

Drones for Social Good in Somerset and Devon

Scoping Study Final Report

December 2024

Contents

1 Introduction

2 Scope, Definitions and Focus

3 Policy Context and FFIZ Assets

4 Benchmarking

5 Consultations

6 Emerging Issues and Questions

7 Recommendations

Appendices

Appendix 1 Policy and Funding Support Note

Appendix 2 Notes on NHS Trusts, Local Authorities and Other Consultees

List of Acronyms

ARPAS: Association of Remotely Piloted Aircraft Systems Trade Association for UK drone Industry

BVLOS: Beyond Line of Sight

CAA: Civil Aviation Authority

CPC: Connected Places Catapult

DfT: Department for Transport

VLOS: Visual Line of Sight

eVLOS: Extended Visual Line of Sight

NATS: National Air Traffic Services

FFIZ: Future Flight Innovation Zone

VLOS: Visual Line of Sight

UAVs: Unmanned Aerial Vehicles

VTOL: Vertical Take Off and Landing

WEAF: West of England Aerospace & Advanced Manufacturing Forum

1 Introduction

This Scoping Study provides analysis and recommendations around the opportunities associated with the use of drones for social good within the Devon and Somerset and the South West Future Flight Innovation Zone (FFIZ).

2 Scope, Definitions and Focus

Whilst the term ‘social good’ can apply to a very wide range of domains, eg defence/security, police, disaster/rescue services, health, infrastructure, housing, environment and education, the study has focussed on exploring the potential use of drones for ‘social good’, where they can bring *user and carbon* benefits, and *economic development* opportunities within Devon and Somerset and the South West FFIZ.

Specifically, our research has focussed on UAV/drone applications in health/NHS, ambulance, rescue service, local government, housing associations and the NHS estate.

The study takes account of the national policy development context relevant to CAA, BVLOS and VLOS/eVLOS drone regulations and also briefly reviews some of the drone trials that have been operating across the UK with government support, especially those in the health care domain.

The study has also benefitted from the discussions and outcomes associated with the successful FFIZ Workshop held at iAero on the 22nd November 2024, this involving around 70 representatives from a range of organisations including aerospace and VTOL companies, drone operators, software companies, local authorities, the NHS, universities and colleges, the CAA as well as industry bodies such as ARPAS, West of England Aerospace & Advanced Manufacturing Forum (WEAF), NATS, CPC.

Given that the study has a broad context with limited timescale/resources, EiBC has tried to ensure that there is *focus* and sufficient time given to thinking about how our *outputs* could inform FFIZ planning and possible outcomes. Accordingly, we set out suggestions on how the FFIZ might take forward some actions that benefit users, sustainability, economic development and skills. We sketch out our suggestions at the end of this Report.

3 Policy Context and FFIZ Assets

The study has briefly reviewed the national policy and funding context, as well as the South West FFIZ background. A number of reports, web based data and videos have been reviewed to absorb the background on UAV/drones together with the regulatory context for BVLOS and eVLOS. A very short note on the policy context is included in Appendix 1.

We have also begun to draw together our understanding of the relevant business, innovation, skills and infrastructure assets within Somerset and Devon. This mapping work needs further development but a summary of some of the key assets is as follows:

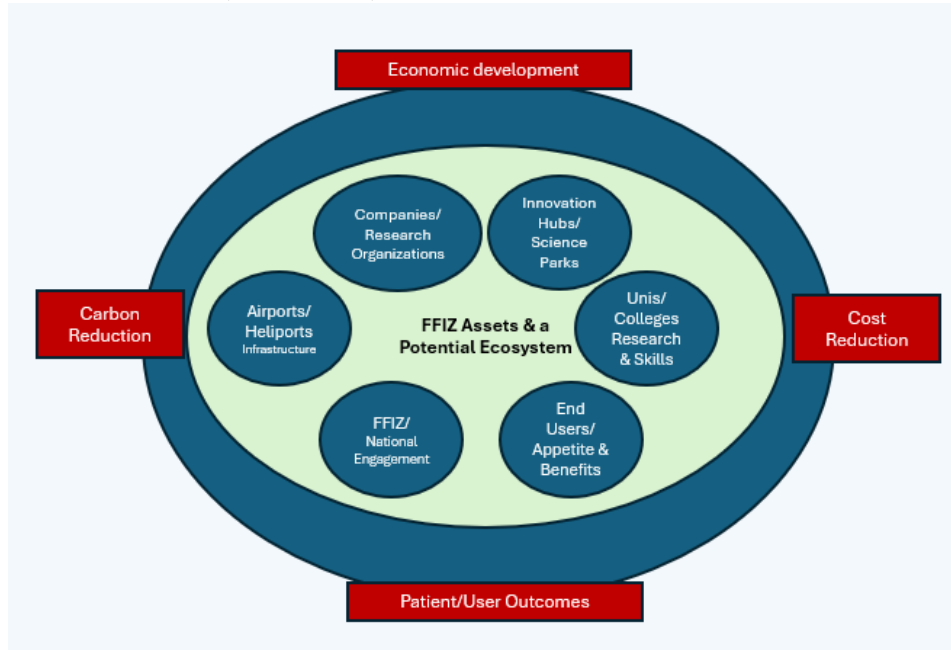
- **UAVs/Drones Businesses:** There is a significant national cluster of large and small companies based in the SW involved in aerospace, aviation, UAVs and drones. This includes a large number of businesses that are part of the West of England Aerospace & Advanced Manufacturing Forum (WEAF) and includes primes such as Leonardo, BAE Systems, Honeywell and Thales together with a number of smaller VTOL/drone supply chain companies and operators. This represents a fundamental component for the development of an active ecosystem.

- **Airports/Heliports:** there are a large number of small airports and heliports across the geography involving companies such as Rigby Group (Exeter Airport – already a focus for UAV/drone pilot activities), Leonardo (Yeovil Airport and home to iAero), MoD (Yeovilton and Merryfield), Sutton Harbour Group (Plymouth), NHS Foundation Trusts (eg at Exeter, Plymouth, Taunton and Barnstable hospitals), Losan Ltd (Hengistbury Airfield and home to the Devon Air Ambulance Trust), Lomas (Westward Ho), Riggles (Upottery) and many other small landing strips/heliports. Our consultations with the Devon Air Ambulance Trust (DAAT) has also revealed that they have secured over 200 landing site approvals from landowners for emergency landings. Based on discussions with real estate advisers, it is also likely that some property owners are exploring how their roofs might be used as vertiports.
- **Innovation Hubs:** The area has a number of innovation hubs/science parks and some of these have or might in future have particular relevance for UAVs/drones, either as locations for businesses or as sites for heliports/vertiports. For example, iAero, Firepool Centre for Digital Innovation, Somerset Energy Innovation Centre, the new Somerset Health and Care Academy, Exeter Science Park, the Electronics and Photonics Innovation Centre, Paignton, Plymouth Science Park, the Centre of Technology and Innovation Excellence, Barnstable and Tiverton and a number of other university and college campuses.
- **Social Good Users and Drone Service Providers:** There are a number of large ‘social or public good’ end users that could benefit from the adoption and use of UAVs/drones. From the preliminary consultations undertaken across the NHS, the Ambulance Service, housing associations, local government and real estate advisory companies it is also evident that there is a growing appreciation and appetite to explore how UAV/drone applications could be used within these organisations and of the cost/market and carbon benefits that might be secured. Alongside this end user market there is a growing supply market of drone logistics, software, photogrammetry and AI service providers able to partner with the public sector that can add significant value and reduce costs.
- **Research and Skills:** the FFIZ area already has an active community of research, innovation and skills organisations involved in UAV/drones with many securing research funding from government. Some of the colleges and universities already active in the FFIZ area include Bristol, Exeter, Cranfield, Sheffield¹ universities and Yeovil and Exeter colleges.
- **FFIZ and National Engagement:** Importantly. FFIZ has secured a national engagement with the CAA, DfT, CPC, NATS and industry bodies such as ARPAS and WEAFA and obtained funding for some preliminary work around infrastructure, testing and demonstration (see Appendix 2).

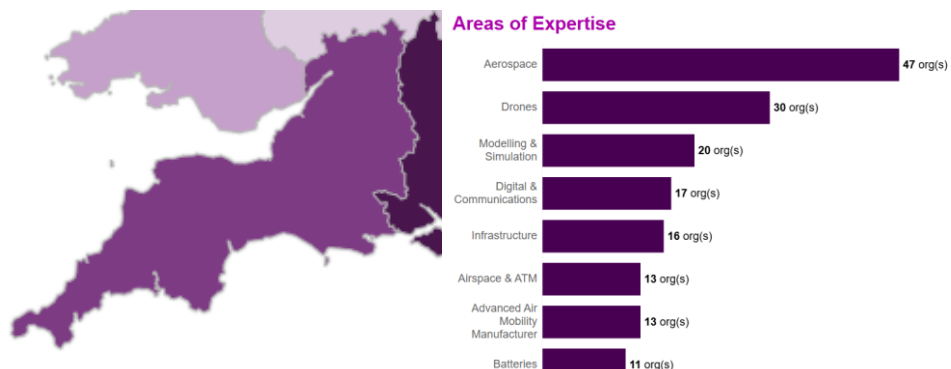
An illustration showing these assets and how they could be transformed into an active ecosystem is shown in the diagram overleaf.

¹ As a part of the Advanced Manufacturing Research Centre (AMRC)

FFIZ: Business, innovation, skills and infrastructure assets and benefits



The UKRI's Future Flight Landscapes data base shows that the South West receives the second largest funding support from UKRI for aerospace-related R&D at £11.52m with 14 projects² as well as illustrating (from national data) the breadth of expertise and industry types associated with this business domain. Interestingly, the data also shows that currently the south west has a comparatively low number by companies receiving UKRI funding.



Source: Future Flight Landscape

In summary, our understanding is that there is a *potential drone* ecosystem of local and national significance. However, much has still to be done to make it into an actual ecosystem that delivers value for users, secures sustainable outcomes, innovation, business growth, and workforce development.

Using the diagram above – it can be imagined how these assets can be not only better understood, but that practical connections and synergies are activated to bring forward ideas, innovations, research, investments, trials and operations that secure business growth and practical user benefits - all supported by a strong FFIZ network.

² <https://iuk-business-connect.org.uk/programme/future-flight/future-flight-landscape/>

4 Benchmarking

EiBC has scanned and reviewed some of the background research on UAVs/drones and also undertaken some preliminary consultations with other organisations and partnerships operating UK pilots, especially those relevant to the 'social good' and a health care focus.

We have not attempted to summarise all the work of these programmes, but the following highlights the range and relevance to innovation, business and funding environment and its significance for the FFIZ work:

- **Open Skies Cornwall:** Open Skies Cornwall is a 12 organisation partnership³ developing infrastructure and bringing forward the testing and operational use of drones for a variety of uses. The partnership has operated the UK's first NHS and Royal Mail drone deliveries involving the transport of medical goods and the first BVLOS approvals in the UK. Cornwall and Devon NHS trusts are jointly working on an options appraisal study on the future of pathology services within both geographies and the application of drone services is likely to have relevance to future operations and infrastructure. Lisa Vipond, from the NHS Royal Cornwall Hospitals NHSFT has shared Use Cases for Pathology Services involving flights between Isles of Scilly and Royal Hospital Cornwall in Truro. A proposal to develop an integrated multi-modal multi-location service involving mainland drone flights and road transport is being developed.
- **Solent Future Transport Zone:** this is a £29m DfT funded programme involving a broad multi-modal transport programme. It has involved tests and trials of innovative approaches to transport, including UAV/drone trials with the NHS between the mainland and the Isle of Wight. Consultations have taken place with Rob Gloyns FTZ Theme Lead and Carla Toomer around some of the lessons and trials. A further consultation has taken place with Solent Sustainable Logistics Professor Djamila Ouelhadj and Dr Andrew Bullock University of Portsmouth around their economic model that captures data on cost and carbon benefits associated with drones compared with other forms of transport. Discussions around a collaboration involving the use of this model within Devon and Somerset are on-going
- **E-Drone Project** is a £1.5m EPSRC funded research project involving the universities of Southampton, Leeds, Bournemouth and UCL that completed in June 2024. It offers evidence and recommendations around pursuing consolidation with other modes of transport ie adopting drone use with other low cost/low impact forms of transport which will achieve emissions and time saving benefits at lower full economic costs.
- **Flying Taxi Trial (Bristol to South West):** A consortium involving AtkinsRéalis, Vertical Aerospace, Virgin Atlantic, Skyports and NATS, the Connected Places Catapult, Cranfield University and WMG, University of Warwick is developing an electric vertical take-off and landing (eVTOL) aircraft, and operating trial flights with a UKRI £9.5m grant. Two test flights of a zero-emission 'flying taxi' will operate between Bristol Airport and a South West airfield whilst others are planned between Bristol and London
- **Scotland's CAELUS project:** This is a 16 partner £16.6m Innovate UK funded project led by AGS Airports Group and is reporting on its programme in December 2024 with an invitation only event planned for January 2025. The programme has included NHS drone

³ DronePrep Ltd, Cornwall Development, Skyports Deliveries Ltd, Trust Port: Falmouth Harbour Commissioners, Royal Mail Group Limited, NHS Kernow Integrated Care Services, jHubMed, University of Southampton, Neuron Innovations Ltd and TFC Inc. (doing business as The Flight Corp)

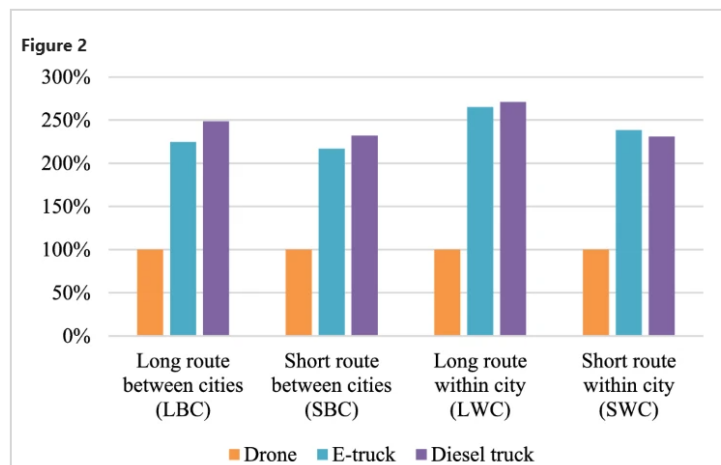
trials from the Scottish mainland to Orkney and Shetland, from Crosshouse Ayrshire to Arran and from Edinburgh to the Scottish Borders. EiBC has consulted with Hazel Dempsey and Karen Bell, the two NHS leads on the Programme and details of the Ayrshire-Arran NHS trial are referenced below⁴.

- **Flight Dynamics and Control** is a £375k EPSRC funded research project at the University of Bristol into the emerging field of Airborne Wind Energy Systems – this involving the tethering of a drone to a ground station and harvesting wind power at higher altitudes
- **Coventry City Council** is pursuing a variety of future transport ventures. One of their major programmes is the development of a city centre drone hub and a multi-modal drone superhighway (165 miles) connecting Coventry, Rugby, Cambridge, Oxford, Reading and Milton Keynes. A recent medical trial took place involving Skyfarer and Medical Logistics UK and operated across a 20 mile air space between Coventry and Rugby. Consultee Sunil Budhdeo
- **Manchester Regional Use Study:** This study undertaken by Clive Lewis reviewed drone use case studies across a wider range of applications (eg industry, logistics, media, commuting/traffic, health, ambulance, data, infrastructure). It offers some useful insights into the breadth of applications and the impacts and cost benefits. The research context in terms of movements and applications is metropolitan.
- **Northumbria:** This project involved Apian and Northumbria NHSFT in a Stage 1 Trial between February and May 2023 and was funded by SBRI/NHS England/HINNEC. It involved the transport and use of drones for chemotherapy drugs, blood samples and other items between Wansbeck General Hospital at Ashington up to Alnwick Infirmary and onto Berwick Infirmary.
- **Linköping University, Sweden/Nature Research Study:** This is a significant comprehensive study⁵ that assesses the comparative cost and carbon benefits of drones across different distances (long distances between cities, short routes between cities, long routes within cities and short distance within cities) and compares drone use with trucks and diesel. The results show drones are cheaper than electric trucks by a minimum of 117% and cheaper than diesel trucks by a minimum of 131%.

⁴ <https://www.youtube.com/watch?v=ipkKlnZ8WUI>

⁵ Aishwarya Raghunatha, Emma Lindkvist, Patrik Thollander, Erika Hansoon and Gera Jonsson, 'Critical assessment of emissions, costs, and time for last-mile goods delivery by drones versus trucks'

Drones beat trucks and diesel vehicles in time, emissions and affordability



5 Consultations

The following is a list of the consultees contacted about this research. For those in italics we are awaiting a response:

1. Chris Balch Chairman Torbay NHSFT – Devon
2. David Shannon, Director - SNHSFT – Somerset -directed me to others
3. *Matthew Dolman Chief Clinical Information Officer ICB/SC – awaiting response*
4. Belinda Lock – AD SNHSFT – guidance/referrals and training lead
5. Greg Cobb – AD SNHSFT Research & Improvement for Clinical Research
6. David Shire, SNHSFT Director Estates and Facilities and Director Simply Serve Ltd
7. Lisa Vipond Cornwall Royal Hospitals NHS FT
8. David Gibbs – Cornwall NHS options for pathology network/specialise
9. *Nick Peres Torbay NHSFT leads Torbay's Digital Futures lab – awaiting response*
10. *Adrian South Deputy Director of Paramedic Practice SW Ambulance - awaiting response*
11. Neil Lentern, Director of Paramedic Practice SW Ambulance Service
12. Rob Johnstone, DAAT – connected through Stephen Wiltshire, MD, Exeter/Devon Airport
13. Charlie Field, Strategic Estates Manager Somerset Council
14. Rob Gloyns FTZ Theme Lead
15. Carla Toomer – FTZ Solent Sustainable Logistics
16. Hazel Dempsey NHS Scotland Lead for Drones
17. Karen Bell, NHS Scotland Lead for Drones
18. Graham Brown, Chair ARPAS-UK
19. Sunil Budhdeo Coventry City Council
20. Clive Lewis – Reviewed Regional Use Case Study
21. Paul Crawford, Chief Executive Live West (Housing Association)
22. Russell Baldwinson, Executive Director of Development and Investment Live West)
23. Glynnis Poole, Director of Investment & Sustainability Live West
24. *Dartmoor Rescue Group secreary@dartmoor-rescue.org...awaiting response*
25. Frederic Laugere - Innovation Lead CAA
26. Djamila Ouelhadj - University of Portsmouth
27. Andrew Bullock - University of Portsmouth
28. Mark Bolton Principal Yeovil College
29. Alex Clancy Assistant Principal Yeovil College

30. Laura Megson, Lead for YPO 50 Drone Procurement Framework
31. Keith Thomas, Consultant RICS Adviser/ Chair of the RICS Qualifications Committee
32. Colin Busby, Managing Partner, National Real Estate Business with Ryden

We also held a number of informal discussions at the FFIZ Workshop held at iAero on the 22nd November and it was evident from these that consultees welcomed the engagement in the FFIZ programme and have shown considerable interest in the potential applications associated with UAV/drones in the Somerset/Devon area and in progressing with some specific projects.

A note on other possible public sector consultees not contacted is included in Appendix 2.

6 Emerging Issues and Questions

Prior to setting out our recommendations we have summarised some of the key issues and questions arising from our research:

- **Sharing Health Care Trials Evidence from Benchmarks:** There is a growing body of knowledge, experience and evidence around the use of drones for health care applications, especially from CAELUS, Solent and Cornwall. Trials involving drones have been developed and operated over long distances (30-40miles) between hospitals in rural/coastal settings and use cases have already concluded feasibility and value for medical related purposes, especially for pathology services and chemotherapy drugs. These trials and use case have a high level of relevance to the Somerset and Devon economic and community geography and the location of its acute and community hospitals and ambulance and rescue/emergency services. In one instance (Solent) there is a willingness to share the University of Portsmouth's cost and carbon capture model to apply to potential routes in Somerset and Devon. Whilst this would not capture the value associated with health care benefits, or address issues associated with CAA approvals, it could help narrow down, from a modelling perspective, the routes where most cost and carbon benefit could be secured.
- **Drones and Real Estate/Energy Surveys:** There is extensive ad hoc use of drones for inspection / survey purposes in the real estate and energy industries, but less evidence around how a strategic approach could be applied by the NHS, housing associations and local authorities so they can secure the significant cost and carbon benefits on offer. From the user consultations undertaken there is a recognition that there could be a more strategic approach to this that enabled bigger cost/carbon benefits to be achieved. Preliminary discussions with operators and assessments and case studies published by CPC and ARPAS in Renfrewshire, Exeter and Yorkshire also confirms that significant benefits have been achieved. This suggests a FFIZ action area could be developed around this area of work which also has the advantage of relying more on a (less demanding) VLOS approach to CAA regulation and approvals.
- **FFIZ and a Vibrant Ecosystem:** as set out earlier, the FFIZ area has a number of significant assets that could be harnessed to develop a vibrant UAS/Drone Ecosystem in the SW: it has a strong and diverse company base; a network of airports and heliports; a large number of public good end users that could benefit from the adoption and use of drones; a significant existing group of research, innovation and skills organisations already engaged in this area; and a level of national engagement between FFIZ and the CAA, DfT, CPC, NATS and industry bodies. It is also evident that for end users there is a growing interest and appetite to explore how any cost and carbon

benefits can be secured. Further consideration is required as to how the innovation assets can be linked to FFIZ to set a path toward the growth of a vibrant ecosystem.

- **FFIZ and Cornwall:** FFIZ is currently focussed on Somerset and Devon. A question for the future is whether an integrated and wider geography should be considered. This could be either as a close partnership of two programmes, or in the future operating as a single programme FFIZ.
- **National Benchmark Partnerships:** Developing (formal) partnerships with say one or two of the aforementioned UAV/drone partnerships would help secure more detailed information exchange and potentially enhance a SW cluster proposition and future funding. There would appear to be less relevance, at least in the short term, associated with partnerships being undertaken in metropolitan areas

FFIZ: Reflections and Potential areas of Focus

From our research, consultations and analysis we summarise the following issues and possible action themes:

- 1) **Public sector and UoV/Drone understanding and procurement:** There is a general lack of understanding among end users such as local authorities and the NHS as to what is possible by using and adopting UoVs/drone technology, what specific software technologies it can deploy and what scalable benefits it might bring – whether health, cost, time, system or carbon reduction related. We suspect there is also a lack of understanding about the impact that these approaches might have on business practices and skills, and uncertainty around possible complexities, risk and time required to secure benefits.

The public sector is also generally risk averse, especially in circumstances where resources are scarce and people and system investments are required to progress a new initiative. Innovation and adoption always brings challenges and requires leaders to retain a focus on the bigger goal of achieving the evidenced benefits, while accepting there could be challenges during the process.

Procurement arrangements in the public sector tend to limit co-design and innovation and instead assume the customer knows what is possible and specifies a requirement accordingly which is then put to the market for suppliers to bid on price and quality. This can limit innovation and frustrate especially the smaller companies that dominate the UoV/drone and software market.

- 2) **UoV/Drone design, manufacture and testing:** The opportunities around drone design, manufacture and testing is not an area that we have researched as a part of this study. However, it is clear that the South West aerospace industry has all the capabilities to be a leading UK and international player in the UAV/drone sector.
- 3) **UOV/Drone infrastructure, ownership and revenue:** The FFIZ area has an extensive network of airport airstrips, heliports, landing sites – and owners and operators that appear to want to support the development of UoVs and drones. We suspect their interest however will need to translate into how this represents a new income stream and how drones can safely operate without unduly constraining other flight and revenue sources. From the benchmarking work, it may be useful to follow up with the AGS Airports Group (the lead for the CAELUS project) to understand what their assessment is of the commercial opportunities and issues. This maybe a relevant consideration for the Rigby Group who own Exeter Airport.

- 4) **UOV/Drone operations for medical/emergency services uses** : Drawing on the experience of various UK trials a number of drone operators have built up experience of operating NHS health logistics, including arrangements for obtaining CAA approval for testing flights and feasibility work with end users. The knowledge and experience of these drone operators should be considered in any FFIZ trials or deployments.

Our research has revealed that DAAT has already undertaken some preliminary research around the use of drones for the air ambulance service (specifically defibrillators) but has paused this work given the investment required to pursue the project. There was an interest in exploring this further with FFIZ partners.

- 5) **UOV/Drone operations for cost, carbon reduction/energy saving and real estate uses:** We have established that there is an appetite among public sector users to explore drone applications for surveying the condition and energy efficiency of real estate managed by local authorities, NHS and housing associations. Each has a very large portfolio of real estate assets and could be a major partner / customer for suppliers of integrated drone services. Our research has also revealed that there are a few significant case studies showing the significant cost and carbon benefits of using drones for these purposes (eg Renfrewshire, Yorkshire and Exeter) and further more detailed research on these would be beneficial. Among some drone operators and software companies consulted there is also a keen appetite to work with end user organisations but also a concern about how these organisations might engage with an approach that is novel and large scale. An exploratory pre-procurement research partnership programme might be a way of addressing this challenge.
- 6) **UOV/Drone skills:** Some FE colleges (notably Yeovil and Exeter) and some private training providers are already focused on providing skills for the manufacture, testing and operation of drones. However, the range of associated skills requirements is broad and some assessment of the scale and opportunities to run courses could be undertaken, especially those relating to software applications such as geospatial geothermal 3D mapping, photometry, drone surveying, regulatory approvals and asset management using drone and software applications.

7 Recommendations

Based on this scoping study EiBC would suggest that FFIZ consider actions around six possible areas. These are as follows:

1. **Drone Operations for NHS Health Logistics involving *diagnostics and treatment logistics*.** This action area could re-engage and widen discussions with senior leaders in SNHSFT and also the Torbay and Royal Devon NHSFTs. There is also an opportunity to further engage with Solent/University of Portsmouth around their cost and carbon prediction model alongside some discussion with clinical leaders in FFIZ trust areas. The outcome of modelling work in the FFIZ area could enable the potential high performing (cost and carbon) routes to be identified alongside those that demonstrated most health care user benefits. Drone trials might then be progressed with selected partners and supported by some FFIZ funding.
2. **Drone Operations for asset maintenance & carbon reduction for NHS, local authorities and housing associations.** This could represent a major area of research

and innovation with high levels of impact. Separately EiBC has set out a number of possible steps to progress an initiative in this area involving perhaps one local authority in the first instance, a NHSFT estate partner and one or two housing association/local authority housing partners.

3. **Operations for air ambulance/rescue services.** There is an opportunity to explore the development of a trial involving the deployment of defibrillators with the DAAT. This could involve a first phase that reviews the background of DAATs previous research, designing and working up a pilot concept and then testing the concept with the CAA. A second phase could involve developing and trialing a pilot and potentially a third phase evaluating the trails and holding a FFIZ and national event on the trial.
4. **Design, manufacture & testing.** This action area sits outside EiBC's scope, but it is evident that there are a range of companies, as well as universities and colleges interested in pursuing initiatives in this area
5. **Skills:** The workforce and skills required to support a drone cluster that has a focus on design, testing, operations and data analysis represents a significant but niche skills requirement and opportunity. To progress this, a careful assessment of needs and demand will be required together with the segmentation of the local, regional and even national market. This will likely throw up areas of opportunity for a range of programmes from very short eLearning introductory courses, to more advanced short CPD, degree and post graduate courses to those courses for school leavers and younger students. Crucially to help make courses viable and sustainable FFIZ education partners need to consider the national market which they could be in a good position to exploit through the FFIZ innovation ecosystem and access to partner expert speakers, industry tutors and its innovation and infrastructure assets.
6. **Support for users / customers to understand how new drone ventures can be operationalized.** Generally our research has revealed that there is a case for FFIZ to consider how users in particular can gain a better understanding around the potential uses and benefits of drones. There is a need to dispel some of the myths around potential risks, complexity and demands on time. Customers need to be shown that it can be a easy, straightforward process which has significant cost benefits, and that others in similar roles to themselves are already using and benefiting from the technology. It could be that with many of the current projects and events around the drone industry itself FFIZ could focus more its user, cost and carbon benefits and FFIZ might wish to consider a series of events and targeted workshops to change this. This would also help drone operators to get a better understanding of what drives decision-makers in different types of customer organisations. For example, more willingness to buy if a good level of on-going customer support is provided rather than the capabilities of the technology itself (though this is important). Also an ability to understand customer needs and frame the technical capabilities of the technology to these. Customers may only need to know about a tiny part of the technology's capabilities that is highly relevant to them.

Appendices

Appendix 1 Policy and Funding Support Note (Draft)

Funding Support (Innovate UK) Future flight challenge (2019-2024)

Building the aviation ecosystem needed to speed up the introduction of electric sub-regional aircraft, advanced air mobility vehicles and drones into the UK. It has worked with industry, academia, government and regulators to transform how we connect people, deliver goods and provide services.

Budget: £125 million

Duration: Single challenge running from 2019 to 2024, with two funding phases.

Partners involved: Innovate UK (lead) and Economic and Social Research Council

UK Future of Flight Action Plan (March 2024)

This document presents a plan for the development and industrialisation of emerging aviation technologies and their integration into the existing civil aviation system, where they can provide material economic, environmental and social benefits and refers to all Uncrewed Aircraft Systems (UAS)/ drones used for commercial purposes, and all electric, Vertical Take-Off and Landing vehicles (eVTOLs).

Industry and government collaboration on creating and delivering a Future of Flight Plan to maximise the benefits of Future of Flight technologies while ensuring their emergence is safe. The Future of Flight Industry Group (FFIG) brings together government, industry and other key stakeholders to collaborate on the development and delivery of a Future of Flight Plan that will accelerate the growth of Future of Flight safely and securely in the UK.

The plan sets out the actions that industry, government and other stakeholders need to take to maximise the benefits of Future of Flight technologies, for the economy and for communities. It also considers how to continue implementing the high UK standard on aviation safety in an appropriate way for these new aviation technologies and their appropriate integration with other transport modes.

Setting out a roadmap for drones and novel electric aircraft in the UK, the plan details how technology could transform our skies, with studies estimating drone technology could boost the UK economy by £45bn by the end of the decade.

The roadmap details plans for the first piloted flying taxi flight by 2026 and regular services by 2028, regular drone deliveries across the skies by 2027 and demos of autonomous flying taxis without pilots on board by 2030 – transforming how people and goods are transported.

Greener, quieter flying taxis are already undergoing the Civil Aviation Authority (CAA) authorization process and have been made possible thanks to rapid advances in battery technology, meaning they are light enough to stay in the air and powerful enough to cover the distances needed.

Some of the other actions set out in the plan include:

- Allowing drones to fly beyond visual line of sight (BVLOS) so that the sector can grow without limiting the skies for other aircraft.
- Breathing life into smaller aerodromes by setting out how they can operate as vertiports for electric aircraft that take off vertically.
- Developing standards to improve security for drones to boost public safety.
- Engaging communities and local authorities so that they can enjoy the economic and social benefits of these technologies.

First imagined in the [Flightpath to the Future](#) in 2022, this joint plan between industry and government sets out the strategic direction of the sector over the next five years, striking a balance between innovation, security, safety and cutting emissions.

The benefits of this new technology are already being seen in the UK. West Midlands Police, for example, use drones to tackle violent crime and antisocial behavior. In July 2023, a drone team was deployed, successfully identifying two offenders and another suspect at a speed and distance that would have taken ground officers hours to track down.

Drones are also helping frontline NHS staff save lives. For six months between October 2022 and March 2023, the UK drone service provider Skyfarer partnered with University Hospitals Coventry and Warwickshire NHSTrust and Medical Logistics UK to test drones to deliver surgical implants and pathology samples between sites. In one case, drones reliably helped cut delivery times of surgical implants between Coventry and Rugby hospitals from up to an hour to just 18 minutes – a 70% decrease.

The Future of Flight action plan contains measures to make drone applications and assessments easier by creating new and simple digital platforms that operators can use – ensuring companies and public services are no longer shackled by red tape and get drones up and flying quicker.

It will also enable the development of vertiports – mini-airports for drones and electric aircraft that take off vertically – by developing certification standards and reviewing the use of existing infrastructure to deliver at speed, boost safety and security and put the passenger first. Industry partners will also undertake multiple industry-leading trials to explore new ways to operate drones beyond the visual line of sight and demonstrate electric aircraft – keeping accidents to a minimum and making the most of technological advances. This could include finding and repairing faults quicker on our railways with fewer delays and cancellations for train passengers, providing new connections across the UK and using technology to help our emergency services.

Chairs

- Parliamentary Under Secretary of State
- Duncan Walker, Chief Executive Officer, Skyports

Members

- Andy Sage, Director, Safety Transformation, National Air Traffic Services (NATS)
- Christopher Bradshaw, Chief Executive Officer, Bristow Group
- Gary Elliott, Chief Executive Officer, Aerospace Technology Institute (ATI)
- Gary Cutts, Future Flight Challenge Director, UK Research and Innovation (UKRI)
- Graham Brown, Chief Executive Officer, Association for Remotely Piloted Aircraft Systems (ARPAS)

- Professor Iain Gray, Chair, Drone Industry Action Group (DIAG) and Director of Aerospace, UK Aerospace Research Consortium
- Joe Ben Bevirt, Chief Executive Officer, Joby Aviation
- Kamal Panchal, Senior Adviser, Transport Policy, Local Government Association (LGA)
- Kate Jennings, Policy Director, Logistics UK
- Kevin Craven, Chief Executive Officer, ADS Group
- Marc Bailey, Chair, General Aviation for Business (GA4Biz)
- Andrew Chadwick, Ecosystem Director – Air Mobility and Airports, Connected Places Catapult (CPC)
- Richard Parker, Chief Executive Officer, Altitude Angel
- Stephen Fitzpatrick, Chief Executive Officer, Vertical Aerospace
- Basil O’Fee, Head of Secretariat, Regional Airports Business Association (RABA)
- Rob Bishton, Chief Executive Officer, Civil Aviation Authority (CAA)

The FFIG has the remit to establish working groups to address specific areas in relation to the Future of Flight Plan.

New Funding Support (2024)

The UK Government’s Future Flight Challenge aims to revolutionise the way we travel and find new, greener ways to fly. A group of leading British aviation, technology and transport companies has come together to form a consortium to answer the challenge and explore the future of mobility.

AtkinsRéalis, Vertical Aerospace, Virgin Atlantic, Skyports and NATS, along with Connected Places Catapult and AtkinsRéalis, leading academic institutions Cranfield University and WMG, University of Warwick, Together, the firms will develop the necessary technology and infrastructure in a project that will significantly accelerate the introduction of Advanced Air Mobility (AAM) in the UK. The Consortium has been awarded a £9.5 million grant by the [UK Government’s Future Flight Challenge](#) to develop essential building blocks of a viable ecosystem that has the potential to be progressed into full commercial AAM operations. This first-of-a-kind ecosystem will accelerate the introduction of AAM in the UK by creating and testing technological developments in aircraft electrification, airspace management, operational procedures and the systems and supporting business cases needed to introduce a new model of aerial passenger transport in the UK.

The Civil Aviation Authority are inviting organisations to join its Regulatory Sandbox to trial systems to enable the integration of Unmanned Aerial Systems (UAS) into unsegregated airspace utilising the policy concept for temporary reserved areas (TRA). Our intention is that the integrated Concepts of Operation (ConOps) be trialled by appropriate industry stakeholders to support the ongoing development of CAA policy and understanding for UAS flights integrated with other airspace users. The call is open to individual organisations or consortia working on the development of UA systems (UAS) operating beyond visual line of sight (BVLOS)

FFIZ SW

The South West aerospace sector secured £236,000 of funding to create a Future Flight Innovation Zone (FFIZ) in Somerset and Devon.

The FFIZ will help to create a safe and environmentally friendly future for aviation and it will form part of a Future Aviation Test and Innovation Zone that is focussed around two key sites; iAero in Yeovil and Exeter Airport.

The Future Flight Innovation Zone is a unique eco-system that brings together key stakeholders from Industry, academia, skills providers, Local Authorities, business support organisations and institutions that include the Met Office and the Connected Places Catapult. The Connected Places Catapult aims to drive innovation and create solutions for more efficient, sustainable, and connected environments.

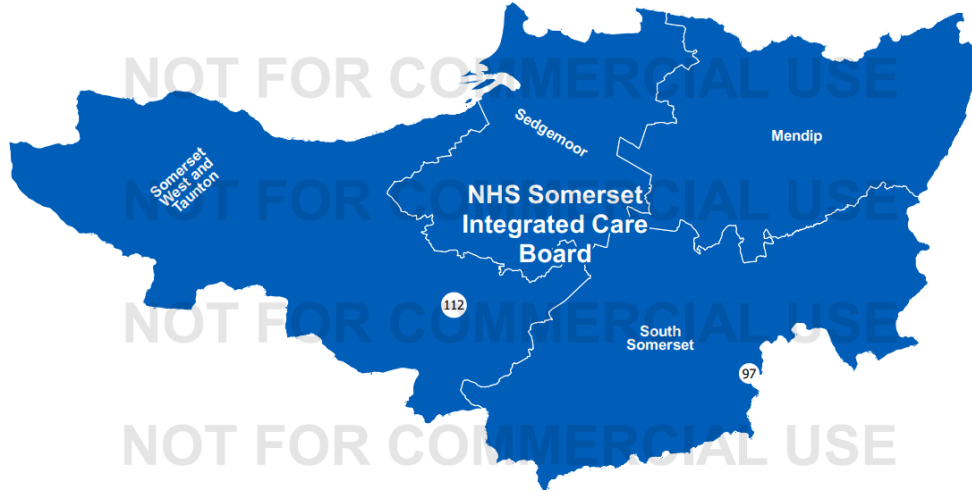
Everyone involved shares the same vision and ambition to accelerate the decarbonisation of flight and will be able to provide professional advice and assistance to technology companies operating in this sector.

The funding that has been won will deliver:

- A **dedicated Sand Box with the Civil Aviation Authority (CAA)** which will allow up to 4 companies to seek support from the CAA Innovation Team to work through what they will need to do to enable certification for the testing and demonstration of their product
- Specific **CAA Innovation Advisor time** to work with FFIZ to help further develop its activities
- Funding for **Future Flight Testing infrastructure to enable testing and demonstration**

Appendix 2

Notes on NHS Trusts, LAs and Other Consultees



NHS Devon Integrated Care Board



2022 - <https://www.gbmaps.com>

NHS Hospital Trusts

No.	Trust Name
27	UNIVERSITY HOSPITALS PLYMOUTH
43	DEVON PARTNERSHIP
91	ROYAL DEVON UNIVERSITY HEALTHCARE
111	TORBAY AND SOUTH DEVON
118	NORTHERN DEVON HEALTHCARE
169	SOUTH WESTERN AMBULANCE SERVICE

Local Authority District Information

Local Authority	Parish	Ward	Population
Torbay	NULL	Shiphay Ward	136218
North Devon	Brendon and Countisbury CP	Lynton & Lynmouth Ward	98170
South Hams	Bigbury CP	Charterlands Ward	87946
Teignbridge	Buckland in the Moor CP	Ashburton & Buckfastleigh Ward	135039
Torridge	West Putford CP	Monkleigh & Putford Ward	68719
Exeter	NULL	St. Thomas Ward	133333
Mid Devon	Wembworthy CP	Taw Ward	83290
West Devon	Beaworthy CP	Bridestowe Ward	56139
East Devon	Upton Pyne CP	Exe Valley Ward	148080
Plymouth	NULL	Devonport Ward	262839

Local Authorities

1. Devon County Council
2. East Devon Council
3. East Devon District Council
4. Exeter City Council.
5. Mid Devon District Council.
6. North Devon District Council.
7. Somerset Council
8. South Hams District Council.
9. Teignbridge District Council.
10. Torridge District Council
11. West Devon Borough Council

Other NHS Contacts

1. Andy Heron, Head of Lab Services, SNHSFT
2. Monika Nott – Supply Chain Mgt and Procurement SNHSFT
3. Ian Thomas South West Organ Donation Services Team Regional Clinical Lead:
4. Richard Harper, SNHSFT Sustainability Lead
5. Dr Lise Estcourt Medical Director NHS Blood and Transplant and National Blood Transfusion Committee Consultant Haematologists

Pharmacies

1. Community Pharmacy Devon - Chair: Rachel Fergie (AIMp)
2. NHS Pharmacy Departments (Devon and Somerset)

Ambulance and Rescue Services

3. Royal Life Saving Society UK (RLSS UK) with the RNLI

Research Organisations, Universities, Colleges in the SW

1. University of Bristol
2. University of Bournemouth, Dr Angela Smith
3. University of Southampton Dr Andy Oakey
4. Cranfield University Professor Saba Al-Rubaye, Chair in Telecommunications and Autonomous Systems in the School of Aerospace, Transport, and Manufacturing
5. University of Exeter, ESI Drone Lab Dr Karen Anderson and Swarm Intelligence Based Drone Flocking Model. Dong, S; Das, S; Townley
6. University of Bath Unmanned Aerial Systems (UAS) Team
7. University of West of England
8. Exeter College Drone Operations

Connected Places Catapult and UKRI

1. Gary Cutts UK Research and Innovation Challenge Director – Future Flight, UKRI

Businesses

2. A preliminary list has been assembled and can be added to later