Freedom of Information request circulated to the UK's 48 forces (45 territorial, 3 special), 'at least 40 UK police forces' indicated that they 'are now using drones'. [8] The responses indicated that 'at least 288 drones are operated by police forces around the UK'.[9]

Spanning civil, commercial and recreational contexts and applications, drone use also continues to grow across UK skies. In January 2023 the UK's aviation regulator, the Civil Aviation Authority, stated that it has 500,000 drone 'operators and flyers' registered under Drone and Model Aircraft registration, processes 7,000 operational authorisation applications per year, and that the total number of drone pilots and aircraft are already '80% larger than the General Aviation and commercial air sector added up'.[10]

Yet, while the development of drones 'presents significant opportunities', so too do concerns remain around the safety, security and nuisance risks associated with both reckless and negligent, and malicious and criminal, drone use.[11] From drone incursions into airports and flights in proximity to aircraft, to drones transporting contraband into prisons and outfitted with weaponry, drones have been variously misused in a series of diverse global incidents.[12] Alongside deploying drones, so too are UK police forces responsible for 'tackling' and enforcing 'drone misuse and abuse'.[13]

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Drawing upon research with UK police officers, this report explores:

- Operational uses and benefits of police drones;
- Challenges and barriers to police drone use;
- Encountering and responding to drone misuse;
- The future of police drone use;
- Key issues for regulators, policy-makers and decision-makers.

3. METHODOLOGY

This report forms part of the *Diversifying Drone Stories* research project (ES/W001977/1) led by Dr Anna Jackman (University of Reading, UK). Funded by the *Economic and Social Research Council* (ESRC), the project explored the use, perception, and impact of drones in changing UK airspace. The research included engagement with diverse stakeholders (including emergency services and responders, industry, pilots, air traffic controllers, local authorities, lawyers, and members of the public) with the aim of understanding different uses, experiences and perspectives on how drones may be (re)shaping UK airspace and everyday life. The project received ethics approval from the School of Archaeology, Geography and Environmental Science (SAGES) at the University of Reading. Further information can be found on the project's website.[14]

This report draws on two focus groups, each two hours in duration, and involving a total of 10 participants. The focus groups were held online on Microsoft Teams and participants included: police drone unit members (5 participants), members of UK police forces (4 participants), and organisations working with the police (1 participant). Bringing members of different police forces into conversation, the aim of the focus groups was to explore: the operational uses and benefits of drones in policing, challenges and barriers to police drone use, encountering and responding to drone misuse, aspirations for police drone use in the future, and key issues or questions for drone regulators, policy-makers and relevant decisions-makers. This report is written for an emergency services audience, though it is hoped that its findings will be informative for relevant regulators, policy-makers and decision-makers. The report is accompanied by a shorter form briefing note. [15]

4. CURRENT USES

Drones are in 'regular use' by emergency services across the UK.[16] Within UK policing, drones are deployed in a growing range of both routine, pre-planned and spontaneous operations.

Current uses of drones for police include:

- Aerial photography and videography, Aerial searches (including missing persons), Anti-social behaviour response*, Body recoveries, Burglaries in progress,
- Command oversight (e.g. public order, sport events, protests, festivals), Crime scene monitoring and photography (flythrough of scenes and suspect routes), Covert operations, Ensuring a building is secure (including indoor drones for building clearance),
- Evidence gathering *, Fire incidents *, Firearms response *, Golden hour response, Hazmat response *, Information and intelligence gathering *,

- Mapping / event and operation pre-planning, Organised crime (e.g. county lines), Overt operations, Rural crime, Road traffic collisions *, Search (e.g. property/ rooftops; discarded items/weapons; remote area), Scene footage (e.g. for murders), Static operations,
- Thermal flyover*, Top cover, Training and demonstrations *. [17]

Drones are understood as operationally valuable and distinct tools because they:

- Offer an aerial view and enable the collection of data (image, video, sensor), which can be rapidly shared to provide critical real-time information
- Increase officer safety. Sending the drone in 'avoids putting boots on the ground at risk' (e.g. entering dangerous locations, spaces or environments), and can be deployed for 'at height' searches to clear locations (e.g. rooftops and scaffolding)
- Enable remote access and visibility into inaccessible or dangerous locations and spaces
- Increase the speed of response. Officers can quickly deploy the drone when arriving at a scene ('throw it out and off it goes')
- Can be outfitted with sensors to extend visual capabilities, e.g. thermal / infra-red sensors can be deployed in daylight, low light and at night to assist with the location of missing persons, hiding or fleeing suspects, or wider searches (e.g. cannabis grows)
- Offer 'peoplepower' savings (e.g. building containment can be 'done with one drone or a dozen officers')
- Are comparatively lower cost or 'money saving' response tools, particularly in a context of budget reduction and cuts.

While drones are not currently included in the National Police Air Service (NPAS) fleet, rather are funded and deployed by individual forces 'within their force areas' [18] or by a partner agency or force (e.g. regional collaboration), [19] participants compared drones to police helicopters, asserting that:

- Drones may widen access and reach to air support, both because there are geographical areas which are not as 'equitably served' by NPAS (e.g. between bases), and because the 'local ownership' of drones means they can be transported quickly to the 'area of flight' without requiring NPAS resourcing/ a 'request for service' [20]
- While 'cost is only one factor to consider when choosing between different types of air support for any given task',[21] drones can be linked to cost-saving, both for operations that don't justify the cost of 'deploying a conventional NPAS aircraft' or are 'lower priority', [22] and when considering the costs associated with add-ons (e.g. sensors, which can be a 'considerable expense'). Drones can be purchased outright, leased, and/or shared between partnering forces or agencies, and you can 'change out' the cameras or sensors, though the sensors may be 'considerably less capable' [23]
- Drones are comparatively accessible technology, both in terms of training ('they can be deployed pretty much anywhere by anybody'), and portability (i.e. carrying weight)
- Drones can reduce officer risk, in comparison to footage captured from an open helicopter door
- Drones are more suitable for particular operations (e.g. over a confined area, where a drone can methodically fly 'over one spot, rather than doing huge orbits'), and enable more frequent and repeat flyovers (e.g. over hotspots)
- Drone flight can be less disruptive (e.g. to spaces such as railways)
- Drones produce less pollution and are associated with a reduced 'environmental impact'.[24]

While offering such comparisons to helicopters, several participants noted that drones should be understood as an additional, rather replacement, tool. They echoed that drones 'don't offer the full benefits of crewed aircraft' and there remain 'jobs that only helicopters can do', given their 'operational envelopes'.[25] In addition to highlighting operations drones were not suitable for (e.g. uplift of officers), several participants highlighted operations where helicopters were better tools (e.g. 'higher altitude' / above 400ft operations such as 'pre planning for major events', 'vaster' area searches, and Beyond Visual Line of Sight operations such as vehicle pursuit). Participants also noted that the drone's effectiveness was impacted by its technical capabilities (e.g. platform type, camera and sensor resolution and zoom).

Novel applications:

Participants expressed enthusiasm about the range of operations drones could be used for, with one remarking 'we're using [drones] for anything and everything we can do within policing', and another adding 'essentially everything that you can think of in the world of policing can be covered using a drone'. Alongside the launch of schemes such as 'Vision Zero', wherein 'Devon & Cornwall Police are using drones' to assist with calculating 'vehicle speeds' and recording incidents in order to 'detect driving offences on high harm routes', [26] participants highlighted both exploring, developing and trialling a range of novel and experimental applications, including:

- ***Livestreaming*:** Participants described streaming drone footage to the 'mobile devices of officers on the ground' and to the 'control room or command' in real time, adding that this was valuable in terms of both the 'immediacy of the imagery' and for particular operational scenarios, (e.g. 'armed officers' can monitor an address before approaching; drone maps can be marked with a 'pin' for where a suspect is believed to be, informing the deployment and placement of officers).
- ***3D mapping***: Participants described exploring the potential utility of liDAR (remote sensing method using laser light to develop 3D models and maps) for applications such as 'building clearance' (e.g. to discern the layout of a building to inform briefing the 'team on the outside'), to enable 'automated searching' (e.g. for collapsed structures), and to develop a map of 'crime scenes or key events' for use in court, in order to 'save a jury having to go out to a scene'.
- ***Connectivity***: Participants highlighted that police drone use can encounter connectivity issues and telecommunication congestion at large scale events such as festivals, with their drone 'downlink into the control room going over 5G' and thus experiencing 'latency' because of the pressure on the network. In response, a participant described their force 'looking at tethered drones' as a potential replacement to the costly approach of 'hiring in cherry pickers' and equipping these with cameras.
- ***Carrying capacity/ modification***: Participants discussed several modifications to drones:
  - Winch: A participant described outfitting a drone with a winch, for potential use in 'hostage or kidnapping scenarios' where items (e.g. mobile phone) can be placed 'in a cradle and lowered in, to save an officer going in'
  - Loudspeaker: A participant described investigating outfitting a drone with a loudspeaker to 'deliver messages' for usage 'in the public order arena', as an alternative to utilising 'a loud hailer', though added that this raised some 'legal quandaries'. A participant added that they were looking to 'buy a speaker system' in order to speak and exchange messages (e.g. at a 'protest at height, or in a block of flats').
- ***Sensors*:** Participants expressed interest in several sensors:
  - Electronic sniffers: A participant described experimentation with drone-mounted electronic sniffers to 'look for the volatile chemicals given off during decomposition' and/or to 'detect mass grave chemical signatures', as an alternative to 'using a cadaver dog', such as in areas where it is 'unsafe to take the dogs'
  - CBRN: A participant described exploring whether 'any CBRN detection kit' could be placed on the drone in order to 'avoid putting responders into the hot zone'
  - Sonar: A participant described looking into a 'sonar sensor that dangled into water' to support waterway and underwater searches and to reduce the risks associated with placing 'officers in the water'.

Section summary: Current uses, operational benefits and novel applications

- Drones are in regular use by UK police forces and are deployed across a growing range of routine, pre-planned and spontaneous operations
- Drones are used across a range of search, monitoring, flyover, data gathering and incident response operations and applications

(continued)

Section summary: Current uses, operational benefits and novel applications

- Drones are understood as operationally valuable and distinct policing tools because they: enable an aerial view and the collection of data which can be rapidly shared; increase officer safety by enabling access and/or visibility to inaccessible and/or dangerous locations; increase speed of response as they can be quickly deployed; extend visual capabilities (e.g. cameras and sensors deployed in daylight, lowlight and at night); offer 'peoplepower' and cost savings
- While drones can be understood as a complimentary rather than replacement tool to police helicopters, drones can widen access to police air support, provide air support where the cost of deploying crewed aircraft is not warranted, can be more suitable for some operations, and can be less disruptive and produce a reduced environmental impact
- Drones do not offer all the capabilities and benefits of helicopters, and there remain operations that are better suited to helicopters
- Not all drones are equal. The drone's efficacy is impacted by its technical capabilities (e.g. resolution, zoom)
- Police forces are exploring, experimenting with and trialling a range of novel applications, including livestreaming, 3D mapping, modifying drones (e.g. with loudspeaker, winch), and outfitting drones with sensors (e.g. electronic sniffers, CBRN, sonar).

5. CHALLENGES AND BARRIERS TO POLICE DRONE USE

While drone adoption and use continues to grow across UK emergency services, there remain a range of challenges and barriers to police drone use. Responding to the question 'what challenges, barriers or constraints currently limit your drone use?', participants highlighted a range of factors, from regulations and cost, to internal resourcing.

Regulation

Numerous participants raised UK aviation and airspace regulations as a challenge and/or barrier to their drone operation. Issues cited included:

Regulatory changes: Participants described the 'frequency' of changes to regulation as having notable implications on their workload. They described the time consuming nature of 'keeping on top of' amendments to 'operations manuals' and briefing on and 'emailing the team changes'. One participant from a police drone team added that alongside keeping abreast of regulatory changes relevant to their team's deployment of drones, they are also tasked with 'dealing with drone misuse' and having to 'interpret and enforce' changing regulations on this too. A participant described frustration at what they perceived as a disconnect between national governmental ambitions around cultivating a 'world leading' drone industry and the regulatory 'changes constantly happening', which they argued weren't 'really creating the atmosphere, the environment for drones to prosper in the UK'. It can be noted that in August 2023 the Civil Aviation Authority (CAA) launched a Call for Input into a 'Review of UK UAS Regulations' (CAP 2569).[27]

Exemptions: One issue that prompted considerable discussion was that of emergency services exemptions. The UK's aviation regulator, the Civil Aviation Authority (CAA), had an exemption for the emergency services in place (*Small Unmanned Aircraft – Emergency Services Operations*), which permitted 'a more flexible, but controlled, use' of a small drone 'during emergency operations where an increased risk to life becomes apparent at short notice'.[28] This exemption applied to UK 'police, fire or ambulance services', [29] but was withdrawn on 11 February 2022 and is set to be replaced by a memorandum of understanding (MoU) that the CAA is currently working on with the Department for Transport and other government agencies, in order to 'establish suitable policy to cover this area'.[30]

In the interim, CAA advises that while police drone operations fall outside of 'UK Regulation (EU) 2019/947', there is a requirement 'that police UAS operations take due regard of the safety objectives of the Basic Regulation', and that until new 'policy is in place…current NPCC guidance is that all police UAS operations remain within the confines of extant regulation'.[31] During this period of change, participants described receiving 'conflicting messages' from the CAA and the National Police Chiefs' Council (NPCC). Participants also described inconsistent advice regarding whether they constituted a 'state aircraft', and described the potential implications of this in relation to 'the way they operate'. One participant stated that we act as 'state aircraft' and 'operate to PDRA01' unless there's a 'threat to life, then we act outside of that' and return to 'standard flying' after the event/incident. While they described this approach as being accepted by the CAA, they expressed uncertainly and anxiety that 'it's never been tested and if something does go wrong as a result of police actions, it's obviously going to be looked at in incredible detail'.

***Beyond Visual Line of Sight (BVLOS) flight*:** A number of participants expressed that a considerable 'constraint' for them was the 'inability to fly beyond visual line of sight'. This limitation, it was argued, particularly impacts forces in urban areas, as in 'rural settings' you can see further as there are often less visual interruptions. Participants however continued that that while it would be 'helpful' if they could 'fly well beyond' visual line of sight, the 'technology doesn't quite allow us' to do so given 'that there's so much interference' in urban environments, where they sometimes find the aircraft 'goes a couple of hundred metres and loses signal'. In recognition of both the desire for BVLOS flight and the technical and operational challenges of achieving this, the CAA's updated 'Airspace Modernisation Strategy' (AMS) includes active exploration of BVLOS drone operations with the eventual goal of drone 'integration within the airspace system'.[32] Additionally, the National Police Air Service (NPAS) has been 'tasked by the Home Office to explore the value of BVLOS drones as part of the future of police air support'.[33]

Legacy aircraft: One participant raised the issue that a number of 'police forces are still using legacy aircraft' which are set to be 'scrapped out' in due course, encouraging the CAA to consider 'the use of legacy aircraft' in this context. It should be noted that in June 2022 the Civil Aviation Authority 'consulted on whether to extend the Legacy and Transitional UAS provisions in the Open category', stating that it 'believed an extension would likely be necessary due to the UK not having in place the necessary infrastructure to move away from non-class marked UAS, to class marked UAS by 01 Jan 2023'.[34] The consultation highlighted concerns around environmental impact, economic impact, investment uncertainty, safety and clarifying the CAA's role.[35] The consultation summary advised that 'all provisions should be extended indefinitely and the class marking scheme should be reevaluated. This will form part of a larger investigation into the current UAS Open Category regulatory framework and what is most suitable for the United Kingdom. This is to ensure any solution suitably addresses the needs of the community as well as addresses safety and security risks in a proportional manner'.[36] In December 2022, 'after a formal decision from the Department for Transport', the CAA confirmed that 'the transition and legacy provisions will be extended to 1 January 2026'.[37]

Internal resourcing

Several participants raised issues around internal resourcing, including funding, internal perception, and ongoing training and communications:

Financial pressure: Participants described financial pressures and the challenges of obtaining funding (e.g. from the 'core policing budget', with some 'relying on capital bids'), explaining that they are 'constantly fighting a battle to get the kit they need'. They added that while drones are often understood as comparatively affordable platforms, drone teams can 'get through aircraft quite quickly' as 'their lifespan is not what a conventional aircraft would be'. They continued that shorter 'operational lifespans' also added complexity to budgeting.

Support: While noting that they had in the past encountered 'senior leadership unsupportive' of drone use, they described an improvement in 'internal perceptions around drones'. Participants stressed the importance of 'benefit analysis', i.e. asking questions of the ways they use drones and how they benefit from this use, and clearly 'documenting this'.

***Internal training and comms*:** Participants raised challenges around the provision of ongoing internal training and communications. A participant remarked that while they do well 'with equipping the drones and being in the right place for officers' to deploy, there are wider considerations around 'governance' (see national and/or centralised conversations and resources). While officers were excited to use drones, the participant stressed the importance of ongoing training to ensure regulatory adherence and to avoid any 'inadvertent breaches'.

National and/or centralised conversations and resources

Centralisation: Several participants described police drone operators as a group that 'didn't fit the mould that the rest of the drone legislation is designed for' and therefore necessitated further discussions at 'the national level'. Several participants expressed a desire for the 'centralisation' of police drone training provision and 'standardisation to the same level of police driving, taser use' etc, to enable 'all of us to follow one set of guidelines…so we're all singing off the same hymn sheet'. However, others expressed value in more locally and force-driven approaches (e.g. highlighting the considerable differences – from operation types, to weather and population density – that different force geographies encountered), and recognising the 'needs of diverse forces' more widely.[38] In recognition that police drone use in the UK has largely 'developed from the bottom up',[39] in 2022 HM Government reported 'significant investments and budget allocations' towards supporting the National Police Chiefs' Council (NPCC) and the National Police Air Service (NPAS) 'working together to introduce oversight of drone procurement, training and operational standards for policing and to develop Standard Operating Procedures and training materials, including compliance and safety management'.[40] Announcements regarding work underway by the NPCC drones portfolio include the development of a Centre of Excellence 'aligning drone training and procedures to a national standard', and a BVLOS Pathway Programme.[41]

Foreign technology: Participants noted concerns around the reliance of UK police on 'foreign technology', and in particular Chinese drone manufacturer DJI, which have provoked concerns around data security and the use of the company's drones for surveillance infringing human rights.[42] While one participant stated that they felt this 'had been resolved' as they 'don't link up to any of [DJI's] servers', another described the reliance as 'a powder keg waiting to go off', highlighting the prevalence of drone activity during the course of the Russian invasion of Ukraine, where the use of consumer drones is so dominant [43] that it has introduced challenges of 'getting simple bits of kit' for police forces internationally.

Technical and operational limitations

Weather resilience: Several participants raised 'weather resilience' as an issue impacting their operations. Alongside noting that hot, cold and inclement weather impact platform efficacy (e.g. batteries, sensors) or can halt operations, one participant described having an 'IP rated' drone that they found difficult to 'deploy in the rain' because of the 'amount of kit in the car' and struggling with the space required for 'drying down procedures'.

Operational limitations: In addition to acknowledging technical limitations around carrying capacity, battery life and flight time, [44] participants highlighted several operational limitations, including being relatively confined to using drones 'over static operations' (e.g. rather than operations such as marches that cover a long distance), and encountering connectivity issues and telecommunication congestion at large scale events. Participants added that as the 'downlink into the control room goes over 5G', when use of the mobile networks is high/ under pressure at events (e.g. festivals) the 'latency can be really bad'.

Frequencies: Participants also highlighted challenges around the frequencies their drones operated on, adding both that 'DJI products' operated on frequencies with considerable 'congestion' which impacts 'range', and that particular 'high end' drones operated at frequencies both associated with the Ministry of Defence (MoD) and issued, by Ofcom, to 'television companies' for short term media, thus risking interference.

Public perception and public engagement

The public: When asked about responses from members of the public, participants stated that the majority of their interactions had been positive. While noting negative responses to the use of drones by several UK police forces to monitor and 'play recorded messages to those suspected' of Covid-19 restriction breaches, [45] receiving 'quite a lot of a Freedom of Information requests' (particularly about the 'privacy aspect'), and adding that they have encountered some members of the public stating that police could not 'fly drones over their land', participants described the utility and importance of 'decent communication skills' and 'explaining what we're doing and why we're doing it'. Participants added that where drone use was overt, taking steps such as 'signage, cones out, and vehicles marked' was valuable. In addition, officers may note Police and Criminal Evidence Act 1984 (PACE), which sets out powers of entry and may allow entry to an area/property to take off/land a drone if it's contributing to an emergency response.[46] Participants also discussed the value of public engagement, detailing different approaches. Several described having a 'social media presence' in order to be 'as open and overt' as possible about their activities. They also described undertaking public engagement at a range of locations, including schools - explaining to the kids 'what we do' and 'showing them the kit', and at village fairs and community events – to 'show what we do' and enable members of the public to 'ask us questions'. Participants described such 'combined' approaches as having the dual goal of informing the public and building 'legitimacy about what we do'.

Section summary: Challenges and barriers to police drone use

- While adoption grows, there remain challenges and barriers to police drone use.
- Challenges and barriers around regulation include: the frequency of changes to regulation and the knock on effects of these on officer workload, the withdrawal of the exemption for emergency service drone use and awaiting the establishment of replacement policy in this area, limitations to flying within Visual Line of Sight (VLOS) and the desire to fly Beyond Visual Line of Sight (BVLOS), and concerns around the use of legacy aircraft.
- Police also highlight challenges and barriers around internal resourcing, including: financial pressures and securing funding for equipment, managing budgeting in the context of shorter aircraft lifespans, the need for benefit analysis to bolster internal support, and the need for ongoing internal training.
- Participants identified national and/or centralised conversations as a challenge and/or barrier to police drone use, though presented differing views on desires for the centralisation of police drone training provision and/or the standardisation of police drones to a similar level of police driving or taser use, with some participants indicating a preference for the continuation of locally and force-driven approaches, given the diverse contexts and needs of different UK police forces.
- Challenges and barriers around technical limitations included weather resilience, carrying capacity, battery life and flight time, and around operational limitations included confinement to static operations, encountering connectivity issues (e.g. latency), and issues with operating frequencies (e.g. congestion, interference).
- While experiencing some negative responses from members of the public (e.g. around Covid-19 related drone activities, concerns around privacy), officers stressed the importance of visibility and communication (e.g. physical signage and cones, engaging the public at events, and social media presence).

6. DRONE MISUSE

UK police forces continue to embrace drones as tools associated 'with a variety of benefits', from capability enhancement to risk mitigation.[47] Yet, while drones can be 'transformative technologies' for emergency response, [48] so too are they are readily accessible, deployed by a wide range of users and for wide ranging uses. While many drone pilots fly responsibly and adhere to relevant regulations, [49] concerns remain around the potential risks associated with incidents of both accidental and reckless, and malicious and criminal drone flight and misuse. From drone incursions disrupting flights and prompting airport closures, flight over sensitive facilities and transporting contraband into prisons, and being equipped with weaponry, [50] incidents of both 'careless and inconsiderate drone use' and the 'more deliberate' use of drones 'for criminal acts' have both received 'significant media attention' and prompted a range of 'nuisance', safety and security concerns.[51] Such issues also impact emergency services, as drones can be flown in proximity to and interrupt emergency response. It has thus been asserted that drone-enabled 'crimes are diverse and the manner in which technologies' such as drones are 'being turned to criminal ends is expanding the scale and reach of criminal enterprises'.[52]

While the Civil Aviation Authority (CAA) 'takes breaches of aviation legislation seriously and will seek to prosecute in cases where dangerous and illegal flying has taken place', [53] it underscores that responsibility for 'action against the misuse of drones' is led by the police.[54] The CAA 'has agreed with the Police, in a signed Memorandum of Understanding, that the Police will take the lead in dealing with UAS misuse incidents, particularly at public events, that may contravene aviation safety legislation or other relevant criminal legislation'.[55] The CAA urge citizens to report any misuse of drones to their local Police force.

In August 2023, the CAA launched a 'call for input – review of UK UAS regulations'.[56] Therein, the CAA note that in spite of 'current UAS regulation', drones can still be used 'unlawfully for smuggling, harassment, and infringement of sensitive sites', and as such they continue to look at risk mitigation (e.g. Remote ID), and suggest that while 'regulations exist today to prohibit UAS flying in airspace restriction zones, including airspace above aerodromes, prisons, and high-security buildings... in the future, UAS should be manufactured with mitigations in place that make it easier for users to comply with these restrictions'. [57]

When asked about both encounters with and responses to accidental and reckless, and malicious and criminal drone use and misuse, police participants described:

The nature of drone misuse

As the College of Policing highlights, 'with technological innovation also comes criminal misuse and recreational negligence'.[58] Police participants described encounters with drone use that were both reckless and ignorant, and criminal and malicious in nature. While noting that many incidents demonstrated an 'ignorance' of relevant regulation and appropriate flight planning, rather than ill intent', examples of incidents encountered included hobbyist drone flight causing injury, tourists flying around key landmarks, hobbyists flying over railways and trains (e.g. to 'take a photo' and causing service disruption), and 'a lot' of incidents of 'high altitude flying'. Participants also described incidents of drone flights in proximity to aircraft and disrupting airports. While noting challenges around discerning intent in some cases, participants also provided examples of encountering drone use with malicious or criminal intent, including: drone incursions at football matches (e.g. match delayed or cancelled, and potentially related to 'fraudulent' behaviour such as 'dodgy betting'), horse racing (e.g. live streaming races to 'gambling syndicates'), flights over television and film sets (with producers expressing concern around 'the plot line getting leaked'); flights to 'scout out areas ahead of a crime', drones flown over schools (paedophilia), and drones being used to 'drop articles' such as contraband into prisons. One participant stated that they 'type the threat levels', which ranged from hobbyist to amateur through to people with 'serious intent', the former of which they associated with a lack of awareness with the rules, and the latter of which they noted are 'few and far between'.

Education and legislation

In discussion of responding to drone misuse, participants described keeping a record of incidents while demonstrating a desire to focus on education and 'words of advice'. Noting that in the majority of cases of 'misuse people just don't understand what they're doing', officers described a focus on 'education as opposed to enforcement', which they saw as a 'last resort'. Here, participants described promoting awareness of the *Drone and Model Aircraft Code* [59] which covers 'low-risk drone flights' in the open category (A1 and A3, within which the majority of hobbyists flying for recreational purposes are operating), and is inclusive of a range of requirements (including flying below 400ft/120m and keeping the drone within the pilot's visual line of sight). The Drone and Model Aircraft Code also states that pilots 'must never carry any cargo' on their drone that 'could be dangerous to people, property or the environment if there was an accident' (such as 'poisonous or corrosive cargo…and flammable cargo, such as petrol or oil, apart from what the engine needs for that flight'). [60]

In discussion of wider relevant legislation that they can 'use', participants highlighted both the Air Navigation Order and the Air Traffic Management and Unmanned Aircraft Act. Borne of the Civil Aviation Act 1982, the Air Navigation Order sets out the 'main civil requirements for UK aviation' and provides 'regulatory and enforcement powers for the Civil Aviation Authority needed in respect of retained aviation safety legislation'.[61] The Air Navigation Order (2016, as amended) covers airspace in the UK (excluding flying drones indoors) and is statutory legislation, upheld by the CAA. Of particular note are Articles 240 and 241. ANO 2016 'article 240 applies to all persons and stipulates that a person must not recklessly or negligently act in a manner likely to endanger an aircraft or a person within an aircraft' and ANO 2016 'article 241 applies to all operating categories and stipulates that a person must not recklessly or negligently cause or permit an aircraft (manned or unmanned) to endanger any person or property (which includes other aircraft and their occupants)'.[62] It should be noted that 'only certain parts of the ANO apply to UAS within the Specific and Open categories of Operation' whereas 'Certified category operations and certified' drones 'are subject to the whole of the ANO, unless specifically exempted by the CAA'.[63]

The Air Traffic Management and Unmanned Aircraft Act 2021 details police powers in relation to drones. The Air Traffic Management and Unmanned Aircraft Act 2021 is designed to 'clamp down on the illegal use of unmanned aircraft' by 'giving police officers the necessary powers' to respond.[64] Per schedule 8 of the Act, where officers suspect a drone could be 'involved in the commission of an offence', they are permitted to: instruct a pilot to 'land their drone, stop and search people or vehicles to find drones or drone equipment, and confiscate drones or drone equipment found during a search'.[65] In addition, officers can require pilots to show 'registration details and other information, evidence of permission to fly (where necessary)' and can 'check a drone to understand which rules apply to it'. [66] Per schedule 10, the legislation also introduces the 'creation of a fixed penalty system' enabling police officers to 'issue on the spot fines for set types of offence' – a system which is presently under development.[67]

Alongside expressing a preference for the 'route of educating people', officers also described some challenges associated with wider actions, such as the 'paperwork' associated with 'seizing drones', and a potential 'nervousness' from a 'CPS perspective' because of the comparatively low number of barristers, 'district judges or benches' 'that know this legislation inside out', thus describing it as a 'grey space that is still be tested'.

External drone pilots flying near police operations

Several participants highlighted that the presence of drones operated by external flyers (i.e. those not related to emergency response) as an issue that impacted, disrupted and in some cases halted emergency response operations. Participants noted that they had been impacted by both hobbyist flyers wanting to get footage to post online (e.g. of fire incidents), as well as by media and journalist operated drones, including those seeking to capture footage of sensitive sites and 'active crime scenes'. In response, participants noted 'putting an emergency restriction in airspace' into place (though added that this can take time), and cited regulatory guidance to communicate to the pilots

that they ‘are not allowed to fly near an emergency’ and that flying as such can constitute ‘committing an offence’. The Drone and Model Aircraft Code states that ‘you must keep out of the way and not fly in any way that could hamper the emergency services when they’re responding to an emergency incident’, and that if you are flying near an incident, you must ‘safely and immediately stop flying unless the emergency services give you permission to continue’.[68] CAP722 stipulates that ‘emergency response’ covers ‘any activities by police, fire, ambulance, coastguard or other similar services where action is ongoing in order to preserve life, protect the public or respond to a crime in progress’. [69]

Training

Several participants raised internal resourcing, including training and educating officers. Different approaches were discussed. These included ‘educational pushes’ to ‘upskill’ drone teams and develop their awareness of police powers, as well as information provision to the ‘rest of the force’ (e.g. on the intranet and through ‘points of contact’ such as a ‘helpline’) in order to enable more ‘confident’ responses to incidents of drone misuse.

Some participants felt the provision of training could be increased, both included as part of officers’ ‘CPDs’, and widened in terms of access to courses (such as drone forensics). Others identified a range of challenges, including ‘resourcing’ (‘manpower and finances’), ‘getting the buy in from senior management’, keeping training up to date (e.g. in the context of ‘changing regulation’), and balancing resources with the frequency of incidents (e.g. relatively few require forensics). While some participants wished to gain greater expertise in areas such as drone forensics, others felt it may be more appropriate to approach the ‘NPCC for advice’ about sourcing expertise from other regional forces and teams.

Participants also raised the issue of ‘drone auditors’. Auditors refer to social media ‘content creators’ flying drones (often sub 250g) with the stated aim of ‘auditing the activities of authorities such as police and government and checking out privately owned locations in terms of finding out what is there, while exercising their right to do so as members of the public’, but which can also be associated with the aim of provoking a reaction from, for example, land owners, security personnel or police officers to ‘get attention’ on their channels.[70] While noting the importance of both ‘educational pushes’ and internal communications, officers described the challenges of ‘coppers out there’ understanding and keeping abreast of changing regulation, and of auditors trying to ‘catch officers out’, ‘embarrass them’ and ‘provoke a reaction’ to ‘make a living off Youtube’.

Counter-measures

Several participants whose force jurisdiction covered airports stated that they have had ‘a fair number of [drone] activations’ and have trained a ‘contingent of officers’ to use different forms of ‘physical’ and ‘digital’ counter-drone kit. This ranged from kit ‘detecting where these particular drones are’, ‘where the pilot is, where the drone is going, [and] the direction it’s flying’ to enable ‘decisions’ to be made about its status, as well as ‘electronic kit that will then mitigate the actual risk being posed by the drone’. The wider suite of such kit is named counter-drone technology (or C-UAS) and refers to ‘systems designed to detect, track, identify and/or intercept drones’.[71] While increasingly trialled and deployed, counter-drone technologies remain associated with a ‘range of hurdles’ including around costs, ‘coordination, planning and safety’.[72] The Government’s Counter-Unmanned Aircraft Strategy asserts both the importance of police having ‘a full range of powers and technologies to act against malicious drone use’ and their goals around resourcing and ‘empowering’ police to have ‘access to training, technology and legal powers appropriate to their roles and the drone risks they face, so that they can act confidently and decisively to address drone-based threats’.[73] Participants also described relevant work underway by the National Police Chiefs’ Council (NPCC), whose Counter Drones unit are developing a 'counter drone capability'.[74]

Section summary: Encountering and responding to drone misuse

- While drones can be transformative policing tools, they are also accessible to a range users. While many fly in accordance with relevant rules, drones have been variously misused
- Per a Memorandum of Understanding, the police are responsible for taking the lead in dealing with drone misuse
- While recognising different forms of drone misuse (e.g. accidental and reckless, malicious and criminal), police described keeping a record of incidents while (where appropriate) focusing on education as opposed to enforcement in the first instance
- Relevant legislation that can be used in response to drone misuse includes The Air Navigation Order 2016, which covers airspace in the UK and includes Articles 240 and 241, stipulating that a person must not endanger an aircraft, nor permit an aircraft to endanger any person or property. The Air Traffic Management and Unmanned Aircraft Act 2021 details police powers and permits officers who suspect a drone could be involved in the commission of an offence various powers
- Police encounter issues with external drone use at and impacting emergency response operations (e.g. by hobbyists, journalists/ media). CAA guidance instructs that drone flights must not hamper emergency service response where action is ongoing to preserve life, protect the public or respond to a crime in progress
- While recognising budgetary constraints, participants expressed a desire for additional resourcing (e.g. training, skills building, information provision) on police powers and responding to incidents of drone misuse, specialist skills (e.g. drone forensics) and ongoing training. Such provision would also assist with challenges raised by 'drone auditors'
- Some police forces are deploying and/or trialling counter-drone technology to detect, track, identify and/or intercept drones. Both the Government's Counter-Unmanned Aircraft Strategy and the National Police Chiefs' Council have dedicated resource in this area.

7. THE FUTURE OF POLICE DRONE USE

While drones are increasingly embraced as policing tools, the technology also continues to 'develop rapidly',[75] presenting officers with 'additional' and exciting 'options for how to use' drones.[76] In this vein, participants were asked how they imagined drones being used by police in the future and what they would like to see possible. Responses included:

A drone in every police car and remote operation

One 'hope for the future' was the desire for 'a drone in every car'. The participant continued that the realities of this 'roll out' would be challenging in an 'organizational' sense given both the 'handling capabilities' required to 'fly these operations' and the need to keep 'software and firmware' updated. They continued that their hope was for such drones to 'fly over 5G' as well as to be supported by a 'command and control centre', meaning that once the drone is launched from the ground its flight can be 'taken over' and controlled remotely. This notion of drones piloted from increasingly remote positions was echoed by other participants, who described imagining having a 'few fixed wing drones' at 'far higher altitude' and equipped with 'enormously powerful cameras', flown by remote officers 'with a couple of joysticks' in a 'container'. They continued that this vision would both overcome the 'problem of getting to the location and throwing the drone in the air', would enable drones to 'loiter over areas' pursuant to intel, and would enable 'task off' of 'spontaneous incidents' and the provision of '24 hour coverage'. They noted that such developments would be impacted by monetary, legislation, and wider considerations accompanying flying drones 'over the top of highly populated areas'.

Regulatory clarity and progress

Several participants stated that their aspirations for the future were related more to the 'legislation than the technology'. Participants raised several issues, including sector specific qualifications, clarity on emergency service exemptions, and regulatory hurdles. Participants raised concerns that 'from a legislative point of view' operators from a 'roofer doing structure surveys' to 'emergency services personnel' that undertook and received training qualifications (such as the A2 Certificate of Competency (A2CoC) and General Visual Line Of Sight Certificate (GVC)), were 'treated exactly the same'. Continuing that emergency services personnel are 'already highly trained' before they take their drone piloting courses and exams, and that they 'hold massive amounts of responsibility for public safety from the very start', the participant argued that there should be 'industry specific qualifications for emergency services' that 'mean they don't have to jump through as many hoops when putting through their policies'. In discussion of future use cases, participants also returned to the issue of (the withdrawal of the) emergency service exemptions (see Challenges and Barriers section). One participant stated that they were 'not happy with the CAA's response' to the removal of the exemption and while they acknowledged 'work being done at the national level' to 'clear those muddy waters', in the interim this change had impacted their approach.

Lastly, in discussion of future use cases, a number of participants raised Beyond Visual Line of Sight (BVLOS) flight. Here, participants described BVLOS as a 'capability that is there, but is not being realised' and highlighted that 'proving that the ecosystem is a safe one for the CAA' was a 'hurdle' for extending line of sight. Here they drew attention to the drones as first responder (or 'DFR') programmes in the United States, which have seen the US' airspace regulator, the Federal Aviation Administration (FAA) award the 'first certificate of authorization under the Part 91 general operating rules' to the Pearland Police Department of Texas to operate its first responder drone beyond visual line of sight, 'eliminating the need for human visual observers'.[77] The participant continued that while the UK's 'legal framework' is not currently 'there to support' BVLOS flight, they felt it was a 'question of when' it will be, acknowledging both the CAA's updated 'Airspace Modernisation Strategy' (AMS) which includes active exploration of BVLOS drone operations [78] and exploratory work led by the National Police Air Service (NPAS) to examine 'the value of BVLOS drones as part of the future of police air support'. [79] In this vein, one participant outlined their vision for the future as a 'layered approach'. They continued that this vision included 'NPAS expanding' to use 'fixed wing drones' to enable 'BVLOS covering the country'. They continued that their aim was for a 'central oversight of the BVLOS long term drone programme', rather than such developments being led by individual 'police forces doing it independently' (though see Challenges and Barriers). While they stated that 'we're not at this point or going to be at that point anytime soon', they saw this as a 'vision for the future'. It should also be noted that the National Police Chiefs' Council is also undertaking work in the area of Drone as First Responder (DFR), for example 'supporting Norfolk Constabulary to establish a DFR blueprint that ensures integration into existing airspace, introduces layered mitigation and syncs into emergency services systems and processes'.[80]

Technological developments (e.g. pairing with other technologies)

When discussing future police drone use, some participants focused on 'simpler' technological goals, while others imagined more complex developments. For example, one participant outlined 'issues' surrounding both different levels of pilot experience (some pilots are 'not as good as others') and 'obstacle avoidance in low light situations' (resulting in 'people crashing a drone into a tree or into a wire above them which they didn't see'), noting that capability improvements in these areas is what they'd first 'ask for'.

For other participants, their aspirations for future drone use involved increasing technical capability, such as improvements to 'camera capabilities' (e.g. zoom) and through the pairing of drones with other technologies. One participant described 'looking at' augmented reality and the desire for it to 'assist officers' flying in areas less familiar to them by providing an 'overlay of mapping' (e.g. street names) so they can 'pinpoint an address', while noting that at present the cost of such applications

remains prohibitive. Several participants described looking at 'machine learning and AI' developments in the area of 'missing persons searches', such as 'autonomously flying the drone over a large area' and feeding the footage through a programme to identify particular features (e.g. a red t-shirt). Such applications would, they argued, increase and 'improve' searching capacity while also reducing officer stress in a 'pressured' environment through assistance with some 'more critical items'. Asked about drone-assisted facial recognition more widely, participants continued that they thought 'it would happen'. They added that 'public order related drone use' (e.g. at events such as football matches and protests) was increasing and used 'spotters on the ground' to 'identify nominals', and as such facial recognition may be able to assist with this 'at some point'. They also added that drone-assisted Automatic Number Plate Recognition (ANPR) has been discussed, and while participants didn't presently see the benefit of this, there 'may well be' a benefit in the future (e.g. informed by learnings from projects such as Vision Zero, where Devon & Cornwall Police are using drones to assist with calculating 'vehicle speeds' and recording incidents in order to 'detect driving offences on high harm routes').[81]

Developments in carrying capacity

Several participants raised the 'carriage of personnel' or 'people being carried by drones' as a future use case. Here, participants added that while they thought initial uses would be 'moving stuff' (e.g. medical supplies) 'rather than people', wider interest and trials of both UK-based urban air taxis [82] and paramedics 'with jetpacks' [83] meant that they felt it was 'not going to be that long' until things changed. While asserting that 'we should be using technology to improve the service we provide', participants also added that like 'autonomous vehicles', 'confidence' in the systems remained a big 'hurdle to get over', and also that a number of developments were contingent on 'how much money' was available. One participant asserted that the future of police drones is 'whatever you want to make it', it just 'needs joined up thinking and money to make it happen'.

Police drone use in evolving UK airspace

In 2022, the Department for Business, Energy and Industrial Strategy (BEIS) and Department for Transport (DfT) released a report articulating a vision that 'by 2030 commercial drones will be commonplace in the UK in a way that safely benefits the economy and wider society'.[84] This vision involves drones 'sharing the airspace equitably and safely with other users'.[85] In recognition that UK airspace is undergoing change, participants were asked about any challenges emergency service drone users might encounter and face in a context of changing airspace. They described:

Integration and prioritising police drones in busier skies

- Participants expressed concerns about 'how' drones would be 'integrated' into UK airspace at scale and the impacts of this on accommodating and/or prioritising police drone use in 'busier skies'. Participants again raised experiences of external drones presenting 'in the air at the same time' as police drones and 'interfering' with policing operations. They continued that such interference was both 'distracting', requires 'resources' to ascertain who the operators are and 'what they're doing', or landing their own operations because it's no longer safe to be in the sky.
- Noting ongoing discussions around electronic conspicuity to enable the 'broadcasting of flight information', [86] participants described the importance of airspace visibility. They continued that measures should also be taken to prioritise emergency service drone use and 'maintain that sterile area that is needed for emergency services to operate in' and to 'keep out' journalists and commercial drones. While several participants were not sure of how this should be done, others offered potential suggestions. While acknowledging that it 'was a big change', one participant mused the idea of seeing '400ft to 500ft classified as emergency services use only' airspace, with another participant adding that they couldn't see 'why that's not possible' and citing CAA-issued exemptions during the Covid-19 pandemic. Others reflected on using 'atypical airspace' (e.g. 'railways, electronic pylons') in order to 'reduce the risk of mid-air collision', which is also a barrier to BVLOS flight, though noted limitations around 'flying low' in such contexts. Others presented more technically-oriented proposals. While noting that the technicalities of this were 'way above' them, one participant added that perhaps a 'forced'

return to home style function when emergency services operations come into effect may be possible – as this would be a way to 'give priority' and was 'essentially a technological version of a blue light' like 'an ambulance behind you' on the road. Others returned to the issue of drone 'bandwidths' (see Challenges of and Barriers), suggesting emergency service drones could be allocated a 'dedicated frequency' and contemplating whether 'something that could essentially drop out the other frequencies' at serious emergency incidents was possible or appropriate. Another participant suggested that learnings in this area could be drawn from military aircraft which can 'block signals' to enable aircraft to 'travel in a bubble', thus stopping 'non law enforcement drones incurring'.

Threat identification

- A participant noted that as skies got busier, challenges around identifying the intent of aircraft may change and evolve (e.g. routine business versus 'malicious aircraft with ill intent'). While noting the observations around electronic conspicuity above, the participant also expressed the importance of 'growth in the counter drone' area as the 'routine deployment of drones' increases (see Drone Misuse). A participant continued that they had concerns 'not so much' about 'low level hacking' but around 'hostile' actors targeting 'critical infrastructure', such as a 'police drone network'. Drawing attention to the targeting of police aircraft with laser beams, [87] the participant raised concerns about both the vulnerabilities this could introduce to the 'police drone fleet' and the measures that could be taken and resources required to 'disable' such attempts.

Section summary: The future of police drone use

- When asked how they imagined drones being used in the future and what they'd like to see possible, participants described: a drone in every police car and remotely piloted drones offering 24/7 coverage, regulatory clarity and progress (e.g. around sector specific qualifications, on emergency service exemptions, and the realisation of Beyond Visual Line of Sight flight), technological developments at both the small scale (e.g. obstacle avoidance, camera zoom) and large scale (e.g. pairing drones with other technologies such as augmented reality and facial recognition), and developments in carrying capacity (e.g. carriage of personnel/ people being carried by drones)
- Participants also reflected on changing UK airspace. As skies are forecast to get busier (e.g. with growing commercial drone activity), concerns were expressed about both how emergency service drone operations would be prioritised, offering a range of potential ideas around solutions; and around how threat identification may change and evolve (e.g. both determining routine business versus 'malicious aircraft', and the introduction of new risks, such as the targeting of police drone fleets).

8. KEY ISSUES FOR DRONE REGULATORS, POLICY-MAKERS AND DECISION-MAKERS

In closing the focus groups, participants were asked to list key issues they would like to raise to regulators, policy-makers and relevant decision-makers. They described:

- The issue of the frequency of changes to regulation, which participants added made their professional 'lives more difficult' (see Challenges and Barriers to Police Drone Use).
- A desire for an 'appreciation' and 'acceptance' that emergency services drone users are 'different than other drone users' and should be 'looked at and treated slightly differently' by regulators. While noting the importance of being 'held to account' in the case of any 'incidents and issues', participants continued that their responsibilities, 'risk assessment' and internal 'standards' remain 'a great deal higher' than is typical for 'Joe Public'.
- That while the 'Civil Aviation Authority are used to dealing with civil aircraft', the context of 'emergency aircraft, emergency deployments, emergency drones' may require a distinct and 'dedicated' approach.
- A desire for 'centralizing training' for police drone activities 'across the country', doing the same for drones as with 'driving standards, firearms standards', in order that officers 'sing off the same song sheet'. In this vein, one participant offered the provocation we have a 'Military Aviation Authority, why can't we have a Police Aviation Authority' that 'governs police use of drones'? While recognising the National Police Chiefs' Council's drone and counter-drone capacities and activities, the participant urged further 'forward thinking' around 'getting all police forces together instead of all of us trying to do our own things separately'. As is outlined in the Challenges of and Barriers section, other participants conversely expressed value in the more locally and force-driven approaches, accounting for geographical differences such as weather and population density.
- Resourcing, expressing that a 'step up' in terms of support for police drone operations was required, both in order to meet and match government aspirations and investments into commercial drones, as well as to recognise that police drone use itself can offer 'multi-million pound benefits to the UK economy' (e.g. by keeping trains running).
- While recognising the efforts underway to explore Beyond Visual Line of Sight (BVLOS) drone flight (see The Future of Police Drone Use), participants described the desire for BVLOS flights to be more rapidly enabled and 'sorted out'.
- Concern around the 'reliance' of UK police forces on Chinese manufactured drones, with one participant adding that 'geopolitical' events can impact drone supply chains and infrastructure (e.g. the Russian invasion of Ukraine impacting the demand for consumer drones), jeopardising police drone kit resourcing. Participants added a desire for 'inward investment' in UK drone manufacturers, though added that in their experience this kit was comparatively 'inadequate'.
- Concern around drone qualifications. Participants again underscored that they felt that 'from a legislative point of view', emergency services drone operators were 'treated exactly the same' as others, such as a 'roofer doing structure surveys'. They argued that they are 'already highly trained' and 'hold massive amounts of responsibility for public safety from the start' and thus argued for sector 'specific qualifications for emergency services' (see Future of Police Drone Use).

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Contact details

Dr Anna Jackman is Lecturer in Human Geography at the University of Reading.
Email: a.h.jackman@reading.ac.uk
Project web page: https://research.reading.ac.uk/drone-geographies/research/

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