



End-user Stories of Drones In Action

November 2024





Introduction



“When applied, drones are faster, cheaper, safer and greener than other solutions for the same job. We want businesses, as well as the general public, to understand the immense benefits of drones and understand that there will be positive adoption over the coming years”

-Graham Brown (Chair of ARPAS-UK)

The purpose of this guide is to provide examples that demonstrate the range of benefits and financial savings that can be achieved by the safe adoption of Drones.

In the dynamic landscape of technological advancement, the safe adoption of drone technology stands as a testament to innovation, human ingenuity and its capacity to redefine and improve industrial operations. This report examines a collection of use cases across a spectrum of sectors, each showcasing the transformative impact of drones. From asset and building inspection to the precision agriculture fields to the complex infrastructures of oil and gas platforms, we explore how uncrewed aerial vehicles or drones are not just enhancing operational efficiency but also creating the path towards a safer, more sustainable future.

Innovation with drones reshapes industries, tackling **environmental**, **efficiency**, **cost**, and **safety** issues, paving the sustainable future path.



ARPAS-UK DRONES IN ACTION



Housing Management

£4 Million Cost savings annually*



AT A GLANCE DETAILS

Company: Renfrewshire Council
Location: Renfrewshire, UK
Industry: Housing Management
Activity type: Building inspection, maintenance and repair

HIGHLIGHTS

- Reduction in repair time from years to under 2 months
- Saving £4 Million annually
- Extend lifetime of roof tiles by 2-5 years.
- Zero risk of workers falling from height while inspecting

"Last year alone, this methodology saved the council £4m+ and allowed an entire programme of inspections to be carried out in under 2 months... Renfrewshire Council has embraced drones and plans to use them to inspect the 12,000 properties in their social housing portfolio, potentially generating a saving of £4M per year.

Drone data will be combined with data from other sensors to inform predictive maintenance strategies significantly reducing overall building management costs"



*According to PwC report "Skies without limits v2"

ISSUE

Housing associations managing large property portfolios face challenges in timely repair detection, leading to costly repairs. In the UK, over £6.3 billion is annually spent on repairs and maintenance in social housing.

SOLUTION

Drones offer a cost-effective method for building inspection, negating the need for scaffolding or working at height. They enable quicker, more regular inspections, often detecting issues earlier. Using thermal imaging cameras, drones can target insulation actions. Renfrewshire Council has adopted drone use to inspect its 12,000-property social housing portfolio, potentially saving £4M annually. Previously, they relied on scaffolding and mobile elevated working platforms, which were slower, more expensive, and riskier.

BENEFITS



Time-Saving Inspection Process

The use of drones has condensed the time required for inspecting a large property portfolio from years to merely two months, streamlining the inspection process and allowing for more frequent checks.



Cost Savings

By adopting drones, Renfrewshire Council significantly cut costs, saving over £4 million in one year by eliminating the need for scaffolding and reducing the risks associated with elevated working platforms.



Risk Reduction

Removes the need for workers to work at height which reduces the risk of falling from height to zero



Renfrewshire
Council



University of Exeter's Gutter Cleaning Tender

80% Cost savings versus traditional methods*

ISSUE

Writing tenders to get the cheapest contract is enhanced by having clear data regarding the job. Exeter University understood this when they set out to get their gutters cleaned. With over 300 buildings, estimating the total length of guttering to be cleaned was essential to get a good offer on their cleaning tender. Traditionally, the way to solve this is through inspections via scaffolding and cherry pickers.

SOLUTION

Using a drone to carry out the inspection saved up to 80% on inspection costs. Over 200GB of data in 17,000 separate files were securely delivered to the University on-time and on-budget. This method provided a cost-effective, quicker, and safer way of producing tender information compared to traditional mobile-access platforms and ground-based survey data. Cloud-based outputs were easily shared with different stakeholders, reducing the carbon footprint of visits, and enabled planning for future spending using an evidence-based approach. The new tender offer that the university got was much cheaper even when you factor in the cost of the drone services.

BENEFITS



Cost Savings

Up to 80% Cost Saving versus traditional manual survey costs by removing the expense of prolonged capture time, travel time, and repeated in-person site visits.



Improved Efficiency

The drone inspection only took a few days, with the traditional ground/roof-based inspection taking months for large assets, saving weeks of personnel hours.



Safety and risk avoidance

De-risking Data Capture versus ground or rooftop inspections with ropes, scaffold, and towers, aerial capture tools are "zero-touch.", putting no one at height and at risk.

AT A GLANCE DETAILS

Organisation: University of Exeter

Operator: InView Asset

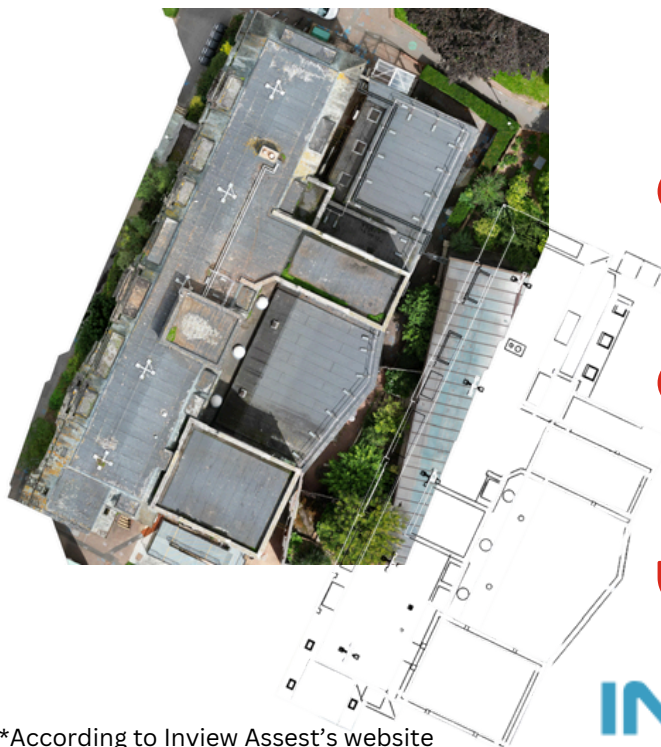
Location: United Kingdom

Industry: Asset Management

Activity Type: Inspection and surveying

HIGHLIGHTS

- 80% cost savings versus traditional methods
- Eliminates risk of falling from height
- Cost savings on new tender versus original tender



*According to Inview Asset's website

INVIEW ASSETS

ARPAS-UK
The UK Drone Association



Special Building Inspections

Saved over 88 days of Inspection work*

AT A GLANCE DETAILS

Organisations: St Luke's Church
Operator: Vantage UAV
Location: United Kingdom
Industry: Construction
Activity Type: Inspection and Surveying

HIGHLIGHTS

- More than 70% cost savings
- Eliminates risk of falling from height
- Months of work completed in days

“By spending less than £10,000 on drone inspections across three sites, we have saved on planned large-scale roof repairs, achieving these results within just 3.5 days of on-site work, with minimal disruption to residents”



ISSUE

Inspecting historical landmarks and churches is challenging due to their complex designs, heights, and fragile materials. Traditional methods like scaffolding or cherry pickers pose safety risks and may damage the buildings, especially in areas with surrounding structures like graveyards and memorials, which limit equipment use. These inspections are costly, with scaffolding consuming a significant portion of the budget, leaving less for repairs. Additionally, the process is time-consuming, often taking weeks or months and causing disruptions. High costs, safety concerns, and limited accessibility complicate maintenance efforts.

SOLUTION

Drone technology offers a cost-effective, safe, and non-intrusive solution for inspecting special buildings. Equipped with high-resolution cameras and thermal imaging, drones capture detailed data often missed by traditional methods. For example, at St Luke's church, a traditional roof inspection suggested a £350,000 replacement, but a drone inspection by Vantage UAV identified just £50,000 of necessary work, saving £300,000 and completing the assessment in 2 days.

BENEFITS

£ Cost Savings

Cost savings by avoiding the high expenses of traditional methods, such as scaffolding, which has shown 85%-70% in cost savings.

✓ Improved Safety

Falls account for nearly 75% of fatalities in the roofing industry¹. Drones eliminate this risk.

🕒 Efficiency

Time savings, completing assessments in just 2 days compared to the 3 to 6 months required by traditional methods, as demonstrated at St Luke's Church, where drone technology saved over 88 days of inspection time.



*According to vantageUAV & CPC



Building Inspection and Maintenance

£4.2 Million Cost savings annually



AT A GLANCE

DETAILS

Company: Yorkshire housing, South Lakes Housing & Nottingham city homes

Location: United Kingdom

Industry: Construction

Activity Type: Inspection and surveying auditing

HIGHLIGHTS

- Drones saved up to 60% on inspection costs
- Completing inspections in hours rather than days
- Improving safety by avoiding dangerous heights.

“under £10K was spent on drone inspections, and early assessment by Yorkshire Housing has predicted a greater than ten-fold return on investment by substituting extensive roof repairs and replacements with well-informed targeted maintenance.” - CPC



ISSUE

Traditional building inspections often involve scaffolding, cherry pickers, or other heavy machinery to access hard-to-reach areas such as roofs and upper surfaces. These methods are expensive, disruptive to residents, and pose safety risks to workers. In the example of South Lakes Housing, responsible for multiple estates, which includes complex structures such as riverside flats and five-story buildings, scaffolding would have been particularly cumbersome, time-consuming, and costly. Additionally, Yorkshire Housing, managing over 18,000 properties and Nottingham City Homes found that repeated inspections using scaffolding were unable to solve persistent issues.

SOLUTION

Drones offer a fast, efficient, and cost-effective solution. Vantage UAV completed full estate inspections at South Lakes Housing in 6 hours, with data processed within 24 hours. Yorkshire Housing also reduced inspection times and costs using drones, while a drone inspection in Nottingham identified roof damage, solving a damp issue in a terraced home.

BENEFITS



Cost Savings

Yorkshire Housing and South Lakes Housing saw up to 60% savings on inspection costs compared to traditional methods, while Nottingham City Homes realised a potential annual saving of **£4.2 million**.



Safety

Drones eliminate the need for workers to operate at dangerous heights, improving safety and reducing the risk of accidents.



Efficiency

Drone inspections dramatically reduced timeframes, with entire estates inspected within a few hours and data processed in less than 24 hours. Traditional inspections would have taken days or weeks.





Decommissioning Nuclear Sites

Removes workers from hazardous environment while saving £5M p.a.

AT A GLANCE DETAILS

Company: Sellafield Nuclear Site
Location: United Kingdom
Industry: Nuclear Management
Activity Type: Mapping

BENEFITS

- Using UAVs over traditional methods help save around **£5 million** per year.
- Over 200 flights conducted, removing the need to put workers at risk.



ISSUE

Taking apart the old nuclear site at Sellafield is tricky because traditional inspection methods pose significant risks to personnel. There was a critical need for a safer and more efficient way to conduct inspections and map areas, especially where there might be lots of harmful radiation, to ensure safety and accuracy without exposing workers to danger.

SOLUTION

Sellafield Ltd has embraced the future of safety and efficiency by deploying cutting-edge drone technology. Engineers plan routes, allowing the drone to zip around obstacles and gather high-resolution images, which are then transformed into precise 3D models. Equipped with radiation sensors, these drones detect hazardous hotspots, ensuring employees are deployed only when necessary, significantly reducing exposure to danger. This innovative approach saves time and money, streamlining inspections that traditionally required extensive preparations and higher costs. Each successful flight not only enhances safety but sets a new standard for efficiency in the industry, showcasing Sellafield's commitment to pioneering advancements in nuclear site management.

BENEFITS



Cost Savings

Using UAVs over traditional methods help save around £5 million per year.

Improved Efficiency



Equipped with advanced sensors, drones provide high-resolution images and precise 3D models. This enables engineers to make informed decisions quickly, improving overall efficiency and setting a new standard for the industry.

Enhanced Safety



Drones navigate hazardous areas, capturing data without putting human lives at risk. This reduces the need for employees to enter dangerous environments, ensuring their safety.

*According to Sellafield representative Via Flyability.com



Train Track Inspection

£1 Million

Network Rail **savings annually***

AT A GLANCE

DETAILS

Company: Network Rail
Operator: Plowman Craven
Location: UK
Industry: Transport
Activity type: Inspection

BENEFITS

- £1 Million savings annually
- +/- 5mm accuracy
- Elimination of 6 week lead time
- Risk reduction with workers off the tracks

ISSUE

Regular inspection of train tracks in the UK is essential to identify potential compromises caused by factors such as vegetation growth and erosion. Traditional inspection methods disrupt services and pose safety risks.

SOLUTION

Plowman Craven provides a drone-based surveying solution that operates 20 meters above tracks with +/- 5mm accuracy, meeting Network Rail's accuracy requirements without interrupting train services or compromising safety.

Plowman Craven says:

"Safety is of paramount importance and is driven by Network Rail's own "boots-off-ballast" approach. The Vogel R3D system virtually eliminates track access, but in doing so also provides a significant reduction in programme time. A typical 6-week lead time for track possession can be avoided, leading to faster project deployment and completion, with the associated reduction in risk and cost."

BENEFITS

Cost Savings

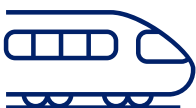
- £ Network rail estimate savings of £1 million annually, from the continued service to reduction in on site staff.

Time Savings

- 🕒 No need to interrupt train service for track inspection.

Safety improvement

- 🛡️ On service lines that cannot afford closures, a team of engineers must walk the tracks alongside live tracks to carry out inspects. Replacing this hazard by removing the human factor is the best way to reduce the risk to life.



*According to PwC report "Skies without limits v2"

Plowman Craven





Electric Grid Tower Inspections

Greener & 35% Cheaper than traditional helicopters used for inspections

AT A GLANCE

DETAILS

Company: National Grid

Operator: Sees.AI

Location: UK

Industry: Electric Grid

Activity type: Asset inspection and Surveying

BENEFITS

- 35% cost reduction in powerline inspections
- Environmentally friendly and improved quality of inspections
- Much safer than traditional methods as personnel are not in the air flying a few meters away from active powerlines.



ISSUE

Grid operators are facing unprecedented pressures from things like the electrification of transportation, electrified heating systems and new demand to compute AI. The national grid looks to put £60 billion into upgrading their network including 50,000km of reconductoring in the UK. All this infrastructure requires inspection and surveying to ensure safety and compliance. Traditional methods of powerline inspection use an £8 million helicopter, with a £2500 flight/hour cost and a crew of 2-3 onboard. The helicopter has to fly close enough to the power lines to collect the relevant data which poses a safety risk and high CO2 emissions. This method requires significant human involvement, which can lead to inefficiencies, higher costs, and increased risk to personnel.

SOLUTION

Sees.ai has developed a drone-based platform that automates the process of industrial inspections and surveys. The system allows for remote operation, reducing the need for on-site personnel and enhancing safety. With the hardware costs of £110,000, this has major cost savings from day one. Sees.AI's drones can inspect up to 50 towers per hour compared to a helicopter's maximum of 10 towers per hour for close inspections. This switch to drones not only increased the number of inspections conducted per hour but also provided more valuable data with lower risk and zero emissions.

BENEFITS

Cost Savings

- £ By reducing the need for manual labour and minimising downtime, companies can save on operational costs.

Improved Safety

- ✓ By replacing the hazard of crew members in a helicopter to a remotely piloted drone, the inspection operation can impactfully reduce the risk to life and property.

CO2 Benefits

- ♻️ Fully electric drones have zero emissions (Scope 1) in comparison to traditional ICE engine helicopters.

Water Pipe inspection

70% accuracy in water leak detection



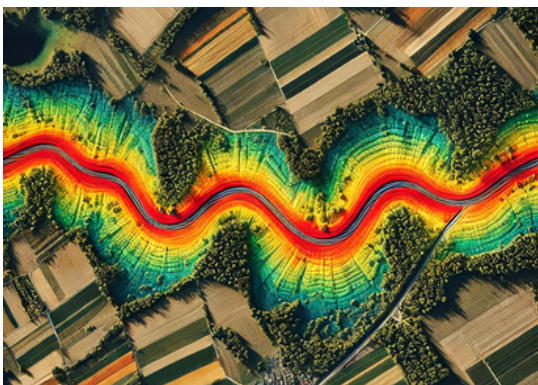
AT A GLANCE DETAILS

Company: Team UAV
Location: United Kingdom
Industry: Water Management
Activity Type: Drone Leak
Detection & Environmental
Monitoring

BENEFITS

- 75% Accuracy in Leak Detection
- Tenfold Increase in Efficiency
- Faster response times and more water saved.

“Our leak detection method using drones has a 75% accuracy rate and increases efficiency by a factor of ten. Drones have not only provided a new and innovative approach to leak detection, but they have increased safety of personnel compared to more traditional methods such as walking the route whilst searching for leaks.”



*According to PwC report and Team UAV website

ISSUE

In the UK water industry, there's a significant challenge with water leaks, leading to the loss of nearly three billion litres daily. Traditional leak detection methods are inefficient and time-consuming, requiring extensive manual effort and posing safety risks to personnel. This results in considerable water wastage and increased operational costs.

SOLUTION

To address this, drone technology equipped with thermal and multispectral sensors is being deployed. These drones efficiently and accurately identify leak locations, significantly reducing manual search efforts and enhancing safety. This approach, pioneered by Team UAV, utilises advanced algorithms and aerial imaging to streamline leak detection, leading to increased operational efficiency and reduced environmental impact.

BENEFITS

£ Cost Savings

Streamlines the detection process, reducing the need for manual labor.

✓ Improved Safety

Reduces risks to personnel by limiting the need for on-ground inspections.

⌚ Enhanced Efficiency

⌚ Drones equipped with advanced sensors significantly improve the accuracy of leak detection, pinpointing exact locations and minimizing the time spent on searching for leaks.

🌱 Environmental Benefits

🌱 Lowers carbon emissions, saves more water and improves ecological footprint compared to traditional methods.





Live flare stack Offshore Inspections

£4 Million saved daily*
as the shutdown, traditionally required
for rope access, wont be necessary

AT A GLANCE DETAILS

Company: Flylogix and Innovair
Location: United Kingdom
Industry: Oil and Gas
Activity Type: Offshore
Inspections

BENEFITS

- £4 Million saved daily
- Flare stack operations don't need to be paused during inspection
- 98% CO2 emission reduction compared to traditional methods.
- Zero risk of personnel in danger from inspections due to full replacement through drones.

*According to PwC report

“Unmanned aviation has the potential to radically change how we operate in remote environments. By removing people from high-risk areas and operations it increases safety and efficiency. It can reduce carbon emissions by up to 100 times (compared to manned vehicles) and is much more cost-effective overall than the methods used to date for things such as offshore monitoring and maintenance. Every operation is piloted from the shore and monitored centrally, with real-time data and insight.”

ISSUE

Traditional inspection methods for live flare stacks on offshore platforms are both complex and risky. Typically, these structures are inspected by workers using rope access techniques, which means they have to physically climb high structures to carry out the inspection. This not only requires shutting down operations, which is incredibly costly, but also puts the workers at significant risk of accidents due to the height and the extreme heat of the flares. Furthermore, because these flare stacks are part of a system that continuously burns off flammable gas, any interruption to their operation, like the one necessary for rope inspections, can lead to a buildup of gas, posing additional safety risks and potential financial losses. In essence, traditional methods are slow, expensive due to the downtime required, and carry inherent risks to human safety.

SOLUTION

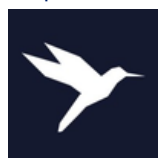
Drones are now being employed by companies for offshore inspections, enabling pilots to operate safely from shore while drones perform complex data collection tasks over the sea. Flylogix and Innovair are conducting BVLOS flights for methane monitoring over North Sea platforms

BENEFITS

- £ Cost Savings**
Drone inspections of live flare stacks save up to £4 million a day by avoiding operational shutdowns, reducing the financial burden of maintenance
- ✓ Improved Safety**
By using drones for inspections the need for human workers to engage in high-risk activities is significantly reduced.
- 🕒 Enhanced Efficiency**
Over 20 flights per platform in two weeks, reducing inspection times.



COPTRZ™





Wind Turbine Inspections

25% Cost savings while also removes workers from working at height risk

AT A GLANCE DETAILS

Company: Roavr group & Airborne Robotics
Location: United Kingdom, Scotland
Industry: Wind
Activity Type: Inspection and surveying, Offshore and inland

BENEFITS

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

ISSUE

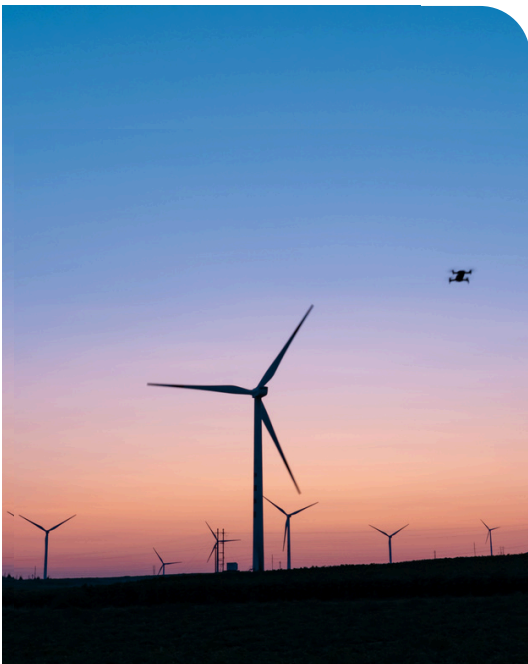
Traditional wind turbine inspections involve technicians physically climbing turbines to check for damage, a method that is time-consuming, labour-intensive, and risky, particularly in harsh weather. This process typically covers only 2-5 turbines per day and may result in incomplete inspections due to limited access to certain blade areas.

SOLUTION

The deployment of drones for wind turbine inspections has significantly improved the efficiency and safety of the process. Companies like Roavr Group and Airborne Robotics have pioneered the use of sophisticated drones equipped with high-resolution cameras and sensors to autonomously inspect turbines. These drones can quickly and accurately capture detailed data from all parts of the turbine blades, even those that are hard to reach. They are capable of inspecting 10-12 turbines per day. This drastically reduces the time and cost involved in inspections, while also enhancing safety by keeping personnel on the ground.

BENEFITS

- £ Cost Benefits**
Pilot-operated drone inspections cost around \$300-\$500 per turbine, or about 20%-25% of the cost of manual inspections which are estimated to cost up to \$3,000 per turbine.
- 🕒 Inspection Efficiency**
Current drone inspections can cover 10-12 turbines per day, with each blade inspection taking just 4-9 minutes. This is much faster than manual inspections, which typically only cover 2-5 turbines per day. Autonomous drone operations could increase coverage to 15-20 turbines per day.
- 🛡️ Safety**
Automated drone inspections allow personnel to stay on the ground, which enhances safety, especially in adverse weather conditions.



Emergency Response



86 Lives saved From drone enhanced missions

AT A GLANCE

DETAILS

Company: Maritime and Coastguard Agency

Location: UK

Industry: Emergency Services

Activity type: Search and Rescue

BENEFITS

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

“To assist with the development of the regulation and airspace, the MCA has, and continues, to work closely with the CAA and has run several demonstrations and trials, utilising large persistent drones and smaller drones, to ascertain the potential value for operations as well as to assist in the development of the regulation. Manned unmanned teaming is critical to SAR operations and the MCA has been working with its current SAR helicopter provider, Bristow Helicopters Limited, to trial the use of a rotary wing drone in conjunction with the SAR helicopters. The MCA took advantage of this capability during summer 2021 to perform proactive beach patrols of North Wales”



*According to PwC report “Skies without limits v2”

ISSUE

The public and defence, health, and education sectors face challenges in efficiently conducting emergency services, infrastructure inspections, and search and rescue operations. Traditional methods are sometimes not fast, comprehensive, or safe enough. There is a particular need for enhanced aerial perspectives, especially in hard-to-reach and remote areas.

SOLUTION

Drones were introduced, offering aerial insights for tasks like search and rescue and flood assessments. With thermal sensors, they detect body heat, especially in low visibility. The Maritime and Coastguard Agency (MCA) also explored BVLOS and VLOS drones, complementing traditional helicopter operations.

BENEFITS

Societal Benefits



MCA have reported more than 86 lives saved with direct impact from drones.

Cost Savings



The Maritime and Coastguard Agency, an emergency service specialising in search and rescue, saves more than £50 million annually through operational enhancement using drones.



Advanced SAR Operations

An eye in the sky to quickly locate missing persons



Risk Reduction

Deploying drones in challenging weather instead of teams on boats or helicopters



Maritime and
Coastguard Agency





Flood Management

Live feed streamed within 6 hours of incident starting

AT A GLANCE

DETAILS

Company: Environment Agency

Location: England

Industry: Environmental and emergency management

Activity type: Flood monitoring and response

BENEFITS

- 24/7 365 days drones response service
- £4.6 Billion estimated in averted damages

"24/7, 365 days per year drone response service, which aims to mobilise and stream a live video feed within six hours of an incident."

ISSUE

The UK faces significant flooding challenges, with notable damage in 2019/20 amounting to £333 million.

SOLUTION

The Environment Agency (EA) employs a 24/7 drone response service, with operations mainly outsourced to RUAS (Remote Unmanned Aircraft Systems).

BENEFITS



Enhanced Decision-Making

Drones provide real-time insights to decision-makers, improving the efficiency and effectiveness of flood response actions.



Improved Emergency Management

Live drone footage is critical for managing emergencies, such as monitoring temporary barriers at locations like Ironbridge, to ensure timely and appropriate responses.



Future Planning and Defence Optimisation

Drone data is valuable for shaping current and future flood defences, aiding in planning, modelling, and, when combined with AI, predictive models, IoT sensors, and big data, is expected to further optimize flood response strategies.



*According to PwC report "Skies without limits v2"



Fire and Rescue

Life Saved

Within first 6 weeks drone enhanced missions

AT A GLANCE DETAILS

Company: Shropshire fire and Rescue services & London fire brigade

Location: United Kingdom

Industry: Emergency services

Activity Type: Aerial

Reconnaissance, Search and Rescue, Hotspot Detection, Hazard Identification.

BENEFITS

- Reduce risk to personnel by utilising drones during operations where possible.
- Saving costs by enhanced data for more accurate decision making
- Better data feed during high stakes situation

ISSUE

Traditional firefighting and rescue operations pose significant challenges. Firefighters often enter hazardous areas with limited information, increasing risks. Resource deployment is inefficient without real-time data, and slow manual information gathering delays decision-making. Large-scale incidents further expose the shortcomings of traditional methods in providing adequate oversight and information.

SOLUTION

Drones significantly enhance firefighting by offering real-time aerial views that boost safety and decision-making. For Shropshire Fire and Rescue and the London Fire Brigade, they streamline hazard assessment and resource deployment, making responses to large-scale emergencies quicker and more effective.

“On its first day in action, the team was dispatched to a 15-pump fire at a leisure centre under renovation. Tasked with confirming the presence of cylinders on the roof, they deployed the drone, which quickly identified the objects as rolls of asphalt, not hazardous cylinders. This timely information enabled the Incident Commander to avoid declaring a false alarm, preventing unnecessary resource deployment and demonstrating the drone's immediate value.”

BENEFITS



Cost Savings

Utilising real-time data to strategically allocate and manage firefighting resources, reducing unnecessary expenses.



Enhanced Safety

Identifying heat sources within structures or wildfires to reduce risks and ensure more targeted, safer firefighting efforts.



Enhanced Situational Awareness

Drones offer real-time aerial views and thermal imaging, enabling commanders to assess fire scenes, detect hotspots, track fire spread, and locate individuals trapped in smoke or debris.



Search and Rescue



1000+ people saved

From drone enhanced SAR operations globally*

AT A GLANCE

DETAILS

Company: Leicestershire Search and Rescue
Location: United Kingdom
Industry: SAR
Activity Type: Surveillance, Thermal Imaging

BENEFITS

- Faster response and rescue time
- Increased safety for volunteers by preventing them from entering unknown sights before surveying
- Cost savings and less volunteer dependent

“The organisation has been operational for over 10 years and has earned the Queen’s Award for Voluntary Service, the highest honour for volunteer groups in the UK. This recognition reflects their exceptional commitment to serving the community.”



ISSUE

Leicestershire Search and Rescue (Leicestershire SAR) is a volunteer group aiding Leicestershire Police across 965 square miles. In 2020, volunteers spent over 8,000 hours on 246 events. Traditional search methods were slow and risky, especially in tough conditions like darkness or dense terrain, often taking hours or days to find missing persons, increasing risks for both the missing and the rescue teams.

SOLUTION

Leicestershire SAR intergrated a drone to enhance search operations. With a high-resolution camera and thermal imaging, the drone quickly conducted aerial surveillance, detecting heat signatures in low visibility, like at night or through dense foliage. It provided real-time data, improving situational awareness and identifying hazards before teams entered, making it a crucial tool in diverse terrains and rescue missions.

BENEFITS

£ Cost Savings

The drone's effectiveness in quickly locating missing persons allowed the team to use fewer resources, making operations more efficient and enabling volunteers to be stood down more quickly.

✓ Improved Safety

The drone provided a clear, real-time view of the terrain, identifying potential hazards and ensuring that rescue teams could approach dangerous areas with caution, thereby reducing the risk to team members.

🕒 Efficiency

The thermal imaging capability of the drone allowed for the detection of missing persons in challenging environments, such as at night or in areas with dense foliage, where traditional search methods would struggle.



Farming Crop Pest Solutions

Double the Seeding Rate

Compared to traditional methods

AT A GLANCE DETAILS

Company: Auto Spray Systems

Location: United Kingdom

Industry: Agriculture/Agri-tech

Activity Type: Seeding/Spraying

BENEFITS

- No tread or soil compaction.
- Double the seeding speed, from 6 to 12 hectare per hour.
- 100% reduction in scope 1 CO2 emissions.



ISSUE

A British farm faced a significant challenge with their oil seed rape crop, which had been heavily decimated by flea beetles. The crop had not grown sufficiently due to adverse weather conditions, including dryness and heat, resulting in poor plant density and a risk of severe yield loss.

SOLUTION

To tackle the yield loss, Autospray Systems used a drone to re-plant the affected areas. Re-planting helped fill in the gaps left by the damaged crops, ensuring a more uniform plant density and a healthier overall crop. This approach increased the chances of a successful harvest despite the initial damage caused by the flea beetles.

Using drones for re-planting provided a significant advantage over traditional methods. Unlike tractors, drones do not tread on the healthy parts of the crop, preventing further damage. The drones could navigate the fields without causing soil compaction or creating ruts, which often happen with heavy machinery. This allowed the new seeds to be sown efficiently and without harming the existing healthy plants.

BENEFITS



Cost Savings

Negating the disastrous consequences of the flea beetle attack helped the farmer avoid a hefty cost associated with harvesting a partial field.



Improved Efficiency

Replanting using a drone completely eliminates tread damage, improves seeding spread consistency and improves work rates from around 4-8 hectares per hour (tractors) to 12 hectares per hour (drones).



CO2 Benefits

Fully electric drones have zero emissions (Scope 1) in comparison to traditional ICE engine tractors.

AUTOSPRAY
SYSTEMS

ARPAS-UK
The UK Drone Association



Peatland Restoration

Reduction of CO2 emissions
by **50 tonnes** per hectare yearly

AT A GLANCE

DETAILS

Company: SEAD Artists

Location: UK

Industry: Agriculture

Activity Type: Seeding, Paludiculture

BENEFITS

- Restoring peatland prevents significant carbon emissions
- Restoring peatland also has significant flood risk reduction effects through improved water retention
- Commercial opportunities of crops which can grow on wet land

ISSUE

Peatland degradation has led to the release of vast amounts of carbon dioxide into the atmosphere. Restoring these ecosystems is essential for reducing greenhouse gas emissions and combating climate change. Traditional methods of rewetting and reseeding degraded peatlands are labor-intensive and challenging due to the often remote and waterlogged nature of the terrain. This limits the scalability and speed of restoration efforts.

SOLUTION

The "Drone Re-peat" project leverages drones to restore degraded peatlands by reseeding them with *Typha latifolia*, a plant well-suited to wet environments. In addition to ecological restoration, the project encourages the cultivation of commercially viable crops like soft berries and sphagnum moss on peat boglands, creating economic incentives for landowners and promoting sustainable land use.

BENEFITS



Commercial Viability

The introduction of crops such as *Typha latifolia*, soft berries, and sphagnum moss provides sustainable agricultural opportunities, turning degraded bogland into productive areas. These crops can be harvested for commercial purposes, offering economic incentives to landowners and farmers.



Environmental Restoration

By rewetting and reseeding degraded peatlands, this project restores the peatland's ability to act as a carbon sink, helping to mitigate climate change.



Sustainability Goals

Peatland restoration is critical for the UK to meet its 2030 sustainability goals, particularly in carbon reduction and biodiversity preservation.



SEAD
Artists



Stockpile Auditing & Volume Estimating

50% faster

Than traditional quarry surveys



AT A GLANCE

DETAILS

Company: PricewaterhouseCoopers

Location: Global

Industry: Professional Services

Activity Type: using drone technology for efficient stockpile auditing

BENEFITS

- Traditional quarry surveys can take a whole day whereas using a drone only takes 1/2 a day.
- Safer as the team needs to be in the field for less time

“PwC acknowledges the significant role of drone technology in aligning with International Auditing Standards and enhancing audit quality. Drones have been crucial in safely and accurately measuring inventory volumes, especially in challenging environments like mining sites. This technology is becoming an integral part of PwC's future inventory audit approaches.”



ISSUE

The main challenge in the auditing and accounting profession is adapting to technological advancements and stakeholder needs. Specifically, there's a need for auditors to accurately verify volumes reported by clients, for stockpile auditing (e.g., coal, biomass, aggregates).

SOLUTION

The solution is a tech-enabled auditing approach involving the use of drones. This method involves capturing an independent volumetric dataset via drone at the same time the client uses their counting methods. The auditor then compares the independently collected data with the client's reported volumes, ensuring accuracy and completeness.

BENEFITS

Continuous operations



Client operations remain uninterrupted as drones collect data from above



Improved Safety

Data collection from a safe distance reduces health risks.



Enhanced Efficiency

Drones capture a vast number of data points, enhancing measurement precision.



Scale up benefits

Auditors can access accurate digital models remotely, facilitating global operations.



*According to PwC report



Site Security Management

3 times faster to patrol 13 acre site than traditional guards



AT A GLANCE

DETAILS

Company: Severn Trent Water, Dovecote Park

Location: UK

Industry: Site Management

Activity Type: Surveillance

BENEFITS

- Faster patrol times increasing security and efficiency
- Automated drone surveillance allows for lower costs on personnel
- Increased safety for personnel as surveillance is conducted remotely

ISSUE

The key challenge at Dovecote Park and Severn Trent Water was the inefficiency and safety risks associated with manual security patrols and inspections, particularly in high-risk areas. Additionally, there was a pressing need to enhance security coverage, reduce operational time, and lower the carbon footprint in site management activities.

SOLUTION

The solution was to integrate drone technology into site management. Drones automated security patrols and inspections, offering real-time surveillance with thermal cameras, reducing the need for manual inspections in dangerous areas, and significantly improving safety, security, and operational efficiency, while also lowering the carbon footprint.

BENEFITS

Environmental Benefits



For Severn Trent Water, the automation of site management activities contributed to a lower carbon footprint, aligning with their environmental responsibility goals.

Improved Security



Drones provided comprehensive and continuous site surveillance, ensuring that security threats were detected and addressed promptly.

Increased Efficiency



Both Dovecote Park and Severn Trent Water experienced a significant reduction in the time required for site inspections and security monitoring, leading to improved operational efficiency.



COPTRZ



Security Audits



30% Cost reduction

of security audits compared to traditional methods

AT A GLANCE

DETAILS

Company: Doncombe Security Consultancy

Location: UK

Industry: Security

Activity Type: Auditing, Surveillance

HIGHLIGHTS

- Risk reduction by getting personnel out of harms way
- Faster audits allow for better resource allocation
- More efficient working allows for increased productivity

ISSUE

Traditionally, security audits require multiple personnel to conduct thorough perimeter checks, which are both time-consuming and labour-intensive. Inspections of buildings at height pose significant safety risks and often involved the use of expensive scaffolding. In addition, these audits require extensive risk assessments beforehand due to the dangerous nature of the environments. These challenges make the process slow, costly, and hazardous, with significant manpower and resources dedicated to each audit.

SOLUTION

The introduction of drones transformed Doncombe Security's operations, reducing audit times from hours to just 20-30 minutes. Drones eliminated the need for scaffolding and cut personnel requirements, with a single operator covering large areas. High-resolution imagery enabled detailed, safe inspections from a distance. This shift reduced safety risks and improved efficiency, with comprehensive training from Coptrz ensuring safe and effective drone use.

BENEFITS



Cost Savings

By reducing the need for multiple personnel and expensive equipment such as scaffolding, Doncombe Security cut audit costs by 30%, making operations more financially efficient.



Improved Safety

Drones allowed inspections to be conducted from a safe distance, eliminating the need for personnel to enter dangerous areas, which significantly reduced safety risks.



Increased Operational Efficiency

Drone technology cut audit times, enabling quicker completion of security checks and allowing the company to handle a larger volume of audits with fewer resources.



COPTRZ



ARPAS-UK
The UK Drone Association



Drone Delivery

Over 200,000

Successful Deliveries across USA,
Finland and Ireland

AT A GLANCE

DETAILS

Company: Manna

Location: Ireland, Finland & USA

Industry: Food and Retail

Activity type: Last mile delivery

HIGHLIGHTS

- 200,000 flights
- 17,000 customers

“...The local merchants working with Manna can now provide the **45,000 residents** (13,000 homes) in our operating area with a better at-home delivery experience than the biggest logistics-focused online retailers on the planet. Better still, as most of our operations have a flight time of just **3 minutes** we have seen new customer behaviour around use cases like coffee delivery, and highly perishable products. All local, offline businesses become online with drone delivery. This increases overall demand, and therefore local businesses become more profitable, and jobs are created in the local economy. Already we have delivered to **40%** of the homes in our operating area, and have a significant customer cohort of over **50 deliveries** each – in only **12 months** of operation.”



*According to PwC report “Skies without limits v2”

ISSUE

The convenience and restaurant businesses faced challenges in efficiently conducting last-mile deliveries within their locality. Traditional methods like cars, bikes, and motorbikes are commonly used for last-mile delivery, but these methods often have limitations in terms of speed, cost, carbon emissions, and safety.

SOLUTION

Manna, an Irish-based company, introduced an innovative solution by leveraging drone technology. Manna enables local businesses to integrate their 3rd party software into an app that receives and processes orders. These orders are then delivered using drones equipped with biodegradable tethers. The tether ensures safe lowering of packages, after which it detaches, and the drone returns to base. This system allows drones to operate at a distance, reducing potential risks and disturbances.

BENEFITS

Extensive Operational Reach



Completed over 200,000 flights, serving 17,000+ customers across three locations, covering around 30 miles of residential area.

Business Growth and Expansion



Enabled non-digital businesses to expand their customer reach and grow, utilising Manna's app.

Eco-Friendly Delivery Solution



Provides an emissions-free solution, benefiting both businesses and customers.

Innovative Delivery Technology



Revolutionises food and medicine delivery with innovative drone technology, offering sustainable, efficient last-mile deliveries while minimising carbon emissions and improving service quality.



Do you have a use case?



If your company has a compelling use case that you'd like to get published in the next version of the **Drones in Action Report** then simply follow the steps below.

1

Follow the QR code on the left or go to:
<https://www.arpas.uk/drones-in-action-report-2024/>

2

Fill out the survey form with all the details regarding the use case.

3

Once we receive your use case, we will review it and will be in touch via email.

Scan me →



Legal Disclaimer:

Please be advised that while we welcome the submission of various use cases, we cannot guarantee that all submitted use cases will be published or featured. The selection and publication of use cases are subject to our discretion, and we may choose to feature or withhold use cases based on our internal criteria. By submitting a use case, you acknowledge and accept that there is no guarantee of publication, and no legal obligation on our part to feature or publish any specific use case.



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