By Dimitris Karapiperis, Research Analyst III

INTRODUCTION
As tens of thousands of drones are flying overhead, the sky may not fall on our heads but some of these drones may indeed come crashing down. Aside from the inevitable accident, whose expected frequency is still being studied as fleets of commercial drones are added to those being flown by hobbyists, there are additional risks shared by both the people on the ground and drone operators. Before drones become a common sight in every neighborhood, a number of insurance liability and coverage issues need to be fully addressed, ranging from personal injury to invasion of privacy.

The commercial use of drones is booming, with the total commercial drones market expected to reach $1.3 billion by 2020 from just $15.2 million in 2014, an extraordinary 109% annual growth rate. With about 40% of businesses expected to employ drones, also known as unmanned aircraft systems (UAS), within the next five years, a Munich Re survey revealed 69% of risk managers pointed to privacy issues as their biggest concern, while 12% thought inadequate insurance presented the greatest risk, followed by personal injury (11%) and property damage (8%).

The insurance industry is responding to the increasing and potentially ubiquitous use of commercial drones by developing underwriting tools to cover businesses’ growing liability exposures. At the same time, insurers are also interested in using drones on their own to reach remote and inaccessible areas by claims adjusters, especially following catastrophes, for better, more accurate and faster evaluation of property damage. State insurance regulators are actively engaged to address all relevant regulatory challenges and concerns related to insuring commercial drone operation.

REGULATION OF DRONE USE
Aviation regulation requires a certificate of waiver or authorization (COA) from the Federal Aviation Administration (FAA) in order to lawfully operate a drone. As of April 2015, the FAA had issued 79 COAs to public agencies, local governments, law enforcement agencies and universities.

Commercial use of drones is generally not currently permitted unless the FAA issues an exemption known as a “Section 333 exemption.” More than 840 exemptions have been granted to operators, including insurers for aerial inspections, companies conducting infrastructure inspections, farmers for precision agriculture, motion picture and television producers for closed-set filming, and to companies working in law enforcement, first responders and search-and-rescue operations.

Due to increasing interest in the commercial use of drones, the U.S. Congress told the FAA, in the 2012 FAA Modernization and Reform Act, to develop a plan for the safe integration of UAS by Sept. 30, 2015. The FAA has noted safe and full integration will be incremental, starting first with proposed rules for small drones (less than about 55 pounds). The FAA’s first draft of proposed rules for commercial drone flights was submitted in February 2015, lifting some restrictions but still barring activities such as the delivery of packages. The rules require drone pilots to obtain special pilot certificates, stay away from bystanders and fly only during the day with a flying speed limit of 100 miles per hour and altitude limit of 500 feet above ground level.

While states and municipalities may introduce regulation of the commercial use of drones addressing issues such as privacy and nuisance, federal law can preempt any such state or local law and regulation. The National Transportation Safety Board (NTSB) confirmed in a landmark November 2014 decision the FAA has the authority to impose fines and other penalties for unsafe drone use and operations. However, state and local governments retain their authority to enforce limitations on the use of some types of aircraft, including drones. According to the National Conference of State Legislatures, 20 states have enacted specific legislation about drones, defining what is a UAS or drone, its many private and commercial uses and the FAA rules and testing. In 2013, legislatures from 43 states introduced 130 UAS-related bills and resolutions and 13 states enacted 16 laws and 11 states adopted 16 resolutions. In 2014, 10 additional states enacted new laws addressing the use of drones.

While private drone use as a hobby is most likely covered under a homeowners insurance policy, which generally covers radio-controlled model aircraft, separate drone insurance is needed if the intended use is for commercial purposes.

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es. Currently, the commercial use of drones is largely restricted and operations are authorized on a case-by-case basis. Nonetheless, a great number of drones are flying without any authorization, effectively challenging the FAA’s proposed legal framework, as final rules have not yet been implemented so they can be enforced. Purchasing insurance is one of the challenges facing non-authorized commercial drone operators, whose operations may still be illegal even if insured. The FAA has stated that existing aviation regulations, which apply to all unmanned aircrafts and, therefore, drones, give it the authority to ban commercial drone flights operating without the necessary waivers.

**Drones Take Flight as Insurers Step In**

A number of insurance companies have applied for, and been granted, exemptions by the FAA for the commercial use of drones for the inspection and evaluation of damages following catastrophes. Drones can be useful in accessing hard-to-reach areas after hurricanes, tornadoes and floods by providing detailed aerial images of affected areas.

Claims adjusters with the information provided by drones could handle more claims, process them much faster and expedite payments to policyholders. By using drones, insurers are expected to have fewer workers’ compensation claims, as adjusters can do their jobs remotely from the safety of their offices.

But insurers could be constrained by numerous FAA limits aimed at easing concerns about safety and the potential invasion of privacy. For example, the approved insurers can fly drones over private or “controlled-access” property only with permission from the owner or other authorized party, according to the FAA’s approval. Drone operation is also restricted to airspace away from airports and most urban areas, during daytime and, in many cases, at least 500 feet “from all nonparticipating persons, vessels, vehicles and structures.”

**Drone Insurance Issues**

The availability of insurance coverage is absolutely necessary for the continued development and growth of the commercial drone market, as the need for coverage is expected to be as high as the risk for potential losses. The inherent risks in the operation of drones may be amplified as their numbers, uses and capabilities increase. The combination of elements of operating an aircraft with the control hardware and software and remote communication of a drone—as well as the possible carrying of payloads—make risk assessment, management and coverage a particularly complex exercise.

Operation of drones for commercial purposes could expose operators, either directly or through third-party contractors, to a variety of risks and potential liabilities, ranging from personal injury to invasion of privacy. Despite the absence of clarity and full understanding in the market regarding the risks involved and the general lack of relevant data, a number of insurers are ahead of the curve trying to develop properly underwritten policies to cover all insurance exposures created by the use of drones. The work of underwriters will ultimately define the extent and limitations of coverage based on risk assessment in order to adequately price drone insurance. Generally, the following general types of coverage will be needed for the use of drones and ancillary business activities: liability; property; personal injury; invasion of privacy; and cyber risk.

Liability exposure is the primary risk drone operators are facing. Although the unmanned drones’ remote operation excludes risks on passengers or crew, drones present a significant risk to property and life in the event of accident due to faulty and inappropriate operation or mechanical defects and component failure. Losses and damages could involve bodily injury to humans and animals and damage to buildings and other fixed and mobile structures and vehicles.

Standard commercial general liability policies cover bodily injury and property damage caused by an “occurrence,” which is defined as “an accident, including continuous or repeated exposure to the same generally harmful conditions.” However, most, if not all, such commercial general liability policies have exclusions for damage caused by the operation of aircraft, which would include drones. Commercial property insurance policies also have various forms of aircraft exclusions that would apply to drones, including policies that may specifically exclude coverage while the drone is in flight.

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12. Ibid.
13. Ibid.
17. Ibid.
Drones Take Flight as Insurers Step In (Continued)

Drone manufacturers and component part manufacturers may also face liability for any defective design, manufacturing or failure to warn, as well as strict liability, negligence and breach of warranty. Therefore, product liability, personal injury and property damage would be needed by these manufacturers, as well as distributors and dealers of drones. However, the existing typical product coverage for traditional aviation risk is generally narrower than what it is needed for the unique risks presented by the operation of drones.20

Drone operators also need coverage for the actual drone, including all of its parts and necessary accessories. Hull coverage policies are among the many potential policies available in the aviation insurance market covering damage sustained to insured aircraft. Depending on usage, a drone may be carrying a payload whose value may be much higher than the values of the drone itself; therefore, it would need to be insured against all risks of physical loss or damage (partial and total loss) resulting from any external cause while in transit, including extended coverage for loading and unloading. Also, coverage against theft may also be required.21

Insuring against cyber risk of hacking is also critical, because drones are generally connected to electronic communication systems. The risk is someone would hack into a drone’s system to take over its controls in order to divert it from its flight path for the purpose of theft or intentionally inflicting damage.22 Specific malware designed to infiltrate drone systems has already been developed, suggesting cyber risk for drones is no longer theoretical.23 The developed malware, dubbed Maldrone, can infect a drone, allowing the hacker to do anything from changing the destination of the drone to making it drop out of the sky.24

Cyber insurance for drones may have to include coverage for a variety of risks, ranging from injury to physical damage. Consideration of coverage for cyberterrorism is also important and could be offered separately from other drone insurance policies, but, given the increasing levels of dependence on computerized systems in transportation, it could be included in other coverages.25

It is also conceivable drone operators, and possibly the drone software engineers, may require errors and omissions (E&O) coverage, as accidents and mishaps due to operating errors could expose them to E&O claims.26 Also, as new technologies involve new and unknown or overlooked risks, there may be increased exposure for directors and officers of businesses that manufacture, support or use drones.27 Privacy issues top the list on many peoples’ concerns with many new technologies, and drones are not exempt. Commercial drones, as well as private drones, are often equipped with on-board cameras and possess other data-collection capabilities, potentially posing a threat to privacy. Drones may capture private data whose illegitimate use and/or public dissemination may be harmful to the owner of such data. Privacy concerns go beyond intentional surveillance, as they may also arise with the unintended capture of images during routine and unrelated drone operation. In 2013, the federal Drone Aircraft Privacy and Transparency Act was introduced to create a regulatory framework for drone operation, including privacy protection, data collection and enforcement. Insurers are developing policies to cover such exposures, but there has not been significant clarity or guidance in this area.28

Presently, the largest growth area for insurers is expected to be in the low-scale, visual line-of-sight (VLOS)29 operations for which the FAA’s proposed rules will apply. Insurers, being inherently conservative in assessing risk, may often apply standards for issuing insurance policies that exceed what the FAA has already proposed. Following traditional aviation insurance practices, insurers may require a drone operator to develop standard operating procedures, just as a traditional charter-airline company must do; keep logs of flights and maintenance; and have, at a minimum, an elementary understanding of the FAA rules for traditional aircraft pilots.

Traditional aircraft coverage is being updated and adapted by underwriters to be applicable for drone operations, often by doing little more than substituting terms such as “aircraft” with “UAS” and “pilot” with “operator.”30 However, although insurers can extrapolate loss experience from

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the aviation industry, they should consider the experience of the U.S. Air Force, whose highly sophisticated drones proved three times more likely to be involved in an accident as traditional manned aircraft.31

At this early phase of the market, only bespoke policies are written by a few specialist carriers whose numbers should increase as more insurers enter the market once the FAA rules are finalized. The coverages currently available include physical loss or damage to the drone, components and spare parts during operation, testing or transit; liability coverage for direct loss or damage resulting from failure of the drone (excluding coverage for consequential losses of third parties); non-owned drone liability coverage; and premises, hangar keepers and product liability coverage.32

Insurance companies that decide to provide, or not to provide, drone coverage face certain concerns. Liability could also exist for insurance company directors and officers who decide to provide drone coverage that is in known conflict with existing laws and regulations, or fails to consider such laws and regulations in deciding to provide coverage. Because the regulatory framework for drone operations is still being formed, insurers that write drone policies need to properly due diligence to make sure provided coverage would not be inadvertently negated due to existing exclusions. Insurers and their agents who mistakenly promise coverage that does not exist may face legal action regarding that uncovered liability.33

**CONCLUSION**

The new technology of remotely operated unmanned aircraft (drones) and its commercial use has many potential benefits for business, individuals and society. At the same time, along with the benefits, the widespread use of drones—private and commercial—poses various risks, ranging from safety to privacy of individuals. These risks arising from the use of drones could best be mitigated and managed by property and casualty insurers, but only in an environment of clearly defined drone operational requirements and performance standards. Complete and clear regulation of drones, by the states and the FAA, is necessary for insurers to step in and meet current and future policyholder needs.

**ABOUT THE AUTHOR**

Dimitris Karapiperis joined the NAIC in 2001 and he is a researcher with the NAIC Center for Insurance Policy and Research. He has worked for more than 15 years as an economist and analyst in the financial services industry, focusing on economic, financial market and insurance industry trends and developments. Karapiperis studied economics and finance at Rutgers University and the New School for Social Research, and he developed an extensive research background while working in the public and private sector.

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