

Prospects of Drone Regulation after the Release of Drone Strategy 2.0

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Abstract

On 29 November 2022, the European Commission published the EU's Drone Strategy 2.0, which aimed at nothing less than giving a prognosis of drone usage around the year 2050, and the role of drones in the context of Europe's planned mission of carbon neutrality. Drones play a crucial part in implementing the European Green Deal's vision of developing and maintaining a cleaner and sustainable system of transporting persons and goods via the European Airspace and reaching yet unreachable locations, such as those with harsh terrains for traditional transportation. It is with much anticipation that the Strategy looks forward to the bright future envisioned and inspired by the drone industry, however issues of safety, privacy, liability, and security should not be neglected. This paper focuses on changes and challenges in current European regulation implementing the newly released Drone Strategy 2.0 and compares the concomitant drone regulation of other countries.

Keywords: drones, Drone Strategy 2.0, EASA, European Green Deal, liability.

1. Introduction

In the night hours of 10 March 2022, the air defense service of the Hungarian Defense Forces detected an intermittent flying object on the radar screen in the airspace of Hungary. The flying object, as it turned out later, was a TU-141 drone, which had been used recently mainly as a training target due to its obsolescence. Such a device was also used by the Ukrainian and previously by the Russian army. The drone crossed the Romanian national airspace, then spent approximately 40 minutes in the Hungarian national airspace and finally crashed near Zagreb, crossing into the Croatian national airspace. In the spring of 2022, two more similar incidents occurred, when Hungarian Gripen fighters took to the skies. In the summer of 2022, Russia may have purchased a significant number of drones from Iran. The Russian-Ukrainian war has dominated the news over the past year, and most drone-related news was also related to the war. Nevertheless, the use of drones by the civilian population, which has been steadily increasing over the past decade, has not declined over the past year, as evidenced by the proliferation of

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drone marketing websites.¹ Given that drone regulation is essentially a national competence and that there is a union level framework for drone regulation in the EU, which focuses on boosting the economy, some parallels still can be drawn between the different drone regulations in terms of the protection of certain fundamental rights and the requirements for establishing operator liability. This paper compares the basics of various drone regulations and the most important recent and future changes.

2. The Legal Status of Drones in the EU

Under EU Regulation 2019/947, the common framework registration became mandatory in January 2021, with the aim of converting all national licenses, certificates, and declarations to the new EU system by July 2021. For the last couple of years the EU Aviation Safety Agency (EASA) has been, and still is working with the European Commission to develop common European rules that can improve the free movement of drones within the EU. A key focus has been the development of a common and interoperable registration system designed by the SESAR (Single European Sky ATM Research) international public-private partnership (SESAR Joint Undertaking).² Adopted at the end of 2022, the new Drone Strategy 2.0³ builds heavily on the European Green Deal,⁴ the EU's new growth strategy, which focuses on reducing greenhouse gas emissions and developing digitalization. In this context, the whole transport system must be made smart and sustainable, through the use of electric and hydrogen powered aircraft. First and foremost, the framework for this concept is the Sustainable and Smart Mobility Strategy,⁵ adopted by the Commission in December 2020. The EU needs to ensure the safe and efficient development of the drone ecosystem and address related societal issues such as safety, security, privacy, and environmental protection, while providing a sustainable economic environment for the growth of the European drone industry. In 2014 and 2015, the Commission adopted the Communication on a new era of civil aviation and the European Aviation Strategy,⁶ which highlighted that safety is key to the successful integration of drones into the airspace and to the development of this industry and the services and applications enabled by drones. In 2019, the Commission adopted Delegated Regulation 2019/945 on unmanned aircraft systems and third-country operators of unmanned aircraft and Implementing Regulation 2019/947 on rules and procedures for the

1 See at <https://ec.europa.eu/eurostat/documents/3888793/14722798/KS-TC-22-004-EN-N.pdf/3b68ee04-f169-51ee-45a4-92ffce22a873?t=1654674567890>.

2 See at www.easa.europa.eu/newsroom-and-events/news/drone-guidance-extended-and-updated-support-safe-drone-operations-easa.

3 See at https://transport.ec.europa.eu/system/files/2022-11/COM_2022_652_drone_strategy_2.0.pdf.

4 See at https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal_en.

5 See at https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/12438-Sustainable-and-Smart-Mobility-Strategy_en.

6 See at www.easa.europa.eu/en/document-library/general-publications/european-plan-aviation-safety-epas-2023-2025#group-easa-downloads.

operation of unmanned aircraft. The EASA regulation has also been adopted by Iceland, Norway, Switzerland, and Lichtenstein. The regulatory framework for U-Space (air traffic management for drones) was adopted on 22 April 2021.⁷ Drones are now in general use in a wide range of economic sectors with ever-increasing data needs (EU Data Strategy), such as agriculture, construction, surveillance, filming, health, energy, environment, public safety, and security. Ideas for the future use of drones include, *e.g.* as communication nodes, weather, or pollution monitoring platforms. In the transport sector, the use of drones for transportation purposes is already being tested in several countries. The first pilot trials in passenger transport in Europe are expected to take place in the next few years.

It is important that Europe maintain its open strategic autonomy in this area. Exploiting the synergies between civilian drone use, including anti-drone technologies, and military drone use is an important success factor for the competitiveness of the European drone ecosystem and Europe's defense capabilities.⁸ The legal basis for EU legislation is Article 100(2) TFEU. In accordance with Article 4(2) TFEU, the EU and the Member States have shared competence in the field of transport. In addition, Article 114 TFEU provides the legal basis for enacting harmonization measures affecting the EU internal market. The long-term goal is to provide a forward-looking vision for the future holistic development of the sector that can facilitate the uptake of this innovative technology in Europe, while striking the right balance between safety, security and other societal concerns and a sustainable economic environment.

According to the Drone Regulation 2019/947/EU, drones can be operated in three categories in EU Member States: open, specific, or certified. 'Open' category operations pose the least safety risk and therefore do not require a prior operating license. Operations in the open category can be further classified into three classes – A1, A2 and A3. Pilots flying in the 'specific' category require an operating license from the National Aviation Authority (NAA), unless they are operating under a 'standard scenario' as defined by EASA.⁹ The operator must also hold a Light UAS Operator Certificate (LUC). The 'certified' category covers high-risk operations such as flying drones over large groups of people and transporting dangerous goods, which can result in high risk in the event of an accident. Operations in this category are rare, and the regulation is designed with future developments in mind, primarily the possibility of drone baggage transport or unmanned cargo transport over long distances. Only certified drones need to be registered. Otherwise, only the drone operator must undergo registration. Under EU rules, 'certification' means that the drone has a certificate of airworthiness issued by a national aviation authority. This certification is not required for open category operations.

In the EU, all drone operators must undergo registration, with two exceptions: (i) if they use a drone weighing less than 250 grams and without a camera or sensor

7 See at www.easa.europa.eu/en/newsroom-and-events/press-releases/easa-publishes-first-set-amcgm-u-space-regulation.

8 See further on the topic of mutual economic benefits of civilian and military drone industries: www.aviationtoday.com/2022/12/01/drone-strategy-2-0-future-unmanned-aircraft-europe/.

9 See at www.easa.europa.eu/en/domains/civil-drones-rpas/specific-category-civil-drones/standard-scenario-sts.

that records personal data; or (ii) if they use a drone that weighs 250 grams and has a camera or sensor but is classified as a ‘toy drone’ under Directive 2009/48/EC. The registration of drone operators is done through the national aviation authorities of EU Member States and must be done before any type of drone operation is carried out within the EU. Registration should ideally take place in the country of residence or main place of business of the operator. EU drone registration is valid for any number of drones used or owned by the operator. However, all drones must bear the identification number of the operator(s) who own or regularly use the drone. Some Member States may require authorization for cross-border operations, but this will not result in a repetition of the full registration procedure. The former German regulation on drone operation used a different set of categories of drones than the one introduced by the EU Regulations. For example, prior authorization was only required above 5 kilograms, and operating altitude was limited in 100 meters, instead of 120 meters, which is the EU standard altitude.¹⁰

One of the fundamental differences between the EU and US regulatory approach lies in the registration procedures. In Europe, except for the certified category, the drone does not need to be registered, as mentioned above, however, its pilot must be registered with the country’s civil aviation authority. Following registration, the pilot is assigned a registration number in the register that can be easily accessed by the aviation authorities of all Member States, thereby facilitating transparency and placing only the necessary administrative burden on operators.¹¹

In the US, the pilot must obtain a certificate and then register the drone with the Federal Aviation Administration. A further difference in the registration process is that in the EU, registration is carried out by the Member States’ aviation authorities, whereas in the US this is done on the federal level. In the US, the drone operator must complete two tests before commencing operations, including test flight knowledge required for conducting a safety screening of the operator. The test is conducted by the US Transportation Safety Administration. To fly in the special and certified categories of the EU Spaceflight Regulation, a Special Operational Risk Assessment (SORA) is required to ensure a level of safety and security compliance. The US Federal Aviation Administration is a pioneer in developing rules and regulations for drones, with 50 US states having different rules governing the use of drones. This reflects a distinct approach to drone regulation in each state, which primarily assess the impact of drones on privacy, and considers certain aviation safety, agricultural uses, and service delivery (e.g. freight) options. This can result in very significant differences between two states with very similar economic indicators (see Alabama and Kentucky).¹²

While being aware of the organic development of European regulation, the global regulatory and economic context cannot be ignored, given that both the

10 See at www.hoganlovells.com/-/media/hogan-lovells/pdf/2020-pdfs/2020_06_01_iplr77_drones-in-the-german-skies-new-eu-regulations-take-flight.pdf.

11 Elvis Ekane Ngalle, ‘The European U-space Regulation: Current Challenges Hindering Full Scale Drone Deployment in Europe’, *International Journal of Creative Research Thoughts*, Vol. 10, Issue 7, 2022, pp. 600-608.

12 See at <https://pilotinstitute.com/drones/states/>.

production and distribution of drones and the commercial services provided using drones all exist in a global market environment.

3. Drone regulation in Hungary

As of 2023 drone regulation is not implemented in a homogeneous legal source in Hungary. Parliament and the Government address the complexity of drone regulation separately in the Act C of 2012 on the Criminal Code, the Act XCVII of 1995 on Aviation, Act II of 2012 on Misdemeanors, and two recent government decrees, namely Government Decree 38/2021. (II. 2.) on the flight of unmanned state aircraft and Government Decree 39/2021. (II. 2.) amending certain Government Decrees on aviation. The first of these two government decrees has been styled simply as 'Drone Decree'. Further regulation on civil drone operations is in Government Decree 4/1998. (I. 16.) on the use of Hungarian airspace, and Government Decree 39/2001. (III. 5.) on compulsory aviation liability insurance. An unmanned aircraft system, with the exception of an unmanned toy aircraft, may use Hungarian airspace if it is registered by the aviation authority.¹³ Upon request and if the legal conditions are met, the aviation authority will register the unmanned aircraft system. The owner or operator of the drone can initiate the registration procedure. In Hungarian airspace, authorities under the Act on Aviation may detect drones, call them to land, intercept them, electronically jam their communication with the operator, and electronically or mechanically force them to the ground. If the drone does not obey, it may be forced to the ground. Unauthorized or otherwise illegal activities with drones are automatically followed by strict sanctions. Air traffic fine can reach up to around EUR 267,000 (or the equivalent of HUF 100 million) for infringements of the rules on drone operations. Anyone who uses a drone over a residential area without permission or who, while using a drone without permission, makes unauthorized recordings of sound or images of another person's home, other premises or fenced area is committing an offence, which carries a maximum fine of approximately EUR 400 (or the equivalent of HUF 150,000). Using a drone to observe and record someone else's home, other premises or fenced area is punishable by up to 90 days' detention. A more serious offence is to make the audio or video recording of the surveillance available to the general public, punishable by up to one year's imprisonment. Although offences related to unauthorized data collection are punishable only on private initiative. There was a new Drone Strategy proposed at the end of 2022 in Hungary. The most ambitious points of the draft that are worth mentioning: launching the use of drones in emergency medical care, widening the scope of the use of drones in agriculture, initiating a drone program in schools for children to learn about the safe and appropriate operation of drones, the establishment of a drone observatory in order to provide effective assistance to law enforcement and to balance between

13 As of 2023 the aviation authority in Hungary is the Ministry of Construction and Transport, Department of Aviation Surveillance Authority – Aeronautical Engineering Division.

data protection and data management, and the provision of municipalities with the appropriate tools for effective protection.

4. The Framework of US Regulation

In the US, drone flying is federally regulated (under 14 CFR Part 107 or the Commercial Drone Flight Regulations), which requires drone pilots to hold a drone license, which they can obtain by passing The Recreational UAS Safety Test or TRUST¹⁴ knowledge exam, and regulates night, over people, mobile vehicle and beyond visual range flights. Drones must be registered if they weigh more than 250 grams and must be registered with the FAA, whether for commercial or recreational use. The registration number must be prominently displayed on the drone. In the US, the airspace above and near airports is designated as controlled airspace, but recreational and commercial drone pilots can apply for a permit through mobile apps. Another category of airspace classification is restricted airspace, which is classified on the basis of a specific, but temporary activity. These may include military exercises or artillery tests. There are also areas that are permanently classified, such as areas of national security priority, military operations areas, military training routes, alert areas, and warning areas. All national parks under the jurisdiction of the National Park Service have a general restriction against drone flights, which has been in place since 2014 to reduce potential safety risks and ensure the safety and security of visitors, staff, and wildlife. At the local government level, the primary focus is on protecting privacy and strengthening the capacity of law enforcement agencies, but there is considerable variation in the purpose, narrative, and legal instruments of local regulations. Drone manufacturers have a Remote ID compliance obligation, which allows drones used to commit crimes to be identified. Users will only be able to operate drones under such technical conditions as of 16 September 2023.

5. Other Examples

Canada is significantly stricter when it comes to the use of airspace over national parks and, depending on how the local authority regulates the issue, even local parks by drone operators. So-called micro drones are very popular in Canada, as flight and use restrictions are much more relaxed for them in public airspace, excluding national and local parks. For example, drones under the 250 grams weight limit are not subject to registration. A drone weighing between 250 grams and 25 kilograms must be registered with Transport Canada, and it makes no difference whether it is operated for recreational or commercial purposes. Most importantly, custom-built drones, *i.e.* drones manufactured in a garage at home, are not exempt. Canadian drone rules distinguish between the basic and advanced operation of drones. The basic operation is that the drone operator refrains from

14 See at https://trust.pilotinstitute.com/?_ga=2.186068969.1544343030.1684050425-1241360273.1684050425.

both using controlled airspace and interacting with passers-by. In principle, the regulation does not differ much from that in the US in so far as it makes operation subject to an official license or an examination.¹⁵

Japan was one of the first countries to introduce a remote sensing requirement for drones, which is administered by the Japan Civil Aviation Bureau (JCAB). From 20 June 2022, all drones heavier than 100 grams operated in the open air in Japan will have to be registered with the Ministry of Land, Infrastructure, Transport and Tourism (MLIT). Registration is done through the Drone/UAE Platform Registration System (DIPS).¹⁶ Provision of information on the operator's flight license or drone insurance is optional. However, it is a requirement that drones are labelled with the appropriate registration ID. Japan's airspace is divided into three categories: A, B and C. Depending on the category of airspace, different restrictions may apply to the flight of drones. Class A airspace is the airspace around airports. This includes the approach surface, horizontal surface, transitional surface, extended approach surface, conical surface, and airspace above the outer horizontal surface. Airports have been given the possibility to extend the Class A airspace approach to the airspace below the approach surface by administrative action. Class B airspace means airspace above 150 meters or 492 feet. Class C airspace means airspace above areas defined as densely populated districts (DIDs) by the Ministry of Internal Affairs and Communications. The location and extent of DIDs can be viewed on an online map maintained by the Japanese Geospatial-Information Agency.¹⁷ Drones can be operated in Class A, B and C airspace only with prior permission.

One of the strangest drone rules, which was amended in September 2021, is specific to Japan, where drones are allowed to fly over densely populated areas, at night or at a distance of less than 30 meters from passers-by, provided the drone is secured by a strong tether of up to 30 meters in length. From 20 June 2022, all drones heavier than 100 grams must be equipped with remote sensing capabilities, with the exception of those operated while tethered to the ground.

6. Concluding Thoughts

The rules for residential drone operations are constantly changing, primarily due to changes in privacy and peace of mind rules, as well as changes in data protection legislation. However, over the last decade, rules have emerged to safeguard the values of the natural environment and the tranquility of wildlife, including the tranquility of nature-related recreational opportunities. Changes in regulation have also been driven by changes in drone and surveillance technology. The introduction of a common EU-wide register of manufacturers and operators, as well as the requirement for remote identification of operators, will increase

15 See at <https://tc.canada.ca/en/aviation/drone-safety/learn-rules-you-fly-your-drone/flying-your-drone-safely-legally>.

16 See at www.ossportal.dips.mlit.go.jp/portal/top/?lang=en.

17 See at <https://maps.gsi.go.jp/#8/35.561926/140.337103/&base=english&ls=english%7Cdid2015&blend=0&disp=11&vs=c1g1j0h0k0l0u0t0z0r0s0m0f0&d=m>.

transparency surrounding drones for public and municipal actors, with the direct impact of reducing legal uncertainty regarding drones. However, without the development of regulatory capabilities to intercept drones, the illegal and dangerous use of small, relatively easily marketable devices will be difficult to limit or control.

The role of drones as part of the European Green Deal for future use, primarily in the transport of people and goods, is ambitious and thought-provoking, as it will help bring areas into the European economic mainstream that have been marginalized by their inaccessibility. However, in addition to the reduction of environmental impact on the surface, account must also be taken of the increased risks associated with the growing use of airspace that such use of drones would entail, not to mention the difficulties of rescue and damage repair in the event of an accident. In urban environments, expanding the use of drones can be a means for reducing emissions of harmful pollutants, but it is in densely populated, built environments that the risk of potential accidents caused by drones is increasing dramatically. The risk of drone-related accidents is further increased by the fact that the airspace used by drones is usually shared between civil operators and public authorities, in particular law enforcement agencies. Liability issues¹⁸ will also multiply, and we can assume that a certain level of A.I. will be included (for it can be of assistance in limiting potential threats based solely on human behavior and capabilities, just as we can see in the case of self-driving cars). Regulatory responses to these issues are insufficient, but must be accompanied by the development of appropriate, feasible and cost-effective technology. The potential applications under the European Green Deal point in the direction of going beyond the current possibility of unimpeded drone flights across national borders. Indeed, the development of passenger and freight services will render regular drone flights across borders as natural as they are now for passenger and freight transport by road or rail. This will require a much closer cooperation between the competent authorities and regulators of the Member States than is currently the case, for which the framework must be provided at EU level. The EU Drone Strategy is a major step in this direction, but the potential of the current regulatory approaches can only be truly tested once the appropriate technology has been developed. There is a proposed major international conference for 2024, when Hungary will hold the rotating presidency of the EU, that with one hand bring together the major industry players from all over the world, and with the other hand facilitate a discussion on the human centered issues of drone operating, like ethics, legality, emergency response and law enforcement. It is well known that for technology-based regulatory issues, reality and the normative description of reality do not always point in the same direction or evolve at the same pace. Drone regulation is no exception to this. The ambitious vision of the European Green Deal and the Drone Strategy 2.0 builds on new technological opportunities for which the adequate regulatory environment is at best incomplete. The draft Drone Strategy for Hungary fits into this framework. It is essential that there is continuous

18 See at www.reuters.com/technology/eu-draft-rules-make-it-easier-sue-drone-makers-ai-systems-2022-09-27/.

communication between technology and industry representatives and the regulatory side to ensure that both regulatory and market needs are adequately addressed. One thing is certain, technological progress cannot be stopped or reversed and regulation must reflect this. For now, there is still an opportunity to combine civil drone use with a regulatory environment that supports economic development and human security. Both the EU and Hungary have the economic and normative means to do so. Unlike major IT companies with a global presence, such as Facebook, Google, Microsoft and Apple, which only comply with EU regulations to the extent necessary (*e.g.* GDPR and competition rules), drone technology can create real competition in which European interests can be given a prominent role. It is an exciting time ahead. Drones made by European industry and operated under European regulations in European airspace would be a preferable outcome.