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THE LAW OF DRONES

Unmanned aircraft in European Union law

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Abbreviations

AltMoC	– alternative means of compliance
AOC	– Air Operator’s Certificate
ATCO	– air traffic control officer, including SATCO – student air traffic control officer
ATM/ANS	– air traffic management and air navigation services
BASA	– Bilateral Aviation Safety Agreement
BVLOS	– beyond visual line of sight
CAA	– Civil Aviation Authority
CTR	– controlled traffic region
CU	– command unit
DPIA	– data protection impact assessment
EASA or the Agency	– European Union Aviation Safety Agency
ECtHR	– European Court of Human Rights
EUROCONTROL	– European Organisation for the Safety of Air Navigation
FPV	– first-person view
GM/AMC	– guidance material or acceptable means of compliance
ICAO	– International Civil Aviation Organization
ITU	– International Telecommunication Union
JARUS	– Joint Authorities for Rulemaking on Unmanned Systems
LUC	– Light UAS Operator Certificate
MTOM	– maximum take-off mass
OJ	– Official Journal of the European Union

PANSA	– Polish Air Navigation Services Agency
RPA	– remotely piloted aircraft
RPAS	– remotely piloted aircraft systems
SES	– Single European Sky initiative
SMM	– Safety Management Manual
SMS	– safety management system
SORA	– Specific Operations Risk Assessment
UA	– unmanned aircraft
UAS	– unmanned aircraft systems
UAV	– unmanned aerial vehicle
UCAV	– unmanned combat aerial vehicle
VLOS	– visual line of sight

Legislation

Chicago Convention – Convention on International Civil Aviation signed in Chicago on 7 December 1944

Universal Declaration of Human Rights of 10 December 1948

European Convention on Human Rights – Convention for the Protection of Human Rights and Fundamental Freedoms drawn up in Rome on 4 November 1950, as amended by Protocols Nos. 3, 5, 8 and 11 and supplemented by Protocol No. 2

International Covenant on Civil and Political Rights adopted and opened for signature in New York on 19 December 1966

Council of Europe Convention 108 of 28 January 1981 for the Protection of Individuals with regard to Automatic Processing of Personal Data

UNESCO Universal Declaration on the Human Genome and Human Rights of 11 November 1997

Charter of Fundamental Rights of the European Union (OJ C 326, 26.10.2012, p. 391)

TEU – Treaty on European Union (consolidated version: OJ C 202, 7.6.2016, p. 13)

TFEU – Treaty on the Functioning of the European Union (consolidated version: OJ C 202, 7.6.2016, p. 47)

Regulation 549/2004 – Regulation (EC) No 549/2004 of the European Parliament and of the Council of 10 March 2004 laying down the framework for the creation of the Single European Sky (OJ L 96, 31.3.2004, p. 1)

Regulation 785/2004 – Regulation (EC) No 785/2004 of the European Parliament and of the Council of 21 April 2004 on insurance requirements for air carriers and aircraft operators (OJ L 138, 30.4.2004, p. 1, as amended)

Regulation 216/2008 – Regulation (EC) No 216/2008 of the European Parliament and of the Council of 20 February 2008 on common rules in the field of civil aviation and establishing a European Aviation Safety Agency, and repealing Council Directive 91/670/EEC, Regulation (EC) No 1592/2002 and Directive 2004/36/EC (OJ L 79, 19.3.2008, p. 1, as amended), repealed

Regulation 765/2008 – Regulation (EC) No 765/2008 of the European Parliament and of the Council of 9 July 2008 setting out the requirements for accreditation and market surveillance relating to the marketing of products and repealing Regulation (EEC) No 339/93 (OJ L 218, 13.8.2008, p. 30, as amended)

Regulation 996/2010 – Regulation (EU) No 996/2010 of the European Parliament and of the Council of 20 October 2010 on the investigation and prevention of accidents and incidents in civil aviation and repealing Directive 94/56/EC (OJ L 295, 12.11.2010, p. 35, as amended)

Regulation 182/2011 – Regulation (EU) No 182/2011 of the European Parliament and of the Council of 16 February 2011 laying down the rules and general principles concerning mechanisms for control by Member States of the Commission's exercise of implementing powers (OJ L 55, 28.2.2011, p. 13)

Regulation 1178/2011 – Commission Regulation (EU) No 1178/2011 of 3 November 2011 laying down technical requirements and administrative procedures related to civil aviation aircrew pursuant to Regulation (EC) No 216/2008 of the European Parliament and of the Council (OJ L 311, 25.11.2011, p. 1, as amended)

Regulation 1332/2011 – Commission Regulation (EU) No 1332/2011 of 16 December 2011 laying down common airspace usage requirements and operating procedures for airborne collision avoidance (OJ L 336, 20.12.2011, p. 20)

Regulation 748/2012 – Commission Regulation (EU) No 748/2012 of 3 August 2012 laying down implementing rules for the airworthiness and environmental certification of aircraft and related products, parts and appli-

ances, as well as for the certification of design and production organisations (OJ L 224, 21.8.2012, p. 1, as amended)

SERA Regulation – Commission Implementing Regulation (EU) No 923/2012 of 26 September 2012 laying down the common rules of the air and operational provisions regarding services and procedures in air navigation and amending Implementing Regulation (EU) No 1035/2011 and Regulations (EC) No 1265/2007, (EC) No 1794/2006, (EC) No 730/2006, (EC) No 1033/2006 and (EU) No 255/2010 (OJ L 281, 13.10.2012, p. 1, as amended)

Regulation 965/2012 – Commission Regulation (EU) No 965/2012 of 5 October 2012 laying down technical requirements and administrative procedures related to air operations pursuant to Regulation (EC) No 216/2008 of the European Parliament and of the Council (OJ L 296, 25.10.2012, p. 1, as amended)

Regulation 1025/2012 – Regulation (EU) No 1025/2012 of the European Parliament and of the Council of 25 October 2012 on European standardisation, amending Council Directives 89/686/EEC and 93/15/EEC and Directives 94/9/EC, 94/25/EC, 95/16/EC, 97/23/EC, 98/34/EC, 2004/22/EC, 2007/23/EC, 2009/23/EC and 2009/105/EC of the European Parliament and of the Council and repealing Council Decision 87/95/EEC and Decision 1673/2006/EC of the European Parliament and of the Council (OJ L 316, 14.11.2012, p. 12)

Regulation 139/2014 – Commission Regulation (EU) No 139/2014 of 12 February 2014 laying down requirements and administrative procedures for aerodromes pursuant to Regulation (EC) No 216/2008 of the European Parliament and of the Council (OJ L 44, 14.2.2014, p. 1, as corrected and amended)

Regulation 376/2014, Regulation on occurrence reporting – Regulation (EU) No 376/2014 of the European Parliament and of the Council of 3 April 2014 on the reporting, analysis and follow-up of occurrences in civil aviation, amending Regulation (EU) No 996/2010 of the European Parliament and of the Council and repealing Directive 2003/42/EC of the European Parliament and of the Council and Commission Regulations (EC) No 1321/2007 and (EC) No 1330/2007 (OJ L 122, 24.4.2014, p. 18, as amended)

Regulation 1321/2014 – Commission Regulation (EU) No 1321/2014 of 26 November 2014 on the continuing airworthiness of aircraft and aeronautical products, parts and appliances, and on the approval of organisations and personnel involved in these tasks (OJ L 362, 17.12.2014, p. 1, as amended)

Regulation 2015/640 – Commission Regulation (EU) 2015/640 of 23 April 2015 on additional airworthiness specifications for a given type of operations and amending Regulation (EU) No 965/2012 (OJ L 106, 24.4.2015, p. 18, as amended)

GDPR – Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (General Data Protection Regulation) (OJ L 119, 4.5.2016, p. 1)

Regulation 2018/1139, Basic Regulation – Regulation (EU) 2018/1139 of the European Parliament and of the Council of 4 July 2018 on common rules in the field of civil aviation and establishing a European Union Aviation Safety Agency, and amending Regulations (EC) No 2111/2005, (EC) No 1008/2008, (EU) No 996/2010, (EU) No 376/2014 and Directives 2014/30/EU and 2014/53/EU of the European Parliament and of the Council, and repealing Regulations (EC) No 552/2004 and (EC) No 216/2008 of the European Parliament and of the Council and Council Regulation (EEC) No 3922/91 (OJ L 212, 22.8.2018, p. 1)

Regulation 2018/1725 – Regulation (EU) 2018/1725 of the European Parliament and of the Council of 23 October 2018 on the protection of natural persons with regard to the processing of personal data by the Union institutions, bodies, offices and agencies and on the free movement of such data and repealing Regulation (EC) No 45/2001 and Decision No 1247/2002/EC (OJ L 295, 21.11.2018, p. 39)

Regulation 2019/945, Delegated Regulation – Commission Delegated Regulation (EU) 2019/945 of 12 March 2019 on unmanned aircraft systems and on third-country operators of unmanned aircraft systems (OJ L 152, 11.6.2019, p. 1, as amended)

Regulation 2019/947, Implementing Regulation – Commission Implementing Regulation (EU) 2019/947 of 24 May 2019 on the rules and procedures for the operation of unmanned aircraft (OJ L 152, 11.6.2019, p. 45, as amended)

Regulation 2020/1058 – Commission Delegated Regulation (EU) 2020/1058 of 27 April 2020 amending Delegated Regulation (EU) 2019/945 as regards the introduction of two new unmanned aircraft systems classes (OJ L 232, 20.7.2020, pp. 1)

Regulation 2020/639 – Commission Implementing Regulation (EU) 2020/639 of 12 May 2020 amending Implementing Regulation (EU) 2019/947 as regards standard scenarios for operations executed in or beyond the visual line of sight (OJ L 150, 13.5.2020, p. 1)

Regulation 2020/746 – Commission Implementing Regulation (EU) 2020/746 of 4 June 2020 amending Implementing Regulation (EU) 2019/947 as regards the postponing dates of application of certain measures in the context of the COVID-19 pandemic (OJ L 176, 5.6.2020, p. 13)

Regulation 2021/1166 – Commission Implementing Regulation (EU) 2021/1166 of 15 July 2021 amending Implementing Regulation (EU) 2019/947 as regards postponing the date of application for standard scenarios for operations executed in or beyond the visual line of sight (OJ L 253, 16.7.2021, p. 49)

Directive 95/46/EC of the European Parliament and of the Council of 24 October 1995 on the protection of individuals with regard to the processing of personal data and on the free movement of such data (OJ L 281, 23.11.1995, p. 31)

Directive 2000/31/EC of the European Parliament and of the Council of 8 June 2000 on certain legal aspects of information society services, in particular electronic commerce, in the Internal Market (Directive on electronic commerce) (OJ L 178, 17.7.2000, p. 1)

Directive 2006/42/EC of the European Parliament and of the Council of 17 May 2006 on machinery, and amending *Directive 95/16/EC* (OJ L 157, 9.6.2006, p. 24, as amended)

Directive 2009/48/EC – Directive I of the European Parliament and of the Council of 18 June 2009 on the safety of toys (OJ L 170, 30.6.2009, p. 1, as amended)

Directive 2014/30/EU of the European Parliament and of the Council of 26 February 2014 on the harmonisation of the laws of the Member States relating to electromagnetic compatibility (OJ L 96, 29.3.2014, p. 79)

Directive 2014/53/EU of the European Parliament and of the Council of 16 April 2014 on the harmonisation of the laws of the Member States relating to the making available on the market of radio equipment and repealing Directive 1999/5/EC (OJ L 153, 22.5.2014, p. 62)

Directive (EU) 2016/680 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data by competent authorities for the purposes of prevention, investigation, detection or prosecution of criminal offences or the execution of criminal penalties, and on the free movement of such data, and repealing Council Framework Decision 2008/977/JHA (OJ L 119, 4.5.2016, p. 89)

Decision No 768/2008/EC of the European Parliament and of the Council of 9 July 2008 on a common framework for the marketing of products, and repealing Council Decision 93/465/EEC (OJ L 218, 13.8.2008, p. 82)

Council of Europe Resolution No 73/22 of the Committee of Ministers of 26 September 1973 on the Protection of the Privacy of Individuals vis-à-vis Electronic Data Banks in the Private Sector

Council of Europe Resolution No 74/29 of the Committee of Ministers of 20 September 1974 on the Protection of the Privacy of Individuals vis-à-vis Electronic Data Banks in the Public Sector

Resolution 34/169 adopted by the General Assembly of the United Nations on 17 December 1979 – Code of Conduct for Law Enforcement Officials

OECD Guidelines on the Protection of Privacy and Transborder Flows of Personal Data of 23 September 1980

Introduction

The rationale behind this publication was changing legislation, in particular new European regulations covering numerous aspects of activities related to the use, design and manufacture of unmanned aircraft. In addition, the current development of unmanned aircraft, a technology which was not known until a few years ago, can undoubtedly be regarded as unprecedentedly rapid. This is evidenced by the increase in the number of devices, their new applications and areas of economic activity where they are used. As an example, it is worth mentioning that until early 2020 it was estimated that over 100,000 unmanned aircraft with a mass between 0.25 kg and 600 kg were used in Poland. The dynamic development of various forms of economic activity using these devices is illustrated by the number of certificates of competency necessary for the legal operation of unmanned aircraft for purposes other than leisure or sport. Again, to illustrate the rapid increase of the usage of this technology, we can quote the example of Poland: in 2013, nine certificates of competency were issued, in the following year – 376, while in 2017 the number of new certificates reached 2,649, which means that at the beginning of 2016 more than 6,000 people were authorised to operate commercial drones.¹ At the end of July 2019, the number of certificates was almost 13,000 and has been growing every day. The proliferation of unmanned aircraft may lead to fundamental changes in the way goods are transported, comparable to those caused by motorisation. Enthusiasts of the use of drones claim that their development will lead to changes in the way of life of societies in industrialised countries, as was previously the case with the development and widespread use of cars and mobile phones or the Internet.

¹ Data based on the Polish CAA website: <http://www.ulc.gov.pl/pl/drony>.

An analogy can be seen between the early stages of development of rail and road transport, on the one hand, and civil passenger aviation and unmanned aircraft on the other. Rail and air passenger and freight transport forms are of a mass nature, and operate to point facilities that require a delivery system and significant infrastructure outlays, which are borne by entrepreneurs active in this market. In the case of the automotive industry, we deal with individual transport, carried out in the 'door-to-door' mode, that is to say, without an expensive and time-consuming system of loading and unloading. As a rule, users of the linear road infrastructure do not bear the direct costs of its construction and maintenance, which are covered from public funds. It seems that the field of transportation with the use of unmanned aircraft has similar features. In the past, the expansion of motorised road vehicles raised concerns and in many countries faced the restrictive regulatory response of public authorities, which, in the case of England, led to a halt in the development of this industry. In the future, the scale and pace of development of UAV applications will depend on the response of public authorities in the area of law-making and law application.

There is no doubt that the legislation is not keeping pace with the changing social reality and dynamic technological development. The area of unmanned aircraft is the best example. The awareness of this fact in the European Union Member States was the impulse to work on a common regulation. The harmonisation of the rules of the drone use and marketing, which is the subject of analysis in this publication, should therefore, in principle, be assessed positively. The unification of the legal environment in which businesses and private users operate allows them to function in the common market; this makes the freedoms which are at the heart of the European Union a reality in this area. It can be noted, however, that the haste in the development of the regulations has resulted in imperfect legislation: numerous inconsistencies, omissions and incoherencies. The statement that the law is less than satisfactory refers to both European and national acts. It can also be argued, as confirmed by research, that normative acts – the emerging drone law – are intended by their creators as a safety mechanism to the detriment of promoting economic innovation.

This publication consists of five chapters. The conducted analysis of normative material is detailed, similar, at least in form, to a commentary or a review

of the most important concepts and issues contained in individual regulations. The rationale for such an approach is that there is a varying degree of detail in the legislation and a greater or lesser need of its application by the wide group of readers of the publication (unmanned aircraft operators and operators in the fields of use, design, manufacture and distribution), as well as its various content in terms of the particularity and scope of standards established based thereon.

Basic Regulation 2018/1139 and Implementing Regulation 2019/947 are discussed in greater detail, in the form of the presentation and analysis of their individual provisions. Their importance and the necessity of their application by a wide group of drone users justifies this approach. The adopted structure, following the consecutive provisions, will also facilitate it for the book readers to analyse the text. As far as Delegated Regulation and Polish national law are concerned, it was decided to focus on individual issues, which means that the analysis of the legal acts is not linear. For entities involved in specific activities in the field of design, production, import or distribution, such a structure will be more useful and will make it easier to locate the issue interesting to them.

The first chapter identifies the basic concepts relating to unmanned aircraft and discusses safety and innovation as values relevant to the subject matter of the regulation. This is a theoretical part of the book. The next two chapters deal with Basic Regulation 2018/1139 and Implementing Regulation 2019/947. These sections are similar in form to a commentary, although they go beyond that. Selected issues and considerations of a more detailed nature in particular areas of the regulations that may raise doubts as to their application are covered in Chapter 4, where Delegated Regulation 2019/945 is discussed. Chapter 5 deals with the protection of personal data and the right to privacy. The publication is concluded with a concise summary and schemes intended to facilitate the application of the regulations on unmanned aircraft.

In this publication, the term ‘unmanned aircraft’ or ‘unmanned aerial system’ will be used in the first place as legal terms present in normative acts, although drone, unmanned aircraft or unmanned systems will also be mentioned interchangeably, at least where justified by the content of the regulation or the issue in question.

The authors of the publication analysed the regulations in force in the legal state as of 1 September 2021, however, it should be stressed that some of the legal acts presented in the study are not yet in force, some will soon lose their validity and will be repealed to a certain extent. In the situation of fundamental legislative changes, it is inevitable that the publication on the evolving legal status will also describe legal solutions which will take effect in the foreseeable future. It should therefore be noted that:

- Basic Regulation 2018/1139 entered into force and replaced the previous Basic Regulation 216/2008 on 11 September 2018 (Article 141 in conjunction with Article 139(1) of Basic Regulation 2018/1139);
- Implementing Regulation 2019/947 entered into force on 1 July 2019, however, according to Article 23(1)–(5) of the amended act, it has been applicable since 31 December 2020, with some regulations to enter into force even in 2023 and 2025;² for more details, see commentary on Article 23 of that act;
- Delegated Regulation 2019/945 entered into force on 1 July 2019.

The European Union law regulates the various types and hierarchy of legal acts. Before going on to describe it, it is worth considering what the European Union law is. In general terms, the EU law (also called European law by its authors) is issued by the European Union bodies in accordance with the treaties. The catalogue of sources of European law is as follows: primary law, which consists of acts of law developed by Member States, and secondary law formulated by the institutions and bodies of the European Union. Primary law includes the founding treaties (currently, these are the Treaty on European Union and the Treaty on the Functioning of the European Union, in addition to the founding treaties of the 1950s and 1992, historical revisions of these treaties, etc.) and the accession treaties (on the basis of which the countries joined the European Union), while secondary law covers binding regulations, directives, decisions, and non-binding (but having legal effects) recommendations and opinions. In addition, there are international agreements concluded by the EU or so-called mixed agreements, i.e. concluded by the EU and its Member States, which are placed in the hierarchy between primary and secondary law.

² Commission Implementing Regulation (EU) 2021/1166 of 15 July 2021 amending Implementing Regulation (EU) 2019/947 as regards postponing the date of application for standard scenarios for operations executed in or beyond the visual line of sight (OJ L 253, 16.7.2021, pp. 49–50).

In aviation law, being a branch of the European Union law, regulations are the basic type of legal acts. According to Article 288 TFEU, regulations have general application, are binding in their entirety and directly applicable in all Member States. It is worth pointing out, however, that all the EU regulations have such power, regardless of the body which issues them.³ The direct application of the EU regulations in Member States means that they are placed in the system of legal acts above laws and acts implementing them. What follows, in aviation law in cases where issues are regulated in a different manner, for example, in the national aviation laws or in each Member State than in the EU regulations, the latter have priority. National laws need to be brought in line with European rules and cannot be made more specific, except where the regulation explicitly stipulates so. As is further discussed below, before Regulation 2018/1139 came into force, the European Union legislation had covered unmanned aircraft with a maximum take-off mass (MTOM) of 150 kg for the first time. On the basis of the delegations contained in Basic Regulation, two Commission regulations have so far been issued, which regulate in detail the certification, placing on the market and operation of unmanned aircraft. Until now, this area of aviation has been governed exclusively by national law of Member States, which will have to be amended and adapted to the new rules.

This book is dedicated primarily to people who will apply European provisions governing the use, design, construction, marketing, etc. of drones in their professional practice. The group may include lawyers (legal counsellors, judges, public officials) but it is not only these professionals that the publication is addressed to. It is the authors' intention, reflected in the structure of individual chapters and an overview of practical issues, that the book should be useful for people using unmanned aircraft in their business activities: entrepreneurs providing services with the use of such vehicles, dealing with design, construction, marketing, as well as those involved in the certification process.

³ Legislative acts are issued by the European Parliament and the Council under the ordinary legislative procedure, while non-legislative acts are issued by the European Commission on the basis of delegations in legislative acts.

Chapter 1

BASIC CONCEPTS

1.1. Drones as a new technical and social phenomenon

Unmanned aircraft were initially the focus of military and technical science. In the area of legal science, legal problems arising from the use of unmanned systems for military operations were emphasized,⁴ as such use dominated at the early stages of their development. The ethical problems of using drones for combat operations were also highlighted.⁵ In the broad sense of aviation law, there are still only a few publications concerning drones. The military use of drones, as a primary one, was the starting point for further research, including in the legal science. In the military literature, it was argued that the military use of drones is the basic application that can be adapted to civilian needs. The literature contends that the military use of unmanned aircraft is not fundamentally different from the civilian one as common areas, such as reconnaissance, patrolling, detection of objects, gathering or transmitting information, but also saving human lives, firefighting, atmospheric research and environmental monitoring, were identified. These applications represent only a small section of the operations that these aircraft

⁴ P. Alston, *Lethal Robotic Technologies. The Implications for Human Rights and International Humanitarian Law*, 'Journal of Law, Information and Science' 2012/21; R. Otto, *Targeted Killings and International Law with Special Regards to Human Rights and International Humanitarian Law*, Heidelberg 2012; N. Lubell, N. Derejko, *A Global Battlefield? Drones and the Geographical Scope of Armed Conflict*, 'Journal of International Criminal Justice' 2013/1, pp. 65–88; A. Bodnar, I. Pachó, *Targeted Killings (Drone Strikes) and the European Convention on Human Rights*, 'Polish Yearbook of International Law' 2013/32, pp. 189–209.

⁵ W.J. Bober, *Czy korzystanie z bojowych bezzałogowych pojazdów latających jest moralnie problematyczne*, [in:] K. Kowalczevska, J. Kowalewski (eds), *Systemy dronów bojowych. Analiza problemów i odpowiedź społeczeństwa obywatelskiego*, Warszawa 2015, pp. 32–46.

can carry out, so it has become important to start using unmanned aircraft in civil aviation. Drones are a tool for performing aerial work understood as any operation of an aircraft during which it is used for specialised services. These include aerial photography, aerial surveillance, aerial patrolling and observation, search and rescue, advertising, agriculture, including precision farming and construction of engineering facilities. A lot of space is devoted in the legal writings and non-professional publications to the use of unmanned aircraft for the protection of public safety and order, as well as the tasks performed by non-public entities in this area, such as for instance, fire detection, monitoring of the condition of rivers and dykes, searching for missing persons in the mountains, checking the technical condition of pipelines or energy transmission networks, studying the composition of the atmosphere, conducting geophysical surveys, including, among others, the search for deposits. It is highlighted that drones are widely used in works which are too dangerous for human life and health, such as chemical, biological or radiological reconnaissance. The usefulness of drones in this respect was confirmed during the rescue operation after the accident at the Fukushima nuclear power plant. The current use of drones in the activities of security and public order services involves the monitoring of national borders, including coastal zones, detection of illegal transport of people or goods, observation of mass gatherings or tracking of vehicles, and even the study of the migration of protected animal species.⁶ As regards the protection of people and property, as well as facilities of special importance, such as power plants, material storage facilities or refineries, some success has been noted. In the literature on the subject particular attention is drawn to the commercial applications of unmanned aircraft, e.g. the use of drones for the carriage of goods or by insurance companies to assess quickly damage to buildings (e.g. a roof damaged after a storm) or to cultivated fields.

1.2. Safety and innovation

Measures to protect safety and promote innovation, including those of a legislative nature, are not seen as complementary, and even, in the context of the use of drones, can be considered contradictory. It is reasonable to ask

⁶ See: www.uavm.com/images/NASA_CT_Appendix_A.pdf, p. 5.

which of the values – safety or innovation – occupies a higher position in the hierarchy of values which are the *raison d'être* of the law, which of these values should be served by the national and European regulations and what should be the direction of further action by the legislator operating at different levels of the legal system.

Unmanned aircraft can be seen as a threat to the safety of persons and property. The risks associated with their use can, and should, be mitigated by existing normative acts relating both to the aircraft themselves, to the principles of their use, design and construction, and to the permissible ways of using them. However, drones can also be seen as a tool to protect the life and health of people, including, for example, through the transport of blood, organs and medical devices, the search for missing persons in areas that are difficult to access, water rescue or an initial survey of a disaster site.

Safety means both the specific condition of the state and society and a protected value or a protected good. Security, which is a 'state of lack of threat, calm and confidence', is listed as one of the typical and basic tasks of the state fulfilled by public administration. At the same time, the multifaceted nature of the issue and its reference to practically all activities of public authorities make it necessary to narrow down the research field to specific types of security when defining this term. The scope of tasks of public entities resulting from the protection of these values should be defined within the framework of substantive legal regulations, in this case, European and national laws, including above all the statutory ones. In this publication, this area embraces provisions relating to the operation of unmanned aircraft, analysed from the viewpoint of safety of persons and property, including air transport safety, but also, *inter alia*, the safety of goods placed on the common market, environment protection, noise reduction and the right to privacy. At the same time, it can be noted that the public debate and declarations of public entities, both national and supranational (Warsaw Declaration, Riga Declaration), which are confirmed in Poland by administrative planning files, point to unmanned aircraft as a future but extremely important element supporting innovation, thus promoting economic development and, as a consequence, increasing the wealth of citizens. In view of the above, the question arises as to whether the current legal solutions for the use of unmanned aircraft can be regarded as serving innovation, and

whether the legislator's actions have the characteristics of a targeted activity aimed at supporting innovation in relation to this cutting-edge invention.

Safety, which relates directly to the protection of life or health, should be given priority over the promotion of innovation. Innovation should be regarded as a tool for maintaining and even increasing the wealth of society, and thus improving living conditions, but which has a lower value than people's safety, the right to privacy or even the integrity of property. This is also, above all, the objective (to ensure a high level of air transport safety) of the European laws analysed in this book.

In the light of the above, attention can be drawn to the 'generic nature of safety' resulting from the content of normative acts, mainly in the field of administrative law. The literature on the subject indicates that the legislator uses a number of definitions of the concept of safety to make it easier to interpret, and at the same time to narrow down its meaning, covering state security, public safety, safety and public order, safety of people, safety of food and nutrition, safety of mass events, energy security, as well as – what should be noted – safety of aircraft operation.

The concept of safety understood as safety in air transport is defined in the documents of the International Civil Aviation Organization (ICAO) as, among others: no accidents, no threat or risk, elimination of personnel's behaviour leading to the creation of a hazard, identification of threats and control of existing safety deficiencies. All of these factors can be used to define the concept, which can be described as reduction of the accident risk to the lowest possible 'safe' level.⁷ The literature also defines flight safety as all the factors preventing the occurrence of emergency situations and the possibility of reducing the effects of such situations as much as possible through the application of appropriate systems protecting human health and life. The following are mentioned as causes of air accidents: aircraft (their equipment, adaptation to human capabilities), humans (level of training and preparation), the environment, the task (its difficulty) and management

⁷ Safety Management Manual (SMM), International Civil Aviation Organization Doc. 9859, 2006, Chapter 1 (Overview), 1.2 (Concept of Safety), p. 1–1. See Guidelines No. 11 of the President of the CAA of 24.11.2015 on the implementation of requirements established by the International Civil Aviation Organization (ICAO), Doc. 9859 (Journal of Laws CAO, pos. 64).

(understood as a process of preparation for the task). However, the most important factors determining aviation safety include the level of training and preparation for a given task. The ability of operators of unmanned aircraft and their knowledge of the safe use of airspace, their ability to maintain appropriate distance from objects on the ground and in the airspace and their ability to perform the relevant emergency operations decide about the level of transport safety. It is therefore not without reason that the current legislation devotes relatively much attention to flight training and the qualifications of unmanned aircraft operators.

Attention should be paid to the relationship between the development and quality of the infrastructure, the safety level, and to the differences in the use of linear and point infrastructure. As far as road transport is concerned, the quality of the linear infrastructure is important, i.e. the quality of roads and the share of expressways and motorways in the total road network. In the case of rail transport, both types of infrastructure are significant. However, it is pointed out that safety in sea and air transport is determined by the scope in which point infrastructure is used. This dependence, which is undoubtedly true in the case of classical air transport, will be reviewed with reference to the unmanned aircraft. They are not and, as can be assumed, will not be used for air operations from or to traditional airports for a long time. Although such a purpose cannot be ruled out, at present unmanned aerial vessels are used to perform air operations from locations which in traditional aviation are not intended to perform air operations. This applies both to leisure and sport flights and to the operation of air services. Areas of potential safety risk will therefore not be airports within their boundaries, but the airspace used by different types of aviation, in particular, the areas of approach and take-off by conventional means. Potential risks will also include collisions between unmanned aerial vessels and building structures with possible consequences for people or property on the ground, as well as places where the unmanned aerial vehicle will fall or rapidly land in the event of an accident. It can therefore be considered that, in terms of spatial risk assessment, the use of drones will give rise to risks that are dispersed, with little material impact on aviation infrastructure facilities, that is to say airports and air routes.

The response to transport safety risks covers the comprehensive actions of various parties involved in the transport process, referred to as safety management.⁸ The safety management process includes activities starting with the design phase, through production, use and maintenance of equipment, and ending with the completion of the ‘main process’ characteristic of the entity. Also in the case of unmanned aircraft, safety management should begin at the stage of design and construction of the aircraft, and continue throughout their use in airspace that can be shared with other users, up to the safe completion of aerial work or a leisure or sport flight. This scope seems to cover the essential requirements in question, and it is specified, *inter alia*, that responsibility in this respect rests with various parties, although it is clear that this is the task of the authorities (through legislation and the activities of the administration) to provide an appropriate regulatory framework and ensure its implementation to achieve transport safety.

Although a number of actions ‘without endangering people’ are expected under the point 1.2 of Annex IX of Basic Regulation, there is a wider problem of estimating risks and determining their acceptable level. Safety, even on the assumption, will never be complete but risk may be reduced to an acceptable level.

The risk management process can also be analysed from the perspective of unmanned aircraft operators as one of the obligations imposed on them. As is indicated in the literature on the subject, it is now proposed that a safety management system should be implemented at the level of the aviation operator, which will enable a specific operator to identify hazards and take preventive actions. According to Katarzyna Chruzik, ‘risk management processes require continuous access to reliable, up-to-date, complete, properly aggregated and analytically processed data, including current data obtained from audits, inspections and controls conducted in the company. These data should allow a continuous and objective assessment of whether the objectives, indicators and levels set are being achieved.’ The author goes on to note that ‘all the risk management processes are based on the selection

⁸ Safety management system ‘means a systematic approach to managing aviation safety including the necessary organisational structures, accountabilities, policies and procedures, and includes any management system that, independently or integrated with other management systems of the organisation, addresses the management of safety.’, Article 2(18) of Regulation 376/2014.

of appropriate research and calculation methods and continuous tracking of the numerical value of the so-called risk index, which is expressed, in simplified terms, as a product of the probability of occurrence of an event that may cause damage or reduce the ability to perform the assigned functions and the severity of its effects.”⁹

1.3. Unmanned aircraft

Basic Regulation 2018/1139¹⁰ introduced the legal definition of unmanned aircraft into the legal system of the European Union. According to Article 3(30), unmanned aircraft means any aircraft operating or designed to operate autonomously or to be piloted remotely without a pilot on board.

Until the entry into force of Basic Regulation 2018/1139, there was no consistency and uniformity in terms of the terminology used. By way of example, the term of remotely piloted aircraft (RPA) was used in Annex 7 to the Chicago Convention and Regulation 216/2008 on common rules in the field of civil aviation, replaced by Basic Regulation 2018/1139, refers to an unmanned aircraft. In the Polish Aviation Law, the term of unmanned aerial vehicle (UAV) is adopted, whereas the abbreviation UAV is also used in other national legislation. A similar confusion of terminology has been observed in the literature where, in addition to the above terms, the authors make no technical or functional distinction when using the terms ‘unmanned aircraft systems’ (UAS) or ‘remotely piloted aircraft systems’ (RPAS).

⁹ K. Chruzik, *Inżynieria bezpieczeństwa w transporcie*, Gliwice 2016, p. 36.

¹⁰ Regulation (EU) 2018/1139 of the European Parliament and of the Council of 4 July 2018 on common rules in the field of civil aviation and establishing a European Union Aviation Safety Agency, and amending Regulations (EC) No 2111/2005, (EC) No 1008/2008, (EU) No 996/2010, (EU) No 376/2014 and Directives 2014/30/EU and 2014/53/EU of the European Parliament and of the Council and repealing Regulations (EC) No 552/2004 and (EC) No 216/2008 of the European Parliament and of the Council and Council Regulation (EEC) No 3922/91 (OJ L 212, 22.8.2018, p. 1).

1.4. The concept of model aircraft in the EU legislation

On the basis of regulations developed by the European Union, the problem of distinguishing between the concepts of ‘unmanned aircraft’ and ‘model aircraft’ was questionable even before the entry into force of the new Basic Regulation 2018/1139 and regulations adopted based thereon. As an example, Regulation 785/2004 should be mentioned.¹¹ On the basis of Article 2(2) (b), this regulation does not apply to ‘model aircraft with an MTOM of less than 20 kg’. Attention should be drawn to the lack of terminological consistency in both the EU and national legislation and the unclear relationship between the concept of model aircraft and unmanned aerial vehicle, or – in accordance with the terminology used in the previous Basic Regulation, i.e. Regulation 216/2008 – unmanned aircraft. Thus, in the documents and normative acts of the European Union, a distinction was made between unmanned aircraft and model aircraft,¹² and the lack of a clear distinction was criticised in Member States.¹³ The new Basic Regulation, although the statements relating to the concept of model aircraft were clearly made only in the preamble, seems to indicate an interpretative direction, defining at least for the purposes of this act the relationship between the concept of model aircraft and that of unmanned aircraft. Therefore, these terminological inaccuracies can be eliminated by interpretation.

¹¹ Regulation No 785/2004 of the European Parliament and of the Council of 21 April 2004 on insurance requirements for air carriers and aircraft operators (OJ L 138, 30.4.2004, p. 1).

¹² See M. Juul, *Civil Drones in the European Union*, Briefing, October 2015, European Parliamentary Research Service, PE 571.305, p. 5. ‘Currently, EASA has the mandate (under Regulation 216/2008/EC) to regulate RPAS when used in civil applications and with an operating mass of more than 150 kg. EU Member States and the national civil aviation authorities regulate experimental or amateur-build RPAS, military and non-military governmental RPAS flights, civil RPAS with an operating mass of 150 kg or less, as well as model aircraft.’ See also: Document EASA ANPA 2015-10 titled ‘Introduction of a regulatory framework for the operation of drones’ – EASA ‘Prototype’ Commission Regulation on Unmanned Aircraft Operations, available on the EASA website: <https://www.easa.europa.eu/document-library/notices-of-proposed-amendment/npa-2015-10>, Proposal 18: ‘In dedicated areas, the operation of drones (or models) can be performed in the “open” category according to the conditions and procedures defined by the competent authority.’ (p. 25).

¹³ See the letter of 19 September 2016, Deutscher Modellflieger Verband e.V. (DMFV) to EASA ‘Prototype’ Commission Regulation on Unmanned Aircraft Operations, p. 3: ‘Our main concern is the suggested common definition for model aircraft and drones, both being referred to as “Unmanned Aircraft”’ and p. 6: ‘For that reason the DMFV requests a clear definition of unmanned aircraft by distinguishing between classic model and drone aircraft’.