PUBLIC PERCEPTIONS: DRONES.

Institution of MECHANICAL ENGINEERS

SURVEY RESULTS 2019

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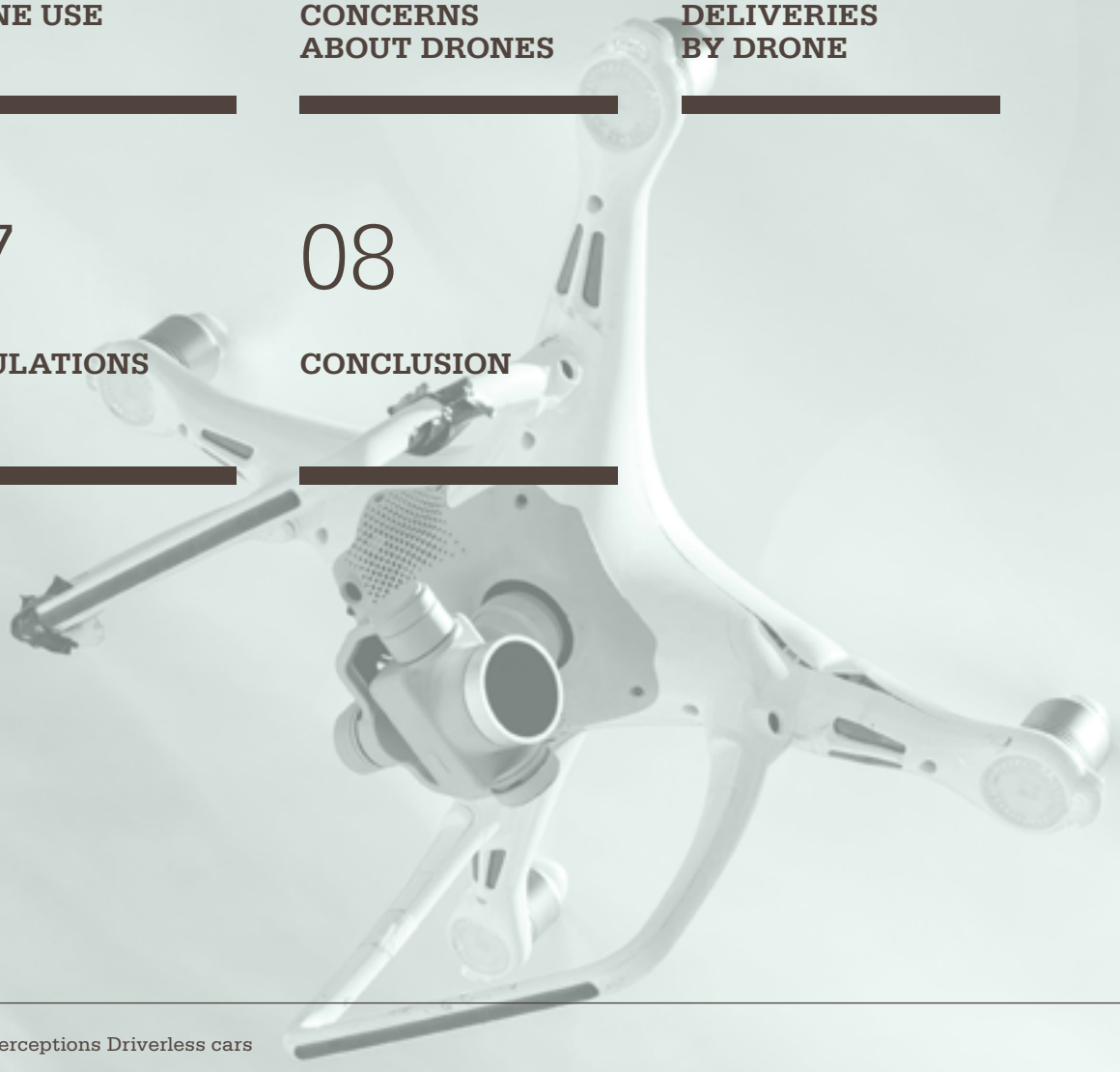
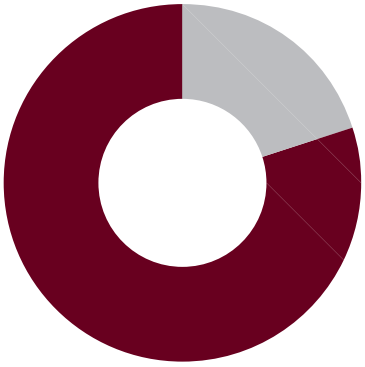


01 PUBLIC PERCEPTIONS: DRONES – KEY FINDINGS OF 2019 SURVEY

Three quarters of adults support the use of drones for emergency services response



Over **80%** say the government should put regulations in place for deliveries by drone

45% of respondents belive **top concern** about drone deliveries is "**people stealing from drones**"

Just under a quarter of adults support using drones for recreation (**24%**) and delivery of online orders (**23%**)

41% of **18-24**-year olds support the recreational use of drones, compared to **14%** of those aged **65-74**

45% of **18-24**-year olds would be happy to receive a delivery by drone compared to **18%** of **65-74**-year olds

Nearly **three quarters of adults** say communities should be consulted about drone deliveries

Only **35% of adults** know there are rules governing the flying of drones for personal use

RECOMMENDATIONS

1. Public Awareness Campaign

The drone-using community, companies and the Government need to work together to develop a public awareness campaign to increase the understanding of drone regulation and oversight. In order for the public to trust drones, it is essential people understand them and know about their advantages and limits.

2. Regulatory Framework

The Government should consult on new regulations on drone deliveries, in particular addressing the concerns about the wider community impact of deliveries to people's homes. There are specific concerns around preventing accidents in the sky, having too many drones flying in a neighbourhood and the potential impact on personal privacy.

01

KEY FINDINGS

- **Three quarters** of adults support the use of drones for emergency services response
- Just **under a quarter** of adults support the use of drones for recreation (24%) and delivery of online orders (23%)
- Those aged **under 25** are more likely to support the recreational use of drones; **41%** of people aged **18-24** support the use of drones in this way, compared to **14%** of those aged **65-74**
- Feeling comfortable receiving an online order delivered by drone also decreases with age; **45%** of **18-24-**year olds support the idea compared to **18%** of **65-74**-year olds
- **Top concerns** ranked in people's top three are drones being "used by criminals" (**49%**) being an "invasion of privacy" (**46%**), "causing travel disruption" (**43%**) and "compromising national security" (**42%**)
- **Top concern** about drone deliveries is "people stealing from drones" (**45%** ranked this in their top 3 concerns).
- **Nearly three quarters (73%)** of adults say communities should be consulted about drone deliveries in their area
- Over **80%** say the government should put regulations in place for deliveries by drone
- Only **35%** of adults know there are rules governing the flying of drones for personal use

RECOMMENDATIONS

1. The drone-using community, companies and the Government need to work together to develop a public awareness campaign to increase the understanding of drone regulation and oversight. In order for the public to trust drones, it is essential people understand them and know about their advantages and limits. The public need to be more aware of the existing rules in place that govern them and who oversees the implementation of these rules.
2. The Government should consult on new regulations on drone deliveries, in particular addressing the concerns about the wider community impact of deliveries to people's homes. There are specific concerns around preventing accidents in the sky, having too many drones flying in a neighbourhood and the potential impact on personal privacy.

The poll was carried out by ICM Unlimited and surveyed 2010 adults in Great Britain in August/September 2019

02

PUBLIC PERCEPTIONS: DRONES

Drones are becoming an increasingly familiar sight in the UK, playing a growing role in commercial activities as well supporting services such as speeding up the delivery of urgent medical supplies, or carrying out inspections on North Sea oil and gas platforms.

They are capable of going into hostile or inaccessible environments for search and rescue or research. Drones have been widely used to relay scientific data and for photography, for academic research as well as for other uses such as gathering content for the media.

To deliver on the huge promise of drones, much will depend on building consumer confidence both in how the unmanned aircraft are used and also the regulations governing their operation.

Unmanned aerial technology could have a major impact on the UK economy. In a recent report from PwC, "Skies without limits: Drones - taking the UK's economy to new heights", it was predicted that by 2030, 628,000 people would be working in the drone industry in the UK with 76,000 drones operating in UK skies for commercial activity and the emergency services.

Like much new technology, drones have attracted significant media attention both about the unprecedented opportunities they offer but also concerns they have raised.

We have seen media coverage over the last year dominated by stories of drones interfering with commercial aircraft operations and near misses, and in particular the reports of drone sightings at Gatwick Airport in December 2018 which caused major disruption to airlines and travellers.

One area where business is looking to expand its use of drones is delivering online orders – delivery drones are seen as a way to solve the problem of how to get items to people more quickly and cheaply, especially in traffic-congested cities.

Amazon trialled the use of drones to deliver goods in the UK in 2016, and there are reports that drone taxis will be trialled in the United States in 2020 for the first time. Uber is testing food delivery by drone in San Diego.

Drones could be a solution in traffic-congested cities, but limitations on their range mean that long-distance deliveries will not be practical.

The Institution of Mechanical Engineers is also active in supporting the development of drone technology and the opportunities it presents if unmanned aerial vehicles are used safely and responsibly. In 2015, the Institution launched the UAS Challenge, a drone design competition for universities in the UK and abroad. The competition, which aims to encourage innovation, has grown rapidly with over 30 teams entering in 2019.

The UK Government too is backing drone technology and in 2019 launched the Future Flight Challenge, which will provide up to £125 million to aerospace and other manufacturers to research and engineer new technologies and infrastructure. The focus will be initially on smaller aircraft and drones to ensure the suitability of the new technologies before developing them for larger passenger aircraft.

Clearly, as the use of drones has grown, so has the need for regulations to govern their use in industrial and leisure activities. These include legislation passed earlier in 2019 clarifying the rules around how far drones need to be kept away from airspace around airports.

From 30 November 2019, all owners of drones weighing more than 250 grams will be required by law to register their device with the Civil Aviation Authority and take an online safety test. Anyone who fails to do so faces fines of up to £1,000.

03

SURVEY

With the growing use of drones, the Institution of Mechanical Engineers commissioned research to find out more about public attitudes to unmanned aerial vehicles. On behalf of the Institution, ICM Unlimited asked eight questions to a nationally representative sample of 2010 people across Great Britain in late August/early September 2019.

The questions covered the key issues of:

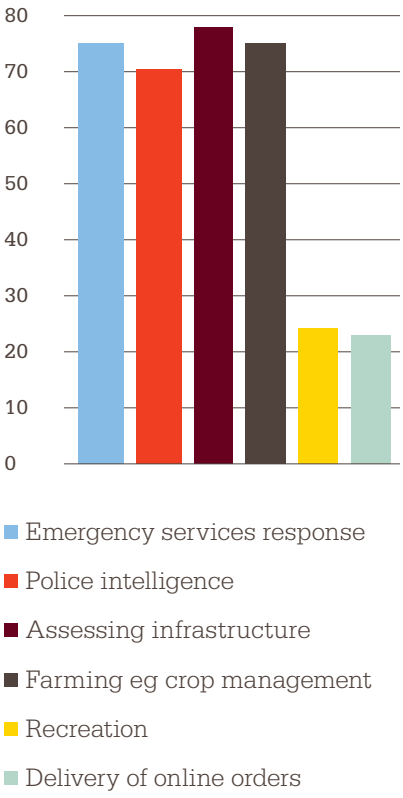
- Acceptance of the technology
- Specific concerns around drones
- Attitudes towards deliveries by drones
- Awareness of rules governing drones

In broad terms, the poll found high levels of support for drones being used for emergency services response, police intelligence, assessing infrastructure and farming (graph 1). Nearly three quarters of respondents are in favour of these uses, whereas just under a quarter support the use of drones for recreation and online deliveries.

Beyond these headline figures, though, we can see clear differences across age. Younger people are much more likely than their older counterparts to support the use of drones for recreation and delivery of online orders.

Finally, the poll also found that the two thirds of people interviewed were either unaware or unsure of the fact that rules exist governing the personal use of drones, highlighting the need for a public information campaign to raise awareness.

Graph 1. How much do you support the use of drones for these purposes?



04

DRONE USE

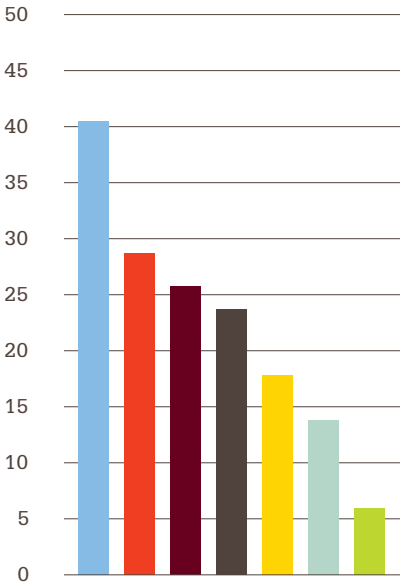
The poll found high levels of support for drones when the technology is seen as being used with a wider benefit to society but much lower levels of backing for drones being used for recreation or individual gain, such as a delivery of online orders.

The survey showed clear differences across age. Of the people in the 18-24-year age category, 41% supported the use of drones for recreation whereas just 14% in those aged 65-74 were happy with the idea (graph2).

Younger people were also more enthusiastic about drone deliveries with 45% in the 18-24 age group saying they could be comfortable about receiving an online delivery by drone, while just 18% of 65-74-year olds were in favour (graph 3).

Although there weren't significant differences between the regions, the South East of England was most supportive of the use of drones for recreation and for deliveries; Scotland was the least enthusiastic about these uses.

Graph 2. Support for recreational use of drones by age



05

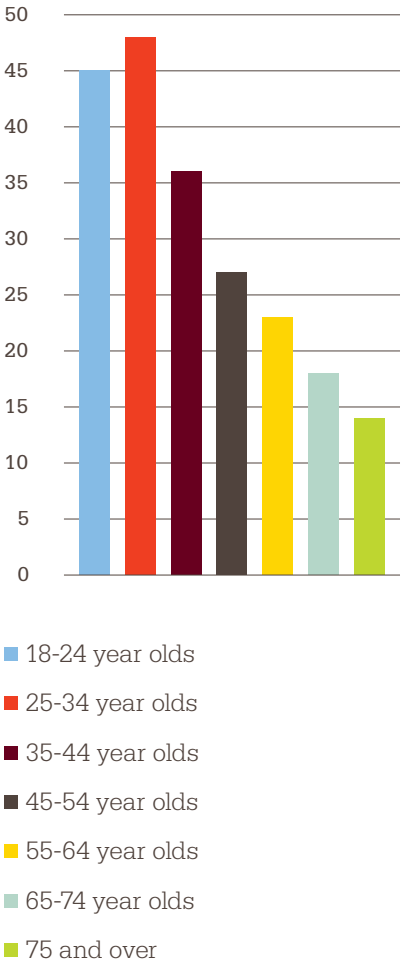
CONCERNS ABOUT DRONES

The concern ranked most often in people's top 3 is drones being "used by criminals", which was listed in the top three by 49% of people. This is closely followed by "invasion of privacy" (46%), "travel disruption" (43%) and "compromising national security" (42%).

Again, there are differences according to age with for example, those aged 45+ being more likely than those aged under 45 to mention drones being used by criminals among their top three concerns. Those aged 18-24 were most likely to mention harming wildlife (38%) in their top 3 concerns.

Other areas of concern were drones causing travel disruption at airports, compromising national security and accidents in the sky with other aircraft and drones. Just 8% of people were worried by the noise made by drones.

Graph 3. Support for receiving online deliveries by drone by age



06

DELIVERIES BY DRONE

There were clear age and gender differences in levels of comfort about the idea about the idea of deliveries by drone.

The poll found 45% of 18-24-year olds would be happy to receive a delivery by drone, just 18% of people aged 65-74 say the same. Men are more enthusiastic about the idea than women (37% vs 25%).

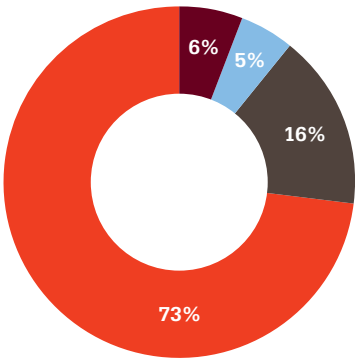
Interestingly, theft from a drone is the main concern about deliveries of online orders. This was mentioned by 45% of the respondents as being one of their top three concerns – a greater proportion than for any other issue. Other worries included 'drones dropping their delivery loads and causing accidents' (39%), followed by 'damage to delivered items' (30%).

Scepticism about drone deliveries was highlighted by the fact 39% of respondents say they can't see any advantages of them. Of those who did see benefits however, 39% mentioned less traffic on the roads and 30% said it was more environmentally friendly.

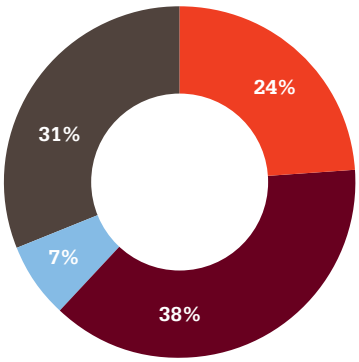
There is considerable concern about the impact drone deliveries could have on people's neighbourhoods. Just over 7 in 10 (73%) of people say communities should be consulted over whether there should be drone deliveries in their area (graph 4) with only 24% saying everyone should have a right to a drone deliveries regardless of what their neighbours say (graph 5).

People are keen for the Government to introduce rules to control drone deliveries – this is supported by 82% of respondents, with just 3% disagreeing.

Graph 4. Should communities be consulted on drone deliveries?



Graph 5. Should everyone have the right to drone deliveries whether or not people in their area agree?



- Agree
- Disagree
- Don't know
- Neither agree or disagree

07

REGULATIONS

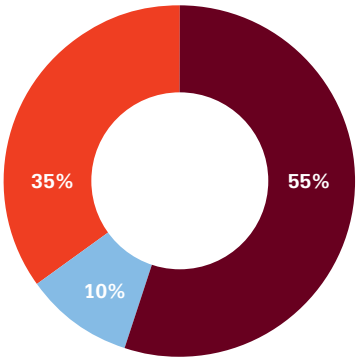
The poll points to an points to the need for a public awareness campaign to tell people that there are rules governing the personal use of drones and that drone pilots can't fly them wherever and however they like.

The survey found that just over half of the people interviewed were not aware of the rules governing the personal use of drones, with just 35% saying they knew there were some regulations in force (graph 6). When asked whether they thought the regulations were strict, the respondents were fairly evenly balanced across the spectrum from not strict at all to very strict. This could imply that even among those who said they were aware of rules existing, people have limited knowledge of the severity of these.

The rules have been tightened recently. From 30 November 2019, owners of drones weighing over 250 grams have to register them with the Civil Aviation Authority and take an online safety test.

In October 2019, the House of Commons Science and Technology Committee called for ministers to tighten the regulations on drones further, including introducing jail terms for people who refused to register them.

Graph 6. Are you aware of rules governing the personal use of drones?



- Yes
- No
- Don't know

08

CONCLUSION

Drones provide an emerging opportunity to transform areas of British life, from performing potentially dangerous inspections on North Sea oil rigs and offshore wind farms to being used by emergency services to help find lost people. They could also provide a major boost to the UK economy, with the potential to create thousands of new jobs and raise productivity.

The skills needed to develop the technology form a key part of the Government's Industrial Strategy aimed at ensuring the UK has a leading role in cutting-edge industries. This was highlighted by the launch of the joint government-industry Aerospace Sector Deal to develop Future Flight through the next generation of electric planes, drones and autonomous aircraft.

Public trust in the technology will be key to delivering on the promise offered by drones. The Institution's poll found people very supportive of uses seen to benefit society such as health, safety and security uses but much less enthusiastic for recreational use and drone deliveries.

Equally, there is a low level of public awareness about the rules governing drones. Two thirds of respondents did not know that flying drones for personal use is subject to regulations in the UK which became stricter from 30 November 2019. As drones become more incorporated into UK airspace, there is an increased risk to both safety and privacy – both concerns raised by the poll.

In order for the public to trust drones it is essential for people to understand them and know about their uses and advantages. The public need to be aware of the rules in place that govern them and who oversees the implementation of these rules.

The drone-using community, companies and the Government need to work together to increase the understanding of regulation and accountability. For the public to trust drone technology, they need to know there are rules in place governing their use and understand who is regulating unmanned aircraft.

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