



Are you ready for the drone age?

The definitive review of how UK organisations are adapting to unmanned aircraft

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Foreword

We produced this report to capture how the UK views counter-drone security. Working with ExecSurvey and Defence Online, we polled decision-makers for public services and businesses on how aware they are of the rising rogue drone risk, their current security set-up and their future plans.

Introduction

By Dave Pankhurst, Head of BT's Drone Solutions unit

Are you ready for the drone age? Unmanned aircraft are really taking off. There are now more than 60,000 licensed drone operators in the UK.¹ Coming in all shapes and sizes, drones are creating new business opportunities. Transforming everything from how we farm to film movies through increasing efficiencies and removing the need for people to work in dangerous situations.

But like any technology, in the wrong hands, drones can be misused. When one flew over Gatwick Airport during the 2018 Christmas period, the travel hub was forced to close for two days. This delayed 1,000 flights, stranding 82,000 travellers. It's estimated to have cost the airport and the airlines that use it £50 million.² The subsequent police investigation lasted 18 months, cost the public purse £800,000 and involved five different forces. And still the culprit was never found.³

This story made headlines around the world, but there are many more like it. Whether by accident or design, drones can disrupt events, endanger public safety and invade privacy. Gangs have also used drones to transport drugs and weapons into prisons. Hackers can modify them to hack your systems and steal data. While terrorists have used them to drop bombs abroad.

In the wake of the Gatwick incident, the UK Government has tightened drone regulations, invested in education for users and strengthened security. But it's also made it clear the state cannot shoulder the burden alone. Businesses will also have to take steps to keep their skies safe. But are they ready for that?

We partnered with Exec Survey and Defence Online to gauge the level of industry awareness regarding rogue drones. Read on to find out how many participants need to rethink their security strategy. And how you can prepare and protect your own organisation.

Key themes

We've organised this report into three themes that emerged from the data.

1.

Blinded by blue sky thinking

On the whole, UK organisations view the rise of drones as a force for good. Many are already adopting the tech for themselves or planning to, so they can transform the way they work and seize new business opportunities. But business leaders underestimate the risk drones represent in the wrong hands.

2.

The threat level is up in the air

Cybersecurity is a top concern for UK organisations, while drone security is barely on their radar. Even though unmanned aircraft are increasingly used to hack systems and steal data. This shows there's a lot of confusion over what the rogue drone threat is and how serious it is.

3.

Security needs to go above and beyond

Most organisations are adopting a 'wait and see' approach to rogue drones, not viewing them as an urgent concern. Meanwhile, a lack of technical knowledge is stopping other businesses from embracing counter-drone systems that could give them next-level protection.

Blinded by
blue sky
thinking

1

UK organisations have high hopes for drones

Drones are creating new opportunities and helping us work more efficiently, giving decision-makers a very positive view of the technology

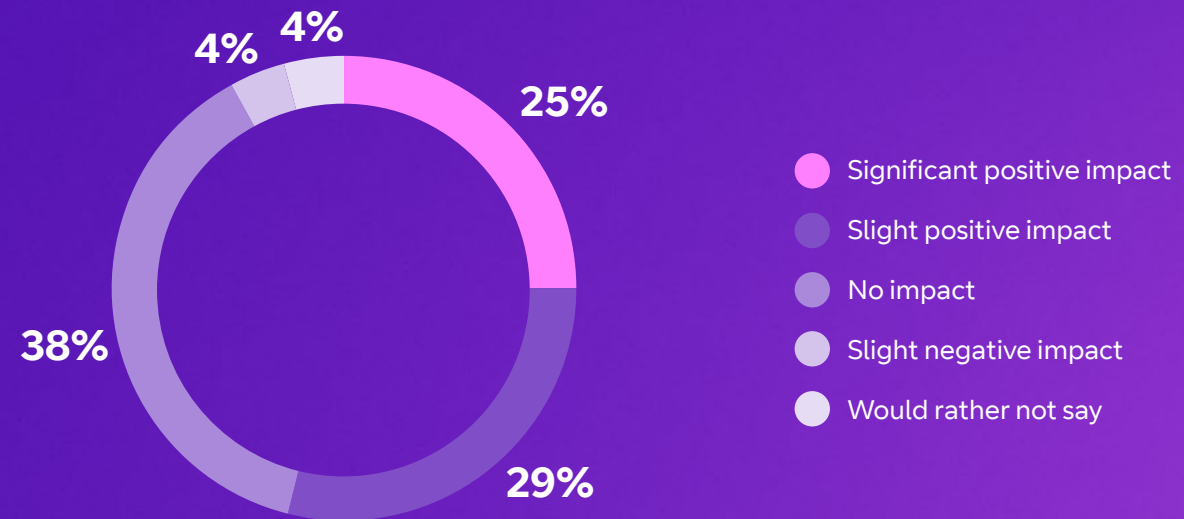
Amazon successfully trialled the use of drones to deliver parcels in the UK back in 2016. Today, airborne takeaway meals are a regular feature of the Shanghai skyline. French farmers use drones to spray their crops more accurately, so they use fewer pesticides. And they're being used to improve maps of Zanzibar, where satellite imagery is poor and using a plane would be too expensive.⁴ By 2030, it's predicted drones will help create 628,000 new jobs in the UK and add £42bn to the economy.⁵

So perhaps it's no surprise UK organisations think unmanned aircraft will be good for business and wider society. In fact, 54% believe drones will have a positive impact on their own industries. Many say they already have. Almost two-fifths (38%) said drones have boosted their productivity. While 28% said they've helped cut costs. And another 28% said they've improved security.

Unmanned aircraft are inspiring innovation. So much so, our survey's multiple choice options didn't cover the many ways they're transforming how the UK works. The lion's share of organisations (41%) responded that drones are benefitting them in 'other' ways. For instance, one participant explained the tech has helped them improve staff safety. They could just send a drone to inspect a rooftop rather than make someone go up a ladder.

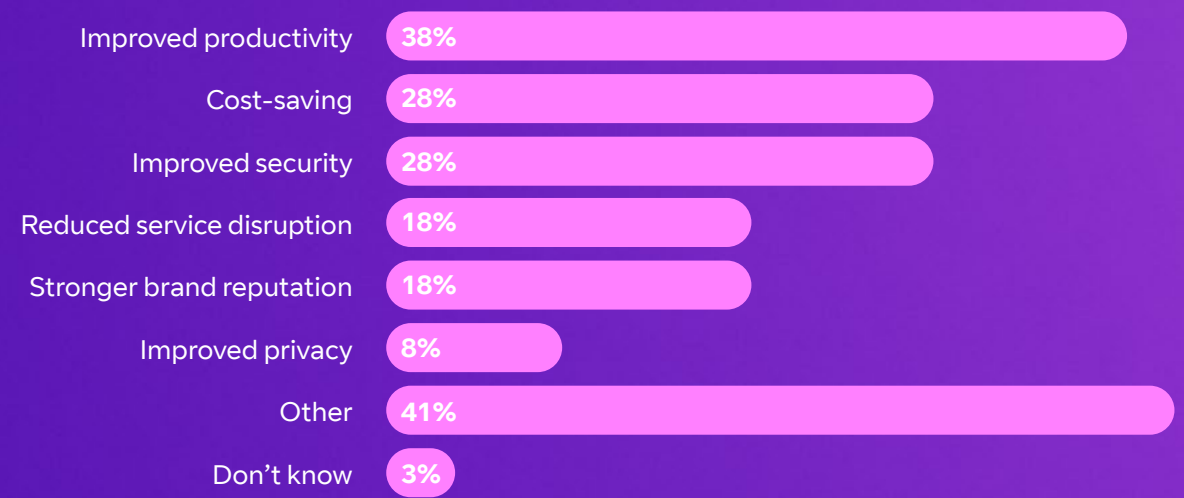
Drones are seen as a force for good

Q: Thinking about your industry/sector, how much of an impact do you believe that the rising use of ‘drones’ has had on your organisation?



How drones are boosting UK business

Q: In your opinion, what positive impact, if any, has your organisation seen from the internal use of drones?



Missing the risk of rogue pilots

While UK organisations have been quick to embrace the new technology, they haven't considered that criminals and reckless users have done the same

Drones are not seen as a risk. Only 4% of UK organisations think they're having a negative impact on their industries. While more than half (52%) felt that drones used by the public – as opposed to professional operators – were not a danger.

Just under a fifth (17%) said they were worried about drone flyers acting recklessly. In reality, while the majority of hobbyists are very responsible, a small number still cause big problems. There have been 574 near-misses between drones and aircraft in the UK over the last 10 years.⁶ That's more than one drone a week risking the lives of passengers.

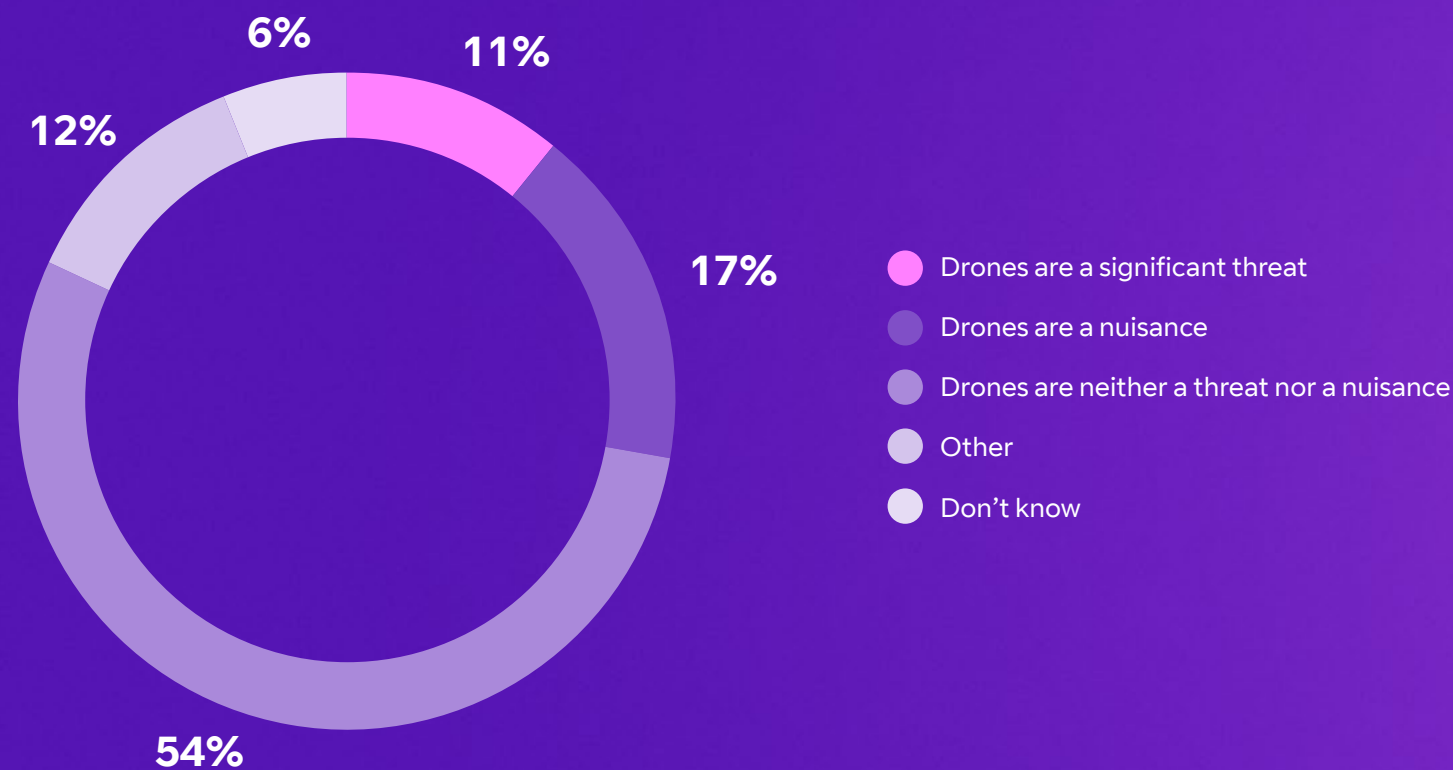
While that might only seem like a concern for the air industry, it's symptomatic of a wider issue. More than half of drone users say they're not aware of the UK's Drone Code.⁷ These guidelines from the Civil Aviation Authority explain how to fly drones safely and legally, without endangering others. So many don't know they're supposed to keep line of sight with the gadget. Or that they must not fly directly over a crowd, such as at sports events or the beach.

Meanwhile, only 11% of organisations said they saw unmanned aircraft as a serious threat, meaning that they're used with malicious or criminal intent. In fact, there were more than 2,400 drone-related crimes in England and Wales in 2018.⁸ That's a 40% rise in three years. This includes damage caused by crashing into cars, buildings and gardens, which may have been accidental rather than design. But criminals have also used unmanned aircraft to scope out targets for burglaries, spy on people and smuggle drugs and weapons into prisons. Drones have also been used and modified by terrorists abroad, prompting the UK government to warn the same could happen here.⁹

This suggests that many organisations underestimate the real risks and high costs of rogue drones. Though new laws and proposed police powers will help, they won't stop incidents like these from happening entirely. Businesses need to prepare to stay protected.

The perceived threat of drones

Q. Do you believe that the public use of drones or UAVs presents a threat (i.e. a malicious or criminal risk) or a nuisance (i.e. individuals acting carelessly) to your organisation?



The threat
landscape
is up in
the air

2

The cyber-threat from above

Businesses say they're more concerned about cybersecurity than drones, not realising they are one and the same

When asked what the biggest threat they face is, 70% of UK organisations were worried about information security. The majority (59%) were concerned about the risk of cyberattacks. While 8% said endpoint security, which refers to how hackers can access your network through an insecure desktop, laptop or mobile. While 3% said bring your own device (BYOD) policies, which can make endpoint breaches more likely. Interestingly, only 2% recognised drones as the biggest risk. This suggests that many organisations aren't aware that drones are also a danger to their data.

Hard to spot and able to capture photos and video right out of the box, it's no surprise that drones are used for covert surveillance. What's more, they could drop a microphone into a restricted area for eavesdropping.

With a few simple modifications, a drone can be used to hack your systems over wi-fi and steal data. There's evidence that an organisation's own drones could be remotely hacked to steal files and intercept live video.¹⁰ Experts now recommend all firms consider drone threats as part of their wider cybersecurity strategy.¹¹

Organisations biggest security concerns

Q: When thinking about security threats to your organisation, which of the following areas presents the single biggest risk and/or challenge?



The danger of disruption

The chaos of the Gatwick Airport incident still looms large in the minds of UK business leaders

While there's growing evidence that drones are a cyber-threat, just under a quarter (23%) of UK organisations recognised that data loss or theft was a risk with drones.

Instead, when pushed to think of what type of threats unmanned aircraft could pose, they were overwhelmingly seen as a physical threat. Physical danger to customers and/or the public came out top at 77%. This was followed closely by danger to staff members at 69% and disruption to customers and/or the public, also at 69%.

The high-profile nature of the disruption and potential consequences caused at UK airports in late 2018 by rogue drones is likely to still be prevalent in many people's minds. So it is perhaps unsurprising to see disruption and danger to customers and public safety figure highly.

Invasion of privacy (46%) and destruction of property (38%) were also flagged as potential threats. This points to how drones could potentially conduct inspection activities undetected or unnoticed, leaving bad actors plenty of time to prepare for more sophisticated acts of sabotage.

Perceived drone dangers

Q. In your opinion, what type of threat does unplanned drone activity present to your organisation?



Security
needs to go
above and
beyond

3

Now is the time to rise to the challenge

Businesses are adopting a ‘wait and see’ approach when rogue drone incidents are already here

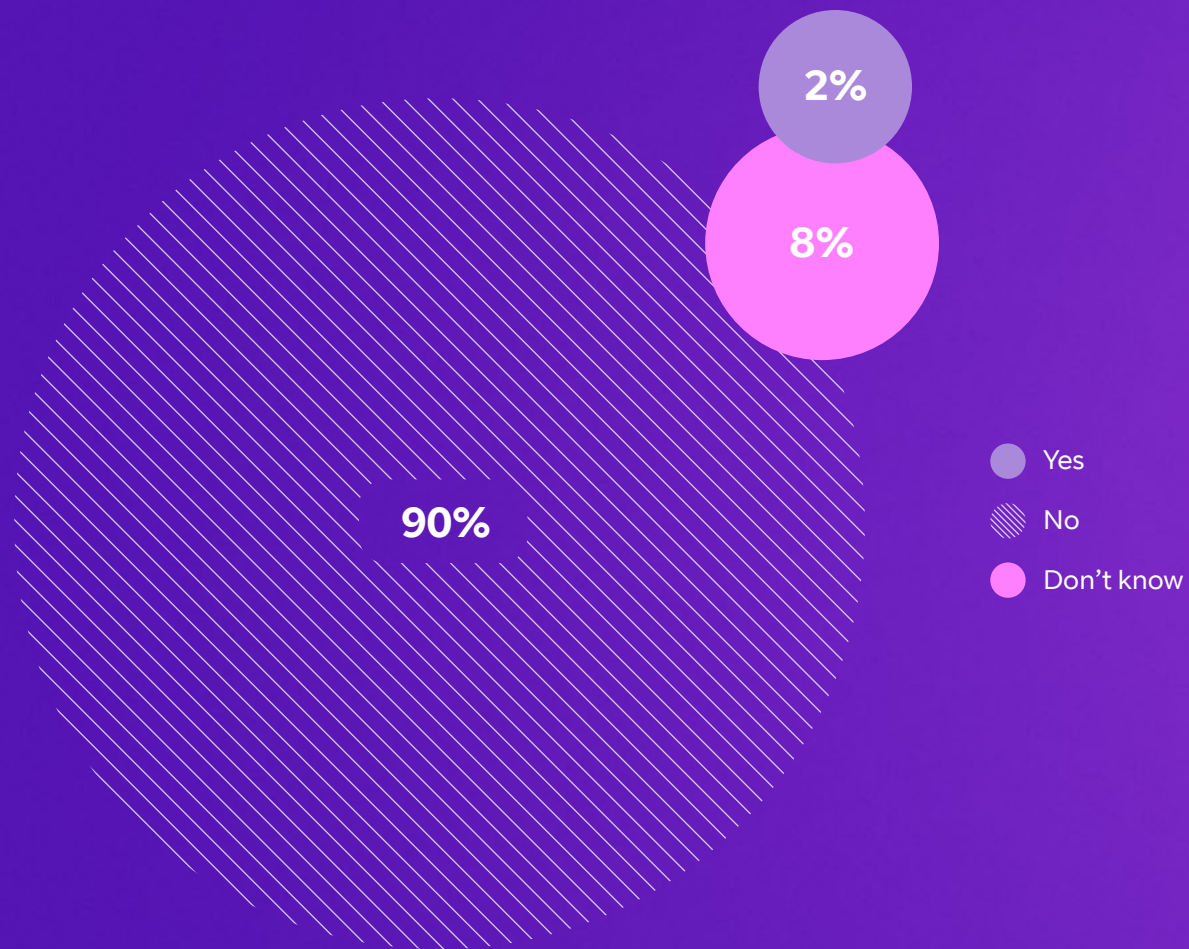
Most UK organisations (90%) haven’t experienced a rogue drone incident themselves. But some recognise that this will become more likely in the future. A combined 38% expect to see rising risk from rogue drone activity. A fifth even think this increase will be significant. However, there’s still 45% who don’t anticipate any change in risk in the future.

Decision-makers are also unsure whether they need to take any steps to stay safe. Exactly half agreed that they should prioritise combating drones should – but they couldn’t agree to what extent. Only 2% say it’s a top priority and 9% a high priority. 14% think it’s a mid-level priority, while a quarter (25%) think it’s only a low priority. Meanwhile, 45% of organisations don’t consider it important at all.

Overall, this shows there is a growing consensus amongst businesses and public services that – to some degree – drones could be a security risk. But most view this as a far-off problem. The reality is that reported rogue drone incidents have grown 40% year-on-year.¹² Delaying further could come at a high financial cost, damaging reputations and endangering lives.

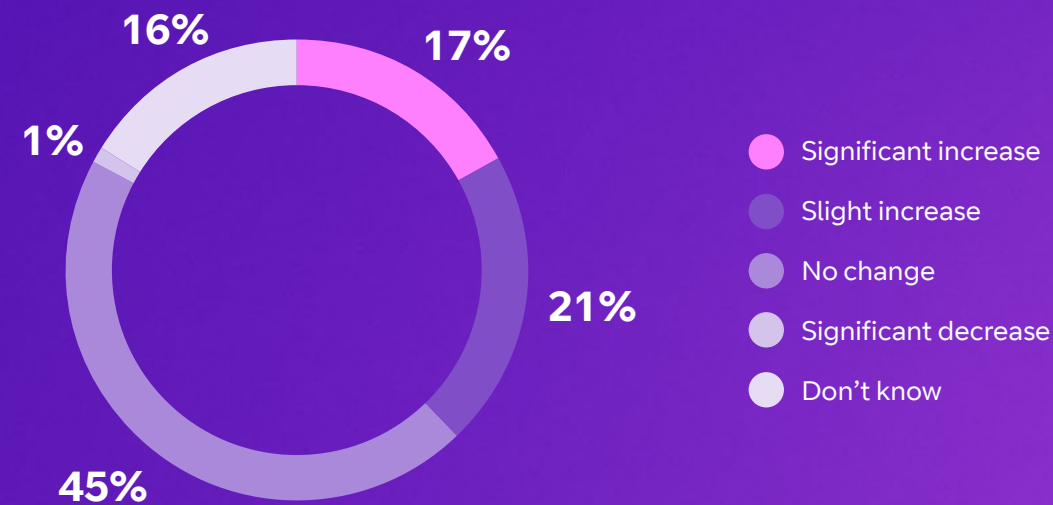
Most organisations haven't had a rogue drone incident – yet

Q. Has your organisation experienced any breaches or incidents resulting from the use of drones against your organisation?



Drones are seen as a far-flung future threat

Q. Do you expect rogue drones to become a bigger risk for your organisation in the future?



Leaders are divided over how big of a risk drones pose

Q. How high a priority is combatting the risk posed by drones in your organisation?



The UK is wide open to drone threats

Most businesses and public services don't have a plan in place for what to do if they encounter a drone

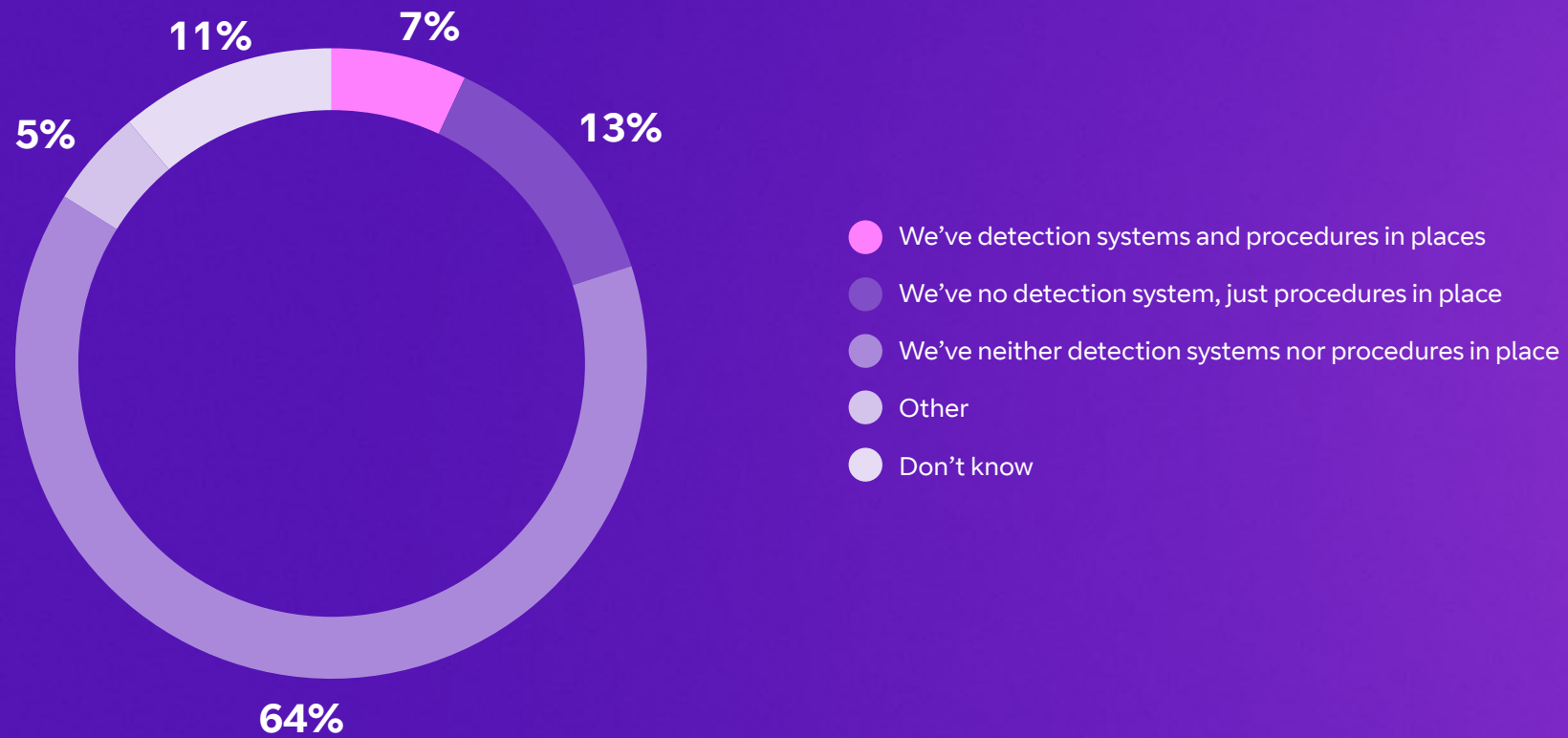
The fact most UK organisations don't view drones as a security risk is supported by the lack of measures they've taken to stay safe. Only 17% have any procedures to follow, and just 7% operate any sort of detection systems. While most (65%) admitted to having neither detection systems nor procedures to deal with a rogue drone incident.

Alarmingly, more than three-quarters of organisations also admit that they don't even have a counter-drone strategy in place. This means that most in the UK are unprepared and likely unaware of the potential damage and disruption a rogue drone could cause to their business operations.

Though the industries that have adopted a counter-drone strategy might be surprising. Central and local government as well as the police are all represented, as you might expect – though only in small numbers. Instead, the majority (23.8%) work in manufacturing, closely followed by professional services (19.5%). While these businesses are outliers, they suggest the most security conscious in the private sector are waking up to the risks of unmanned aircraft.

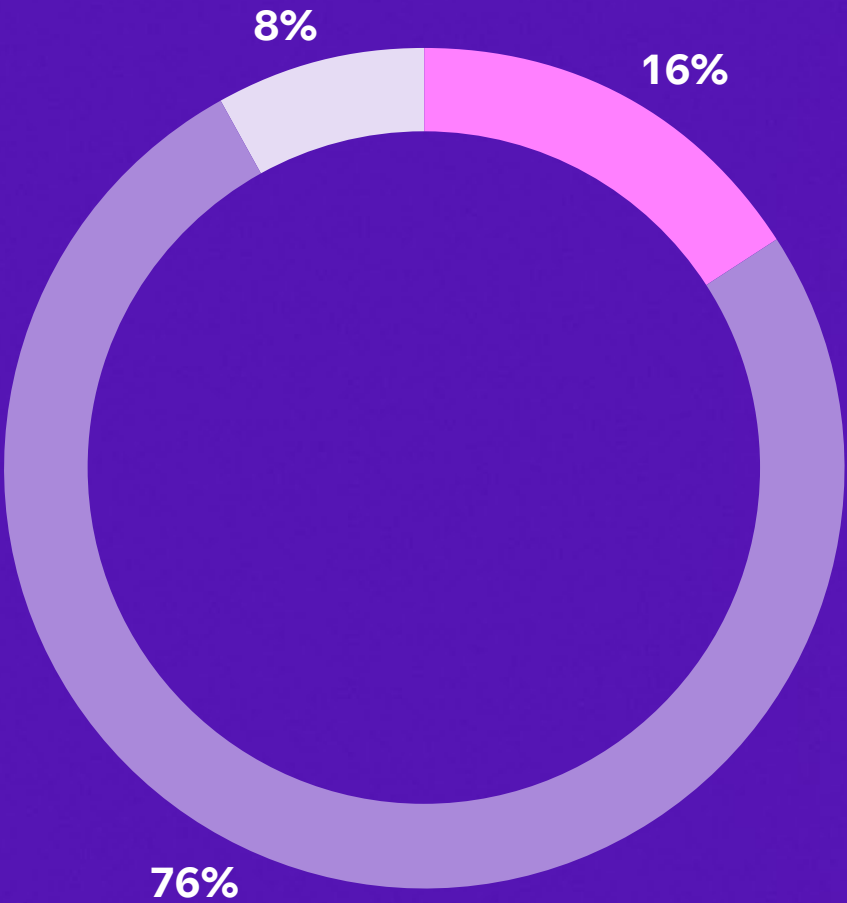
Most organisations remain unprotected

Q. What measures has your organisation implemented to protect against the risk of drones?



Counter-drone strategy adoption

Q. Does your organisation have a counter-drone strategy in place?



- Yes**
 - Manufacturing **23.8%**
 - Professional services **19.1%**
 - Transport and Logistics **9.5%**
 - Police **9.5%**
 - Media **9.5%**
 - Central government **4.8%**
 - Local government **4.8%**
 - Finance **4.8%**
 - Computing and telecommunications **4.8%**
 - University **4.8%**

Don't know

- No**
 - Manufacturing **29%**
 - Computing and telecommunications **19%**
 - Transport and logistics **7%**
 - Professional services **6%**
 - Engineering **5%**
 - Business services **5%**
 - Healthcare and life sciences **5%**
 - Recycling and waste management **1%**
 - Security **1%**
 - Wholesalers and distributors **3%**
 - Other **3%**
 - Construction **3%**
 - Police **3%**
 - Utilities **2%**
 - Electronics **2%**
 - University **1%**
 - Central government **1%**
 - Property service **1%**
 - Retail **1%**
 - Media **1%**

Lack of knowledge is putting the UK at risk

While most businesses don't think counter-drone systems are needed, a skills shortage may be stopping others from embracing the tech

Counter-drone systems help organisations level-up their security for the drone age. They can range from handheld and body-worn devices to vehicle-based and fixed solutions. Scanning the skies for drones with radio-frequency sensors, they give early warnings and advanced tracking to identify threats before they become a problem.

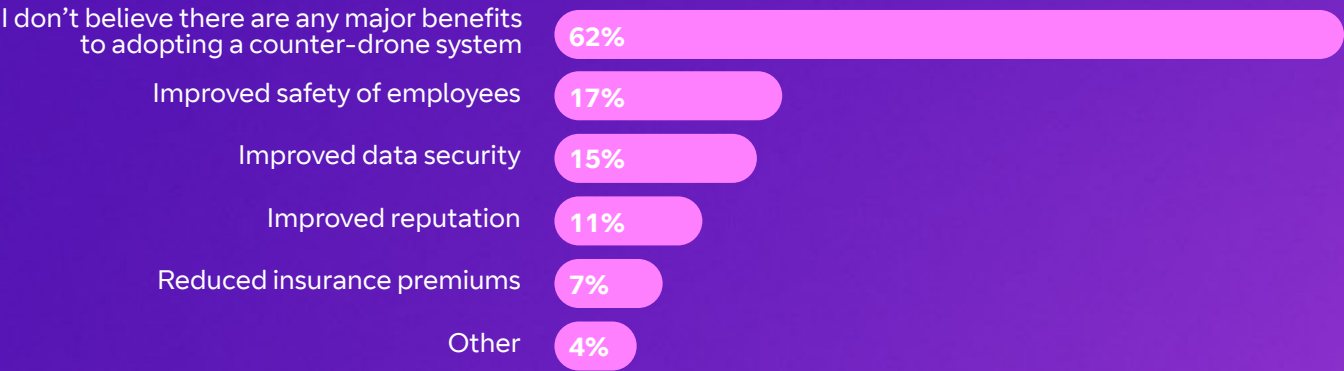
Though some organisations recognised that counter-drone systems could improve safety of employees (17%), data security (15%), reputation (11%) and a reduction in insurance premiums (7%). The vast majority (62%) couldn't see any benefits of having one. What's more, many of them do not consider a counter drone system a priority (48%) and 15% simply choose not to, despite not facing any barriers to investment.

Once again, this shows most organisations don't understand or underestimate the urgent need to rethink their security. But even amongst those that do think drones are a concern, other knowledge gaps were a problem. A combined 11% said they were unsure – either about how best to approach counter-drone security or where they can turn for guidance. This is also reflected in the 8% citing a lack of in-house expertise. The 5% that fear risk of liability suggests the need for clearer understanding of legal rights too.

This lack of understanding is likely to be down to drones still being an emerging technology, as 7% suggest. But it's an issue that is leaving UK organisations increasingly vulnerable as more and more unmanned aircraft fill the sky. Urgent action is needed.

Benefits of counter-drone security

Q. Do you feel that there are major benefits to your organisation in adopting or using a counter-drone system?



Reasons not to invest in counter-drone security

Q. What are the potential barriers to your business investing in a counter-drone system?



Afterword

By Dave Pankhurst, Head of BT's Drone Solutions unit

The evidence is clear,
the drone age is here.
So how can you adapt your
business and stay secure?

Every organisation is different and there is no one-size-fits-all way to keep safe. But from our vast experience of helping protect many types of businesses, here are a few pointers to kick-off a conversation about counter-drone security at your company.

Rethink how you define security

You already protect your perimeter with fences, guards and cameras. And defend your IT network with firewalls and virus detection. As you face a new threat from above, adopting a counter-drones strategy is just the next logical step. We recommend that you build it into any future plans from the outset. Identify your challenges and find the partners and services that can help.

A 'wait and see' approach isn't good enough

Whether deliberate or accidental, a rogue drone incident can come at a high cost, damaging reputations and endangering lives. And they're not just a future threat, they're happening now and becoming more common. So you need to act urgently. The risk isn't just physical either, as unmanned aircraft can also be used for surveillance right out of the box as well as modified to hack systems and steal your data.

Scan your skies to stay safe

Just putting a procedure in place for dealing with a rogue drone is a good start. But it's also cutting it very close. You won't know something is wrong until a drone's already breached your security. A counter-drone detection system gives you an early warning, sensing them from a distance. This gives you more time to respond. A system like this can also collect the evidence you need to prosecute drone pilots. Or use the data you collect to build up a better picture of drone behaviour in your area. Improving your security set-up.

This threat is constantly evolving

With new consumer models coming to market all the time, drone technology is only ever getting smarter, faster and cheaper. So make sure your counter-drone strategy is too. Make sure you regularly review it to keep up with airborne innovations. And use a security system that can adapt too, so that you can expand it or reconfigure it as needed.

We can help

If you're not sure where to begin, you only have to ask. We have 75 years' experience supplying security solutions. And invest £64 million per year to stay ahead of emerging threats like rogue drones. Plus, we've partnered with DroneShield to provide world-leading technology. So our experts can help you understand how your organisation is at risk from rogue drones. Then design and install a tailored system to your security needs. This can range from handheld and body-worn devices to vehicle-based and fixed solutions. All of which comes with 24/7 customer care.

Appendix

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- ¹¹ Booz Allen, 'Top 9 Cybersecurity Trends for 2020', https://www.boozallen.com/content/dam/boozallen_site/ccg/pdf/publications/top-9-cybersecurity-trends-for-2020.pdf
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Discover the rising risk of rogue drones

Don't just 'wait and see'. Book a drone vulnerability assessment now to find out how rogue drones can affect your organisation now.

Contact counterdronesolutions@bt.com



Research methodology

Exec Survey and Defence Online in partnership with BT surveyed 182 decision-makers across a broad cross-section of UK public services and businesses. Fieldwork was carried out 27 March to 27 April 2020.

Offices Worldwide

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