

Drones – driving value through aerial data

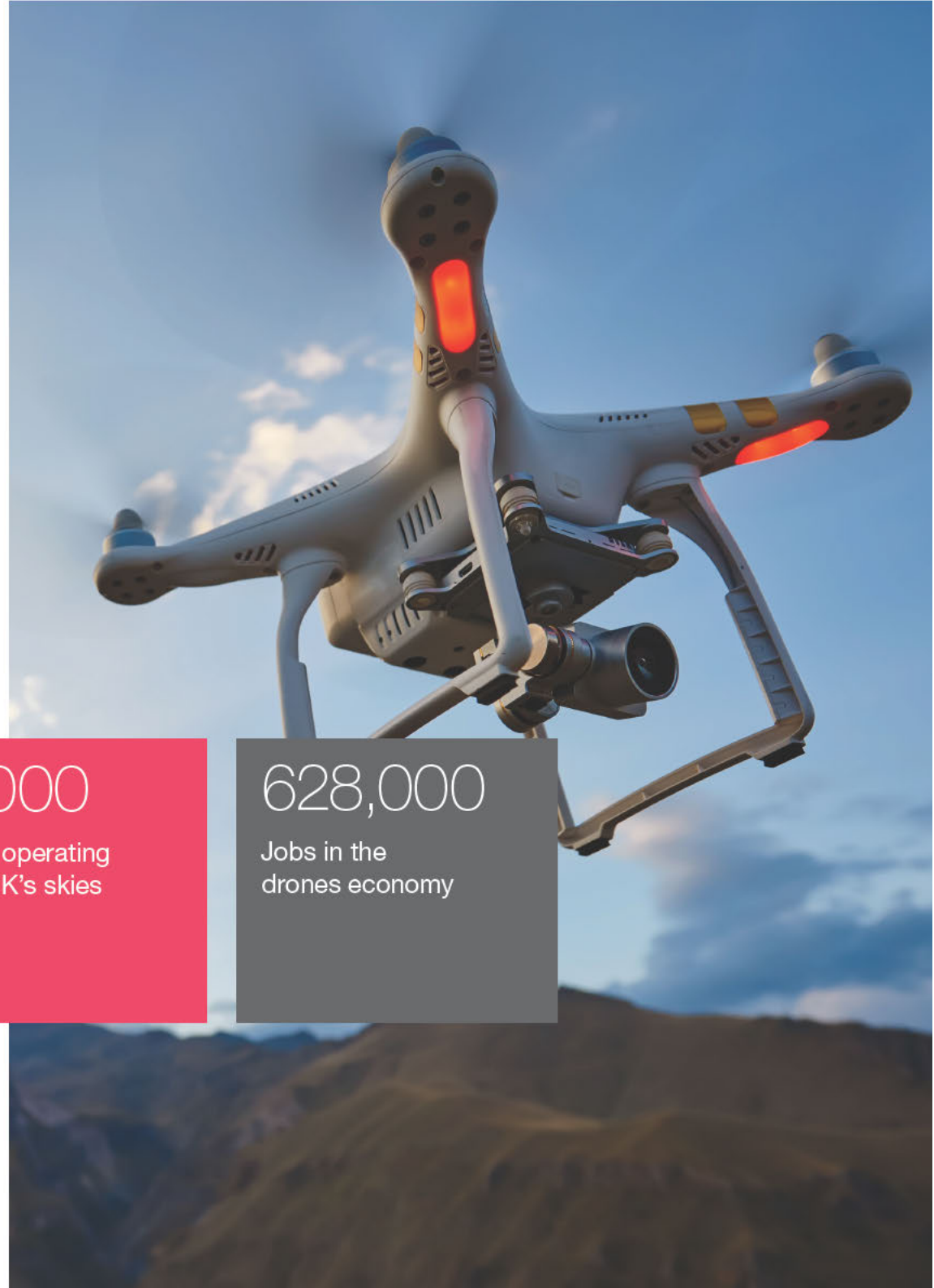
#dronesinbusiness



Skies without limits

Developments in drone technology are disrupting, innovating and shaping the commercial world.

With these developments comes the possibility to use drones to create a better future and help tackle some of the world's most important challenges.



£42bn

Increase in UK
gross domestic
product (GDP)

£16bn

Net cost savings
to the UK economy

76,000

Drones operating
in the UK's skies

628,000

Jobs in the
drones economy

Drone modelling implementation delivers compelling cost savings for a large infrastructure client

1. Client challenge

- Significant budget pressure; aim to reduce potential overruns in time and budget across the project lifecycle
- Aim to increase efficiency in validating vendor claims as part of the payment cycle
- Use of traditional methods of data capture resulted in data that is not in a common format or not available to all stakeholders
- Project status information is not in an intuitive, visual format and can be difficult for stakeholders to access

2. How we applied our tech expertise

- Workshops and working groups were held with the client to determine how drone technology can overcome client challenges and improve efficiency
- Construction assurance and schedule completion prioritised (including payments)
- Modelling indicated that drones could deliver c.£0.4bn cost savings and 2.1m kg of carbon reduction over the project
- Technology implementation strategy was developed to realise significant savings

3. Outcomes

- The client received a robust business case for project-wide drone implementation:
 - Enthusiastic engagement of key client and supplier staff
 - Specific details on savings, risks and key implementation considerations, including project-wide common processes for drones and data
 - An intuitive, shared cloud visual asset management platform option that 'democratises' data for all stakeholders



Use of drones on this eight year project could deliver **cost saving of c.£0.4bn** and carbon reduction of 2.1m kg



Drones gives port operator insight into the condition of key infrastructure

1. Client challenge

- The client had inaccurate and incomplete understanding of the location and condition of key infrastructure assets across 21 sites
- Difficult to access areas such as warehouse roofs and guttering were hard to monitor; and the client had a strong need to minimise the risk of these assets falling into disrepair
- Ongoing resourcing changes resulted in less people but more workload
- The client wanted to start prioritising maintenance of assets where and when it was needed and reduce inspection costs in the process

2. How we applied our tech expertise

- Initial trial of drone flights and data capture determined the tangible benefits and deliverable use cases in utilising drones for port asset management
- The trial determined that drones had the potential to reduce costs by 65% and time by 83% compared to traditional methods of building inspection
- We produced a robust business case based on findings to implement drones across the group, including both in-sourced and outsourced models

3. Outcomes

- Compelling visual asset representation in the cloud with comprehensive inspection reporting
- Intuitive and detailed management information on asset condition for 'one source of truth' in the cloud
- Improved group-wide asset inspection standards and processes (moving from periodic to predictive maintenance schedules)
- A clear understanding of the value of drones prior to embarking on a large scale project and data to make solid investment decisions

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By using drones in this project, we saw **cost savings of 65%** and an **83% reduction in time taken to inspect**

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UK's first audit stocktake with a drone

1. Client challenge

- RWE's large amount of coal stock at their power station sites is difficult to measure but the value is material with significant impact to the accuracy of their financial audit, so therefore needs to be calculated
- Traditional methods of measuring the coal stock were slow, inaccurate and expensive. It involved a person taking manual measurements on the ground with a GPS tracking pole to gain elevation insight
- This also posed a health and safety risk to those involved when climbing on the coal pile

2. How we applied our tech expertise

- We identified the optimum vendor with key skills and expertise for the project and utilised a fixed wing drone to fly over the coal pile on a fixed automated route
- This allowed for a series of images to be taken with the drone at precise locations across the coal
- These images fed into software that stitched them into a 3D 'digital twin' of the coal pile
- The digital twin was viewed on PwC's Geospatial app, a visualisation tool which allowed the PwC audit team and RWE to interrogate data about the inventory and assets on site
- Very precise and accurate measurements were taken, enabling a volumetric amount of coal stock to be determined

3. Outcomes

- **Time savings** – 4 hours versus c.30 minutes – a reduction of 85% in the time taken against more manual traditional methods
- **Improved accuracy** – the drone captured c.900 data points per cubic metre, obtaining impressive overall accuracy levels of 2cm (99+% accuracy). Previously only 1200 data points would be captured across the entire coal pile
- **Quicker site access and less disruption** – the drone flight required access to only a limited area of the coal pile and therefore posed less of a health and safety risk, as well as not interrupting normal on site operations



By using drones in this project we saw more **accurate** results than have ever been achieved in the past and a reduction of **85%** in the time taken against more manual traditional methods



How PwC can help

It can be daunting to implement drone technology.

Our team of drone experts can support you through the drone assessment, planning and implementation stages, ensuring a systematic and low risk approach to **making drone digital transformation work for your business needs**

1

Assessment

Workshop to assess where can drones can add value now and in the future.

Strategy which includes applications, benefits and steps to implementation.

Proof of Concept drone mission to test the strategy.

2

Planning

Collaborate with the wider team and recipients of drone-captured information.

Insource or Outsource based on internal strategy and capability.

Deliver an agreed **implementation plan**.

3

Implementation

Project Management – proof of concept, vendor selection, training, implementation and integration.

Drone Team comprised of a client team and PwC, who implements the project in accordance with the agreed governance process.

4

Tech assurance

Insource assessment and validation that your drone management system is working as designed.

Outsource review and audit of purchased drone services, from quote to integration of data into your standard workflows.

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