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# DRONE INDUSTRY UPDATE

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The Australian commercial drone industry is maturing as regulators, operators and the public begin to come to terms with this emerging technology. While analysts predict the global drone market will top \$11bn annually by 2026, the precise social and legal impacts are more difficult to anticipate.

We take a look at the industry trends following **the 3rd Annual RPAS in Australian Skies Conference** held by the Australian Association for Unmanned Systems in Canberra in March 2018, and outline the key opportunities and challenges for the Australian commercial drone industry.



# CHANGING ATTITUDES TOWARDS DRONES

The Australian commercial drone industry is showing all the signs of a sector maturing in terms of technology, safety and sophistication. Major aerospace industry players are investing significant sums in researching difficult regulatory problems and devising innovative solutions. It is clear that drones or Unmanned Aircraft Systems (**UAS**) are not the sole domain of militaries or hobby operators, but that they also represent legitimate commercial interests.

Alongside mainstream aerospace entities such as Boeing, Australian companies are playing a key role in interfacing with regulators with a view to enabling routine drone operations in Australian airspace. These collaborative efforts have led to a noticeable shift in perspective by regulators, including the safety regulator, the Civil Aviation Safety Authority (**CASA**), and Airservices Australia, the body managing Australia's airspace.

As experience with drones has grown, regulators are now more willing to enable drone activities – a break from the traditional stance adopted in Australia and elsewhere. Nonetheless, the Australian Transport Safety Bureau (**ATSB**), charged with responsibility for the investigation of aviation accidents, reported over 100 drone safety occurrences in 2017 and concluded that drones represented a growing and insufficiently understood safety risk. There are also continuing concerns regarding regulatory compliance, liability, insurance, and privacy with respect to drone operations.

Nevertheless, if momentum can be maintained while further regulatory hurdles are cleared, there are significant commercial opportunities available in Australia for both development and operation of drones.

## SNAPSHOT

- The Australian drone industry is maturing. Major players and local entities are providing the critical interface with regulators.
- Accruing experience with drones is leading to greater confidence on the part of Australia's regulators, and better opportunities for increased drone activity.
- Routine airspace access for drones remains elusive but is being actively planned by industry.
- Autonomous systems and wide-scale urban drone operations are expected by industry to be available in the near term (5 to 10 years).
- The future regulatory landscape in Australia is not entirely clear, with CASA taking a 'fast-follower' approach, with a view to aligning with other jurisdictions. CASA's forthcoming roadmap will provide key insights.
- The legal, insurance and regulatory issues pertaining to increasing commercial drone operations remain unclear and largely untested, and hurdles remain.

## DRONE OPERATIONS: STATUS

As an indicator of the surge in drone activity, there are now over 1200 holders of Remote Piloted Aircraft Operating Certificates (**ReOCs**) in Australia, a sharp increase on previous figures. Importantly, the number of ReOCs on issue has exceeded the number of Air Operator Certificates issued to operators of conventional, piloted aircraft.

This follows on the back of a recent overhaul of CASA's drone regulations under Part 101 of the *Civil Aviation Safety Regulations 1998* (Cth) – the first major amendments to Part 101 since the regulations were introduced by CASA in 2002 at a time when Australia's drone industry was in its infancy.

A major aspect of the Part 101 amendments included new rules for commercial operations of 'sub-2kg' drones under specific operating conditions. The 'sub-2kg' rules have seen substantial utilisation. Notably, CASA has received more than 6000 notifications of intent to conduct commercial drone operations in Australia.

A range of commercial drone activities are now underway in Australia, including the better-known examples such as asset monitoring (eg power-lines, building or infrastructure monitoring missions flown by drones), coastal and agricultural monitoring, surveying and aerial photography.

A significant amount of work is also being carried out behind the scenes, for instance, communication and data research (including by Telstra, which is investigating its role in the drone revolution by way of Telstra Labs, established last year), sensor and software development, robotics, and operator training.

The sphere of commercial activity is not limited to those operating drones as a primary enterprise: drone operations are relevant to numerous stakeholders, including those which may operate drones as an adjunct or as a tool used in respect of one part of a broader business. Thus the drone industry is far more extensive than it might appear and it is already intersecting aspects of day-to-day business.



## ONGOING REGULATORY ACTIVITY

Regulatory endeavours have increased in response to increased drone activity, CASA has opened its Remotely Piloted Aircraft Systems (**RPAS**) Branch in August 2017. CASA's RPAS Branch has been busy since its inception, publishing a discussion paper last year and conducting a drone safety review at the behest of the Minister for Infrastructure and Transport.

CASA also intends to publish its regulatory roadmap this year. The roadmap will provide key guidance for the drone industry as to the direction of future regulation.

A key outcome from CASA's work, hinted at during the 'RPAS in Australian Skies' conference, is CASA's consideration of a mandatory drone registration system.<sup>[1]</sup> While details are not available, it is possible that CASA may follow in the footsteps of the US Federal Aviation Administration (**FAA**), which launched its own registration system in 2015, applicable to operators of recreational and commercial drones, aiding in the identification of drones and the monitoring of drone operations.

Precisely how a US-style registration system would impact Australia's commercial drone operators, and CASA's enforcement activities, is difficult to estimate. As a starting point, formal registration would seem to be a further step towards confirming that drones are legitimate airspace users, on the one hand, but also that drone operations will be subject to increasing oversight from CASA, on the other.

[1] See the presentation given by Mr Luke Gumley, Branch Manager Remotely Piloted Aircraft Systems, 'RPAS in Australian Skies Conference', <https://www.casa.gov.au/about-us/standard-page/rpas-australian-skies-conference> (Accessed, 30 April 2018).





## INCREASING AIRSPACE ACCESS

In the US, the FAA has been trialling a system for regulating low-altitude drone operations in controlled airspace since 2017. This system, called “LAANC” (Low Altitude Authorization and Notification Capability), enables approved drone operators to receive near real-time operational approvals for low-altitude operations in controlled airspace near US airports. LAANC is now available at around 45 airports in the US, with significant planned expansion this year, paving the way for routine drone operations in the future.

Airservices Australia has trialled its own airspace access regime. Under specific arrangements and operational conditions, defence and emergency services operators have entered into letters of agreement which reduce the complexity

of the current approval system and reportedly facilitate drone flight permissions through controlled airspace in as little as 15 minutes – a far cry from the lengthy approval processes usually required for such operations.

These arrangements are not available to the broader commercial drone sector. However, Airservices Australia has indicated its willingness to facilitate (under conditions) drone traffic, particularly where operations are below the height of, or ‘shielded’ by, physical obstructions (for instance, buildings) or terrain, where other air traffic does not operate. Developing arrangements that would enable the routine use of controlled airspace for the broader UAS community remains a challenge.



# FUTURE AIRSPACE INTEGRATION

The ideal outcome for drone operators is to achieve the routine 'file and fly' operations undertaken by conventional manned aircraft, beyond the controller's visual line of sight to the drone and free of other currently imposed operational limitations. Whether and when such freedoms of operation can be achieved seemingly depends, in part, upon the development of an Unmanned Aircraft System Traffic Management (**UTM**) system.

Proposals by tech-giants such as Amazon and Google for delivery-to-door drone networks in Australia (expected to be available in 5 to 10 years) will be key drivers for development of the UTM. Significant energy is being expended in this area, with numerous Australian companies working on traffic management solutions involving the use of lattice-work airspace corridors reaching above and through major cities.

Part of the problem of airspace integration for drones involves the vertical, lateral and time separation of drones from other airspace users including commercial air traffic. Questions remain as to how collisions between drones, other drones, other aircraft, terrain, people and buildings can be avoided notwithstanding there may be thousands of delivery drones operating near crowded areas.

The future UTM system will need to accommodate diverse aircraft including drones of all shapes and sizes. Such operations will require a previously unseen degree of interoperability, communication and coordination for a variety of craft and missions using differing degrees of human control input. Whether autonomous or intelligent systems can be deployed by drones or the UTM network to address these matters is a real and practical question already being dealt with by numerous entities in Australia. Even so, many pieces will need to fall into place from technological and regulatory standpoints before these plans are realised.



# EXPLORING THE LEGAL ISSUES

The possibility of wide-scale commercial drone usage involves a host of legal issues. There are many unknown elements, with implications for drone manufacturers and operators, and those involved in training, maintenance and insurance. Whilst significant investments are being made on the basis that routine, commercial operations in urban areas will soon be a reality, to date there has been less exploration of the legal frontier.

Drone operations take place within an existing and mature aviation system and will continue to do so. This system has evolved in relation to conventional aviation, and seeks to maintain a high level of safety through a regulatory framework that involves (amongst other things):

- pilot/controller training and certification;
- aircraft airworthiness regulation; and
- operational approvals/restrictions, airspace management considerations and rules of the air.

Legal and commercial conventions, contracts, and operational concepts tailored to the specifics of piloted aviation have also developed over the last 100 years of powered flight.

The aviation industry has never previously had to deal with multiple unmanned craft (as in the opening ceremony of the PyeongChang 2018 Winter Olympics) controlled by ground operators or computers.

Whilst great strides have been made, it is clear that regulators and the industry in general are still grappling with the integration of drones into this existing system. This is exacerbated by the cheap unit cost of drones and their rapid proliferation.

For instance, a number of queries remain, including as to:

- permissible operations under Part 101, including the meaning of “populous area” in the regulations – over which areas drones may not be permitted to fly;
- the consequences of regulatory contraventions, including insurance issues and potential enforcement by CASA;
- apportionment of legal liabilities between drone manufacturer, owner, operator and insurer, particularly in relation to product liability and contractual warranties and indemnities;
- the risks of increasingly autonomous systems in drone operations as regards liabilities and responsibilities;
- liability under Australia’s damage by aircraft legislation, which legislation differs across Australia; and
- privacy issues, including anti-surveillance legislation, and the application of common law concepts such as nuisance and trespass.





# CHALLENGES AND OPPORTUNITIES

There are significant opportunities and challenges for those involved in this emerging sector. The changing stance towards drone usage is a boon for local industry. Australia has favourable conditions for UAS uptake such as a relatively low population density, a history of successful and innovative drone programs (dating back to the 1950s), and generally supportive regulators.

However, the changing regulatory environment in Australia may create challenges for business. Whilst the current regulations (and drone operations thereunder) are still relatively new, and still being grappled with by industry, it is apparent from CASA's ongoing work that further changes to the regulations are likely to be forthcoming.

An issue for business planning is that CASA may be a 'fast-follower' of other jurisdictions rather than a regulatory leader [2]. It will be important to monitor developments overseas, including those emerging from the FAA, the European Aviation Safety Agency, and others. Although CASA will continue its international collaboration and seek to ensure it does not lag, given the rapidly changing environment,

it may be a difficult task for Australia to keep pace with regulatory advances made elsewhere. There are also questions as to how international rules will be applied to Australian conditions and operational environments.

In any event, delays in the development of regulations and industry guidance will likely not impede technological advancements and continued drone usage. Accordingly, the risks in terms of privacy issues, liability under Australia's damage by aircraft or anti-surveillance legislation, and regulatory non-compliance will have greater visibility in the near term, unfolding as the industry continues its advance.

It will be incumbent on industry to take sensible steps to mitigate these risks while the landscape takes shape, and to collaborate with other stakeholders including lawyers and insurers during that process.

[2] See the presentation given by Mr Luke Gumley, Branch Manager Remotely Piloted Aircraft Systems, 'RPAS in Australian Skies Conference', <https://www.casa.gov.au/about-us/standard-page/rpas-australian-skies-conference> (Accessed, 30 April 2018).



SENIOR ASSOCIATE

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Michael also has a particular interest in aviation law and completed a research thesis (Master of Laws by Research, conferred February 2016) in that area, focusing on the regulation of Unmanned Aircraft Systems and the integration of these systems into public airspace.

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