Department for Transport

Taking flight: the future of drones in the UK

1. Introduction

Thank you for taking the time to read the consultation document and to respond to the questions. Your views will help contribute to the design of future drones policy.

Confidentiality and data protection

The Department for Transport (DfT) is carrying out this consultation on drone legislation in the UK. The consultation is being carried out in the public interest to inform the development of policy. DfT is the data controller for your personal information.

As part of this consultation we're asking for your name and email address. This is in case we need to ask you follow-up questions about any of your responses. You do not have to give us this personal information. If you do provide it, you consent to DfT using it only for the purpose of asking follow-up questions.

This consultation document has been developed in collaboration with other government departments and partner agencies. Consultation responses may be shared with these other bodies, but will not include personal details on respondents. This will aid in the facilitation of future government policy development and legislation.

You can withdraw your consent to be contacted at any time by emailing dronesconsultation@dft.gov.uk.

DfT's privacy policy has more information about your rights in relation to your personal data, how to complain and how to contact the Data Protection Officer.

To receive this information by telephone or post contact us on 0300 330 3000 or write to Data Protection Officer, Department for Transport, Ashdown House, Sedlescombe Road North, St Leonards-on-Sea, TN37 7GA.

Your personal information will be kept securely on a secure IT system within DfT and destroyed within 12 months after the consultation has been completed.

Filling in the questionnaire:

All questions are singular choice unless stated as multiple choice.

Guidance about which questions to complete, based on your choices, is included.

Sending your completed return

You can either attach the form to an email, sending it dronesconsultation@dft.gov.uk or post a printed copy to:

The Drones Policy Team
Technology & International Aviation (TIA) Division
Aviation Directorate
Department for Transport
33 Horseferry Road
London
SW1P 4DR

2. Personal details

Your:

name? Paul Bryan

email? paul.bryan@HistoricEngland.org.uk

Are you responding: *

- [X] on behalf of an organisation? (Go to 6.Organisational details)
- [ ] as an individual? (Go to 3.Individual details)

3. Individual details

Are you currently a drone user?

- [ ] Yes (Got to 4. Individual details: drone use)
- [ ] No (Go to 5. Individual details)

4. Individual details: drone use

You are: (multiple choice option)

- [ ] a leisure drone flyer?
- [ ] a model aircraft flyer?

- [ ] a General Aviation Pilot?
- [ ] a commercial drone flyer?
- [ ] other?

If you selected more than one option, which option is your primary option?

5. Individual details

How many drones do you think you will operate in:

the next 1 year?
2023?
2028?
the longer term?

(After answering individual details go to 7.Minimum age for an operator)

6. Organisation details

What describes your organisation best?

- [ ] A business that uses drones
- [ ] A business considering using drones
- [ ] Drone manufacturer
- [ ] A drone vendor
- [ ] A test centre
- [ ] An insurance company

- [ ] An airline
- [ ] A research institution or university
- [ ] An airport
- [ ] An airport consultative committee
- [ ] A membership or representative organisation
- [ ] A devolved government
- [ ] A local authority
- [ ] A statutory body
- [X] Another type of organisation:
  A statutory adviser on all matters relating to the historic environment in England that uses drones

How many drones do you think your organisation will operate in:

the next 1 year?	1
2023?	3
2028?	5-10
the longer term?	?

Your:

organisation name?	Historic England
organisation does?	Historic England is the Government's statutory adviser on all matters relating to the historic environment in England. We are a non-departmental public body established under the National Heritage Act 1983 and sponsored by the Department for Digital, Culture, Media and Sport (DCMS). We champion and protect England's historic places, providing expert advice to local planning authorities, developers, owners and communities, to help ensure our historic environment is properly understood, enjoyed and cared for
organisation interest in drones is?	Uses drones for geospatial survey, building recording, digital documentation, condition survey, conservation monitoring, building research, site presentation, marketing & promotion and web dissemination

7. Minimum age for an operator

An SUA (small drone) operator is the person who has the management of the small unmanned aircraft.

An SUA (small drone) remote pilot is an individual who operates the flight controls of the small unmanned aircraft by manual use of the controls, or when the small unmanned aircraft is flying automatically, monitors its course and is able to intervene and change its course by operating its flight controls.

The government is proposing that 18 is the minimum age requirement to be a SUA

operator.

The government is not proposing to introduce a minimum age requirement to be a remote pilot of a SUA.

Do you see any advantages to the introduction of a minimum age for SUA (small drone) operators?

- [X] Yes (Go to 8.Minimum age for an operator)
- [ ] No (Go to 9.Minimum age for an operator)
- [ ] Don't know (Go to 9.Minimum age for an operator)

8. Minimum age for an operator: advantages

What advantages?

This should increase the professionalism of the operators, their ability to consider and apply the regulations and the safety of the flying undertaken by their pilots and hopefully avoid very young operators from trying out their new small drone acquisitions before suitably considering the risks to them and others around them.

9. Minimum age for an operator

Do you see any disadvantages to the introduction of a minimum age for SUA (small drone) operators?

- [ ] Yes (Go to 10.Minimum age for an operator)
- [X] No (Go to 11.Minimum age for an operator)
- [ ] Don't know (Go to 11.Minimum age for an operator)

10. Minimum age for an operator: disadvantages

What disadvantages?

11. Minimum age for an operator

Do you agree with the government's proposal that a minimum age of 18 should be introduced for SUA (small drone) operators?

- [X] Yes (Go to 13.Minimum age for an

operator)

- [ ] No (Go to 12.Minimum age for an operator)

12. Minimum age for an operator: reasons against

Why not?

13. Minimum age for an operator

Do you believe that the introduction of a minimum age of 18 for SUA (small drone) operators will have:

- [X] a positive impact?
- [ ] a negative impact?
- [ ] no impact?

14. Minimum age for an operator: effects

Why?

It should increase the safety of flights be they undertaken professionally or simply for leisure purposes whilst encouraging those 'under-age' to fully research the regulations and risks so that when their time comes, they are better prepared.

15. Aerodrome restriction

The review into the aerodrome restriction will consider questions such as:

- what the minimal acceptable vertical separation between a drone and an aircraft should be
- how the geography surrounding airports could impact on this restriction
- areas where drones are likely to be used (such as public parks) which are near aerodromes, and could be issued with a permanent exemption
- whether additional categories should be added to the list of protected aerodromes
- whether the restriction has had any impact on the number of drone sightings and Airprox reports near aerodromes
- the number of permission requests generated, and what percentage were accepted or

rejected

- whether a different kind of restriction should be considered - such as radius circles near the runway thresholds

What other areas do you feel the review should cover?

The proposed aerodrome restrictions and consideration of different permissions depending on flying within inner and outer zones, currently appears sufficient. However we would need clarification on what is meant by a permanent exemption for drone flying in public parks near to aerodromes and whether this might impact on the use of drones in such spaces. Such sites often contain heritage which may need to be recorded, analysed and presented over time using drone acquired imagery so hopefully a permanent exemption will assist this as opposed to impede it.

16. Aerodrome restriction

Do you believe that the 1km restriction zone around a protected aerodrome is sufficient?

- [X] Yes (Go to 19. Aerodrome restriction: shape agreement)
- [ ] No (Go to 17. Aerodrome restriction: shape agreement)
- [ ] Don't know (Go to 19. Aerodrome restriction: shape agreement)

17. Aerodrome restriction: shape agreement

Do you feel that a restriction zone of a different shape would be more appropriate?

- [ ] Yes (Go to 18. Aerodrome restriction: alternative shaped)
- [ ] No (Go to 19. Model aircraft flying associations after “If no, why not?” comment box)
- [ ] Don't know (Go to 19. Model aircraft flying associations)

If no, why not?

18. Aerodrome restriction: alternative shaped

State the shape, its dimensions and why?

19. Model aircraft flying associations

In its response to the previous drone policy consultation, the government made a commitment to work with model aircraft flying associations to examine ways in which it may be possible to exempt members of model aircraft flying associations with adequate safety cultures and practices from certain elements of registration and other educational requirements, or where their club could be permitted to undertake regulatory requirements on their behalf.

Do you have any other proposals for solutions to minimise the impacts on safe model aircraft flying that we could consider?

No as Historic England and English Heritage have not experienced any problems to date caused by model aircraft flying in the vicinity of heritage sites.

20. Mandating and/or regulating a Flight Information and Notification System(s) (FINS)

The government is considering whether to legislate that for certain drone activity, certain users will be required to use an approved Flight Information and Notification System (FINS) to:

- view local airspace information
- check it is permitted to use the surrounding airspace
- create a notification that a drone is going to be flown at a particular location at a given time

It is proposed the FINS(s) could be digital, interactive and real time and a means of two-way communication between the user, other users around them, and relevant government authorities. We envisage the delivery mechanism could take the form of an electronic application (an 'app'), and may be used on a phone, tablet or web browser for example, but could equally be delivered via other equipment. Any solution would be built on open standards, to avoid lock in to a specific vendor and to encourage continued innovation for drone pilots and the sector.

The aim of this proposed policy is to increase drone user accountability, to ensure a flight can be made safely, without compromising the security or privacy of others. The real-time data and records made by a FINS could also be useful for enforcement.

Do current drone information apps provide enough support to ensure the safe and appropriate use of drones?

- [ ] Yes
- [X] No
- [ ] Don't know

Why?

Although there are some drone apps already available eg Drone Assist the information they provide does vary and lead to inconsistent support in the safe and appropriate use of drones. Also there isn't sufficient awareness of such apps across the drone community, particularly amongst leisure flyers who simply want to fly their drone for personal use and therefore don't engage with the needs of commercial drone operators.

Do you think there is a need to mandate the use of a FINS(s) for certain types of drone activity?

- [X] Yes
- [ ] No
- [ ] Don't know

Why?

This should be mandatory for commercial applications and even considered for public flying over non-remote sites where there is a risk to the general public.

Should the government explore options to achieve similar policy aims, but without mandating the use of a FINS(s)?

- [X] Yes
- [ ] No
- [ ] Don't know

Why?

It should explore other options if issues arise that prevent the mandatory use of FIN(s.

Do you agree with the requirement to use a FINS as outlined by the government?

- [X] Yes
- [ ] No

Why?

This appears a very useful development for the entire drone in the UK.

21. The Flight Information and Notification System(s)

What do you think should be the maximum mass of a drone for which its user should have to use a FINS(s), if such a requirement were to be introduced?

- [X] 20kg
- [ ] 50kg
- [ ] 100kg
- [ ] Over 100kg

Why?

This is the current maximum mass for a drone as used by most UK commercial and public/leisure flyers in the UK so should minimise any confusion caused by using a higher value.

Should there be a requirement to file a pre-flight notification on the FINS(s) before flying a drone?

- [X] Yes
- [ ] No

Why?

Certainly for commercial applications and ideally for public/leisure uses as well.

What do you think should be the minimum allowed time, prior to take-off, for filing a pre-flight notification on the FINS(s)?

- [ ] File the notification at point of take-off
- [ ] File the notification no less than 5 minutes before take-off
- [X] File the notification no less than 30 minutes before take-off

- [ ] File the notification no less than 1 hour before take-off
- [ ] File the notification no less than 3 hours before take-off
- [ ] Other:

Why?

The commercial application of drones is very dependent on weather conditions at the time of flying so the best pre-planned flights can often be delayed at very short notice.

What do you think should be the maximum allowed time, prior to take-off, for filing a pre-flight notification on the FINS(s)?

- [ ] File the notification at point of take-off
- [ ] File the notification no more than 5 minutes before take-off
- [ ] File the notification no more than 30 minutes before take-off
- [ ] File the notification no more than 1 hour before take-off
- [ ] File the notification no more than 3 hours before take-off
- [ ] File the notification no more than 24 hours before take-off
- [ ] File the notification no more than a week before take-off
- [X] Other:

12 hours

Why?

It makes sense to not introduce a system that requires mandatory notification greater than 1 day as that may lead to many short notice cancellations of FIN(s) and an unnessaary increased bureaucratic burden on the drone pilot. File the notification no less than 12 hours before take-off appears sensible as that can then be done the evening before and reduces the bureaucratic burden for the pilot on the day of flying.

It is proposed that drone pilots should not have sole responsibility in relation to the use of a FINS. Do you agree?

- [X] Yes
- [ ] No

Why?

The drone operator may need to submit a FINs if, for some reason, the remote pilot is unable to do so

before a pre-planned flight.

Should there be a duty on FINS providers to display accurate information?

- [X] Yes
- [ ] No
- [ ] Don't know

Why?

The information they provide about a pre-planned flight must be as accurate as a possible as without it, the object of mandating the use of FINs is seriously undermined.

Should it be an offence for a FINS provider to display inaccurate data to drone users?

- [X] Yes and
- [X] No
- [ ] Don't know

Why?

Yes that it should become an offence if seen to be flying a drone without submitting a FINs within the pre-defined minimum and maximum time limits but **No** to displaying inaccurate information without first defining what 'inaccurate' means for each component of the supplied FINs. It therefore makes sense to proceed with a non-offence trial which could then lead to an offence if for example the location of flying is regularly submitted differently to avoid drone operators and pilots needing to be too specific about their proposed flying.

What do you believe should be approved for the public to use?

- [X] A single FINS?
- [ ] Multiple FINSs?

Why?

Given this is a new system it appears sensible to start by having a single FINs system to increase consistency of use and accuracy of information submitted. After a trial period, such as a year and the use of FIN's has become an accepted approach, the development of other multiple FINs could be explored.

In your opinion what should the FINS(s) cover?

- [X] All of the UK
- [ ] Select regional information, but together the multiple FINSs would provide full UK coverage?
- [ ] Other:

Why?

Given this is a new system it appears sensible to start with full UK national coverage and only consider other options if these become issues during the initial trial period.

22. Access to the Flight Information and Notification System(s)

Besides poor signal, no battery on the electronic device, maintenance or crashing do you think there are other scenarios which could restrict access to the FINS(s)?

- [ ] Yes (Go to 23. Access to the Flight Information and Notification System(s))
- [X] No (Go to 24. Access to the Flight Information and Notification System(s))
- [ ] Don't know (Go to 24. Access to the Flight Information and Notification System(s))

23. Access to the Flight Information and Notification System(s)

What scenarios?

24. Access to the Flight Information and Notification System(s)

If real time access to the FINS(s) cannot be gained do you believe the drone flight should be allowed?

- [X] Yes (Go to 25. Access to the Flight Information and Notification System(s))
- [ ] No (Go to 26. Managing system providers for the Flight Information and Notification System(s))

25. Access to the Flight Information and Notification System(s)

Do you think there should be an exception from using real time data on the FINS(s) if access is restricted by: (Multiple choice)

- [ ] poor signal?
- [ ] no battery on device?
- [X] the FINS crashing?
- [X] the FINS being offline for maintenance?
- [ ] other?

Why?

Poor signal - **No** as the drone operator/remote pilot should make every effort to ensure they are in an area of good signal when submitting their FINs and if they know they will be working in a remote area that is likely to have a poor signal. Like they already do regards checking the weather they should also get used to checking signal strength in their proposed flying location and factoring that into their flight planning procedures.

No battery on device - **No** as the drone operator/remote pilot should factor this into their flight planning procedures as they do with the batteries for the actual drone hardware

The FINS crashing – **Yes** as this is outside the drone operator/remote pilot's control

The FINS being offline for maintenance – **Yes** as this is outside the drone operator/remote pilot's control.

If real time access to the FINS cannot be gained, how should this be managed? (Multiple choice)

- [X] Allow drone flight in certain scenarios
- [ ] Allow drone flight using offline maps and data from FINS(s)
- [ ] Allow drone flight in designated geographically zoned low risk areas, but not in higher risk areas
- [ ] Other:

26. Managing system providers for the Flight Information and Notification System(s)

Which organisation do you believe is best suited to manage and regulate the FINS(s)?

- [ ] Civil Aviation Authority
- [X] NATS (the UK air navigation service provider)
- [ ] Department for Transport
- [ ] Other:

Why?

NATS already have full control of air traffic operation within UK space and can therefore immediately see how submitted FINs might fit within proposed flying within a specific regional airspace at a specific date/time. The only downside is the increased operational burden it places on an already at-capacity NATS system and organisation.

In line with government strategy should anonymised drone data from the FINS(s) be shared with the industry to drive technological development?

- [X] Yes
- [ ] No
- [ ] Don't know

Why?

This greatly assists in resolving any initial problems that will almost certainly be encountered whilst immediately contributing to achieving the strategies initial aims and objectives.

For the purposes of carrying out their function, to which organisation or organisations should a FINS provider have to provide data if requested? (Multiple choice)

- [X] Department for Transport
- [X] Civil Aviation Authority
- [X] Police
- [X] Intelligence and Security Services
- [X] Border Force
- [X] National Crime Agency
- [X] HM Prisons and Probation Service
- [ ] None of the above
- [ ] Other:

Why?

Department for Transport – **Yes** to aid development of the FINs system

Civil Aviation Authority– **Yes** to aid development of the regulatory system

UK Police – **Yes** to immediately help with any offences by drone operators/remote pilots or crimes committed during the actual flying process

Intelligence and Security Services - **Yes** to immediately help with any surveillance offences by drone operators/remote pilots

Border Force - **Yes** to immediately help with any illegal entry or trafficking offences by drone operators/remote pilots

National Crime Agency - **Yes** to immediately help within their fight to cut serious and organised crime in the UK

HM Prisons and Probation Service - **Yes** to immediately help with any illegal flying offences outside and over prisons.

There would be a duty on any FINS(s) provider(s) to provide information to a list of organisations specified in legislation. The specified organisation(s) may only request information in order for them to carry out their function. Potential specified organisations may include, but are not limited to:

- the Civil Aviation Authority
- the Department for Transport
- UK police
- Intelligence and Security Services

Do you agree it should be an offence for a FINS system provider to withhold information from a specified organisation if a valid request for data is made?

- [X] Yes
- [ ] No
- [ ] Don't know

Why?

Without this requirement the whole FINs system will be seriously undermined.

Do you believe certain organisations should have some level of instant, or near instant, access to all data on the FINS(s)?

- [X] Yes
- [ ] No
- [ ] Don't know

Why?

27. Managing system providers for the Flight Information and Notification System(s)

Which organisation do you believe should have some level of instant, or near instant, access to all data on the FINS(s)? (Multiple choice)

- [X] Police
- [X] Intelligence and Security Services
- [ ] Border Force
- [ ] National Crime Agency
- [ ] HM Prisons and Probation Service
- [ ] Other:

Why?

This will be vital for those organisations that have to deal with drone related offences.

Do you believe there should be a charge to the drone user in order to use a FINS?

- [ ] Yes
- [X] No

Why?

To encourage adoption of the initial FINs system the government should bear the initial developmental and operational costs and not charge the drone user to use a FINs. This could be re-assessed after an initial one year trial period to gauge if charges are then needed beyond the initial government funding contribution.

28. Future development for the Flight Information and Notification System(s)

If a FINS provider decided to charge for using the system, should the government maintain the ability to control the maximum cost that could be charged?

- [X] Yes
- [ ] No
- [ ] Don't know

Why?

Like with the current MOT system this appears a sensible way forward in capping the maximum cost but providing some scope for competition and potentially a lower cost to the drone user.

Do you think there is a need to have a Special Administration Regime to manage the risk of insolvency for FINS providers?

- [ ] Yes
- [X] No
- [ ] Don't know

Why?

Initially there should be just one FINs provider to get this new system 'off the ground' and any risk associated with them borne by the government.

Are you a technology provider or company considering being involved in the development of a FINS? *

- [ ] Yes (Go to 29. Future development for the Flight Information and Notification System(s))
- [X] No (Got to 32. Model aircraft flying associations and the Flight Information and Notification System(s))

29. Future development for the Flight Information and Notification System(s)

If an approach is chosen that uses multiple FINSs, in your opinion would it be better to have:

- [ ] all FINSs transfer information to a single back end system?
- [ ] multiple FINSs transferring information between each other directly?

Why?

How would you consider funding a FINS? (Multiple choice)

- [ ] Charge the drone user
- [ ] Charge the industry
- [ ] Use adverts
- [ ] Have additional add-ons that can be purchased
- [ ] Other:

Why?

Would you anticipate a yearly subscription fee for users of the FINS(s)?

- [ ] Yes (Go to 30. Yearly cost)
- [ ] No (Go to 31. Future development for the Flight Information and Notification System(s))
- [ ] Don't know (31. Future development for the Flight Information and Notification System(s))

30. Yearly cost

How much?

31. Future development for the Flight Information and Notification System(s)

Would you consider bidding for the work to provide a FINS?

- [ ] Yes
- [ ] No

Why?

Would you be interested in attending a government focus group session with other potential sector technology providers?

- [ ] Yes
- [ ] No

32. Model aircraft flying associations and the Flight Information and Notification System(s)

Should the government work with model aircraft flying associations to consider ways in which the policy could be shaped to minimise the impact of any new legislation relating to FINS(s) for this group?

- [ ] Yes
- [X] No

Why?

The main focus should initially be on drones given their increasingly widespread usage and rapiudly developing applications. Model aircraft clubs appear to be well managed already and their flying undertaken in controlled spaces so FIN(s) in its current form doesn't appear an appropriate process for them.

33. Police powers and Fixed Penalty Notices

The government proposes new police powers of:

1. require the production of evidence in specified circumstances (such as where there is a reasonable suspicion of the commission of an offence) for:

- drone operator registration
- remote pilot acknowledgement of competency
- the use of a mandated and/or regulated Flight Information and Notification System by the remote pilot and/or drone operator, should the decision be taken to mandate their use
- other evidence relevant to legal flying requirements, including commercial permissions or exemptions from the CAA to adhere to any Air Navigation Order 2016 articles

2. obtain information such as the names and addresses of the registered drone operator and/or remote pilot believed to be in charge of the drone in specified circumstances (such as where there is a reasonable suspicion of the commission of an offence). If the identity of the drone operator is not provided, the name and address of who made the drone available for use by the remote pilot

3. require a remote pilot to land a drone in specified circumstances.

4. enter and/or search premises, with a warrant, where there is reasonable suspicion that there is a drone and/or its associated components which a constable reasonably suspects of having been involved in the commission of an offence

5. seize and retain a drone and/or its associated components which a constable reasonably believes of having been involved in the commission of an offence on entering and/or searching premises

6. access information stored electronically on a seized drone and/or its associated components which a constable reasonably suspects:

- is evidence in relation to an offence; or
- has been obtained in consequence of the commission of an offence; and
- that it is necessary to do so in order to prevent it being concealed, lost, tampered with or destroyed

7. require any information stored in electronic form on a drone to be produced in a form in which it can be taken away and in which it is visible and legible. The power can only be exercised if a constable has reasonable grounds for believing that:

- it is evidence in relation to an offence; or
- it has been obtained in consequence of the commission of an offence; and
- that it is necessary to do so in order to prevent it being concealed, lost, tampered with or

destroyed

8. stop and search powers. The Home Office intends to consult on extending stop and search to cover the possession of corrosive substances in a public place without good reason. We are working with the Home Office to consider the possibility of including within that a similar power for the possession of drones in certain circumstances

Do you agree that the police require new powers in relation to the misuse of drones?

- [X] Yes (Go to 35. Police powers and Fixed Penalty Notices)
- [ ] No (Go to 34. Enforcement)
- [ ] Don't know (Go to 35. Police powers and Fixed Penalty Notices)

Why?

This is long overdue and even though it won't stop all drone offences occurring it should make some 'rogue' operators think twice before flying their drone in a dangerous or illegal manner.

34. Enforcement

58. As you are against greater police powers in relation to drones misuse you can either:

- [ ] continue answering questions about police powers? (Go to 35. Police powers and Fixed Penalty notices)
- [ ] skip to the next section on counter drone technology? (Go to 41. Counter drone technology)

35. Police powers and Fixed Penalty Notices

Do you agree that the police should be able to require the production of evidence from drone users where:

	Yes	No	Don't know
there is a reasonable suspicion of an offence being perpetrated?	X		
compliance with a legal requirement is being checked?	X		

Why?

Any drone operator/remote pilot who flies their drone safely and within the regulations shouldn't have

a problem with any of this and welcome the suggested compliance checking

The government proposes to allow drone users such as operators and/or remote pilots a 7 day grace period within which to produce evidence at a police station, that they have complied with the law. This will minimise the burden on magistrates courts as well as allow those who may not have the necessary documentation on them, to demonstrate their compliance. If a person does not produce this evidence, they will be liable to paying a Fixed Penalty Notice fine (more details on this in the next section). This process is similar to that of certain road traffic offences as contained in the Road Traffic Act 1988.

Do you agree with the proposal to grant a 7 day grace period to produce this evidence?

- [X] Yes
- [ ] No
- [ ] Don't know

Why?

We'd expect any commercial drone operator/remote pilot undertaking work on behalf of either Historic England or English Heritage to carry their documentation with them during any commissioned drone flying so it can be immediately checked for compliance by either the site staff or the police.

36. Police powers and Fixed Penalty Notices

Do you agree that the police should be able to obtain information to check that the following have complied with the law?

	Yes	No	Don't know
A drone user	X		
A drone operator	X		
A remote pilot	X		
The person who made the drone available for use	X		

Why?

Only by applying this across all potential users of a drone will any potential loop-holes be avoided that rogue operators/pilots can potentially mis-use.

Do you agree that the police require powers to instruct a remote pilot to land a drone, if there is a reasonable suspicion of the commission of an offence?

X Yes

☐ No

☐ Don't know

Why?

Although this would have to be done in a safe manner and not place any members of the public at risk by the intervention of the police.

Do you agree that the police require powers to instruct a remote pilot to land a drone, if a constable believes that:

	Yes	No	Don't know
it will protect persons from harm, harassment, alarm or distress?	X	☐	☐
it will protect persons occupying any premises from nuisance?	X	☐	☐
it is causing an annoyance relating to the occupation of a premise?	X	☐	☐
it will protect public order?	X	☐	☐
it will protect property from damage?	X	☐	☐
it would assist in exercising the functions of a police constable?	X	☐	☐

Why?

Yes to all of them although the constable will need to have solid evidence immediately available to back up their instruction and not be acting on the basis of a single objection by one member of the public who simply has a dislike of drones or and potential invasion of their personal space.

Do you agree the police should have the power, when a drone and/or its components are suspected of being involved in the commission of an offence, to enter and search premises with a warrant?

X Yes

☐ No

☐ Don't know

Why?

So long as there is solid evidence to back up the search.

Do you agree the police should have the power, when a drone and/or its components are believed of being involved in the commission of an offense, to seize and retain the drone or its associated components?

X Yes
☐ No
☐ Don't know

Why?

So long as there is solid evidence to back up the search.

Do you agree the police should have the power to access electronically stored information from the drone or its components if a constable reasonably suspects that it is:

1. evidence in relation to an offence or has been obtained in consequence of the commission of an offence and
2. necessary to do so in order to prevent it being concealed, lost, tampered with or destroyed?

X Yes
☐ No
☐ Don't know

Why?

So long as there is solid evidence to back up the search.

Do you agree the police should have the power to require any information stored on the drone or its associated components to be duplicated in a legible form that can be taken away if a constable believes that it is:

1. evidence in relation to an offence or it has been obtained through committing an offence and
2. necessary to prevent concealment, loss, tampering or destruction of the data?

- [X] Yes
- [ ] No
- [ ] Don't know

Why?

So long as there is solid evidence to back up the search.

These proposed powers are only being considered for police constables. Do you believe any of the proposed powers should also be extended to: (Multiple choice)

- [ ] prison officers?
- [X] police community support officers?
- [ ] civil enforcement officers?
- [ ] other?

Are there other powers you feel the police should have in relation to drone misuse?

- [X] Yes (Go to 37. Additional police powers)
- [ ] No (Go to 38. Police Powers and Fixed Penalty Notices)
- [ ] Don’t know (Go to 38. Police Powers and Fixed Penalty Notices)

37. Additional police powers

What powers and why?

Following up on the uploading of drone acquired videos to social media platforms eg YouTube that show illegal flying outside the current regulations eg flying at heritage sites without keeping visible contact with the drone at all times.

Hacking of drone firmware to allow flying within geo-fenced areas.

38. Police powers and Fixed Penalty Notices

We propose to attach FPNs to the following offences of:

- not producing registration documentation, and/or proof of registration for drones between 250g and up to and including 20kg, at the request of a police constable
- not producing evidence that a flight plan was submitted before flying, or that an appropriate FINS is being used, should the decision be taken to mandate the use of FINS
- not producing evidence of any other relevant permissions required by legislation, for example if you are a commercial drone operator or when flying a drone 20kg and above
- not complying with a police officer when instructed to land a drone
- flying a drone without a valid acknowledgement of competency, or failure to provide evidence of meeting this competency requirement when requested
- other offences under the Air Navigation Order 2016, such as flying a small drone (small unmanned aircraft - SUA) with a camera or other data collection device within 50 metres of people, vehicles or buildings

Looking to the Road Traffic Offenders Act 1988 for comparable penalty levels, we would look to set the penalty range from £100 to £300. The exact penalty amount for the different offences will not be specified in the Bill.

Do you agree that Fixed Penalty Notices (FPN) are a suitable alternative to prosecution for certain drone-related offences?

- [X] Yes (Go to 40. Police powers and Fixed Penalty Notices)
- [ ] No (Go to 39. Against FPN's)
- [ ] Don't know (Go to 40. Police powers and Fixed Penalty Notices)

39. Against FPN's

Why not?

As you are against using Fixed Penalty Notices you can either:

- [ ] continue answering Fixed Penalty Notice questions? (Go to 40. Police powers and Fixed Penalty Notices)
- [ ] skip to the counter drone technology section? (Go to 41. Counter drone technology)

40. Police powers and Fixed Penalty Notices

Do you agree that if a person is unable to produce the required evidence within 7 days of a police constable's request they should receive an FPN?

- [X] Yes
- [ ] No
- [ ] Don't know

Why?

Particularly if a commercial drone operator/remote pilot who should know better and have their documentation with them at all times when flying a drone above a site.

Do you agree that drone users not complying with a police officer's instruction to land a drone should receive a FPN?

- [ ] Yes
- [X] No
- [ ] Don't know

Why?

Not straight away as the officer may need to carry out additional investigations before considering issuing a FPN.

Do you agree that the FPN cost should be between £100 and £300 pounds?

- [X] Yes
- [ ] No
- [ ] Don't know

The power to issue FPNs is only being considered for police constables. Do you believe the power to issue a FPN should also be given to: (Multiple choice)

- [X] Police community support officers?
- [ ] Council enforcement officers?
- [ ] Other:

41. Counter drone technology

The UK government assesses that the use of drone detection technology should be only where it is necessary and proportionate for one or more of the following operational purposes:

- in the interests of national security
- for the purpose of preventing or detecting crime
- for the purpose of safeguarding the economic well-being of the UK
- in the interests of public safety
- for the purpose of preventing death or injury to a person; or
- for the purpose of preventing damage to property
- for the purpose of maintaining prison security or good order and discipline

Do you think the operational purposes identified for the use of drone detection technology are appropriate?

- [X] Yes (Go to 43. Counter drone technology)
- [ ] No (Go to 42. Drone detection technology principles)
- [ ] Don't know (Go to 43. Counter drone technology)

42. Drone detection technology principles

Why not?

43. Counter drone technology

The government recognises that to ensure the appropriate use of drone detection technology, a number of safeguards must be put in place. It is considered that the following types of safeguards could be appropriate when any drone detection technology is operational:

- drone detection technology is limited to use by trained and/or licensed operators
- there is a clear purpose and scope for use of the technology, and operational policy specific to each site which is in line with appropriate legislation (for example, a defined code of practice)
- where applicable, a full risk assessment is conducted in line with Health and Safety legislation
- a Memorandum of Understanding with the relevant regulatory bodies could be put in place where appropriate, covering dispute resolution mechanisms and resolving difficulties arising from malfunctioning or misuse of the technology
- any data captured from drone detection technology is managed (including storage and transference) in accordance with the appropriate
- the technology is only deployed in line with an operational requirement where its use is deemed necessary and proportionate in line with appropriate legislation
- the technology has undergone fit for purpose testing and testing to minimise incidental interference
- regulatory bodies with responsibility for oversight of the technology deployed are informed when the drone technology is installed and where possible, prior to its

installation

- depending on the nature of the site or event, organisations warn the public that unauthorised drone use will be monitored and enforcement action may be taken; and/or
- there is appropriate insurance in place

Do you think the safeguards identified for the use of drone detection technology are appropriate?

- [X] Yes (Go to 45. Counter drone technology)
- [ ] No (Go to 44. Drone detection technology safeguards)
- [ ] Don't know (Go to 45. Counter drone technology)

44. Drone detection technology safeguards

Why not?

Are there other safeguards for the use of drone detection technology you think we should consider?

45. Counter drone technology

The government plans to develop a clear policy framework governing the use of drone detection technology, and set minimum operator training standards. It will also publish

guidance on drone detection technology and guidelines for the development of a clear purpose and scope for use of the technology, and operational policy.

Do you think there is anything else that should be done to assist organisations in meeting the defined safeguards?

- [X] Yes (Go to 46. Assisting organisations in meeting safeguards)
- [ ] No (Go to 47. Counter drone technology)
- [ ] Don't know (Go to 47. Counter drone technology)

46. Assisting organisations in meeting safeguards

What should be done to assist organisations in meeting the safeguards?

Rather than considering this 'behind closed doors' convene an initial stakeholder workshop comprising drone operator/pilots, client organisations, police, government staff and public representatives that can openly discuss and agree the main themes of such policy and guidance.

47. Counter drone technology

The government recognises that in order for organisations to defer authority to trained security personnel to make an assessment of threat, a number of safeguards must be put in place. Trained security personnel will include military personnel, the police, prison staff, private security managers and commercial guard forces. It is proposed that the following types of safeguards ought to be considered:

- a minimum training requirement; and
- a site specific operational policy informed by the government guidance on how to assess a drone threat

Do you think the safeguards identified to enable deferred authority are appropriate?

- [X] Yes (Go to 49. Counter drone technology)
- [ ] No (Go to 48. Deferred authority)

☐ Don't know (Go to 49. Counter drone technology)

48. Deferred authority

Why not?

What other safeguards would you like to be considered to enable deferred authority?

Whoever receives deferred authority should really have some prior experience of drone flying or working with drones so they have some practical knowledge of what constitutes an irregular drone profile when in flight.

49. Counter drone technology

The UK government assesses that the use of drone electronic effector technology should be only where it is necessary and proportionate for one or more of the following possible specified operational purposes:

- in the interests of national security
- for the purpose of preventing or detecting crime
- for the purpose of safeguarding the economic well-being of the UK
- in the interests of public safety
- for the purpose of preventing death or injury to a person; and/or
- for the purpose of preventing damage to property
- for the purpose of maintaining prison security or good order and discipline

Do you think the operational purposes identified for the use of drone electronic effectors are appropriate?

- [ ] Yes (Go to 51. Counter drone technology)
- [X] No (Go to 50. Drone electronic effector principles)
- [ ] Don't know (Go to 51. Counter drone technology)

50. Drone electronic effector principles

Why not?

The effect of deploying electronic effectors within various urban, rural and historic environments has not yet been fully tested and openly demonstrated. That said there is already justification for exploiting them in the interest of national security, public safety, preventing death or injury to a person and prison security but their impact on other electronic devices and systems that are widely used by the public eg GNSS could be catastrophic and generate more problems than they solve.

51. Counter drone technology

The government is undertaking work to evidence the potential for collateral damage when electronic effector drone technology is used, and to seek to identify appropriate mitigations, which may include government advice on where to situate, and when to operate, such effectors. The government is also working to understand, and standardise if needed, what happens to the drone once this drone electronic effector technology is activated, e.g. the drone returns to home or lands safely. The results of this will also be used to develop safety mitigations.

Should any other studies be conducted to minimise the safety risks associated with deploying electronic effectors in the UK?

- [X] Yes (Go to 52. Electronic effector studies)
- [ ] No (Go to 53. Counter drone technology)
- [ ] Don't know (Go to 53. Counter drone technology)

52. Electronic effector studies

What should the studies focus on?

The effect on GNSS systems used for navigation by the public (and driverless cars in the future) should be fully investigated as well any impact on the human body itself by introducing even more incidental electronic signals within a small, localised area that may be densely populated if within an urban

centre.

53. Counter drone technology

The government recognises that to ensure the appropriate use of this technology a number of safeguards must be put in place, and is giving consideration to the following types of possible safeguards when drone electronic effectors are in place:

- drone electronic effectors are limited to use by trained, and approved and/or licensed operators
- there is a clear purpose and scope for use of the technology, and operational policy specific to each site, which is in line with appropriate legislation (for example, a defined code of practice)
- where applicable, a full risk assessment is conducted in line with Health and Safety legislation
- a Memorandum of Understanding with the relevant regulatory bodies is put in place where appropriate, covering dispute resolution mechanisms and resolving difficulties arising from the malfunctioning or misuse of the technology
- any data captured from drone electronic effectors is managed (including storage and transference) in accordance with the appropriate legislation, e.g. the Data Protection Act
- the technology is only deployed in line with an operational requirement where its use is deemed necessary and proportionate, in line with appropriate legislation, e.g. Article 8 of the European Convention on Human Rights
- the technology has undergone fit for purpose testing and testing to minimise incidental interference
- regulatory bodies with responsibility for oversight of the technology deployed are informed prior to installation of any drone electronic effectors
- depending on the nature of the site or event, organisations warn the public (use of public communications, community engagement and signage) that unauthorised drone use will be monitored and enforced; and/or
- there is appropriate insurance in place

Do you think the safeguards proposed for the use of drone electronic effectors are appropriate?

- [X] Yes (Go to 55. Counter drone technology)
- [ ] No (Go to 54. Electronic effector safeguards)
- [ ] Don't know (Go to 55. Counter drone technology)

54. Electronic effector safeguards

Why not?

What other safeguards should be considered for the use of drone electronic effectors?

55. Counter drone technology

The government is considering the development of a clear policy framework governing the use of drone electronic effectors, and set minimum operator training standards. This could include publishing guidance on drone technology and the importance of a layered response, in a way which is proportionate to the threat. It could also include guidelines on the development of a concept of operations for using drone electronic effectors, including rules of engagement and guidance on the collateral damage study caused by certain types of electronic effectors to assist organisations in determining the most appropriate technology to choose and in developing their concept of operations.

Do you think anything else should be done to assist organisations in meeting the defined safeguards?

- [x] Yes (Go to 56. Assisting organisations in meeting safeguards)
- [ ] No (Go to 57. Counter drone technology)
- [ ] Don't know (Go to 57. Counter drone technology)

56. Assisting organisations in meeting safeguards

What else do you think should be done?

A stakeholder workshop would be a useful opportunity to gauge initial thoughts from organisations, such as Historic England and English Heritage that use drones for various heritage applications and individuals that might be involved in developing, regulating, applying or responding to the proposed use of electronic effectors.

57. Counter drone technology

Testing drone detection technology and drone electronic effectors is required to enable current or further activities for one or more of the following purposes:

- in the interests of national security
- for the purpose of preventing or detecting crime
- for the purpose of safeguarding the economic well-being of the UK
- in the interests of public safety
- for the purpose of preventing death or injury to a person
- for the purpose of preventing damage to property
- for the purpose of maintaining prison security or good order and discipline

Do you think the requirements identified for both the testing of drone detection technology and drone electronic effectors are appropriate?

- [X] Yes (Go to 59. Counter drone technology)
- [ ] No (Go to 58. Requirements for drone detection technology and effectors)
- [ ] Don't know (Go to 59. Counter drone technology)

58. Requirements for drone detection technology and effectors

Why not?

59. Counter drone technology

The government recognises that to minimise the risks of testing these technologies a number of safeguards must be put in place. It is proposed that the following possible safeguards could be enforced when testing counter drone technology:

- there is a clear purpose and scope for the testing of drone detection technology and drone electronic effectors
- testing is only permitted on government authority
- where applicable, a full risk assessment is conducted in line with Health and Safety legislation
- a Memorandum of Understanding with the relevant regulatory bodies is put in place where appropriate, covering dispute resolution mechanisms and resolving difficulties arising from the malfunctioning of technology during testing
- any data captured during the testing of drone detection technology or drone electronic effectors is managed in accordance with the appropriate legislation, e.g. the Data Protection Act
- depending on the nature of the testing, organisations warn the public (use of public

communications, community engagement and signage) that testing is taking place

- there is appropriate insurance in place
- for drone electronic effectors, testing only takes place in a government defined controlled environment
- for drone electronic effectors, appropriate equipment is used to monitor the collateral damage

Do you think the safeguards identified for both the testing of drone detection technology and drone electronic effectors are appropriate?

- [X] Yes (Go to 61. Counter drone technology)
- [ ] No (Go to 60. Safeguards of technology and effectors)
- [ ] Don't know (Go to 61. Counter drone technology)

60. Safeguards of technology and effectors

Why not?

61. Counter drone technology

Would you like any other safeguards to be considered to enable the testing of:

	Yes	No
drone detection technology?	X	
drone electronic	X	

Yes No

effectors?

If yes, explain what you would like these safeguards to be? If no, why not?

Security of the testing procedure itself to minimise the risk of the technology being hacked or stolen by rogue operators who might wish to develop counter technologies.

62. Drone scenario modelling

To inform the impact assessments accompanying this consultation we have produced some potential scenarios of future drone use. The emerging nature of the market, and short period for which we have data means we are unable to produce robust forecasts or targets, however these scenarios give us an idea of the possible extent of UK drone use if historical trends in drone registration continue. We have included this section to provide respondents with the opportunity to provide feedback on our methodology, rather than as a publication of official estimates.

Do you have forecasts of the number of drone or drone users (commercial or non-commercial) you are willing to share?

- [ ] Yes (Go to 63. Forecasts of use)
- [X] No (Go to 64. Drone scenario modelling)

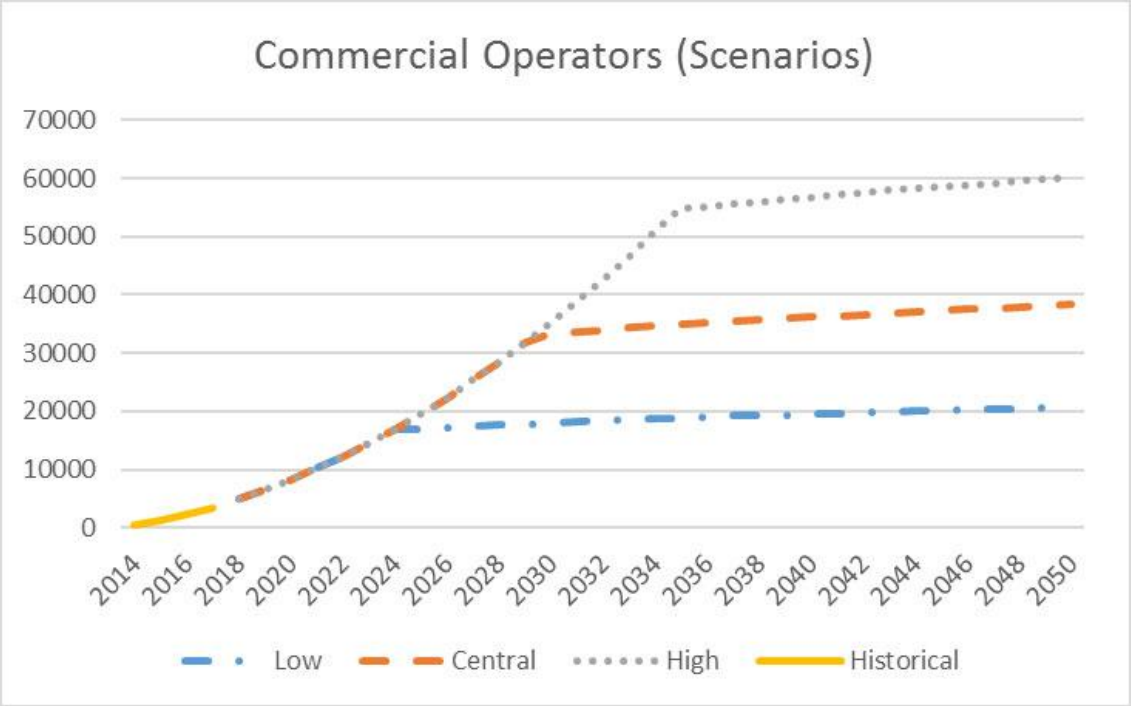
63. Forecasts of use

Add details.

64. Drone scenario modelling

To reflect the widely observed s-curve in technology adoption, we fit a simple quadratic trend to the historical commercial drone operator permission data that shows growth at an increasing rate. To reflect the eventual slowdown in growth, we identify a point in the

future at which we expect market saturation to occur after which we reduce the growth rate to one tenth of what continuing the trend would predict. The low and high scenarios show uncertainty by varying saturation points from December 2024 to December 2035 compared to June 2030 in the central case.



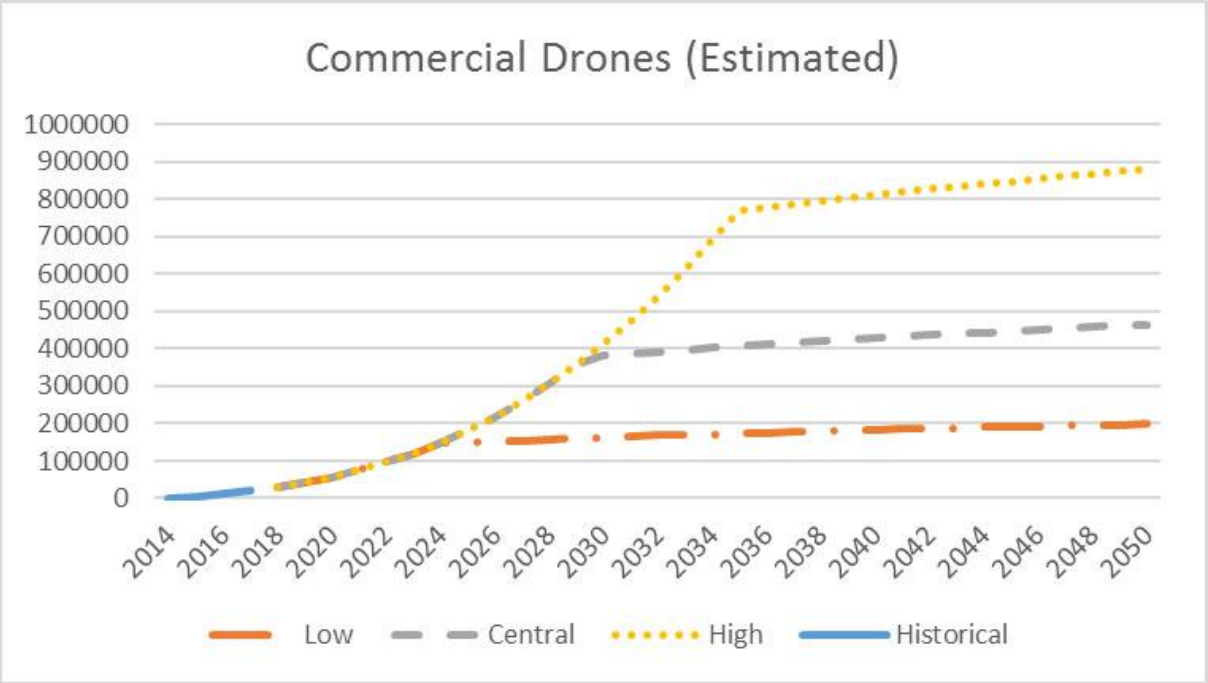
Are the scenarios for the number of commercial users:

- [ ] realistic?
- [X] overestimates?
- [ ] underestimates?

Why?

Most growth will undoubtedly come from public adoption of drones where they could become as ubiquitous as a camera or phone so perhaps the current commercial user figures (between 20,000 & 50,000 by 2050) are somewhat overestimated.

To create scenarios for the number of commercial drones we scale the user scenarios by assumed numbers of drones per commercial user taken from responses to the January 2017 Drone Consultation. These begin at 5.6 drones per business in 2017 rising to 10.4 in 2028.



Are the scenarios for the number of commercial drones:

- [ ] realistic?
- [X] overestimates?
- [ ] underestimates?

Why?

The scenarios used reflect European as opposed to just UK application of drones so it may be more realistic to just refer to figures from CAA UK and whether saturation is already happening based on their numbers of commercial users that are no longer undertaking drone work. Historic England has already experienced two of its framework agreement drone contractors closing their businesses as they were struggling to compete with other contractors when faced with the mounting costs of maintaining their high-end drones when compared to the cheaper solutions now being offered by large manufacturers such as DJI.

How do you rate the assumptions that:

	Accurate	Weak	Unknown
growth in commercial drone users will continue according to	☐	X	☐

	Accurate	Weak	Unknown
the quadratic trend that best fits historical data?			
market saturation will most likely occur in 2030, with 2024 and 2035 representing low and high estimates respectively?	☐	X	☐
the average commercial user currently has 5.6 drones and this will rise to 10 in 2037?	☐	X	☐

Why?

- Growth in commercial drone users will continue according to the quadratic trend that best fits historical data – weak as increased automation in drone technology will significantly impact how commercial drone surveys are undertaken and there is bound to be new technology in later years that replaces what the current drone does

- Market saturation will most likely occur in 2030, with 2024 and 2035 representing low and high estimates respectively – weak as saturation is already happening based on the experience of Historic England

- The average commercial user currently has 5.6 drones and this will rise to 10 by 2037 – weak as Historic England's experience of an average commercial user is they currently have 2 sub-20kg drones for high-end, high-resolution commercial work and 1-2 sub-7kg drones for other smaller, less demanding projects. However they could potentially invest in more drone hardware as costs come down, automation and sensing technology increases so perhaps this could rise to 10 by 2037.

What do you estimate the average number of drones per commercial user to be in:

the next year?	3-4
2023?	5-6
2028?	7-8
the long run?	Difficult to speculate as other technology may have been introduced by then that replaces the current drone and provides for both exterior and interior imaging, such as the scanning orbs in the science fiction film 'Prometheus'.

How many drones do you estimate the average non-commercial user owns?

Between 1-2 as they are typically used for leisure purposes so not used all the time in order to make money

65. Final comments

Any other comments?