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ASPEN OPINION | (RE)INSURANCE FOR DRONES: REGULATION AND RANGE

Kwee Lin Gan, Casualty Underwriter for Aspen Re, considers the wide ranging applications for drones and the changing regulatory environment for drone operators. The risk is sometimes included in general liability (re)insurance but, as registration and competency testing have risen, tighter regulations are being introduced and demand for stand-alone insurance is likely to increase.

It's A Bird, It's A Plane... It's A Drone!

Drones carry no pilot or passengers and are often termed as unmanned aerial vehicles (UAVs). Typically they are remotely controlled but can also, subject to regulatory constraints, fly autonomously. Equipment tools including cameras for image capture and sensors that gather data about the weather, temperature, radiation or other environmental conditions have increased functionality and thus demand. Originally deployed by the military as a cheaper and safer alternative to manned aircraft, usage is now wide ranging and getting ever more creative, from filming, journalism, geographical mapping, law enforcement, disaster management, rescue operations, time critical medical supply deliveries, prevention of poaching in Africa, discovery of archeological sites in remote areas and wildfire fighting to performing with Lady Gaga at the Super Bowl. Predictions suggest that drones will be used for retail delivery and as air taxis for commuters.

Global Growth

Global production estimates of unit numbers totaled 3 million for 2017 and are rapidly increasing.[1] In the U.S. alone, 2022 forecasts suggest the model (essentially non-commercial) fleet will number 2.4 million, up from 1.1 million in 2017, with a further 0.5 million in the non-model (commercial) sector.[2] Falling prices of drone hardware and components, together with the increased functionality – i.e. ease of maneuvering and enhanced cameras are important drivers of the recreational market. Meanwhile growth in the commercial market has been supported by technical developments in artificial

[1] www.gartner.com
[2] FAA Aerospace forecast Fiscal Years 2018-2038

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intelligence and analytics plus increasing awareness of revenue opportunities. Cost and efficiency advantages with limited human operation and perceived limited safety constraints have all been part of the story. The combination of smartphone technology and internet connection provides the platform for building different business models and applications. According to a McKinsey report, a 40% savings in delivery costs could translate into a 15-20% increase in profit margin and a corresponding price decrease.[3] With wage inflation especially in developed countries, autonomous delivery will become increasingly beneficial.

Current users include real estate/aerial photography, state and local government, industrial inspection, agriculture and insurance. In contrast to conventional inspection methods, UAVs have attractions in terms of both safety – for example prevention of falls which is the most common workplace accident – and cost as often hazardous industrial sites had to be closed for the process whereas no such interruption is necessary with a drone. A recent survey of construction customers found a 55% increase in safety on construction sites from using drones which also translates to a 5 to 20 times savings in cost.[4] In terms of revenue potential, construction has been singled out as offering the largest opportunity but agriculture, insurance and oil and gas are also in the top four.[5]

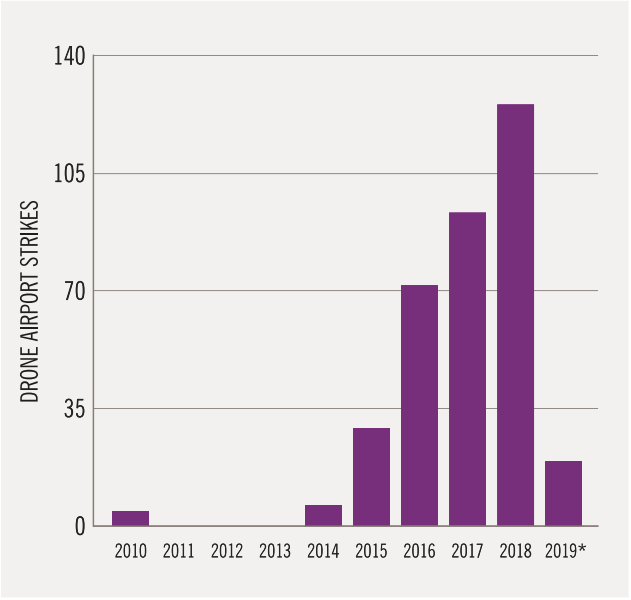
Regulatory Evolution

With the evolution of drone usage from military to hobbyists and commercial purposes, regulators are responding and are busy playing catch up. Governments are responsible for aerial safety and regulation continues to evolve. This is a key determinant of the industry development. There are currently no international standards and so height, weight and speed restrictions vary from country to country. Likewise, so do registration requirements, compulsory insurance and training.

In the UK, new rules came into force in July 2018 and segregated drone operators into recreational and commercial categories. Figure 1 shows the escalation in reported UK drone airport strikes and following the debilitating intrusion at Gatwick Airport in 2018, the 1 km exclusion zone around airports has now been increased to 5 km. Currently, recreational users are not allowed to fly for commercial purposes, while the drone must not exceed 20kg and be kept clear of an 150ft and 500ft exclusion zone for buildings and crowds and built up areas respectively. There is a height restriction of 400ft for both commercial and recreational users. However, further regulation is due to be introduced in November 2019 as the weight for registration will drop from 20kg to 250g and a special safety awareness test covering safety, security and privacy regulations will be implemented. A data base of sensitive sites and buildings will be created so that manufacturers can install geo-fencing sensors to stop flights into these restricted areas.

The European Union Aviation Safety Agency (EASA) has been developing a harmonized set of rules for safe drone flight in the EU member states which was adopted on 24 May 2019. The

FIGURE 1: REPORTED UK DRONE AIRPORT STRIKES



Source: airproxboard.org.uk, Aspen Re *2019 YTD April 2019c

Implementing Act regulates the operations of unmanned aerial systems (UAS) in Europe and the registration of drone operators and of certified drones[6] whereas the Delegated Act defines the technical requirements for drones. UAS operations in Europe will be classified into 3 main categories. The “open” category will not require authorization by the competent authority nor a declaration by the UAS operator before the operation takes place. In contrast, those classified in the “specific” category will require an authorization by the competent authority before the operation takes place, taking into account the mitigation measures identified in an operational risk assessment, except for certain standard scenarios where a declaration by the operator is sufficient or when the operator holds a light UAS operator certificate (LUC) with the appropriate privileges. Finally, those in the ‘certified’ category will require the certification of the UAS, a licensed remote pilot and an operator approved by the competent authority, in order to ensure an appropriate level of safety. In the U.S., recreational pilots must register UAVs with the FAA. There is a 5 mile restriction for airports and a weight restriction of 55lbs unless certified by a community based organization. Commercial pilots must register with the FAA but also have a remote pilot license. There are weight, height, speed and night time restrictions as well as rules relating to aircraft, flights above crowds and flying from a moving vehicle. While registration is a first step towards greater regulation it has not precluded the occurrence of frequent and wide ranging incidents as Figure 2 illustrates.

[3] McKinsey.com Parcel Delivery: The future of the last mile. September 2016
[4] DroneDeploy, 2018 Commercial Drone Industry Trends Report, May 2018
[5] www.goldmansachs.com

[6] The unmanned aerial system (UAS) describes the total UAV operating system – i.e. the ground control station with pilot communications and support equipment and generally applied to more advanced UAVs in commercial use

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Increasing Insurance Range

With the introduction of new and stricter regulations on registration and insurance, compulsory standalone drone insurance with adequate coverage will soon become a norm, avoiding debate over coverage issues provided by household or personal liability insurance. UAS operation spans a number of risks that can be met by product liability and third party liability cover but may also require cyber and terrorism insurance. Product liability – where the malfunction of the drone may result in property damage, business interruption and or personal injury is one aspect of the risk but insurance should also address public liability – or third party liability as a result of a collision with people or property. Invasion of privacy, data protection and public nuisance are other areas of concern.

Parallels have been drawn with the car industry where insurance was initially an optional purchase. As the industry matured owners increasingly opted for insurance to cover damage to their vehicle and third party liability and the latter gradually became compulsory. Like cars, the drone is mobile and so the implication of boundaries is a concern since this will dictate the relevant jurisdiction

Challenges for insurers range from insufficient statistics or loss records to the lack of a clear and common framework for registration and licensing plus the potential for abuse. The vehicles may be unmanned but they still rely on a human pilot and thus need to have a basic level of competency and operate within the legal framework. The risk profile between model and non-models will vary considerably given size and weight differentials and, at the upper end, will then transfer into the aviation market.

Liability and hull insurance for UAVs is, like the regulatory environment and industry itself, continuing to evolve. Typically general liability contracts will include limits for US$1 million but the insured may well wish to increase this relative to size of operation. For drone regulators and (re)insurers it is important to match the right approach with the right equipment. UAVs undoubtedly offer significant potential given the scope of application – not least in the (re)insurance industry as they can provide a timely update on not only the current location but also condition of the risk insured. As the scope of the UAV continues to be realized, risk awareness and risk management should improve and the (re) insurance underwriters have an important role to play in this development.

The above article/opinion reflects the opinion of the author and does not necessarily represent Aspen's views. The article reflects the opinion of the author at the time it was written taking into account market, regulatory and other conditions at the time of writing which may change over time. Aspen does not undertake a duty to update these articles.

FIGURE 2: SELECTED RECENT DRONE INCIDENTS – THE AMERICAS

INCIDENT	INDUSTRY / INDIVIDUAL	LOCATION	DATE
Drones impede rescue efforts	First Responder	Tulsa, OK, USA	May 29, 2019
Drone near-miss	Airport/Aviation	Windsor, Ontario, Canada	May 23, 2019
Neighbor drone dispute	Private Individual/VIP	Peoria, IL, USA	May 16, 2019
Drone carries contraband	Correctional Facility	Indiantown, FL, USA	April 28, 2019
Drone trying to help migrants illegally enter U.S.	Federal	El Paso, TX, USA	April 18, 2019
Schools to seek ban on drone flyovers	Private Individual/VIP	Tiburon, CA, USA	April 15, 2019
Drones pose safety issues at airports	Airport/Aviation	Danbury, CT, USA	April 14, 2019
Drone flight during a Red Sox game	Stadium/Arena/Sport	Boston, MA, USA	April 11, 2019
Drone near miss of aircraft	Airport/Aviation	Bay County, MI, USA	April 8, 2019
Drone backyard flights	Private Individual/VIP	Houston, TX, USA	April 8, 2019
Drone surveillance	Private Individual/VIP	Oran, Iowa	April 4, 2019
Drone carries drugs	Correctional Facility	Agassiz, BC, Canada	April 3, 2019
Drone incidents at funeral	Public Event	New York City, New York	April 2, 2019

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FIGURE 2: SELECTED RECENT DRONE INCIDENTS – THE AMERICAS CONTINUED

INCIDENT	INDUSTRY / INDIVIDUAL	LOCATION	DATE
Drone near-miss	Private Individual/VIP	Niagara Falls, NY, USA	March 7, 2019
Drone sighting within prison	Correctional Facility	Montreal, Québec, Canada	March 4, 2019
Drone sighting within prison	Correctional Facility	Frackville, PA, USA	March 4, 2019
Attempted contraband drop	Correctional Facility	Albany, Georgia, USA	February 19, 2019
Drone damages downtown high-rise window	Private Individual/VIP	Chicago, IL, USA	February 14, 2019
Drone confiscations and police warning	Stadium/Arena/Sport	Atlanta, GA, USA	February 1, 2019
Drone cause flight disruption	Airport/Aviation	Newark, New Jersey, USA	January 22, 2019
Drone carries contraband	Correctional Facility	Stuart, FL, USA	December 19, 2018
Possible Mid-air Drone Hit	Airport/Aviation	Tijuana, Mexico	December 13, 2018
Drone sighting suggests likely safety violations	Hospitality/Resort	Las Vegas, NV, USA	November 29, 2018
Drone damages car window and injures child	Private Individual/VIP	Eau Claire, WI, USA	November 26, 2018
Illegal drone photography investigation	Federal - National Park	Yellowstone National Park, WY	November 18, 2018
Drone hits Midtown Bank	Corporate	New York City, NY, USA	November 18, 2018
Drone incident	Airport/Aviation	Boston, MA, USA	November 7, 2018
Drone security threat	Airport/Aviation	Orlando, FL, USA	November 5, 2018
Drone security threat	Airport/Aviation	Pittsburgh, PA, USA	November 4, 2018

Source: https://www.dedrone.com/resources/incidents/all, Aspen Re