CONSUMER DRONE USERS

An audience insight report

DRONE SAFE
dronesafe.uk

400ft (120m)

Contents

Executive summary

In autumn 2016, the Civil Aviation Authority (CAA) coordinated, with support from a range of industry representatives, a research programme to get under the skin of the consumer drone sector (i.e. those not receiving payment for flying a drone), and understand behaviours and attitudes toward this blossoming sector.

This programme forms part of a wider initiative looking at establishing a responsible attitude toward drone flight and usage among consumers, in order that safe drone flying is encouraged (to protect the safety of the wider aviation industry) and the wider sector opportunities (mainly through commercial potential), not be restricted by legislation brought about by reckless, risky use early on. The findings also feed into redevelopment of 'the Dronecode'. A set of rules and guidelines on how to stay safe and fly within the law. Irresponsible drone use can lead to prosecution and imprisonment.

A three phase research process involved an initial series of focus groups with existing regular drone owners; users (i.e. sporadic fliers, possibly of friends' drones); and prospective purchasers / 'considerers'. Two subsequent online research phases followed: a custom study amongst the same target groups and a nationally representative consumer omnibus survey amongst the wider public. Collectively this gives us an insight into existing behaviour and attitudes of the early adopter drone community, but more importantly helps us understand the mindset of those who might become drone operators in the future – a critical insight when looking to undertake a behavioural change programme. Especially as someone buying a drone this morning could be flying it this afternoon. The research also sought to understand the wider publics' attitudes towards drone usage and the future of drones.

The main aim of the consumer omnibus was to get an understanding of five key elements which shape public perception and behaviour:

- Risk & responsibility
- Path to purchase
- Perception
- Education
- Awareness of the Dronecode

Each of these elements naturally intertwine with the others, but through the research we are able to see how to approach them in order to collectively shape behaviour and future-proof the drone sector.

Key findings

Buying incentivisation

62%

62% of owners cited **'Fun'** as the main reason for having a drone

46%

46% of owners cited being an **'Early adopter of tech'** is secondarily important

36%

36% took up drone flying as they already **knew someone with a drone**

35%

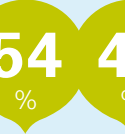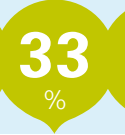35% desire to **use for photo or video** a high reason for getting a drone

Responsibility to educate

69% **68%**

69% of owners and 68% of considerers think **distribution of the Dronecode** should be **given by retailer**

71% **68%** **75%**

Manufacturer cited as primary source as being **responsible** – 71% (owners); 68% (users); 75% (considerers)

35% **33%** **54%** **41%**

Government and Industry regulators least **responsible for education** according to owners (35% and 33% respectively), but more responsible in the eyes of considerers (54% and 41%)

Adherence to Dronecode

73% **18%** **91%**

73% of the public thought it **very important that drone users adhere to the Code**; a further 18% thought it quite important – 91% in total, an encouraging figure
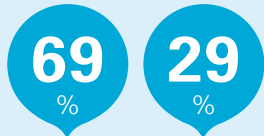
13% **25%**

Just 13% of the public however thought it very likely that **someone violating the Dronecode would be penalised** or prosecuted – 25% thought it quite likely

53%

of the public thought it unlikely that anyone **violating the Code would be penalised**

Key findings

Age restriction

69%

29%
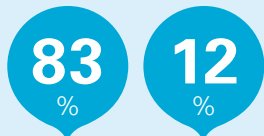
69% of owners, users and considerers think there should be a **recommended age for using a drone**; a further 29% thought there was only a need for this if there was no parental supervision

2%

5%

Just 2% of owners, users and considerers think **no minimum age requirement** should be put in place, and just 5% of the public think likewise

83%

12%

The general public were more decisive – 83% of the respondents said **a minimum age requirement was needed**, and 12% thought it should only be in force without supervision

17+

The **recommended age should be 17+**, according to those owners, users and considerers who form the drone-aware community, perhaps reflecting their experience with the device
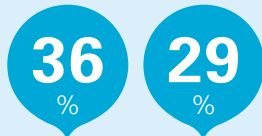
Key findings

Source of education / advice

69% **36**%
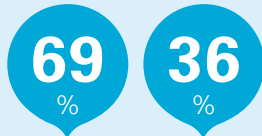
69% of owners thought **retailers were responsible for education** at point of sale, but only 36% were made aware of the Dronecode when buying a drone

18%

of owners said the **retailer was their first point of education** about the Dronecode

36% **29**%

36% of owners **read about the Dronecode** online prior to purchase, 29% afterwards

4%

Despite the proliferation of **YouTube** as a research platform, just 4% of owners were made aware of the Dronecode through it

5%

Manufacturers' packaging was responsible for 5% of education about the Code

Awareness of the code

54%

of **owners are aware** of the name of the **Dronecode** but few could recall specific rules when asked

39% **71**%
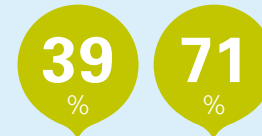
39% of users had **heard of the Code**, yet 71% of considerers had heard of it

11%

of the public **recognised** the **Dronecode** unprompted

74%

Of this 11%, 74% suggested it is a **set of rules for safe flying** of drones

Key findings

Public perception of drones

24% **27**%

When concerning media representation, 24% of the public had **positive perception** of drones with 27% **negative**

Free word association with what people have heard around drones shows a slightly more negative general public perception:

48% — Unregulated

45% — Dangerous

44% — Risky

43% — Modern

43% — Futuristic

36% — Useful

10% — Important

4% — Vital

The 18-34 age group had a far more positive perception; top five words were (in order):

| Modern | Futuristic | Innovative | Useful | Risky |

The top two words for the 35-54 and 55+ age groups were (in order):

| Unregulated | Dangerous |

Positive outlook from all areas for worthy use of drones

61% Traffic monitoring

61% Power line inspection

58% Agriculture

56% Emergency health services

40% Donor organ transport

40% Filming / media

19% Food deliveries

16% Retail product deliveries
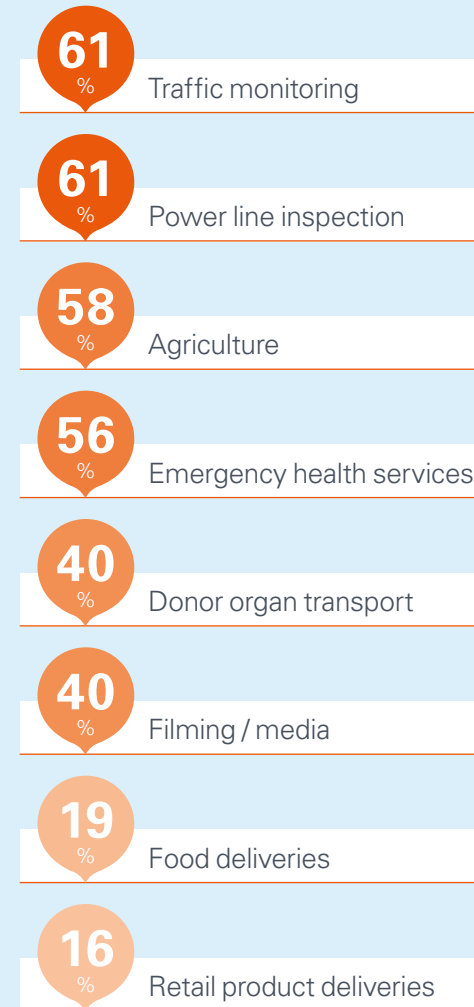
Background

Since emerging onto the technology and gadgets scene a few years ago, drones aimed at the consumer market have become increasingly popular, and with it a concurrent rise in the reported instances of irresponsible use.

In this regard, drones as 'toys' are perhaps unique in that these are off-the-shelf products in the same way in which radio controlled cars are, but are able to penetrate spaces and environments where there is potentially significant damage to be done. Compared to other 'devices', drones must come embedded with rules in order to ensure safe and responsible use, and it is this which the CAA is concerned with. For the non-consumer sector, drones have become important commercial devices for the likes of the photographer community, where they are far more than a toy, and are instead a critical piece of equipment. This – if anything – reinforces the need for responsibility and governance.

This research was undertaken with much of the above in mind, allied as it was with the finding that the aviation sector knew little, collectively, about consumer drivers, behaviours and attitudes towards drones. If we are unable to understand the motivations behind the industry, we can't shape communications and engagement plans to ensure compliance with the end user, nor understand how to raise awareness of the set of regulations which govern the sector, namely the Dronecode.

Primarily our interest in the area is preserving the high levels of aviation safety the UK enjoys. This underpins everything that the CAA and other stakeholders in the aviation industry are pulling together upon around drones. But also important is that if the defining image of drones among the public is a negative one – driven by media reports of near-misses and dangerous behaviour – then the wider opportunities afforded by drones could be cut off at source.

Earlier this year, PriceWaterhouseCooper put an estimate of the global commercial application of drones to be $127bn in the very near future, led by deployment in areas such as infrastructure, agriculture, transport, and security. If consumer perception of drones is allowed to remain dictated by coverage of irresponsible use, then the devices will always be seen with negative connotations and as a threat. Closed minds are rarely able to be re-opened to fresh possibilities once made up.

This research will also give us a traceable path against which we can measure behavioural change and consumer perception shift – a critical aspect of any wide-ranging, long term societal change programme, and one which will be a key part in proving the campaigns developed off the back of the report a success.

Background continued

In order to maintain high levels of aviation safety and safeguard the future of the drone industry, (and the plethora of sectors which may soon rely upon them), the CAA has coordinated this research to understand behaviours, perceptions, and awareness among the public. What this reveals will allow the aviation industry as a whole to act together, under the same direction, to ensure a strong, robust future.

This insight report is intended to set benchmarks against which the whole industry is able to measure success and societal behavioural change – something which mustn't be understated. The drone sector has a significant potential, and by understanding the motivations and attitudes of the public in detail, we can collectively ensure we harness the potential by addressing perceptions in the right frame, and in the right tone.

Process

The research was conducted throughout August and September 2016, in partnership with M&C Saatchi PR, and Opinium (an independent research organisation), both of whom facilitated the development of the research programme alongside the in-house team at the CAA.

Phases of work

Phase one: Qualitative focus groups

Three focus groups were held with six to eight participants in each, with the groups split by their relationship to drone use and ownership. The first group comprised drone owners (so regular, experienced fliers of drones); the second, drone users, (so sporadic, non-owning drone fliers who have experience but less than the owners); and the third, drone considerers – a group who are thinking of buying a drone in the next three months but who had no prior flying experience.

This spectrum of ownership and experience gave us an important insight into the awareness that our existing drone audience have of not just the Dronecode, but the overall importance of responsibility and safety.

Phase two: Quantitative custom study

Formed of over 500 online interviews with the same spectrum within the above audience, this looked to get deeper, more quantitative-based insights into attitudes towards drones, usage, governance, responsibility, and media perception. When layered onto the smaller focus group samples, this significantly helps to define the attitudes and behaviours which drive our core, drone-owning and considering early adopters.

Phase three: Quantitative consumer omnibus

With no filter regarding whether the 2,002 participants in this study are drone owners or users, this large sample of respondents is able to act as a barometer of the UK public. When identifying the audience groups above, we found an incidence rate of sub-2% of the general public being drone owners or users, so this added quantitative research of a general sample gives us an insight into the longer tail of the British public. Importantly, it allows us to gauge the perception of potential drone owners. This is due to Moore's Law which determines that the price of technology is likely to fall and sophistication increase concurrently, and we do not expect the drone sector to be any different – we can therefore expect adoption of drones to rise, placing an onus on pre-education at the fore of our work across the aviation industry.

Process continued

The drones themselves

For the purpose of this study, we concerned ourselves only with drones which would currently sit at the 'top end' of the consumer scale – drones which are potentially a risk if used incorrectly. As such, 'drone' does not include small, internal-use only devices which sit in the palm of a hand, nor those with limited range. We need to understand the behaviours of those people owning drones which can exceed the 400ft height advice, can be operated over a long distance (and thus could risk going beyond the line of sight or near an airport). Such drones are able to be bought off the shelf but can be expected to cost upwards of £500.

Influences

Before we embark on analysis of the behaviours and motivations of each group (owners, users, considerers), it is critical to look at their own influencer circles and exposure to issues around responsibility and safety. Part of this is influenced by the path-to-purchase (which we'll cover in more detail later).

Consider how an owner gets till-side (be it online or off) and ultimately prepared to spend around £750 or more on a high end drone. Such investment is rarely spent wantonly, and within the research it was evident that a lot of digging was done on YouTube, online forums, and in tech / gadget media prior to purchase to best inform their decision. As such, and especially when we consider the YouTube element, these buyers are highly exposed to existing drone owners and their behaviour and attitudes. They have a far wider field of influence – an inherent part of researching a high value investment.

The user demographic doesn't have such exposure however – they may only witness a friend, family member, or colleague using their own drone which they in turn have a go upon. They are less likely to have spent extensive time on the platforms owners have researching, although there is evidence that they watch experienced flyers performing with their drones. Compared to the owner demographic, they have potentially a more limited field of influence – potentially even as low as one or two existing drone owners, [their friend / family member].

Considerers are less easy to define – many may be already well on the path-to-purchase the owner demographic have 'completed' (in buying a drone), and thus may be more exposed to a wider field of drone owners and users. Their attitudes are still very open to influence.

Results

Ownership and attitude

As expected with a technology gadget which is essentially a toy for many consumers, the biggest motivating factor to start flying drones for both the owner and user demographics was, simply, 'fun', (62% - owners; 52% - users). The 'early adopter' element is, understandably, a big attraction for the owner demographic at 46% but is comparatively low for the user sector at just 33% – this is perhaps because the latter have access only to the former in terms of flying drones, so their adoption curve is by proxy, rather than by authority.

Interestingly, and something to consider when we consider influences, 44% of users said they looked to take up drone flight because they knew someone who had a drone already – perhaps an obvious statistic in some regards, but it reinforces the peer-to-peer element of how adoption is driven in technology circles.

The creative opportunity afforded by drones features highly, with the desire to take photos and videos the third biggest influence on owners wanting to fly drones, and was a relatively high factor for users also, at 31%. Interestingly, the potential for drones to be a family activity was comparatively high on both sides of the user and owner sector at 28% each – highlighting how fun the device can be as a hobby, and an important factor to consider when approaching messaging and communications about drones. A sentiment echoed in the focus groups where we heard a couple of the owners mention taking their drones out with their children and supervising their own use; (this parental supervision crops up throughout the research, and is something that may need to be considered by regulatory bodies once drones become even more mainstream).

First hand awareness of drone flying is a key factor to shaping the perceptions among the public as we will see, and the attitudes above – be it fun, or to be seen as an early tech adopter – reflect upon understanding, appreciation, and acceptance of regulation and governance of the drone sector, as we will see in due course.

Naturally, analysing the adoption instincts of considerers is not possible, as they are at an early stage toward purchase or use – in the filtration process anyone with experience of flight was classed as a user or an owner, so considerers are wholly 'naïve' to controlling a drone. It is with this in mind that we must remember none from this (considerer) group have had their hands on a drone, and have a respective frame of context – those who have, be it sporadic or frequent, have experience of how difficult a drone is to fly; how easily it might be lost control of; and how important it is to keep it in line of sight. Just as someone who has never seen a high performance car before will have a lesser understanding of its potential than

Results continued

someone who's taken it around Brands Hatch, so must we compare the attitudes and understanding of drone owners and considerers at different ends of a spectrum.

Path to purchase and the Dronecode

As we have discussed previously, the price tag that comes with investing in a drone makes research an intrinsic part of the process – few are bought on a whim. Discussions with the owner group demonstrated that YouTube was a key platform, where watching what others are already doing with drones helped narrow down the field in terms of what to buy. "I've probably done six months of research, watching YouTube tutorials", claimed one owner; a sentiment echoed by another in the focus group who had also spent a matter of months researching before purchase. This demonstrates the need for the CAA and others within the space to integrate safety messaging and Dronecode awareness within this channel.

Point of sale is a critical factor in education and responsibility in any sector where there is a need for governance, and across the demographics this sentiment was repeatedly high on the agenda. Of those questioned, 69% of owners, 60% of users, and 68% of considerers suggested that the retailer should be responsible for sharing the Dronecode; second only to the manufacturer in terms of responsibility, (71% owner, 68% user, 75% considerer).

However, when we compare reality to expectation there is a difference. As we see above, 69% of owners expect retailers to play a role in educating at point of purchase, but when asked about whether they had received advice, just 36% said they were made aware of the Dronecode on buying their drone. Additionally, when asked about where they first became aware of the Code, the majority first heard about it online either before (36%) or after (29%) purchasing a drone. Just 18% heard about it first till-side.

The impact of this disparity is that if there is expectation at point of purchase, but no action, then the education opportunity is lost. Equally, people may not seek out the information if not prompted to do so – you can't search for what you don't know exists, and if you are not aware that you are buying a product which brings with it an element of risk or a need of responsibility, it is difficult to become duty-bound to understand such implications.

Interestingly, compared to the retailer, the Government was only cited as being expected to educate about the Dronecode by 35% of the owning demographic, but a sizeable 54% by the considerer segment. Users were diplomatically in the middle with 41%. Government clearly has a role to play, but it is telling that it is till-side where people feel the education is most important; it fits with the current model of regulation rather than legislation and shows how a collective approach, rather than governmental top-down diktat is the best route to engaging with the public.

Results continued

When it comes to compliance, there is a conundrum to be solved regarding being brought to book for breaking the Dronecode. While 73% of the public thought it very important that drone users adhere to the Code, and a further 18% thought it quite important, (91% in total, an encouraging figure), just 13% thought it very likely that someone violating the Dronecode would be penalised or prosecuted, and 25% thought it quite likely. In all, 53% of the public thought it not very likely or not likely at all that anyone violating the Code would be penalised.

Frontline support should therefore be considered a critical communications channel as well as online platforms such as YouTube, and the retailer must become a key contact for educating the buying public about the 'informed fun' of drone ownership. The figures for first-time awareness of the Dronecode back this up – but, seen positively, can demonstrate that there is considerable scope for increasing the presence of the Code at the till point, and through other channels.

The lack of current awareness and deployment should not be seen as a negative, but as an opportunity to be taken up.

Dronecode awareness

A key element within the research is understanding current awareness of the Dronecode – the regulatory framework around which, consumers should abide and thus avoid irresponsible flight of drones. In the same way that the public know how to cross a road safely (without it being legally bound), we need to ensure that consumers know how to fly safely, responsibly and not endanger others or themselves. The illegal aspect of drone flying – be it near an airport or in built-up areas for example – is a matter for the police, not the CAA outright, but it would be a better state of play to avoid misuse extending to the point of police intervention. Prevention is better.

54% of owners, 39% of users and 71% of considerers claim to have heard of the 'Dronecode', unprompted by any further detail of what the code was or what it comprised. However, when asked to recall specific rules, recollection of these were fairly low. 45% cited responsible / safe use as one of the rules; 27% cited location or proximity restrictions; and just 17% altitude or sight restrictions. These should be benchmark measurements going forward, with a view to increasing recollection across the whole code over time.

On the face of it, it is interesting (and here we hark back to the path to purchase influence elements) that considerers have the highest simple recognition of the name 'Dronecode'.

However, on re-contacting the 71% of considerers who knew of the Dronecode (and who, subsequently in the questionnaire had seen it in full), just 45% could name what the Code was for, namely 'a set of rules and regulations for safe and responsible flying of drones'.

Results continued

Other categories misidentified by considerers was it being a registration code, a not-for-profit community, and a computer code programme. Bear in mind, once more, that these considerers had already seen the Dronecode and still mis-labelled it on follow-up. Making the Code punchier, more recognisable, and more distinct is critical.

The awareness of the Dronecode outside of the drone community was low. As is perhaps to be expected, just 11% of the wider public are aware of the Code – a reflection of the penetration of drones in the public and ownership levels. However, what is encouraging is that among this 11%, 74% cited the Code as being a set of rules for safe flight – a solid baseline to work from in terms of building awareness. Equally encouraging, of those who were not aware of the Dronecode outright, the vast majority knew there were likely to be rules and regulations around flying drones – signs that the 'common sense' factor remains high when we look at the sector and the public perception.

Public perception

The last year has seen a rise in drone-related coverage across the media, with matters ranging from drug deliveries to prisons and reported in-flight near misses, to the more positive profiling of how drones are helping preparation (and recovery) from natural disasters, and the increasing popularity of drone racing. This wide spectrum of coverage is reflected in the public response, with 24% of the 2,002 surveyed citing what they've seen, read, and heard about drones had was more positive than negative; whereas conversely 27% cited what they've read seen, read or heard as having a more negative slant.

The exercise in free word association with drones showed some interesting results, not only as a platform to demonstrate perceptions, but as something we can benchmark progress against year on year. 'Unregulated' was overall top (48%), showing how awareness of the Dronecode needs to impact the general public to show that such regulatory frameworks are in place. 'Dangerous' was second at 45%, followed by 'risky' (44%) – putting the top three all in the negative camp. 'Modern' and 'futuristic' both follow, positively (43% ea.), with 'useful' at 36%, although just 4% think drones are 'vital' and 10%, 'important'. Age wise, the data matches expectations in terms of generational attitudes; the 18-34 age group had a far more positive perception; top five words were (in order), 'modern', 'futuristic', 'innovative', 'useful', then 'risky', while 'unregulated' was top in 35-54 and 55+ age groups, followed by 'dangerous'.

Results continued

From a consumer perspective, one element which cropped up independently in all the focus groups was around age and responsibility. Among owners, users and considerers, 69% think there should be a recommended age for using a drone, with a further 29% thought there was only a need for this if there was no parental supervision. The general public were more decisive – 83% of the respondents said an age limit was required, and 12% thought it should only be in force without supervision. Just 2% of owners, users and considerers think no age limit is required, and just 5% of the public think likewise.

This is a matter which will have to have more governmental input if there is a regulatory age-restriction put onto it. However, enforcing age-limits does have an inherent implication that the product has a responsibility attached to it; the minimum age requirement wouldn't be there if it weren't necessary.

This could help reinforce the 'informed fun' aspect of drone play. Interestingly, focus group discussions put the age restriction at a variety of ages, while the survey averaged out at a relatively senior 17+ as being the benchmark, (especially when we consider that current drone flying world champions in the First Person Viewer category are just 15!)

Looking toward the future, there is a positive outlook from users, owners, and considerers around 'worthier' causes, such as emergency healthcare, traffic monitoring, and agriculture sectors (59%, 59%, and 52% respectively) being beneficiaries of the functions drones offer; with more 'commercial' opportunities such as food delivery and retail delivery coming in behind at 35% each. This shows that there is an acknowledgement that a role for drones exists, and that they go beyond mere toys. It also perhaps shows how broad minded existing users can be, although this is a collective who already have a contextual framework of what drones are capable of.

Encouragingly, even without this context, there is an appetite from the general public. Like the drone-savvy community, the general omnibus survey picked out the potential for traffic monitoring, powerline inspection, agriculture and emergency health services as being high potential sectors that drones can play a role in. Given much of the future-gazing around drones has been led by drone deliveries, which received a mixed reception, this is encouraging indeed – especially when combined with the fact that the general public, being non-drone owning in the majority, do not have the flight-experience and drone-context the owner / user group do.

Recommendations

First and foremost, the findings should act as a reminder to all within the aviation industry that it is within all our interests to future proof the drone sector by ensuring it is safe and responsible.

This will involve all stakeholders pulling in the same direction, and the first steps to this have already been taken, in the form of collective agreement to work together, rather than in silos, around educating the public, and informing perception change.

Everyone is responsible for making a difference. Retailers must do a robust job till-side in educating about the Dronecode, (without taking the fun out of the purchase); manufacturers must embed the Code within packaging and at point-of-opening; airports and airlines must become a part of the education programme when engaging with local communities.

Collective unity in media / online platform engagement is also critical – as the most influential channel through which consumers are made aware of drones, their potential, but also the rules and regulation which govern them, we should ensure all opportunities are exploited. This must take the form of engaging on YouTube at the research stage of the path-to-purchase, and in a wide-ranging media engagement programme across lifestyle, consumer, technology, and gadget media where the public are finding their information about drones.

These channels fundamentally make the difference between consideration-to-purchase, and handing over sizeable sums to walk away with the latest drone – we need to ensure responsibility and education is embedded throughout to ensure safety remains fundamental to drone use.

As the drone sector continues to grow, (as is expected), we will witness those classed as 'considerers' becoming owners, and we will see the considerers replaced in the long term by the general public for whom owning a drone isn't currently a thought. Price drops, technology sophistication, and awareness of the fun that drones bring will help drive this uptake.

Alongside this consumer drive, the industrial opportunities around drones (e.g. healthcare, agriculture), can help showcase the 'drones for good' mandate, and it is key that the sectors involved are brought into the fold early on and advised how to become part of the wider drone education programme.

We must ensure the same messages are pushed out to media, online, and in due course the public. Unity around the Dronecode will help this, and agreement to work together to secure the safety of our skies and the future of the drone industry.

Thank you

If you have any enquiries regarding this
document please contact: content@caa.co.uk

The CAA Dronecode and drone safety advice
is available at www.dronesafe.uk