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2025

New horizons: drone technology brings ADR hearings to new heights

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Generated: November 9, 2024

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New horizons: drone technology brings ADR hearings to new heights

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IN SUMMARY

As the post-pandemic international dispute resolution industry continues to evolve and adapt to the changing needs of parties and practitioners, one technological innovation is being adopted at Maxwell Chambers to create new possibilities in areas ranging from evidence presentation during dispute resolution hearings to facilities maintenance work to building security.

DISCUSSION POINTS

- Proliferation of use cases
- Challenges in the use of drones
- Adoption
- · Cost to the client
- Contingencies

Drones are not new as a concept. Autonomous aerial vehicles, as they are properly known, have been around for decades. In the early years, they were mostly used as military weapons, tasked with surveillance of the battlefield and for surgical strike operations, such as the Reaper drones used by the US military in various conflicts. This remains one of the most widespread use of drones by state actors, with the Russian invasion of Ukraine bringing about the first ever drone war, both sides dropping ordnance of all types from these versatile machines.

In the background, however, drones have grown in the civilian and commercial space to become an essential part of many businesses. The most common type of consumer drone, the lightweight quadcopter, is basically a very small and cheap helicopter, with cargo and video-capture capabilities built into it. This has opened up all sorts of possibilities that never existed before, at least not within the reach of anything less than governments or large corporations.

PROLIFERATION OF USE CASES

For example, in parts of Africa where small towns and villages lack high-end medical facilities, drones are being used to deliver critical medicines and even blood packets from central, better-equipped hospitals in large cities to far-flung locations at a fraction of the cost and time it used to take by road or air. In the countryside, autonomous drones can track the movement of wild animal herds, enabling scientists to study their migratory patterns in new ways and across vast distances.

In Singapore, quarantine and customs authorities are using drones to remotely inspect herds of imported pigs for various kinds of diseases, with drones flying over quarantine pens and at pig eye level as they are moved from one location to another, to try to spot any sign of infection. In another Asian country, drones have been employed to inspect long-distance high-voltage power lines and their support towers, especially those that run across mountain ranges, which are difficult and costly for ground teams to get to. Drones are being used to deliver parcels and food to ships berthed offshore in some cities, and there are several companies working to build drones that can carry passengers in an air-taxi role. In the area of recreation and entertainment, drones have taken off in a large way. Drones equipped with LED lights are being used to create giant displays in the sky at night, completely replacing fireworks in some events, while those with smoke trails are being used for displays in the day. Drones are being used to cover races, with their ability to follow cars and bikes across difficult terrain, providing a novel and exciting perspective for viewers, and that has spawned drone racing itself as a new sport.

News agencies are increasingly using drones to cover their stories, especially ones requiring an overhead view such as a car chase or the scene of a major accident, while filmmakers are using drones to create never-before-seen images in movies and TV shows, including amazing one-shot footage that has the camera view flying in and out of homes and through spaces too tight for a film crew to normally fit.

CHALLENGES

This is not to say that there are no challenges associated with the use of drones. Legally flying a drone can be a complex exercise requiring multiple permits and approvals from authorities, depending on where the drone is to be flown. Many urban areas have very strict laws governing the use of drones, which is why their adoption remains sporadic in most cities. A key consideration is the safety for members of the public, whether from falling drones or drone parts, or objects being carried, such as a delivery payload. 'Drone lanes' have been mooted, where drones are required by law to follow certain pre-defined routes that minimise the exposure of the public to falling objects, but these still remain very much a theoretical concept in most cities.

Another concern is that of privacy, with most drones being equipped with some form of camera technology. This enables drones to be used to spy on people in high-rise structures, or over walls into locations of a sensitive nature, such as a military base. Already, there are increasing numbers of complaints about drones purportedly being seen hovering over people's homes in rural and suburban areas, and in some cases, people have gone as far as to shoot down drones, an action fraught with legal consequences. Many countries now have strict laws governing the use of drones in sensitive locations, though privacy laws affecting the general public are still untested with regards to drones. In Singapore, using a drone to take photos or videos of protected areas, such as military installations, is a crime that carries heavy penalties. Some countries have designated entire swathes of countryside 'no-drone zones', particularly around national parks and wildlife conservation areas, to protect the tranquillity and natural state of the environment.

A third problem is the issue of safety of the airspace, where drones can interfere with aircraft operations, especially where there are low-flying craft such as near an airport or aerodrome. It is generally an offence in most countries to operate a drone near such places without express approval from the local authorities, and approval may be hard to obtain for most private and commercial use cases. This results in large areas being drone-forbidden zones, especially for cities where an airport is located close to it. Most of New York City, for example, is a drone-forbidden zone, except for a few small, designated areas in the outer boroughs.

That being said, properly deployed drones can radically transform the way things are done, as mentioned earlier. They allow for photography and videography from vantage points not normally available, which can be invaluable for a variety of purposes, including dispute resolution. As such, Maxwell Chambers is committed to exploring the use of drones in both our client-facing activities as well as in our facility-related back-end operations. In early 2024,

we launched a new live drone camera service, to enable virtual site visits by tribunals in real-time, with the service able to operate in most parts of the world. This, we are convinced, will add another powerful tool to the kit of international dispute lawyers looking to find better ways to present evidence.

For many disputes involving buildings or structures, such as oil rigs or sports stadia, the usual way of presenting evidence is through photographs, videos and illustrations. The accessibility of the location would determine the quality of such photos or videos, such as whether a suitable vantage point can be reached to take a good photo. In certain situations, the insides of confined locations are not even accessible for a person wielding a camera, such as tunnels or machinery rooms. In these cases, drones come into their own. Various industries have been using specialised robots for a long time to do inspections of undersea cables or checking on tunnel blockages.

Some locations carry potential risk to the people attempting to archive the scene. The roof of a skyscraper is generally relatively safe for trained staff to operate at, but when issues concern the outside of a parapet wall of such a building, or the exterior façade at the highest floors, this becomes a different challenge, and gondolas dangling hundreds of feet off the ground in high winds make operations problematic. Drones, designed to handle such winds, have emerged as the perfect replacement, able to perform inspection and archival roles at minimal cost and little risk. They can also move much quicker than human workers operating gondolas, meaning that a tall building can be inspected in a far shorter time using drones than in traditional ways.

Likewise, the scene of a chemical spill from a transport vehicle such as a tanker truck may not be safe for non-Hazmat crews to be near, making evidence gathering complicated. Or where there is a large debris field, such as from a plane crash, the entire area may be closed off by law enforcement authorities to facilitate search and rescue. In all these cases, a drone overflight might be the best option for quickly capturing essential information about the scene and the surrounding environment, for later analysis and dispute resolution. They can do this unobtrusively, operating high above ground crews and without interfering with critical ongoing rescue work.

Drones are not just able to bring cameras to new vantage points – they are also able to bring new capabilities to solve old problems in new ways. Drones armed with thermal scanners can detect leaks and cracks in structures such as oil storage tanks, and their ability to scan a large facility from above opens up new approaches to inspection and analysis of manufacturing plants.

One novel use of drones is to quickly create a digital rendering of a location that will not remain static for long, such as the site of a plane crash, or an industrial accident that is being cleaned up, or a ship that is damaged and in danger of capsizing. This kind of fast-changing environment is also usually difficult to access with a large amount of gear, meaning that drones are almost the only option available by default. A team of camera drones can quickly provide real-time footage for the site to be assessed remotely, while recording and archiving for future discussion. And in many cases, the drones can also be tasked to build 3D renderings of buildings or objects, allowing the site to be revisited at a later stage from multiple angles, at multiple zoom levels.

To illustrate, in Singapore, authorities have used drone cameras to preserve evidence at the scene of a fatal car crash along a street lined by shophouses on both sides. The burning

car wreck damaged some properties and left marks all over the road. The road was closed for several hours for the fire brigade and recovery crews to work, but it eventually had to be cleared of debris and re-opened to traffic. While the emergency teams worked, a separate drone camera crew was engaged at short notice to digitally scan the area. The subsequent 3D rendering of the accident scene was used for further investigations and inquiries, long after the site itself had been cleared. The composite footage collected by the drones and the digital product created from it was far superior to simply using handheld cameras to take pictures and videos of the scene, the practice for a long time up till now.

ADOPTION

Given all of these advantages, why then has drone technology taken so long to be adopted in the dispute resolution space? One possibility is the general unwillingness of lawyers to try something that appears on the surface to be extremely complex and technical. Drones have always lingered in most people's imagination somewhere in the space between science fiction and expensive military hardware. The idea of using them for a construction dispute hearing doesn't even seem to make sense. Where would we get this kind of equipment from? How would we operate it? Will it require a control room full of trained technicians and operators?

And yet, using a live drone camera service is as easy as looking at the camera footage onscreen and directing the camera operator: 'pan left, please', 'can you zoom in on that red structure in the middle of the screen' or 'do a full overhead sweep of the worksite so we can get a macro view of the surroundings'.

The preparatory work leading to this simply consists of furnishing particulars of the location to be filmed and the likely date that the service is required. From not much more than this, it is possible to begin to work out cost estimates, which can be refined further as the lawyers provide more detail about what precisely they would like the drones to do.

Another reason that drones are not as widely employed as they can be is that the technology has advanced very quickly in just a few years, so some old perceptions about what drones can't do continue to persist. The reality is that the capabilities of the latest drones far exceed those of just a few generations earlier, in aspects such as payload and range. For example, a major limitation of drones is their battery capacity, which limits range or flight time. This has always been a problem when the area being inspected is large or the structure is beyond a certain size. Now, with more powerful drones, flight times and mission ranges have dramatically grown, even more so with the increasing availability of powered-lift models that take off like helicopters but fly like airplanes.

To take things even further, in specific scenarios requiring static observation, such as for security and law enforcement purposes, tethered drones can be used, where a power cable remains attached to the drone while it is hovering over a small, fixed location. This allows them to essentially be airborne for unlimited lengths of time, greatly extending their usefulness. Airships such as the Goodyear Blimp used to fulfil this role, but drones will eventually all but take over as they are far more versatile.

COST TO THE CLIENT

Which leads to the question of the kind of cost involved. This was raised frequently by lawyers who had expressed interest in learning more about this new way of evidence presentation. Unfortunately, there is no simple answer to the question, as the location of the site to be

videoed and the level of complexity of the task will, among other things, contribute to the final bill. It is akin to asking 'how much will lunch cost' without reference to a restaurant, menu choice and the number of courses. Some estimates can still be made, though. A simple drone flight around a half-built commercial structure at the city limits, easily accessible by road and without flight restrictions or terrain limitations, is likely to cost less than a drone assignment to take a video of an oil rig in the middle of the North Sea, or a ski resort nestled high up in the mountains. Precision in formulating the project requirements will aid in this calculation. As with most things, cost increases with difficulty.

Having said that, when asked what they think the cost of the drone service would be, lawyers have invariably given a number far too high, sometimes off by a factor of 10. This is because drone technology and pilot skills have advanced so much that this kind of service is a lot more affordable and accessible than ever before and not just something only within the reach of first-world militaries. Being told that the likely expense of such a game-changing way to bring an arbitral tribunal on a virtual site visit is much lower than feared was often a pleasant surprise that caused many lawyers to give serious thought to using it for future cases that are suitable.

CONTINGENCIES

There are of course challenges that may prevent the live drone camera service from operating at the time of the hearing. Inclement weather is the most likely problem, as commercial camera drones are unsuited for rainy conditions. Loss of control signal or some other technical malfunction are always possibilities for any piece of equipment, rare though they might be.

One way to address this is to do a dry run of the drone camera route a few days in advance. This allows the drone pilot and camera operator to rehearse what is required of them during the actual hearing, and also allows for the creation of video footage that can be used as backup in the event that the service cannot be delivered on the actual day itself.

Arbitration hearings themselves have some degree of flexibility in the time allocated to parties – it may also be possible to push back the virtual site visit until the weather improves or the technical issues have been resolved. These issues are not insurmountable.

CONCLUSION

The use of drone, as well as for maintenance and dispute resolution evidence presentation, are all various aspects of Maxwell Chambers' commitment to adopting new technology and developing new capabilities. We are confident that drone technology will grow in importance in various aspects of business and daily life, and we intend to be well positioned for that future.

Our journey into the world of drones is turning out to be very exciting, and we look forward to exploring these new horizons together with our clients.



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