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## **Legal perspectives on the cross- border operations of unmanned aircraft systems**

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## SUMMARY

The incursion of unmanned aircraft systems (UAS) is radically shaping the future of international civil aviation. This technological innovation is creating disruptions in almost all areas of people's activities. Will unmanned aircraft (UA) ever perform international commercial flights carrying passengers, freight and mail routinely? Will UAS enable new markets and spur economic growth and job creation worldwide? What is happening right now? To what should we be paying attention? What things may influence the future of unmanned commercial aviation? What are the legal challenges? This research aims to explore the current legal and regulatory frameworks from the angle of how they may facilitate the routine and cross-border operations of UAS. It specifically analyses the legal and regulatory challenges that civil UAS confront when used in cross-border operations, as follows:

- The legal regimes of the airspace;
- The notion of aircraft;
- The concept of international air navigation in relation to international air transport; and,
- The regulatory regime of safety.

In this endeavour, the author has also resorted to the rules of treaty interpretation laid down in the Vienna Convention on the Law of Treaties to give legal coherence and pragmatism in interpreting and applying international aviation rules to UAS. The author expects to contribute to incorporate this revolutionary machine into the arena air law positively and comprehensively while stimulating further thinking on the topic.

UAS are engaging in a myriad of civil functions while innovation continues to evolve at a fast pace, and more people allow their imaginations to bring new ideas and applications into practice. Even though unmanned aviation is a growing industry that is rendering a range of capabilities and sophistication with ample operational opportunities and economic potential, it is a challenging new frontier for civil aviation that also carries great promise. According to industry reports, the UA market will grow from US \$11.45 billion in 2016 to US \$51.85 billion by 2025. As an outcome of this fast-developing market, it is projected that ten percent of global civil aviation operations will be unmanned in just ten years. It is difficult to precisely project the full economic impact of UAS to civil aviation until a harmonised international regulatory framework is in place, as uniform rules will facilitate the routine international operations of civil UAS.

The increasing operations of UAS have also raised safety and security concerns on manned aviation as confirmed by recent incidents that occurred in 2018 and 2019. Hence, there is an escalating need to adopt a comprehensive regulatory framework for the operation of UAS aimed at facilitating its safe and efficient integration.

The International Civil Aviation Organization (ICAO) works arduously to facilitate the cross-border operations of UAS while ensuring that they do not represent a hazard to civil aviation users and operators. Once Standards and Recommended Practices (SARPs) specific to UAS are complete, UA will engage in international air transport along with manned aircraft, using the same airspace, procedures and separation standards operating from airports and interacting as manned aircraft do with Air Traffic Control (ATC) and other pilots in a safe and seamless manner. Reaching that level requires incorporating new SARPs in the Annexes to the Convention on International Civil Aviation besides the thousands which have already been adopted.

Because the normative regime governing international civil aviation was conceived and built primarily to facilitate the international air navigation of manned aircraft, unmanned civil aircraft encounters regulatory gaps that prevent them from safely taking part in civil aviation.

Different regulatory regimes, including but not limited to public air law conventions such as the Convention on International Civil Aviation and its Annexes, the criminal air law conventions and bilateral and multilateral Air Services Agreements govern international aviation. These treaties and agreements also interact with each other. Hence, when a UA engages in international air transport, it must also follow the applicable regimes regulating the use of airspace, aircraft and international air navigation, and safety laid down in these legal documents.

Finally, because the unmanned industry continues to grow, so will the number of aircraft operating simultaneously. This scenario is a tremendous challenge for States, ICAO and airspace planners, and is one which will require innovative approaches to the management of air traffic safety and security of UAS.