



The EU policy for civil drones: the challenge of governing emerging technologies

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by Chantal Lavallée

Introduction

Unmanned aircrafts, commonly known as drones, have in recent years emerged on the market at a dazzling pace. They have become a familiar sight, accessible for a wide range of users, that offer fascinating, innovative applications for leisure, artistic, commercial and professional activities. However, the increasing numbers of drones in the sky, with “drone taxis” even possibly transporting passengers in future, constitute a major challenge for the traditional aviation and its regulation. Thus, authorities are puzzled by the best way to deal with these newcomers, both at national and international levels.

Drones offer impressive potentialities, yet their growing popularity also raises a series of societal concerns. The future huge-scale integration of drones into the airspace poses significant problems regarding the safety (if they are not properly used), privacy and data protection (as they may be used for filming, photographing, recording, and collecting data), third-party liability and insurance (in case of accidents) as well as environmental concerns (noise pollution). The drama of thousands of passengers who saw their flights cancelled due to drones flying over Gatwick airport shortly before Christmas 2018, and a few days later again at Heathrow airport (though at a much smaller scale), was an illustrative reminder of their disruptive potential and the risk of their misuse, which could have highly damaging effects.

The futuristic vision of an upcoming “Drone Age” (The Economist 2015) seems to become reality faster than one thinks. Therefore, the integration of drones into the airspace requires some urgent legal, political and

The extensive commercialisation of civil drones has made them accessible to a broad range of users for leisure, business-related, and professional activities. However, their growing number has also raised a series of societal concerns about this fast-evolving technology, related to security, safety, privacy, protection of personal data, liability and environmental issues. To mitigate these risks, and to allow their eventual safe integration into the European airspace, the European Commission has taken on a leadership role over the last years to set up a European policy framework for the civil use of drones. This *IES Policy Brief* examines the actions the Commission has undertaken to become a central regulator of this emerging technology in Europe.

technical considerations. Against this background, the European Union (EU), under the leadership of the European Commission, has started to initiate an EU-wide framework for drones. This *IES Policy Brief* analyses the role of the European Commission in the elaboration of the EU policy for drones, clarifying why and how it is involved in the drone sector and what the challenges are in governing this emerging technology.

National fragmentation and absence of international standards

That the European Commission has been able to take up such a central role in the definition of a drone policy is anything but self-evident. European Regulation 216/2008 on common rules in the field of civil aviation (commonly referred to as “Basic Regulation”) placed drones with a maximum take-off mass of less than 150 kg within the competence of the EU member states; only drones with more than 150 kg take-off weight were decided to be in the competence of the EU (with military and state drones being expressly excluded) – mainly thought to be represented by the technical expertise of its European Aviation Safety Agency (EASA).

However, literally ever since the first drones started conquering the European sky, the Commission (2012, 2014) questioned the legitimacy of this legal differentiation. Rightly, pointing at the national fragmentation in drone-related legislation, it claimed increasing justification for initiatives at the European level. Indeed, only half of the EU member states have taken measures to deal with the growing use of civil drones, mainly by developing legal frameworks with practical rules about *dos* and *don'ts* for drone users. Yet, those rules are not necessarily harmonized – a fragmentation of legal systems across Europe is the current reality. This major deficit was also not sorted out by the International Civil Aviation Organization (ICAO). Despite the ongoing work of its remotely piloted aircraft system (RPAS) panel, it did not yet provide standards and recommended practices to its member states, except some rather loose advices in the *Circular 328* on “Unmanned Aircraft Systems” of 2011, followed by some additional guidelines in 2016.

The Commission used this lack of regulations as promotional argument for more EU involvement, in order to enhance safety, security and privacy in Europe, underlying that most of the expected drones in the sky will weigh less than 150 kg. In parallel, the European drone industries strongly pushed for the creation of a European drone market, expecting better returns on investment and technological advancements. This played into the hands of the Commission which perceived in this emerging market a huge potential for job creation and an opportunity to stimulate the competitiveness of the European

aeronautics industry. Thus, the Commission has conducted several consultation processes with stakeholders since 2009 to evaluate how to promote and control the emergence of the unmanned aircraft sector in Europe.

A new sector of action for the EU

In this context, in December 2015, the European Commission announced an “Aviation Strategy for Europe”, which entailed the will to elaborate a legislative framework on safe rules for the integration of all drones regardless of weight into the European aviation regulation. This eventually happened with the scheduled ten-year update of the “Basic Regulation” in 2018. This “new Basic Regulation” (no 2018/1139) got officially adopted in July 2018 and entered into force on 11 September 2018, after the European Parliament and the Council had already given their green light in December 2017. It constitutes a turning point insofar as it transfers the competence from the member states to the EU for regulating all drones regardless of their operating mass. In other words: it paved the way for EU action through the initiatives of the Commission in the drone sector, and swiftly opened the door for an EU-wide framework for drones.

Yet, the Commission has not embarked on this path alone, but it has collaborated with stakeholders, leading to the set-up of different expert groups. Most importantly, the European RPAS Steering Group, whose 2013 report contributed to the shaping of the European strategy, and the Commission's expert groups on drones have helped drafting the implementing and delegated acts. EASA, under the authority of the Commission (DG MOVE), had been tasked to propose technical rules and standards for drone operations, with the necessary proportionality regarding to the potential risks and flexibility for the implementation by the member states. The 2018 EASA Opinion, based on a series of consultations with the stakeholders, provided the Commission with such recommendations. Besides, in partnership with national transport ministries, EASA has been organizing annual conferences since 2015, gathering private and public stakeholders to discuss principles of the European strategy and actions in the drone sector.

The European initiatives

Based on the new EU competence, the European Commission with its two internal expert groups on drones (one with stakeholders and the other with national representatives) firstly started to specify the “new Basic Regulation”. In close coordination with EASA, it has elaborated delegated and implementing acts, providing specific rules and procedures for the operation of unmanned aircrafts. After a period of public consultations, these acts shall be adopted in 2019. Another step has been the creation of the “U-Space”, the European version of the American “Unmanned Traffic Management System”. It shall contribute to make the drone ecosystem safer, avoiding collision and accidents, based on registration, identification and geo-fencing (virtual geographic boundary for instance nearby critical infrastructures) requirements, especially in urban environments. The Single European Sky Air Traffic Management Research Joint Undertaking (SESAR JU, 2017), the technological platform of the Single European Sky (SES), presented the U-Space blueprint in June 2017, but discussions are still ongoing about the best way of operationalising it, disputed is in particular the question of the appropriate number of operators (only one or several, similar to the diversity of suppliers in telecommunication markets).

Secondly, the European regulatory framework for drones was foreseen as prerequisite to enable the expected expansion of the drone market, especially with the creation of a single market, as the drone sector is one of the most dynamic within the aeronautical industry. The Commission had presented this key initiative already in its 2014 Communication “A new era for aviation. Opening the aviation market to the civil use of remotely piloted aircraft systems in a safe and sustainable manner”. Drone manufacturers see huge business potential in this “emerging market” with also lucrative job prospects. A number of studies see an annual economic potential of more than 5 billion EUR in Europe by 2035, particularly when considering the services civil drones will be able to create, mainly in the delivery sector (SESAR JU 2016: 3). In this spirit, EU Commissioner for Transport Violeta Bulc said: “Drones mean innovation, new services for citizens, new business models and a huge potential

for economic growth. We need the EU to be in the driving seat and have a safe drone services market up and running by 2019” (Commission 2017).

Competitive and innovative research is essential to ensure drones being developed to their full potential, operated responsibly and integrated safely in the European airspace. Therefore, the European Commission has thirdly funded various drones-related research projects since the early 2000s through the 5th, 6th and 7th Framework Programmes, and is now encouraging more systematic research and innovation within the Horizon 2020 Programme. In this framework, the EU has invested 44 million EUR into research and development through SESAR JU, namely 9 million EUR for “exploratory research”, 30 million EUR for “industrial R&D” and 5 million EUR for “very large demonstrators” (Commission 2016).

Challenges

Although the policy process went smoothly so far, the will of national authorities and the EU to develop a framework for emerging technologies such as drones is not an easy one. First, the technology as such is not neutral and the way to frame it neither. This starts already with the use of the term “drone”, which largely reduces complexity: a drone is a system of different technologies and appliances, and a platform for several kinds of sensors and instruments. There are different sizes (mini, small, big) and types (remotely-piloted vs. autonomous), offering a wide diversity of applications ranging from hobbyist, professional, artistic and commercial purposes. Thus, being involved in this sector raises some important issues for the Commission, especially regarding the content and scope of the future EU policy.

The “new Basic Regulation” exclusively focuses on the civil drone use, but does not refer to state drones, such as the ones used by civil public authorities (police, fire fighters, ambulances, search and rescue operations, customs, border control, coastguard). While it offers an opt-in clause for interested member states regarding state drones, important issues such as surveillance drones are still not settled. On the other hand, issues that are regulated in the “new Basic Regulation” might be implemented with a certain flexibility by the member states. It remains unclear whether what is written on paper will

become equal drone reality in Lisbon as much as in Stockholm, Paris, Bucharest or elsewhere in the EU.

A second challenge is the civil-military dimension of the Single European Sky. Civilians are not the only users of the European airspace. Therefore, the Commission has coordinated its drone-related initiatives with the European Defence Agency (EDA), which has been associated to the discussions of the “new Basic Regulation”. For the future, it clearly states that EASA should consult EDA whenever military aspects are affected. It remains to be seen how the civil-military coordination will operate once the drones will be integrated in the European airspace. In addition, drones have a problematic dual-use potential, and could be used for extensive harm. Thus, to minimise risks will be a constant challenge for the future, including the determination of who (police, military) is best equipped to handle an emergency situation; this has also been illustratively shown during the intervention at Gatwick airport.

Third, public acceptance is a hurdle for the successful mass use of civil drones. The involvement of citizens in the whole process remains a key challenge for the Commission and all national legislators. How to discuss perceptions, fears or expectations about the integration of drones in the European airspace? The consultation process has basically been open to anybody, documents, concept notes and background information are available on the Commission’s website; but do individuals really read them, and would they express their potential dissatisfaction and concerns? Is the inclusion of legal, ethical and societal concerns and stakeholders in the policy process enough to appease citizens? And, more concretely, how can perceptions be translated into preventive action? In any case, regulation of emerging technologies in democratic societies remains a puzzling challenge for authorities, and drones are no exception. However, irrespective of this, more work should be done to prepare citizens for the upcoming

“Drone age” where the U-Space will soon become daily reality. There is a need for a broader strategic communication from the part of the Commission, but not only there. All levels, including national, regional and local, must also be actively involved.

Conclusion

With the Single European Sky, the future EU policy for drones will further advance European integration in the air. Along with other initiatives regarding emerging technologies such as the elaboration of a European approach to Artificial Intelligence (AI), robotics or cyberspace, the European policy framework for civil drones contributes to a further transformation of the nature and scope of European integration. It brings the EU to a non-clearly delineated ground which reminds us that the task to frame and govern emerging technologies is a difficult one. Fast-evolving technologies like drones are a puzzling challenge for regulators, as the right balance needs to be found between their promotion to benefit from their undisputed (economical, technological) potential and the need for legal control to mitigate their infringing ethical, security and safety implications.

The European Commission will very soon propose a specific set of rules and standards, but it remains to be seen how the implementation will work at the member states’ level. The rapid increase of the number of drones, and their growing varieties of applications are still a challenge for their safe integration into the European airspace and traffic management. Over the last years, the Commission has succeeded in transferring the competence to the EU, bringing several actors and stakeholders together to sketch and elaborate an EU drone policy. The next step will again be a critical one, namely to make the U-Space real and bring the drone ecosystem to full fruition.

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About the author



Chantal Lavallée is a Marie Skłodowska-Curie Fellow at the Institute for European Studies (IES) of the Vrije Universiteit Brussel (VUB). Her research project “The European Commission in the Drone Community: A New Cooperation Area in the Making” (*EU-Drones*) examines how the European Union tackles drone-related issues. She holds a PhD in Political Science from the Université du Québec à Montréal (UQAM). She conducted postdoctoral research at the European University Institute (EUI, Florence) and the Institute for Strategic Research Ecole Militaire (IRSEM, Paris). Her research and publications focus on the contribution of the European Commission to the security sector.



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Institute for European Studies

Pleinlaan 5

B-1050 Brussels

T: +32 2 614 80 01

E: info@ies.be

www.ies.be