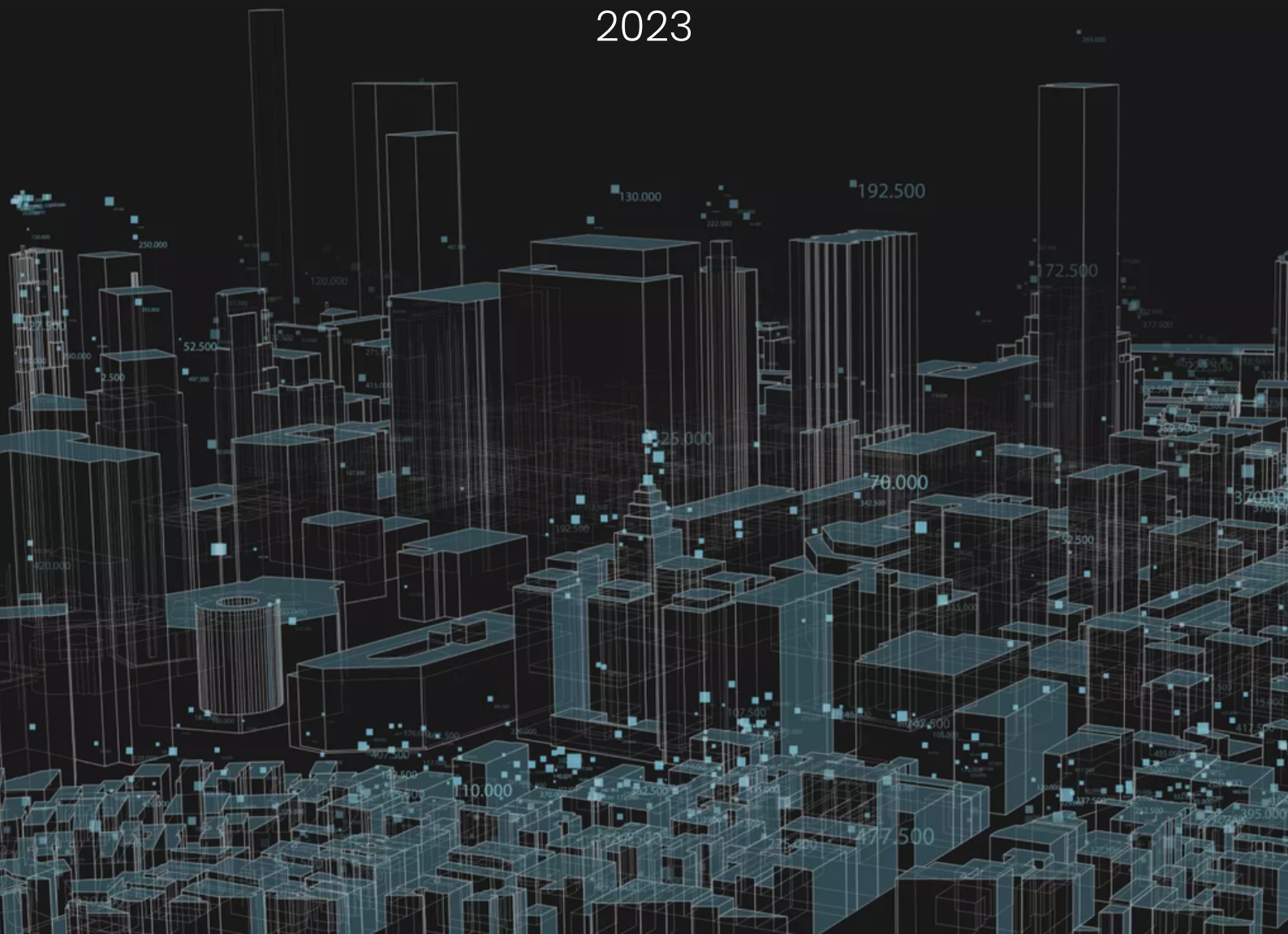


COPTRZ™

THE FUTURE OF FLIGHT

DRONE ANNUAL REPORT
2023



Transforming Tomorrow

Drones are revolutionising our world with incredible speed and precision. From delivering packages to fixing potholes, they're changing the way we work, boosting safety and efficiency. With expanding capabilities, drones are set to autonomously handle complex tasks like crop spraying and emergency response, opening up endless opportunities.

Discover how drones are redefining autonomy, boosting productivity, and creating exciting new possibilities. In this report, explore the latest predictions and data-driven trends shaping the future of drones.

By 2030, there could be:



£45BN

Drone contribution to the UK economy



900,000

Drones operating in UK skies



£22BN

Net cost savings



2.4M

tons of carbon emissions reduced



650,000

jobs associated with drones

Source: PwC Skies without Limits 2.0

Future Concerns

In 2023, a survey by Drone Industry Insights revealed the primary concerns with future developments in the drone industry.



Regulatory Updates



Public Awareness & Acceptance



Impact of Inflation

SURVEY QUESTION: Which of these do you consider the biggest challenge for the industry

Regulatory Obstacles

12.8%

Public Awareness/ Acceptance

11.3%

Inflation & Economic Cycles

10.9%

© Drone Industry Insights

Regulatory Updates



The UK Civil Aviation Authority's **Airspace Modernisation Strategy** aims to integrate drones operating Beyond Visual Line of Sight (BVLOS) into UK airspace by 2040.

6 sandbox projects were chosen for trials in reserved airspace to test BVLOS flight. These trials will be crucial in shaping future regulations for safely integrating drones into shared airspace.



Our innovation sandboxes play a pivotal role in our ongoing mission to develop efficient, forward-thinking regulations that will allow different types of aircraft to use the same airspace.

-Sophie O'Sullivan, Head of Future Safety and Innovation

The 6 Sandbox Trials



Apian – London Health Bridge

Trial of drone delivery service for pathology samples between London hospitals, aimed at improving patient care and efficiency.



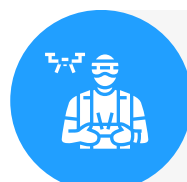
Cranfield Airport and Project BLUEPRINT

Project to enable safe flight of crewed and uncrewed aircraft near Cranfield Airport, integrating new detection and plane co-ordinate grid systems.



Droneprep – Open Skies Cornwall

Initiative to establish a drone operational environment in Cornwall, enhancing healthcare and emergency response services.



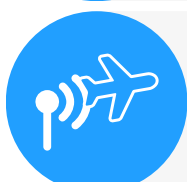
HexCam

Testing long-distance drone surveys for renewable energy projects, focusing on improving safety and reducing environmental impact.



Skyports – Project TRAject

Developing and testing a system for safe BVLOS drone delivery operations, initially for NHS in Scotland.



Snowdonia Aerospace Centre – Project Dragons Eye

Trials to implement Temporary Reserved Area policy for safe drone operation in shared airspace.

Public Awareness & Acceptance



To ease concerns about drone use, especially regarding privacy and security, clear rules are being set during these BVLOS trials. Key measures include privacy laws, drone operator certifications, and responsible flying. The UK's Procurement Act 2023, passed on October 31st, mandates competitive bidding for public sector technology purchases, including drones, enhancing transparency and security.



Drones for Good

Drones are increasingly being used for beneficial purposes. These applications are poised to play a significant role in our development and safety, contributing to a shift in societal acceptance.

Here are some examples:

- 1. Search and Rescue** Drones equipped with thermal cameras can locate missing persons in challenging terrains, like dense forests or mountains, much faster than traditional methods.
- 2. Medical Deliveries:** In remote or dangerous areas, drones can deliver critical medical supplies, such as vaccines, blood, or medication, quickly and efficiently.
- 3. Firefighting:** Drones provide real-time data to firefighters, helping them understand the spread of wildfires and plan effective containment strategies.



Public Safety



In 2023, the public safety drone market was valued at approximately £902 million. By 2030, it is projected to nearly double, reaching about £2.13 billion.

1

Short Term (2024–2026)

An anticipated rise of drones used in security.

2

Medium Term (2025–2029)

Climate change and rising temperatures ($\wedge 1.5^{\circ}\text{C}$ by 2030) are expected to increase drone use in flood prevention and disaster relief by the early 2030s.

3

Long Term (2029–2033)

Automated emergency drones in healthcare, operating without human intervention, are expected to greatly boost market growth.



Ambulance Drones:

Drones with lifesaving equipment could significantly speed up medical responses in congested or remote areas. A 2014 prototype reached speeds of 100 km/h with a defibrillator, showing promise for cardiac arrest response. In 2023, healthcare systems are exploring their potential to deliver medicine despite BVLOS restrictions. These drones could transform emergency services if regulations evolve, improving survival rates.



The ambulance drone can get a defibrillator to a patient within a 12km square zone in a minute, increasing the chance of survival from 8% to 80%”

Alec Momont, from the Technical University of Delft, creator of the defibrillator-equipped drone.





Self- Repairing Cities

TfL's Innovative Road Repair

Transport for London (TfL) has launched a multi-million-pound initiative focused on using technology for road repairs, including pothole management.

Autonomous Pothole Repair Drone

At The University of Leeds, students have developed an autonomous drone designed for 3D printing asphalt to repair potholes. It uses advanced GPS and sensor systems for precise identification and fixing of road faults.

£4.2 Million Research Effort

This pothole-repairing drone is part of a larger £4.2 million national research effort to create self-repairing cities with three goals in mind.

Three Key Goals:

- 1** Drones that repair structures
- 2** Robotics for maintenance in utility pipes
- 3** Drones equipped for road repairs



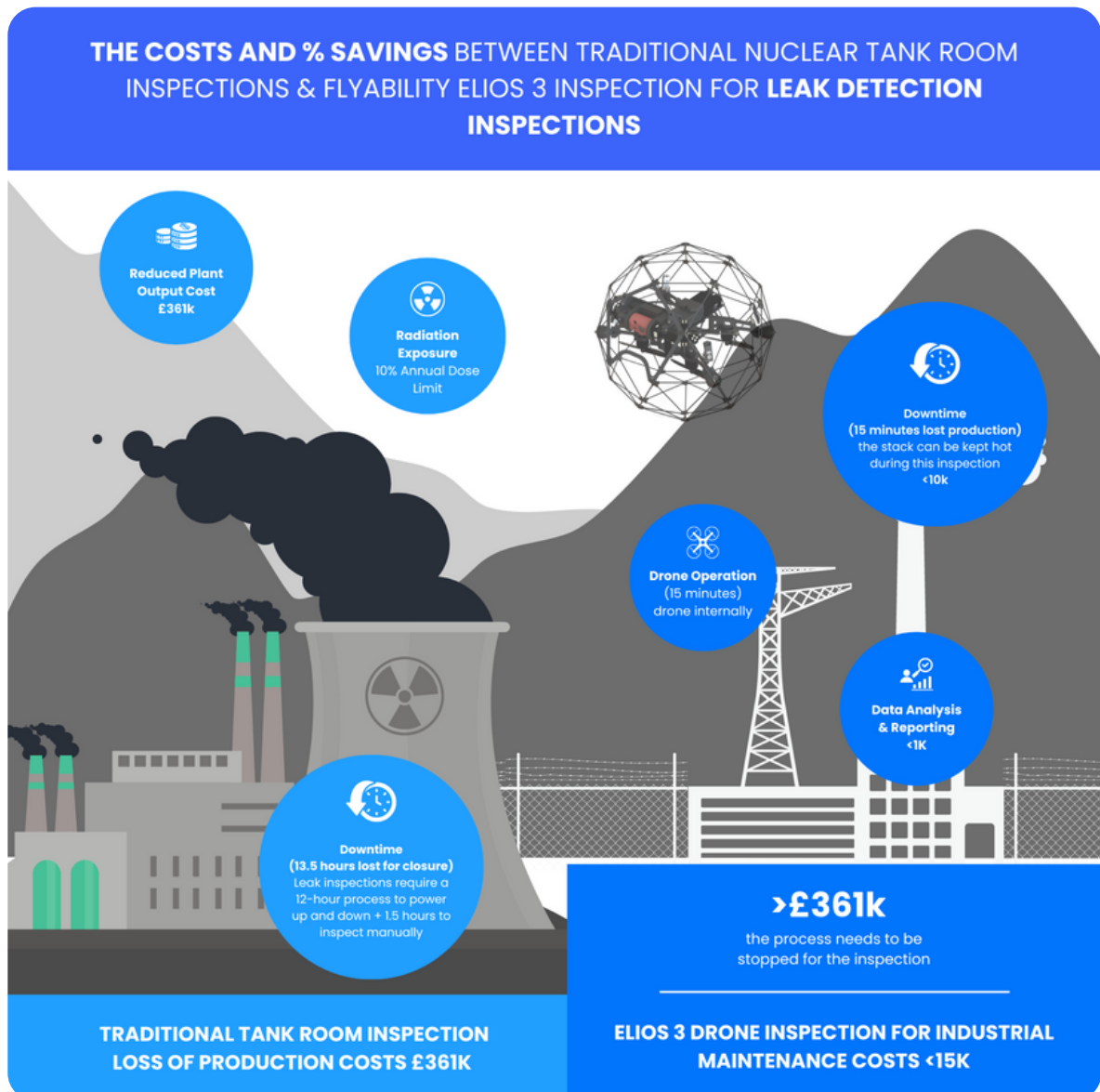
Inflation Impact



Drones have been proven to reduce labor costs, improving delivery efficiency, and providing faster, more reliable services. With the legalisation of BVLOS operations, delivery drones will change how goods and services are transported, reducing logistics costs and providing consumers with faster and more reliable delivery.

Replacing manual inspection with remotely piloted drones reduces inspection costs by 70%”

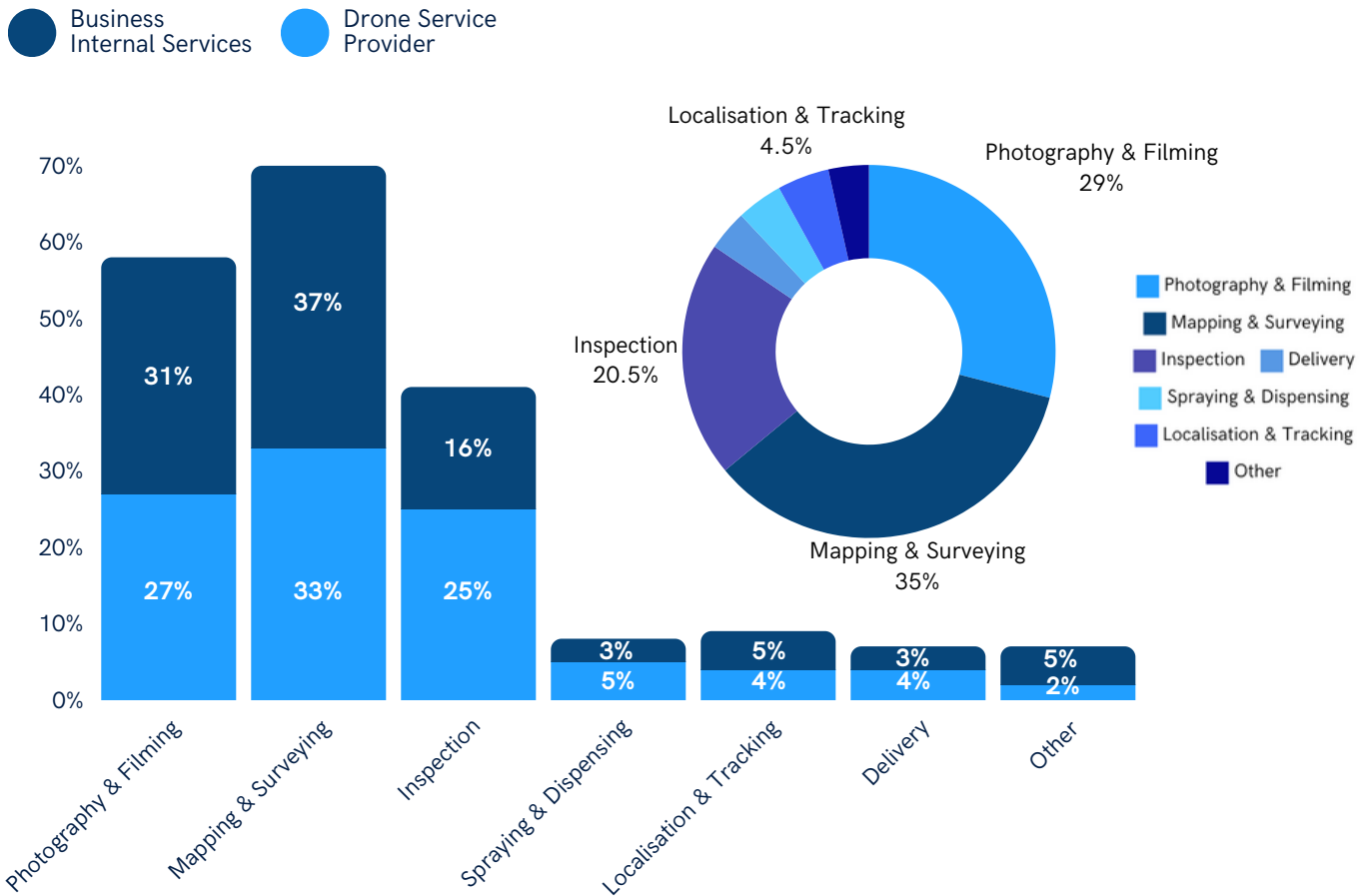
(Christopher Kabbabe Poleo, 2021)



Drone Predictions

Continued drone industry investment indicates expected growth, especially with evolving regulations making BVLOS operations a near possibility. The drone industry is expanding into new sectors. The Drone Industry Insights report compiled the most popular drone applications of 2023.

Figure 1



In 2023, **Mapping & Surveying** has surpassed **Photography & Filming** in popularity, indicating that drones are valued for more than just aerial images. This shift marks the beginning of a broader evolution in how drones are perceived

and utilised across industries. Although regulations currently limit use cases like **Localisation, Delivery, and Spraying**, these applications hold significant untapped growth potential as regulatory frameworks like BVLOS evolve.



Top 5 Predictions



1

Market Growth

The drone market is anticipated to grow to approximately £44.77 billion by 2030, with a *Compound Average Growth Rate (CAGR)* of 7.1% according to Drone Industry Insights (DII).

2

Commercial vs Recreational Growth

DII predicts faster growth (7.7% CAGR) for the commercial drone market compared to a static or slightly declining recreational market (-0.3% CAGR).

3

Drone Delivery Prospects

Drone deliveries are projected to grow at 13.9% globally. Key sectors like healthcare, logistics, cargo, and warehousing are expected to grow even faster at 15.7%.

4

Energy Industry

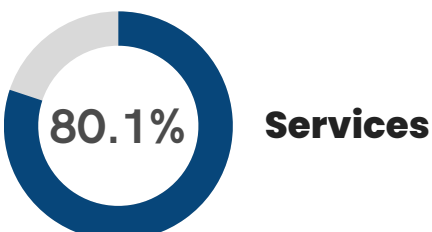
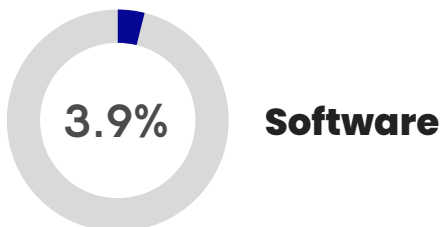
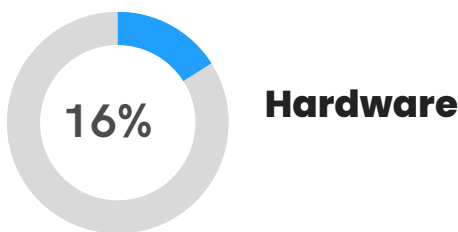
The energy sector's drone market is set to grow from £3.82 billion to £6.09 billion by 2030.

5

Drone Services Market

Drone services, like mapping and surveying are expected to maintain the lead, and hardware is forecasted to grow faster at 9.3% CAGR.

Market Share By Segment In 2023



Drone Delivery: DJI FlyCart 30

The DJI FlyCart 30 is a new drone designed for delivery and logistics. It has a safety parachute system, can carry heavy loads over long distances, and offers two delivery modes: a cargo box mode and a winch crane system with a 20-meter cable for hard-to-reach locations, such as moving ships.

Job Creation



In 2024, drones are reshaping industries and paving the way for new career opportunities. Here are some new careers expected to see growth:

1

Agriculture

Rising popularity in multispectral and spraying drones paves way for new jobs in drone operation and agricultural data analysis.

2

Privacy and Security Concerns

The growth of drones and BVLOS will raise demand for security and privacy professionals to tackle challenges from widespread drone use.

3

Regulation and Management

As drone use grows, regulatory bodies may need more personnel to oversee laws. Demand for logistics planners in drone delivery may also rise.

4

Mapping and Surveying

Construction and mapping will continue to dominate due to faster, safer, and more accurate surveys.

Flyability's Nuclear Plant Inspection

Flyability's collision-tolerant Elios UAV was used at a major nuclear power plant in this case study that shows the brilliance of drones in difficult to access spaces of a nuclear reactor building.



1.5 hrs to just 15 minutes

Inspection of tank rooms



£3,060 saved

Loss of income saved in one use



10% radiation avoided

Of the annual radiation dose



Drone Surveys



Increased Efficiency

A site survey can be up to 400 times quicker (PwC 2022)



Lower Costs

Cost savings of circa 40% (PwC 2022)



Survey Grade Accuracy

Create 2D and 3D models of cm accurate assets with the ability to achieve horizontal 5cm @ 150m and vertical 4 cm @ 150m.

Falling Behind



The report by GSMA Intelligence and BT Group (2023) shows the UK is behind countries like Japan and Switzerland in drone innovation and readiness. To keep up, the report suggests government and regulatory changes to boost the drone economy. These suggestions include:



Clarifying and updating Beyond Visual Line of Sight (BVLOS) drone policies



Fostering a pro-innovation regulatory environment



Extending the Future Flight Challenge



Setting clear regulations within the next 12 months to remain competitive

Project Skyway – BT & Altitude Angels' £5M Project



On 3 January 2023, BT Group and Altitude Angel announced a £5 million deal as part of the UK's Future Flight programme, aimed at developing the UK's drone superhighway.



The project will create a 165-mile drone corridor over major cities including Reading, Oxford, Milton Keynes, Cambridge, Coventry, and Rugby.



The focus is to test technology to conduct safe, long-distance drone flights without pilots.

The Future Flight Challenge



What is it?

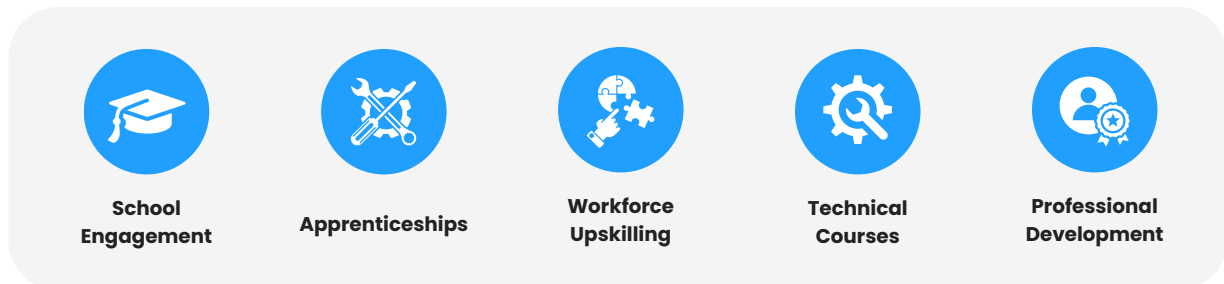
A £300m, three-phase programme aimed at positioning the UK at the forefront of the third aviation revolution. It focuses on integrating innovative air vehicles into practical use.

Role of the Civil Aviation Authority

Their support for FFC-funded projects included regulation expertise, aiding in regulatory readiness through testing, and policy development. The CAA are essential in developing regulatory frameworks for the legal use of these aviation products in UK airspace.

Competition for Funding

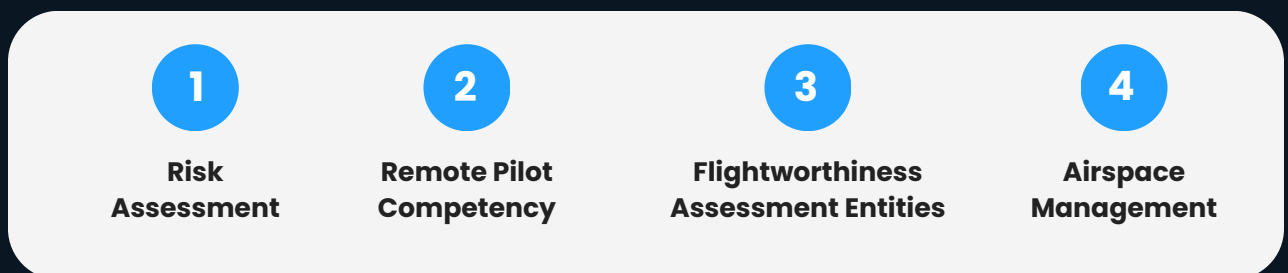
From 21 November 2022 to 1 February 2023, a UK competition offered a share of a £500,000 fund for aviation industry up-skilling, focusing on developing educational content to address skill gaps in the future flight sector. This covered multiple objectives like:



Industry Update from CAA Future of Flight

In September 2023, the CAA announced that authorisations for Beyond Visual Line of Sight (BVLOS) flights with visual mitigations are in place.

They are facilitating this through the DiSCO programme which focuses on 4 main areas:



How To Start Using Drones



In today's fast-paced business world, drones are essential for competitiveness, offering efficiency, cost savings, and advanced data analysis. To stay ahead, follow these steps for workflow transformation.

1 Assess Needs and Opportunities
Start by assessing where drones can bring value to your business, improving efficiency, cutting costs, and addressing industry-specific challenges.

2 Develop a Clear Plan and Budget
Create a detailed plan with objectives, timelines, and budget, covering drone acquisition, training, maintenance, and regulatory compliance. Consult with a professional at Coptrz for tailored guidance.

3 Understand and Comply with Legal Regulations
Research and comply with local and national drone regulations, including permits, airspace restrictions, and privacy laws, to prevent legal complications and fines. Find out more in the drone regulations guide.

4 Train Staff or Hire Experts
Decide whether you'll train existing staff to operate drones or hire specialised personnel. Training should cover not only how to physically operate the drones but also how to analyse the data collected, maintain the equipment, and understand safety protocols.

5 Pilot Program and Iteration
Start in a controlled environment to test the integration of drones into your workflow. Gather feedback, monitor the outcomes, and make necessary adjustments. This iterative approach allows you to refine drone operations before scaling up.

Want a tailored 360° drone solution?

GET STARTED