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# TRENDS IN TRANSPORT

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Drones, Deployment and the Challenges Ahead



# GROWTH IN THE USE OF DRONES

The use of Unmanned Aerial Vehicles (UAVs) or drones has taken off. This is due to increased use of civilian drones for leisure and an expanding list of commercial uses, from crop spraying, surveillance and photography to delivery of emergency medicine, some predict growth in the market to reach \$5.59 billion by 2020.

Areas rapidly adopting drone technology include energy and utilities. Drones are being used to inspect and monitor vast networks of infrastructure including railways, telecom cabling and energy infrastructure such as solar, wind and oil and gas installations. The benefits of deploying drones are huge - essential information can be obtained more accurately, cheaply and safely. Traditionally inspections are done by industrial climbers and low flying manned aircraft. The estimated value of Infrastructure related drone powered solutions in 2015 was \$45.2 billion.

## Industries already using drone technology



## Future growth

Use in other industries such as retail and delivery could unlock the next tier of growth. Many have commented on the potential use of drones for retail and delivery, predicting that this will be the next disruptive technology within the supply chain and logistics. However, it was hoped that Amazon would begin operating its Prime Air service in 2015 - as is often the case with the application of new technology, deployment must wait for regulators and policy makers to respond.

The Vehicle Technology and Aviation Bill (formerly the Modern Transport Bill) was expected to pave the way for the development of commercial use drones market having been announced in the Queen's speech in May 2016. However, [when the Bill was published drones had been removed](#) and during consultations on the Bill Transport Secretary Chris Grayling explained that the government's focus would not necessarily be on new primary legislation for drones and that this would be considered following the [Consultation of the Safe Use of Drones](#).

## Regulatory framework and challenges

### Air operations

Drone operations must operate within the current legal framework which regulates the use of drones for both private and commercial use. Since all drones qualify as aircraft, the primary regulator concerned is the Civil Aviation Authority.

The rules, contained within the Air Navigation Order, require that a 'Permission' is obtained from the CAA for all flights that are being conducted for aerial work (i.e. paid for operations). Permission can be withdrawn for misuse.

The aircraft must be kept within the visual line of sight (normally taken to be within 500 m horizontally and 400 ft vertically) of its remote pilot (i.e. the 'person in charge' of it). It must be kept away from congested areas, aircrafts and airports and at least 50m from any people, vehicles and structures.

This remains a challenge for future operators of, for example, delivery drones, or drones operated autonomously, as the range requires delivery could only be made within 1,600ft (488m) of their warehouses.

Operations beyond these distances and restrictions must be specially approved by the CAA, the basic premise being for the operator to prove that he/she can do this safely. Whilst the safe use and licensing of manned commercial aircraft are well established, comprehensive regimes – demonstrating that proposed drones operation are safe – may be more challenging.

### Challenges

In addition to aviation and aviation safety regulation, the operation of drones has other legal implications and challenges, including in terms of data protection, security, safety and liability:

- ▶ Collision with other airborne/stationary objects risking damage to people or property – Geo-fencing technology is being developed to prevent collisions and to help drones stay within permitted airspace. This is currently being trialled and tested by drone operators in collaboration with the CAA.
- ▶ Data protection – The DPA 1998 applies to commercial drone use but not data collection for personal or household use.
- ▶ Cyber security – drones need a wireless connection to an operations centre making them vulnerable to hacking. The GPS technology drones use could be jammed which would throw drones off course. Implementing encryption technology is the solution but can be difficult to achieve.
- ▶ Liability Insurance – EU regulations require that all commercial drone pilots obtain third party cover. Coverage levels are considered low by some and, in the UK, no insurance is required for leisure users (see discussion on insurance following the Consultation).
- ▶ There is currently no central registry for drones, making requirements difficult to enforce. A central database for drone pilots and drone flights would help inform other airspace users and also the public. In the long term it could help predict traffic levels and assist with planning. (see discussion on insurance following the Consultation).

# Consultation on the Safe Use of Drones in the UK

On 21 December 2016 the Government published its consultation on the Safe Use of Drones in the UK, containing various proposals to develop the UK's policy and regulatory framework around the use of drones.

The consultation proposed a number of new measures including a mandatory register for all drones, a new framework of standards and licensing for UK drone pilots and ways to manage forecasted growth in the number of drones operating in UK airspace. See our [Drones Update](#) for more detail on the consultation.

The consultation closed on 16 March 2017 and the Government published their [response](#) on 22 July 2017, announcing a number of changes to Drone rules and government led initiatives that respond to some of the challenges posed by growth in the market.

## New measures



### Registration scheme for Drones and Mandatory Educational Requirements

The Government believes introducing a registration scheme for drone users will improve accountability, aid enforcement action and enable direct education thereby improving safety, security and privacy.

Details of the scheme have yet to be announced, but the following decisions have been taken:

- ▶ Users of drones weighing between 250g and 20kg will be required to register themselves.<sup>1</sup> The Government specifies the recent safety study carried out by the DfT, BALPA and MAA, which found that drones weighing only slightly more than 250g could cause critical damage to small, manned aircraft, as the justification for setting the threshold at 250g. However, it seems likely that they were also influenced by the current EU discussions surrounding registration requirements for drones weighing 250g and over.
- ▶ Depending on where the user intends to fly the drone and the reason for the flight, the drone itself may also need to be registered.
- ▶ It is likely that there will be a fee payable on registration, to cover the costs of administering the scheme.
- ▶ There are likely to be some exemptions from the scheme. Members of model aircraft flying clubs for example, as they already adhere to certain safety practices and cultures.
- ▶ The registration process will include mandatory educational requirements. The details are to be explored further, but it seems likely they will constitute a short online knowledge test. The Government will be developing the standards for this test and the training materials to accompany it in the coming months.

The Government has yet to decide on the penalties for those who fail to comply. Likewise it remains unclear when the scheme will come into force and when it does, who will administer it (although, the CAA seems a likely choice). The possibility of embedding electronic identification and tracking capability within the scheme, in order to further assist enforcement action, has not been ruled out.

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<sup>1</sup> Users of drones weighing 2kg or more are already required to register themselves and their drones pursuant to the same laws requiring manned aircraft to register themselves.



## No Drone Fly Zones and Enforcement

In the December consultation the Government had proposed improving communication of NDFZ via physical signage and electronic means. The Government has decided to proceed with both options and their next steps will be as follows:

- ▶ The Government has already developed 'no-drone-flying' signage and will be encouraging its use at national infrastructure sites such as airports, power stations and Government buildings. The Government will proceed despite questions surrounding how effective physical signage is. Respondents highlighted for example, the difficulties of installing signage over potentially large areas and the possibility that a lack of signage could erroneously indicate drone flight was permitted.
- ▶ In terms of communicating NDFZ via electronic means, the Government will be launching Project Chatham within the next 6 months. Project Chatham will publish data for UK NDFZ. The Government will then encourage app developers to use this data to show restrictions in an accessible way. The Government itself also plans to use the data to assist drone manufacturers to build geo-fencing for these areas into their drones.

## Government initiatives



### Drone Traffic Management

Based on the positive responses to the consultation that it received, the Government remains committed to developing a drone traffic management system in the future. It believes that its decisions to introduce a registration scheme and to issue NDFZ data will be important aspects of this system, but has taken no other specific decisions in relation to it.



### CAA Drone Insurance Project Group

A 2015 EU House of Lords Committee report identified several issues surrounding commercial and leisure drone insurance, namely that it is difficult and expensive to obtain, that the liability cover required by legislation is insufficient and that drone cover is currently being excluded from many all-encompassing policies such as house insurance.

However, based on the responses to the consultation received the Government has decided that this policy area is not yet sufficiently developed as to merit primary legislation or guidance. Instead, the Government is to launch a 'drone insurance project group' in collaboration with the CAA in order to 'more comprehensively explore the issues, develop solutions and implement best practice'. This decision means that commercial drone users are likely to continue to encounter the issues outlined above for the foreseeable future.



### Dronesafe and Product labelling - Improving leisure user awareness of the law

In the original consultation the Government had sought feedback on various proposals including mandating the issue of guidance by manufacturers and vendors, improving the guidance on offer, introducing knowledge tests and reducing the complexity of the Air Navigation Order 2016 (**ANO**).

The Government has decided to introduce a knowledge test as part of the registration procedure (as detailed above). However, based on the responses received and its desire to focus on this knowledge test it has chosen not to mandate the issue of guidance or take a larger role in deciding the content and form of guidance, instead it will encourage the CAA to:

- ▶ Build on their current 'Dronesafe' communications campaign, which includes the drone code, and public advertisements, and apps such as Drone Assist.

- ▶ Further engage with manufacturers and vendors on issuing guidance like the drone code. DJI, a global leisure drone manufacturer, now place the drone code within their packaging and Maplin and John Lewis both supply it at the point of purchase.

The Government will however continue to work at the European and international level to agree and implement product standards, for example the inclusion of 'age labelling' on drone packaging. It also seems likely that the ANO will be amended in the future. This is unsurprising given that updated EU legislation is due in 2018, however, it seems amendments will now be made to clarify as well as change the content of the ANO.

## Other areas considered

### Pilot Competency and the UK Drone Industry Action Group

It was also concluded that there would be no new regulatory competency standards for commercial drone pilots (as had been proposed in the December consultation). Instead the government will work with the UK Drone Industry Action Group - a group run by the Department for Business, Energy and Industrial Strategy whose members include Network Rail, TfL, ARPAS and various other industry figures and experts - which is currently helping the oil and gas and transport industries develop standards and guidance for the use of drones in their workplaces.

### Testing Centres

Rather than introducing new drone testing centres as proposed in the December consultation, the Government plan to work with the Civil Aviation Authority (**CAA**) and industry on raising awareness of the current testing centres available and how to set up a testing site.

Follow our [Trends in Transport](#) series for further developments and commentary.



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