Conclusions

Virginia Santamarina Campos and Stephan Kröner

Abstract This final chapter exposes the main conclusions of the book and gives some general brief guidelines to the different actors that could be of interest in the drone sector.

1 European Policies for the Drone Sector

At present no common regulatory framework for different European countries exists; thus, each one regulates the activity of drone stakeholders differently. However, it can be stated that a legal framework is possible in the near future, thanks to the European Agency of Safety Aviation (EASA) in cooperation with the industries concerned.

In the case of the employment of drones for professional and commercial activities, it is highly expected that those regulations will help to increase this incipient sector while at the same time ensuring the safety and security of all European citizens who could be affected by drone activities.

2 European Drone Industry

Although the sector has both technological and economic importance in Europe, there are substantial barriers that are preventing it from expanding. As for any industrial development, (over) regulation can be one of the biggest barriers to overcome. In the case of Europe, a conglomerate of independent countries with a common European market, with scattered non-uniform regulations, this might be

V. Santamarina Campos (✉) · S. Kröner
Universitat Politècnica de València, Valencia, Spain
e-mail: virsanca@upv.es

M. de Miguel Molina and V. Santamarina Campos (eds.), *Ethics and Civil Drones*,
SpringerBriefs in Law, https://doi.org/10.1007/978-3-319-71087-7_6

even more relevant. It is obvious that, in the case of drones, two important considerations that limit their use have to be taken into account: security/ethical issues and safety. Only if Europe is able to solve these issues quickly and with concise and easy-to-understand policies, while maintaining European standards, will the European industries have the possibility to compete with the big global players from the USA and China. This will not just give an impulse to the European industries (and in particular SMEs) but will also have a considerable impact in the fields of academic, technological, business, and social development.

Although a big part of the evolution of the drone industry has occurred in the last years, led mainly by military needs, nowadays the most innovative drone use is also associated with collaboration (health and drugs delivery, emergency surveillance, security, etc.) and commercial efficiency (agriculture, topography, etc.).

We have distinguished among the different segments within the drone industry as end users. Since their needs and characteristics are totally different, their strategies should be considered separately. In the chapter "The Drone Sector in Europe" five different segments were identified:

- Toys, for which the final customers are children or young people and the use is educational.
- Hobby/leisure, for which the final customers are young people and adults and the drones are designed for recreational uses.
- Professional, for which the end users are drone pilots and the drones are employed for aerial filming and photography services.
- Commercial, for which the final customers are companies that use drones for agriculture, media, mining, energy, or construction activities.
- Military purposes (vigilance, combat, etc.), for which governments are the final customers.

The professional segment is facing vibrant competition among the European, North American, and Chinese manufacturers. Although the market was led by European companies, the Chinese giant DJI is growing fast, followed by other companies. As previously shown, the regulations are heavily constraining the end users, as they are confronting the need for permits and licences and/or geographical restrictions to carry out their work properly. Thus, the corresponding European organism needs to achieve a common agreement for all European countries as soon as possible to maintain and improve competitiveness. If this is achieved, the commercial segment could have a much brighter future than has been foreseen up to now. Regulations do not always affect the final prices (in the case of drones) so much, but on the other hand they provide legal certainty, which is very important for companies, investors, or insurers. This is especially true for indoor use, while outdoor regulations do not particularly affect the behaviour of the end user, since the main activities are carried out in rural areas or in emergency situations. Most of these drones can be easily adapted for a specific purpose, and associated services, like software and support, add value to the final product. In this area European and North American companies are the leaders in this group.

3 Current Legal Frameworks

The differences among European countries in relation to the operation of drones are still relevant, lowering the competitiveness of the European drone industry. However, the future legal framework, as designed by the EASA, will give the industry legal certainty and reassurance, especially in the case of commercial and professional activities. Distinguishing drones by their risk and not by their weight could solve the issues encountered by professionals when working in other European countries.

Moreover, it could be helpful to introduce compulsory specific insurance to create a registry of devices and link each drone to its owner to ensure that responsibility can be clearly assigned for illegal activities (not only in the case of professional drones or drones with a weight of more than 20 kg).

Delving deeper into the matter and talking to the implied industry players, we realized that their main concern about indoor drone use is that professional work needs to be very accurate and therefore piloting experience is necessary. Likewise, indoor environments should be safer for the people affected by a drone's work and drone control should be easy if certain licenses and insurance measures could be applied in all the European countries.

4 Ethical Recommendations

Manufacturers are key actors, as they develop safety and security measures, while operators, as end users, are less involved in the product design. Nevertheless, manufacturers should work together not only with operators but also with other stakeholders to improve those measures, because knowing actors' concerns can add considerable value to the product.

Manufacturers could integrate more safety and security by default when designing drones, avoiding improper and risky use. Operators should receive appropriate training to avoid any kind of risk, even when it comes to navigating small-sized drones. Although ethics and codes of conduct can help manufacturers and operators of drones, co-regulation whereby public agencies could give some kind of certificate could be an additional element to reinforce work situations in which flight licenses are not compulsory.

In the European countries, co-regulation is currently only centred on operators and practical training. The participation of other stakeholders to ensure safety and security is not included. However, other agencies could be involved in the industry, for example to ensure information security, product safety, or data protection by applying different best-practice standards.

The European Union recommends that producers can help by giving advice on their packaging and using codes of conduct to self-regulate the industry. Other tools, such as impact assessment or the participation of a Data Protection Officer, could improve clients' reliability. As a conclusion, the industry could be proactive in case regulation is not enough.