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4. The regulation of unmanned aircraft systems in the European Union

Steven Truxal and Benjamyn I. Scott

1. INTRODUCTION

In this chapter, the regulation within the European Union (EU) of unmanned aircraft systems (UAS), or more colloquially termed ‘drones’, will be discussed in the context of the development over time, and the current status of, the rules and procedures relating to the operation of unmanned aircraft.¹ While such aircraft have been in operation for well over a century,² primarily for military uses, such as during both World Wars, modern technology has enabled mass and specialised production of unmanned aircraft to meet the demand for their use, which in Europe has grown significantly. Today, in the EU, unmanned aircraft are widely used for commercial and recreational purposes. In addition, public and private entities are increasingly turning to unmanned aircraft for support in carrying out a range of activities, including traffic and weather monitoring, firefighting, police services, search and rescue, photography, engineering inspections, and within the context of Urban Air Mobility (UAM).³

¹ As explained in the chapter on the United Kingdom, The European Union (Withdrawal) Act 2018 brought an end to the effect of European legislation in the UK and to the membership of the UK in the European Union. Thus, this chapter does not concern the UK.

² Benjamyn I Scott, ‘Introduction’, in Benjamyn I Scott (ed), *The Law of Unmanned Aircraft Systems*, Second Edition (Aalphen aan den Rijn, Wolters Kluwer, 2022), ch 1.

³ See, for a definition of ‘UAM’: Konstantinos Andritsos, Benjamyn I Scott and Andrea Trimarchi, ‘What is in a Name: Defining Key Terms in Urban Air Mobility’ (2022) 105(81) *Journal of Intelligent & Robotic Systems* 1–9. See, for a comprehensive discussion on UAM, Konstantinos Andritsos and Vassilis Agouridas, ‘Urban Air Mobility: Legal and Societal Stakes of an Upcoming Mobility Network’, in Benjamyn I Scott (ed), *The Law of Unmanned Aircraft Systems*, Second Edition (Aalphen aan den Rijn, Wolters Kluwer, 2022), ch 21.

The European unmanned aircraft market is divided according to aircraft type, with military accounting for 50.3 per cent, commercial for 33.8 per cent and consumer/civil for 15.9 per cent.⁴ According to a study produced by the single European sky Air Traffic Management Research Joint Undertaking (SESAR JU), the European unmanned aircraft sector is expected to directly employ over 100,000 people and contribute to the economy more than EUR 10 billion per year between 2016 and 2036.⁵ In terms of the number of commercial unmanned aircraft units in use in Europe, SESAR JU has put the figure at 10,000 in 2016,⁶ and estimates that the number will rise, for government and commercial drones, to 395,000 in 2035,⁷ of which 150,000 will be used for agricultural purposes.⁸ In order for the market to fully actualise, the manufacturing and use of unmanned aircraft must be done in a safe, secure, and efficient way, whereby European harmonised legislation will take a leading role in ensuring these common objectives.

This chapter is set out in six sections. First, the Introduction provides a summary of the current and expected future unmanned aircraft market within the EU. Section 2 will consider the many terms used in this area, sometimes interchangeably and other times to differentiate the technology or use. It will focus specifically on terms used in the EU, most usually ‘unmanned aircraft system’ and, to a lesser extent, ‘drone’. In Section 3, the policy and philosophy behind the regulation of unmanned aircraft in the EU will be explored, to give insight into why liability is not the primary focus for the EU regulators. This will support Section 4, which introduces the specific EU rules for unmanned aircraft as divided into three risk-based and operation-centric categories and will also include the specific unmanned traffic management rules. As the rules are safety-focused, links to liability issues will be made where possible. Section 5 will examine the wider legal and social considerations, the next steps, and what is yet to be accomplished in this area. The purpose of this is to

⁴ Fact.MR, ‘Europe Drones Market Outlook (2022–2032)’, www.factmr.com/report/europe-drones-market.

⁵ SESAR JU, ‘European Drone Outlook Study: Unlocking the Value for Europe’, November 2016, www.sesarju.eu/sites/default/files/documents/reports/European_Drones_Outlook_Study_2016.pdf, 41. These figures are supported by the European Commission. See European Commission, ‘Unmanned Aircraft’, https://defence-industry-space.ec.europa.eu/eu-aeronautics-industry/unmanned-aircraft_en.

⁶ SESAR JU, ‘European Drone Outlook Study: Unlocking the Value for Europe’, November 2016, www.sesarju.eu/sites/default/files/documents/reports/European_Drones_Outlook_Study_2016.pdf, 17.

⁷ *ibid.*

⁸ *Ibid.*, 23

see whether the EU's short-term plans involve the creation of specific new legislation or rather amendments to existing legislation governing liability around unmanned aircraft operations. This will lead to a conclusion in Section 6.

2. UNTANGLING THE TERMINOLOGY

Since the earliest days of regulating air navigation, unmanned aircraft were a consideration, as seen by Article 15 of the Paris Convention of 1919, as amended by the Protocol of 1929.⁹ The text was then retained – almost verbatim – and is now located in Article 8 of the Convention on International Civil Aviation of 1944 ('Chicago Convention'), the primary international convention relating to civil aviation. Article 8 of the Chicago Convention is titled 'pilotless aircraft'.¹⁰ Use of the term 'pilotless aircraft' has faded away, apart from within the specific context of Article 8. Despite the importance of the convention text, other terms have been introduced and occupy varying degrees of usage.¹¹ Oftentimes, these terms are used interchangeably, which is not always appropriate as they may sometimes differentiate; for example, the flying component (i.e. the aircraft) from its system (e.g. command and control unit), the level of interaction with a remote pilot (e.g. fully piloted from a remote location or fully autonomous) or the type of operation (e.g. commercial, State, recreational or indoors).

⁹ Convention Relating to the Regulation of Aerial Navigation (Paris, 13 October 1919), 11 L.N.T.S. 173; and Protocol Relating to Amendments to Arts 3, 5, 7, 15, 34, 37, 41, 42 and Final Clauses of the Aerial Navigation Convention of 13 October 1919 (Paris, 15 June 1929), 138 L.N.T.S. 418. Article 15: 'No aircraft of a contracting State capable of being flown without a pilot shall, except by special authorization, fly without a pilot over the territory of another contracting State.'

¹⁰ See Fernando Fiallos, 'The Applicability of the Chicago Convention of 1944 to the Operation of UAS', in Benjamyn I Scott (ed), *The Law of Unmanned Aircraft Systems*, Second Edition (Aalphen aan den Rijn, Wolters Kluwer, 2022), ch 5; and Luis Fernando Fiallos Pazmino, *The International Civil Operations of Unmanned Aircraft Systems Under Air Law*, First Edition (Alphen aan den Rijn, Wolters Kluwer, 2021), ch 3.

¹¹ Other terms include: Drones, Model Aircraft, Remotely Operated Aircraft (ROA), Remotely Operated Vehicle (ROV), Remotely Piloted Aircraft (RPA), Remotely Piloted Aircraft System (RPAS), Remotely Piloted Vehicle (RPV), Unmanned Aircraft (UA), Unmanned Aircraft System (UAS) and Unmanned Aerial Vehicle (UAV). See Benjamyn I Scott and Giowana de Pinho Veloso, 'Terminology, Definitions and Classifications', in Benjamyn I Scott (ed), *The Law of Unmanned Aircraft Systems*, Second Edition (Aalphen aan den Rijn, Wolters Kluwer, 2022), ch 2.

Thankfully, within the EU context, the term ‘unmanned aircraft’ has been adopted and is now cemented in the relevant regulations. Article 3(30) of Regulation 2018/1139 has included a necessary definition of the term ‘unmanned aircraft’, which ‘means any aircraft operating or designed to operate autonomously or to be piloted remotely without a pilot on board’.¹² This definition makes it clear that an unmanned aircraft:

- is an ‘aircraft’ as defined by Article 3(28) of Regulation 2018/1139;¹³
- the aircraft does not have a pilot on board, but could include other persons (i.e. PATS);
- includes remotely piloted aircraft and those with all levels of automation; and
- includes the aircraft component but does not include the system required to operate the aircraft itself.¹⁴

On the latter point, Article 2(1) of Regulation 2019/947 on Unmanned Aircraft Systems and on Third-Country Operators of Unmanned Aircraft Systems adds further clarity as it defines ‘unmanned aircraft system’ as ‘an unmanned aircraft and the equipment to control it remotely’.¹⁵ This latter term is broader as it contains, in addition to the aircraft, equipment such as those used for control, command and communications.

The EU has settled on specific terms and enshrined these in secondary EU law and has provided definitions as well. All of this provides consistency and legal certainty. In fact, the regulations are helpful as they elaborate numerous definitions that help to give certainty to the meaning and scope of the rules.

¹² See also Commission Delegated Regulation (EU) 2019/945 of 12 March 2019 on Unmanned Aircraft Systems and on Third-Country Operators of Unmanned Aircraft Systems [2019] OJ L 152/1, 11 June 2019, art 3(1).

¹³ The regulation defines ‘aircraft’ as ‘any machine that can derive support in the atmosphere from the reactions of the air other than reactions of the air against the earth’s surface’. This definition has a clear relationship with the definition adopted by the International Civil Aviation Organization (ICAO) in the numerous Annexes to the Chicago Convention.

¹⁴ See, for an example of the possible impact of terminological confusion within the context of insurance, Nicholas Medniuk, ‘Aspects of Insurance for Unmanned Aircraft Systems’, in Benjamyn I Scott (ed), *The Law of Unmanned Aircraft Systems*, Second Edition (Aalphen aan den Rijn, Wolters Kluwer, 2022), ch 15.

¹⁵ See also Commission Delegated Regulation (EU) 2019/945 of 12 March 2019 on Unmanned Aircraft Systems and on Third-Country Operators of Unmanned Aircraft Systems [2019] OJ L 152/1, 11 June 2019, art 3(3).

It must, however, be stated that the provided definitions utilise terms, each of which must also be defined. This, for example, is clear from the above-cited use of the term ‘aircraft’, with which aviation specialists are familiar as it has a specific technical meaning that requires a fixed definition. However, there are other terms. Of particular importance is the use of the word ‘autonomously’ in the definition of ‘unmanned aircraft’. The regulations use ‘autonomously’ in a specific way to ‘mean an operation during which an unmanned aircraft operates without the remote pilot being able to intervene’.¹⁶ This, therefore, refers to a flight whereby the:

remote pilot has no ability to intervene in the course of the aircraft, either following the implementation of emergency procedures, or due to a loss of the command-and-control connection, are not considered autonomous operations.¹⁷

This is to be differentiated from an automatic operation as this ‘refers to an operation following pre-programmed instructions that the UAS executes while the RP [remote pilot] is still able to intervene’ at any time.¹⁸ The distinction will have relevance for liability within the context of artificial intelligence (AI) liability as it involves a level of automation. It will be essential that the two legal regimes, despite having different scopes, are considered together due to their overlap in subject (i.e. unmanned aircraft).

The EU has also adopted the term ‘drone’ to refer to ‘unmanned aircraft’ outside of technical or legal discussions. This can be seen, for example, on websites¹⁹ and in non-legal publications. For legal certainty, the term ‘unmanned aircraft’ will be used in this book to refer to the aircraft component, and ‘unmanned aircraft system’ will be employed to refer to the aircraft and its systems.

¹⁶ Commission Implementing Regulation (EU) 2019/947 of 24 May 2019 on the Rules and Procedures for the Operation of Unmanned Aircraft [2019] OJ L 152/45, 11 June 2019, art 2(17).

¹⁷ EASA Guidance Material (GM) to Article 2(17) of Regulation (EU) 2018/1139.

¹⁸ GM1 Article 2(17) Definitions – Definition of ‘Autonomous Operation’.

¹⁹ See, e.g. EASA, ‘Civil Drones (Unmanned Aircraft)’, www.easa.europa.eu/domains/civil-drones.

3. POLICY AND PHILOSOPHY

3.1 Early Policy Activities

The first policy steps taken towards the regulation of unmanned aircraft at the EU level have their origin in the conclusions reached by the European Council in December 2013, which welcomed ‘the development of Remotely Piloted Aircraft Systems (RPAS) in the 2020–2025 timeframe’.²⁰ In the same year, the European Commission published its ‘Roadmap for the Integration of Civil Remotely-Piloted Aircraft Systems into the European Aviation System’. In this Roadmap, the Commission states that if a person is injured or if property is damaged, then:

a clear liability regime and an adequate insurance obligation must be in place. The Civil Aviation Authorities, which are responsible for the authorization of RPAS operations, should ensure that the appropriate regulatory framework is in place.²¹

Actualising this would require, first, an analysis of the existing legal frameworks for third-party liability (damage on the surface and in the air). As noted in Annex III of the Roadmap, this would require focus on:

- the Convention on Damage Caused by Foreign Aircraft to Third Parties on the Surface (Rome Convention) of 1952;
- the Convention for the Unification of Certain Rules for International Carriage by Air (Montreal Convention) of 1999; and
- national law.

From the Commission’s statement, it can be seen that the Commission is focusing on existing international and national law, as opposed to amending existing or drafting new EU law.

The European Commission subsequently developed a strategy on how to progressively integrate Remotely Piloted Aircraft Systems (RPAS) into the European single market; this was presented in a Communication adopted in April 2014.²² This Communication said that:

²⁰ Conclusions of the European Council (19–20 December 2013) EUCO 217/13, para 11, 5.

²¹ European Commission, ‘Roadmap for the Integration of Civil Remotely-Piloted Aircraft Systems into the European Aviation System’, Final Report from the European RPAS Steering Group, June 2013, 12.

²² European Commission, ‘Communication from the Commission to the European Parliament and the Council, A New Era for Aviation Opening the

The growth potential can only be unleashed if an enabling legal framework is established at the European level. The European industry has been consistently calling for the creation of such rules to allow civil RPAS operations while guaranteeing at the same time the required high levels of safety, security and privacy which are a precondition for public acceptance of RPAS.²³

As the Commission correctly identifies, even when the highest acceptable level of safety is achieved, accidents still may occur. If or when they happen, victims will need to be compensated. In order to ensure that this need is met, the Commission again noted that it must assess the current aviation rules for manned aviation and determine if they need to be amended for unmanned aviation. As a result, the European Commission set itself an Action:

Action 5: The Commission will assess the current liability regime and third-party insurance requirement. It will, subject to the impact assessment, take the appropriate initiatives to ensure that adequate regulatory provisions are in place.²⁴

In March 2015, a high-level conference was held in Riga, Latvia, which resulted in the drafting and signing of a declaration that was endorsed by the Transport Commissioner and the Department for Mobility and Transport (DG-MOVE). This, the ‘Riga Declaration’, contains the European policy developments regarding unmanned aircraft.²⁵ The challenge that the aviation community set for regulators was in essence to perform a balancing act. On the one hand, regulators should ‘ensure that all the conditions are met for the safe and sustainable emergence of innovative drone services’ and on the other hand, they should guarantee that regulations would ‘help the industry to thrive and adequately deal with citizens’ concerns’.²⁶

The Riga Declaration explicitly refers to liability:

Drone accidents will happen. Member States should clarify the applicable insurance and third-party liability regime and monitor the compensation mechanisms for potential victims.

Aviation Market to the Civil Use of Remotely Piloted Aircraft Systems in a Safe and Sustainable Manner’, 8 April 2014, COM(2014) 207 final.

²³ *ibid*, 4.

²⁴ European Commission, ‘A New Era for Aviation: Opening the Aviation Market to the Civil Use of Remotely Piloted Aircraft Systems in a Safe and Sustainable Manner’, Communication from the Commission to the European Parliament and the Council, Brussels, 8 April 2014, COM(2014) 207 final, 8.

²⁵ ‘Riga Declaration on Remotely Piloted Aircraft (Drones) “Framing the Future of Aviation”’, Riga, Latvia, 6 March 2015, https://eu2015.lv/images/news/2016_03_06_RPAS_Riga_Declaration.pdf.

²⁶ *ibid*, 1.

The Riga Declaration refers only to third-party liability, thus covering people and property on the ground and in the air; it excludes mention of contractual liability (i.e. passengers and cargo). Further, it only notes that Member States should clarify which laws are applicable. The topic of liability, which only makes its appearance on the final page of the four-page document, was not the principal concern in 2015. Recourse to existing liability rules was preferred over having the EU embark on a new and specific rulemaking task. Liability, however, is neglected in more recent documents, notably the ‘Drone Strategy 2.0 for a Smart and Sustainable Unmanned Aircraft Eco-System in Europe’.²⁷

With that said, the European Union Aviation Safety Agency (EASA) was given a clear mandate to take the lead in developing *safety-based* rules for unmanned aircraft via its rulemaking process.²⁸ The creation of safety rules, very much within the context of aviation safety, was thus the principal priority from the very outset. EASA’s role was confirmed in three subsequent declarations, none of which makes any reference to liability.²⁹ The resulting work by EASA will be examined below.

3.2 A Patchwork of National Law

As technology in this area has rapidly developed, the unmanned aircraft industry and its services sector have grown significantly. In response, several EU Member States developed national rules on the use of unmanned aircraft and procedures for things such as registration, training and authorisation to

²⁷ European Commission, A Drone Strategy 2.0 for a Smart and Sustainable Unmanned Aircraft Eco-System in Europe, COM(2022) 652 final. See Benjamyn I Scott and Konstantinos I Andritsos, ‘A Drone Strategy 2.0 for a Smart and Sustainable Unmanned Aircraft Eco-System in Europe’ (2023) 48(3) *Air and Space Law* 273–296.

²⁸ See, for more information on the EASA Rulemaking Process, Benjamyn I Scott and Rita Sousa Uva, “‘Soft Law’ and its Role in European Aviation Safety” (2020) 69(4) *Zeitschrift für Luft- und Weltraumrecht* 604–627.

²⁹ Warsaw Declaration, ‘Drones as a Leverage for Jobs and New Business Opportunities’, Warsaw, Poland, 24 November 2016, https://www.ulc.gov.pl/_download/wiadomosci/12_2016/Warsaw_Declaration_ENG.pdf; Helsinki Declaration, ‘Seizing Digital Technologies to Deliver Advanced Drone Operations Safely and Securely’, Helsinki, Finland, 22 November 2017, www.easa.europa.eu/downloads/44185/en; and Amsterdam Declaration, ‘Drones Amsterdam Declaration’, Amsterdam, The Netherlands, 28 November 2018, https://smart-cities-marketplace.ec.europa.eu/sites/default/files/Drones_Amsterdam_Declaration_28_Nov_2018.pdf.

operate.³⁰ National rules, which were applicable only within the jurisdiction of the relevant Member State, addressed to varying degrees the safety and security concerns raised around the use of unmanned aircraft. The result has been that the different national approaches have produced a patchwork of regulation across the EU.

3.3 Regulatory Steps

Article 4(2)(g) of the Treaty on the Functioning of the European Union (TFEU) provides that the EU shares competences with the Member States for ‘transport’.³¹ Consequently, in the field of air transport, an EU Member State is able to adopt legally binding acts in this area either when the EU has not yet done so or has decided not to exercise its own competence.³² As air transport is an area of shared competence, as opposed to those areas of exclusive competence pursuant to Article 3 of the TFEU,³³ Member States are free to develop national rules where the EU law is silent. Article 100(2) of the TFEU expands:

The European Parliament and the Council, acting in accordance with the ordinary legislative procedure, may lay down appropriate provisions for sea and air transport. They shall act after consulting the Economic and Social Committee and the Committee of the Regions.

This Article is the legal basis for the EU to regulate, *inter alia*, aviation safety, which has resulted in a series of regulations that establish the common rules in the field of civil aviation and provide for the creation of EASA.

³⁰ A list of national aviation authorities and the relevant rules and procedures can be found on EASA’s website. See EASA, ‘Drones – National Aviation Authorities’, www.easa.europa.eu/domains/civil-drones/naa.

³¹ Consolidated Version of the Treaty on the Functioning of the European Union [2008] OJ C 115/01, 13 December 2007. Other areas include: internal market; social policy, for the aspects defined in this Treaty; economic, social and territorial cohesion; agriculture and fisheries, excluding the conservation of marine biological resources; environment; consumer protection; trans-European networks; energy; area of freedom, security and justice; and common safety concerns in public health matters, for the aspects defined in this Treaty.

³² EU, ‘Division of Competences within the European Union’, 26 January 2016, <http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A12012E%2FTXT>.

³³ Exclusive competences are areas where only the EU is able to legislate and adopt binding acts, and EU Member States are only able to act in these areas if empowered by the EU to implement these acts.

The movement from national to EU-wide unmanned aircraft rules can be traced back to the year 2015, when the European Commission published its 'Aviation Strategy to Enhance the Competitiveness of the EU Aviation Sector'.³⁴ As part of this strategy, the Commission proposed to add unmanned aircraft to the overall EU aviation safety framework;³⁵ that was achieved through Regulation 2018/1139 which, along with its Delegated Acts and Implementing Acts, applied to the 27 EU Member States as well as the European Economic Area (EEA) (Iceland, Lichtenstein and Norway) and Switzerland.³⁶ As the principal objective of Regulation 2018/1139, as set out in Article 1(1), 'is to establish and maintain a high uniform level of civil aviation safety in the Union' it should not come as a surprise that liability is not directly regulated for.

In 2018, the EASA 'Basic Regulation' (Regulation 216/2008) was repealed and replaced, resulting from the Aviation Strategy to Enhance the Competitiveness of the EU Aviation Sector,³⁷ with one of the goals being to introduce new specific areas to the EU aviation safety regime:

Under the present initiative a limited number of specific areas are proposed to be added to this overall Union aviation safety framework, namely unmanned aircraft, safety of ground handling services and security aspects of aircraft and aviation systems' design, including cybersecurity.³⁸

³⁴ European Commission, 'Commission Presents a New Aviation Strategy for Europe', Brussels, Press Release, IP/15/6144, 7 December 2015.

³⁵ Proposal, COM/2015/0613 Final – 2015/0277 (COD), 7 December 2015, 4.

³⁶ Regulation (EU) No 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 [2008] OJ L 212/1, 22 August 2018.

³⁷ European Commission, 'Commission Presents a New Aviation Strategy for Europe', Brussels, Press Release, IP/15/6144, 7 December 2015.

³⁸ European Commission, 'Proposal for a Regulation of the European Parliament and of the Council on Common Rules in the Field of Civil Aviation and Establishing a European Union Aviation Safety Agency, and Repealing Regulation (EC) No 216/2008 of the European Parliament and of the Council', Proposal, COM/2015/0613 Final – 2015/0277 (COD), 7 December 2015, 4.

This meant bringing lighter³⁹ unmanned aircraft within its scope, thus providing a legal basis for specific safety rules in the form of Commission Regulations to address these aircraft types.⁴⁰ The ultimate result was the adoption of Regulation 2018/1139.⁴¹

Article 57 (Implementing Acts) and Article 58 (Delegated Powers) of Regulation 2018/1139 empower the European Commission to adopt secondary EU law on unmanned aircraft – within the scope of said regulation – binding on producers and users of unmanned aircraft in the EU. Furthermore, EASA has certain rulemaking competences by way of Article 76(1) of Regulation 2018/1139, notably to issue Opinions – within its mandate – to the Commission for it to assess and then adopt, upon its approval, as a new or amended Commission Regulation.⁴² For instance, according to Article 56(1)–(4) of Regulation 2018/1139, a certification may be required for certain operational

³⁹ Annex II of Regulation 216/2008 listed a number of aircraft types which were outside of the scope of EASA's competences. The most relevant was Annex II(i) as it excluded unmanned aircraft that have a mass of less than 150 kg from the scope of the EU's activities. 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 [2008] OJ L 79/1, 19 March 2008.

⁴⁰ European Commission, 'Communication from The Commission to the European Parliament, The Council, The European Economic and Social Committee and The Committee of the Regions: An Aviation Strategy for Europe', Brussels, COM(2015) 598 Final, 7 December 2015.

⁴¹ Regulation (EU) No 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 [2018] OJ L 212/1, 22 August 2018. Many of the fundamentals between Regulation 216/2008 and Regulation 2018/1139 remain the same. Nevertheless, there are, in cases, drafting revisions and substantial changes.

⁴² See Benjamyn I Scott and Rita Sousa Uva, "'Soft Law" and its Role in European Aviation Safety' (2020) 69(4) *Zeitschrift für Luft- und Weltraumrecht* 604–627. The Opinions shall be 'on the scope and content of the Basic Regulation and its implementing rules, consisting of a draft regulation and an explanatory memorandum' EASA, Management Board Decision 18-2015: Replacing Decision 01/2012 Concerning the Procedure to be Applied by the Agency for the Issuing of Opinions, Certification Specifications, Acceptable Means of Compliance and Guidance Material ('Rulemaking Procedure'), 15 December 2015, art 2.

characteristics, as well as information on demonstrating compliance; amendments to certificates; and that certificate may be limited, suspended or revoked.

Regulation 2018/1139 provides the EU with the competences to adopt specific Commission Regulations for civil unmanned aircraft regardless of weight or size. Consequently, this has happened in three core areas:

- the design and manufacture of unmanned aircraft, and making them available to the market (Regulation (EU) 2019/945 (as amended));
- the rules and procedures for the operation of unmanned aircraft in the single European sky (Regulation (EU) 2019/947 (as amended)); and
- a regulatory framework for the U-space (Regulation (EU) 2021/664).⁴³

The EU rules emerged along three operation-centric and risk-based categories of unmanned aircraft; these are reflected in the rulemaking documents published by the Agency.⁴⁴ For certified and non-certified unmanned aircraft, the categories are:

- ‘Open’ category (low risk);
- ‘Specific’ Category (medium risk); and
- ‘Certified’ Category (higher risk).⁴⁵

The relevant rules and procedures vary depending on the category, as the rules are operation-centric, and risk and performance-based. The different risk mitigation measures are mandated depending on the impact on safety. In other words, the greater the risk, the greater the risk mitigation measures will be required.⁴⁶ These rules will be discussed in more detail below in Section 4.

⁴³ See for more information, Mikko T Huttunen, ‘U-space: European Union’s Concept of UAS Traffic Management’, in Benjamyn I Scott (ed), *The Law of Unmanned Aircraft Systems*, Second Edition (Aalphen aan den Rijn, Wolters Kluwer, 2022), ch 7.

⁴⁴ See, for the full list of documents, EASA, ‘Civil Drones (Unmanned Aircraft)’, www.easa.europa.eu/domains/civil-drones.

⁴⁵ See Commission Implementing Regulation (EU) 2019/947 of 24 May 2019 on the Rules and Procedures for the Operation of Unmanned Aircraft [2019] OJ L 152/45, 11 June 2019, arts 3–6.

⁴⁶ See Commission Implementing Regulation (EU) 2019/947 of 24 May 2019 on the Rules and Procedures for the Operation of Unmanned Aircraft [2019] OJ L 152/45, 11 June 2019, preamble.

4. UNMANNED AIRCRAFT CATEGORIES AND RULES

4.1 Open Category

The first category is called the ‘open category’, and it shall encapsulate the majority of both leisure and low-risk commercial activities. Central to this category is that the operator does not need to get prior permission from the national competent authority (typically the Civil Aviation Authority of the Member State⁴⁷), but instead, that person must operate the unmanned aircraft within a set of pre-defined operational restrictions. The matter is complicated as the category is divided into three sub-categories: A1, A2 and A3. Each sub-category has its own requirements as presented in Table 4.1.

Within the ‘open’ category, the defining points are the Maximum Take-Off Mass (MTOM)⁴⁸ of the unmanned aircraft (i.e. up to an MTOM of 25 kilogrammes) and the distance between the unmanned aircraft and the people who are not involved in the operations (uninvolved persons⁴⁹). Due to the varying risk levels, the training requirements vary, with A2 being the most complex and thus requiring the most stringent level of training. Increased levels of training can enhance safety as training can provide the operator with the skills necessary to operate within the prescribed boundaries.

The minimum age requirement of 16 years old may, however, be lowered to a minimum age of 12 years by the national competent authority. Per Article 9 of Regulation 2019/947, there is no minimum age:

- (a) when they operate in subcategory A1 as specified in Part A of the Annex to this Regulation, with a UAS Class C0 defined in Part 1 of the Annex to Delegated Regulation (EU) 2019/945 that is a toy within the meaning of Directive 2009/48/EC;

⁴⁷ Article 17 of Regulation 2019/947 clarifies the meaning of ‘competent authority’. Pursuant to Article 41 of Regulation 2019/945, ‘the competent authority of the first Member State where the UAS operator intends to operate’ shall be the competent authority for third-country operators.

⁴⁸ Regulation 2019/947 defines MTOM in art 2(22) as ‘the maximum Unmanned Aircraft mass, including payload and fuel, as defined by the manufacturer or the builder, at which the Unmanned Aircraft can be operated’.

⁴⁹ Commission Implementing Regulation (EU) 2019/947 of 24 May 2019 on the Rules and Procedures for the Operation of Unmanned Aircraft [2019] OJ L 152/45, 11 June 2019, art 2(18): “‘uninvolved persons’ means persons who are not participating in the UAS operation or who are not aware of the instructions and safety precautions given by the UAS operator’.

Table 4.1 Requirements in the open category

UAS	Operation	Operation	Drone Operation / Pilot	Drone Operation / Pilot	Drone Operation / Pilot
Max Weight ^a	Subcategory	Operational Restrictions	Drone Operator Registration	Remote Pilot Competence	Remote Pilot Min. Age
< 250 g	A1 (can also fly in sub-cat A3)	No flight expected over uninvolvement people (if it happens, overflight should be minimised. No flight over assemblies of people. ^b	-	No training required.	No min. age
< 500g	A1 (can also fly in sub-cat A3)	No flight expected over uninvolvement people (if it happens, overflight should be minimised. No flight over assemblies of people.	Yes	-	-
< 2kg	A2 (can also fly in sub-cat A3)	No flight expected over uninvolvement people. Keep a horizontal distance of 50m from uninvolvement people.	Yes	-	16*
< 25kg	A3	-	Yes	-	16*

^a Commission Implementing Regulation (EU) 2019/947 of 24 May 2019 on the Rules and Procedures for the Operation of Unmanned Aircraft [2019] OJ L 152/45, 11 June 2019, art 2(22): "maximum take-off mass" ('MTOM') means the maximum Unmanned Aircraft mass, including payload and fuel, as defined by the manufacturer or the builder, at which the Unmanned Aircraft can be operated".

^b Commission Implementing Regulation (EU) 2019/947 of 24 May 2019 on the Rules and Procedures for the Operation of Unmanned Aircraft [2019] OJ L 152/45, 11 June 2019, art 2(3): "assemblies of people" means gatherings where persons are unable to move away due to the density of the people present".

- (b) for privately-built UAS with a maximum take-off mass of less than 250g;
- (c) when they operate under the direct supervision of a remote pilot complying with paragraph 1 and Article 8.

The age of the operator may cause issues within the context of liability, as a minor may not be able to take out an insurance policy due to a lack of capacity to contract, be subject to different criminal proceedings than adults, and may entail the liability/responsibility of their guardian when being supervised. This is, of course, a specific matter for the national law of each Member State.

Such operations will be limited to ‘in visual line of sight’ (VLOS),⁵⁰ below 120 metres altitude and performed with an unmanned aircraft compliant with the technical requirements defined in Regulation 2019/945.⁵¹ This regulation covers the CE Markings required for putting unmanned aircraft onto the market,⁵² so it has a clear link to product liability.⁵³ As it includes only VLOS operations, these cannot be autonomous, as the remote pilot must be ‘able to maintain continuous unaided visual contact with the unmanned aircraft, allowing the remote pilot to control the flight path of the unmanned aircraft

⁵⁰ Commission Implementing Regulation (EU) 2019/947 of 24 May 2019 on the Rules and Procedures for the Operation of Unmanned Aircraft [2019] OJ L 152/45, 11 June 2019, art 2(7): “‘visual line of sight operation’ (‘VLOS’) means a type of UAS operation in which the remote pilot is able to maintain continuous unaided visual contact with the unmanned aircraft, allowing the remote pilot to control the flight path of the unmanned aircraft in relation to other aircraft, people, and obstacles for the purpose of avoiding collisions.’

⁵¹ See EASA, ‘Open Category – Civil Drones’, www.easa.europa.eu/domains/civil-drones/drones-regulatory-framework-background/open-category-civil-drones.

⁵² Commission Implementing Regulation (EU) 2019/947 of 24 May 2019 on the Rules and Procedures for the Operation of Unmanned Aircraft [2019] OJ L 152/45, 11 June 2019, art 2(19): ‘making available on the market’ means any supply of a product for distribution, consumption or use on the Union market in the course of a commercial activity, whether in exchange for payment or free of charge; art 2(20) ‘placing on the market’ means the first making available of a product on the Union market.

⁵³ See, for a discussion on UAS product liability, Christopher Carlsen and Julie-Anne Tarr, ‘Product Liability’, in Anthony Tarr, Julie-Anne Tarr, Maurice Thompson and Jeffrey Ellis (eds), *Drone Law and Policy: Global Development, Risks, Regulation and Insurance*, First Edition (London, Routledge, 2021).

in relation to other aircraft, people and obstacles for the purpose of avoiding collisions'.⁵⁴

The operational restrictions have clear links to third-party liability. This is because they restrict the interaction that an unmanned aircraft can have with third parties. First, for people, this is because there are limitations on overflying:

- 'Assemblies of people': This refers to gatherings of people who are unable to move away as a result of the density of the people present; and⁵⁵
- 'Uninvolved persons': This refers to persons who are not participating in the operation of the unmanned aircraft, or who have not been informed of the instructions and safety precautions provided by the UAS operator.⁵⁶

Further, it also limits the unmanned aircraft's involvement with property for subcategory A3 operations as they must 'be conducted at a safe horizontal distance of at least 150 metres from residential, commercial, industrial or recreational areas'.⁵⁷ Thus, the rules require a level of separation between the unmanned aircraft and third parties, which will certainly impact third-party liability. However, each category must be assessed individually, as each has different requirements, and so the relevance and extent of third-party liability will vary. Further, third-party damage may still arise as a crash will involve impact with land or sea, and it could become uncontrollable, causing the unmanned aircraft to fly beyond the operational restrictions and bring it into the close proximity of, or contact with, third parties.

4.2 Specific Category

If the operational characteristics exceed what is permitted in the 'open' category, then the unmanned aircraft operation will fall within the 'specific' category as stated in Article 5 of Regulation 2019/947.⁵⁸ This category will include, for example, operations that are conducted 'beyond visual line of sight' (BVLOS),⁵⁹ higher than an altitude of 120 metres, with the purpose

⁵⁴ Regulation 2019/947, art 2(7). See GM1 UAS.OPEN.060(2)(d) Responsibilities of the Remote Pilot.

⁵⁵ Regulation 2019/947, art 2(3).

⁵⁶ Regulation 2019/947, art 2(18).

⁵⁷ Regulation 2019/947, UAS.OPEN.040 (2).

⁵⁸ This must be read alongside Regulation 2019/947, art 6, which covers Certified Category operations.

⁵⁹ Commission Implementing Regulation (EU) 2019/947 of 24 May 2019 on the Rules and Procedures for the Operation of Unmanned Aircraft [2019] OJ L

of dropping material, or where the unmanned aircraft has an MTOM of >25 kilograms.⁶⁰ As by their very nature BVLOS operations are not conducted in VLOS, the former may include autonomous flights.⁶¹

'Specific' category operations must be authorised⁶² by the national competent authority by way of one of the following three processes:

- Standard Scenario (StS);
- Operational Authorisation (OA); or
- Light UAS Operator Certificate (LUC).

Below, each process will be individually assessed to determine how access to the airspace is granted in each case.

4.2.1 Standard scenarios

EASA is tasked with developing StS for the 'specific' category. The StS contain a list of mitigating measures that the operator – such as a private company or a research institution – must follow in order to ensure the required level of

152/45, 11 June 2019, art 2(8): 'beyond visual line of sight operation' ('BVLOS') means a type of UAS operation which is not conducted in VLOS.

⁶⁰ See, for more information about the Specific Category, EASA, 'The European UAS Regulation', presentation, www.easa.europa.eu/sites/default/files/dfu/EU_UAS_Regulation_specific-category.pdf.

⁶¹ Regulation 2019/947, art 2(8).

⁶² Commission Implementing Regulation (EU) 2019/947 of 24 May 2019 on the Rules and Procedures for the Operation of Unmanned Aircraft [2019] OJ L 152/45, 11 June 2019, UAS.SPEC.010: 'The UAS operator shall provide the competent authority with an operational risk assessment for the intended operation in accordance with Article 11, or submit a declaration when point UAS.SPEC.020 is applicable, unless the operator holds a light UAS operator certificate (LUC) with the appropriate privileges, in accordance with Part C of this Annex. The UAS operator shall regularly evaluate the adequacy of the mitigation measures taken and update them where necessary.'

safety.⁶³ The operator will submit an Operational Declaration⁶⁴ to the competent authority which demonstrates that the mitigating measures are in place. If the competent authority is satisfied, it will authorise the operation. If not, it will reject the declaration and the operator will have to make the necessary adjustments. As the name suggests, StS will cover the most common ('standard') operations ('scenarios'). So far, two StS have been issued, which allow the operator to submit a declaration for urban VLOS⁶⁵ and rural BVLOS⁶⁶ operations.⁶⁷

While additional StS are expected, the existing ones were prioritised as they were considered to be the most frequent 'specific' category operations in the short term. New StS will take time to develop as they are included in Appendix 1 of Regulation 2019/947. Consequently, they are amendments to the Regulation and must, therefore, go through the official EASA rulemaking process⁶⁸ and the specific EU mechanisms for the adoption of Delegated Acts

⁶³ Commission Implementing Regulation (EU) 2019/947 of 24 May 2019 on the Rules and Procedures for the Operation of Unmanned Aircraft [2019] OJ L 152/45, 11 June 2019, art 2(6): 'standard scenario' means a type of UAS operation in the 'specific' category, as defined in Appendix 1 of the Annex, for which a precise list of mitigating measures has been identified in such a way that the competent authority can be satisfied with declarations in which operators declare that they will apply the mitigating measures when executing this type of operation. See, for full list of StS, Commission Implementing Regulation (EU) 2019/947 of 24 May 2019 on the Rules and Procedures for the Operation of Unmanned Aircraft [2019] OJ L 152/45, 11 June 2019, app 1.

⁶⁴ Regulation 2019/947, UAS.SPEC.020.

⁶⁵ Opinion No. 05/2019, Standard Scenarios for UAS Operations in the 'Specific' Category, RMT.0729, 7 November 2019, page 5: 'STS-01: visual line of sight (VLOS) operations at a maximum height of 120 m, at a ground speed of less than 5 m/s in the case of untethered UA, over controlled ground areas that can be in populated (e.g. urban) environments, using UAS with maximum take-off masses (MTOMs) of up to 25 kg.'

⁶⁶ Opinion No. 05/2019, Standard Scenarios for UAS Operations in the 'Specific' Category, RMT.0729, 7 November 2019, page 5: 'STS-02: beyond visual line of sight (BVLOS) operations with the UA at not more than 2 km from the remote pilot, if visual observers (VOs) are used, at a maximum height of 120 m, over controlled ground areas in sparsely populated environments, using UA with MTOMs of up to 25 kg.'

⁶⁷ 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 [2020] OJ L 150/1, 13 May 2020.

⁶⁸ See, for the official rulemaking procedure of EASA: EASA, 'Management Board Decision 01-2022 of 2 May 2022 on the Procedure to be Applied by EASA

and Implementing Acts.⁶⁹ Currently, EASA is prioritising the development of the U-space regulatory materials and the rules for the ‘certified’ category, so no new StS should be expected in the immediate short term.⁷⁰

4.2.2 Operational authorisation

In the event that the operation is not covered by a StS, the operator is able to get the operation approved pursuant to Article 12 of Regulation 2019/947.⁷¹ Here, the operator must carry out a risk assessment⁷² in accordance with Article 11 and then submit it – along with the application, including adequate mitigating measures – to the national competent authority.⁷³ If the competent authority is satisfied that all of the operational risks are mitigated, then it shall issue an Operational Authorisation.⁷⁴ As with the StS mechanisms, the competent

for the Issuing of Opinions, Certification Specifications and Other Detailed Specifications, Acceptable Means of Compliance and Guidance Material’ (‘Rulemaking Procedure’), and Repealing Management Board Decision No 18-2015. As defined in Management Board Decision 01-2022, art 2, “‘Opinions’ are the documents that EASA submits to the European Commission which contain the proposals for amendments to the Basic Regulation and to the delegated and implementing acts to be adopted on the basis thereof.’ See, for a full list of the implementing rules, EASA, ‘Regulations’, www.easa.europa.eu/regulations.

⁶⁹ Regulation (EU) No 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 [2018] OJ L 212/1, 22 August 2018, art 76(1).

⁷⁰ See, for a list of the proposed rulemaking tasks for 2022–2026, EASA, ‘European Plan for Aviation Safety 2022–2026’, <https://www.easa.europa.eu/en/document-library/general-publications/european-plan-aviation-safety-2022-2026>.

⁷¹ Commission Implementing Regulation (EU) 2019/947 of 24 May 2019 on the Rules and Procedures for the Operation of Unmanned Aircraft [2019] OJ L 152/45, 11 June 2019, art 12(2).

⁷² See, for more information on risk assessments, Mikko Huttunen, ‘Drone Operations in the Specific Category: A Unique Approach to Aviation Safety’ (2019) 18(2) *The Aviation & Space Journal* 2–21, 5–7. See also UAS.SPEC.010.

⁷³ Commission Implementing Regulation (EU) 2019/947 of 24 May 2019 on the Rules and Procedures for the Operation of Unmanned Aircraft [2019] OJ L 152/45, 11 June 2019, art 5(2).

⁷⁴ Commission Implementing Regulation (EU) 2019/947 of 24 May 2019 on the Rules and Procedures for the Operation of Unmanned Aircraft [2019] OJ L 152/45, 11 June 2019, art 5(3).

authority will refuse if the operator fails to prove that the operation is sufficiently safe. This approval mechanism is, thus, an *ad hoc* authorisation system that provides less authorisation for less typical operations.

Per Article 12(2)(C) of Regulation 2019/947, the operational authorisation shall only be granted by the national competent authority if it concludes *inter alia* that ‘the UAS operator has provided a statement confirming that the intended operation complies with any applicable Union and national rules relating to it, in particular, with regard to privacy, data protection, liability, insurance, security and environmental protection’.⁷⁵ This point is continued for cross-border activities,⁷⁶ whereby the application form requires the operator to complete an Application Form for a Cross-Border UAS Operation; a template is provided in the soft law:

I, the undersigned, hereby request the confirmation of acceptability of the cross-border UAS operation in xxx (name of the Member State) and declare that the UAS operation will comply with: – any national rules related to privacy, data protection, liability, insurance, security, and environmental protection;⁷⁷

Thus, this is yet another example of the safety rules linking back to liability and, at the same time, making it absolutely clear that liability is not within the scope of these rules, but is to be found in sources elsewhere. This is true also for insurance, which is an area regulated within the EU by Regulation (EC) No 785/2004 on Insurance Requirements for Air Carriers and Aircraft Operators.⁷⁸

4.2.3 Light UAS operator certificate

The final mechanism is reserved for legal persons (i.e. an organisation).⁷⁹ Here, it may apply for an LUC, which is ‘a certificate issued to a UAS operator

⁷⁵ AMC1 UAS.SPEC.030(2) Application for an Operational Authorisation.

⁷⁶ Article 13 of Regulation 2019/947 sets out the relevant requirements for cross-border operations in the specific category (i.e. operations involving more than one Member State).

⁷⁷ AMC1 Article 13(1) Cross-Border Operations or Operations Outside the State of Registration, Application Form for a Cross-Border UAS Operation.

⁷⁸ 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 138/1, 30 April 2004. See Nicholas Medniuk, ‘Aspects of Insurance for Unmanned Aircraft Systems’, in Benjamyn I Scott (ed), *The Law of Unmanned Aircraft Systems*, Second Edition (Aalphen aan den Rijn, Wolters Kluwer, 2022), ch 15.

⁷⁹ It cannot be a natural person as per Regulation 2019/947, UAS.LUC.010(1).

by a competent authority as set out in part C of the Annex'.⁸⁰ The holder of an LUC will be permitted to either operate according to a StS without the need to submit a declaration to the competent authority or by self-authorising operations not covered by a StS without the need to apply for an Operational Authorisation from the competent authority.⁸¹ The national competent authority provides these privileges to a requesting organisation in cases where it has demonstrated its ability to meet the levels of safety prescribed in the regulations without the need for constant oversight.⁸² The purpose of such a mechanism is to streamline the authorisation process for the requesting organisation and to reduce the burden on competent authorities, while ensuring the accepted levels of safety are met. DRONAMICS, for example, which operates its Black Swan unmanned aircraft capable of carrying 350 kg at a distance of up to 2,500 km, announced on 25 May 2022 that it obtained an LUC.⁸³ Others have also been successful in obtaining an LUC.⁸⁴

As the LUC authorisation process delegates some of the responsibilities to the holder of the LUC, the rules need to ensure that accident and incident reports do not stay internally within the organisation holding the LUC. The division between safety and liability, with overlaps, is again confirmed within the context of safety reporting and internal investigations. The Guidance Materials explicitly state that their purpose is 'to improve the level of safety performance of the UAS operator'. In short, the 'purpose is not to attribute blame or liability'.⁸⁵

⁸⁰ Commission Implementing Regulation (EU) 2019/947 of 24 May 2019 on the Rules and Procedures for the Operation of Unmanned Aircraft [2019] OJ L 152/45, 11 June 2019, art 2(9).

⁸¹ See Commission Implementing Regulation (EU) 2019/947 of 24 May 2019 on the Rules and Procedures for the Operation of Unmanned Aircraft [2019] OJ L 152/45, 11 June 2019, UAS.LUC.060. See also EASA, 'Light Unmanned Operator Certificate (LUC)', Presentation at EASA Workshop on Presentation of EASA's Drone Rules Proposal, Cologne, Germany, 5 July 2017.

⁸² Commission Implementing Regulation (EU) 2019/947 of 24 May 2019 on the Rules and Procedures for the Operation of Unmanned Aircraft [2019] OJ L 152/45, 11 June 2019, art 17.

⁸³ Wiebe de Jager, 'DRONAMICS First Cargo Drone Airline to Obtain Light UAS Operator Certificate', Drone Watch, 25 May 2022, <https://www.drone-watch.eu/dronamics-first-drone-cargo-company-to-obtain-light-uas-operator-certificate/>.

⁸⁴ See Drone Watch, 'Light UAS Operator Certificate', <https://www.drone-watch.eu/tag/light-uas-operator-certificate/>.

⁸⁵ GM1 UAS.LUC.030(2)(g)(i) Safety management system, Safety reporting and internal investigations. See also AMC1 UAS.LUC.030(2)(c) Safety management system.

4.3 Special Condition Light Unmanned Aircraft Systems

The division between the categories is not always clear-cut as an unmanned aircraft may drift between the categories depending on the type of operation that is being undertaken. EASA has acknowledged this, and it is built into the rules. Some ‘specific’ category operations may be authorised by the competent authority only if the operator demonstrates that the unmanned aircraft is operating with an unmanned aircraft certificate issued by EASA. To facilitate this, EASA issued a Special Condition, in the absence of Certification Specifications, for unmanned aircraft:

- not intended for the transportation of people;
- operated with the intervention of the remote pilot or autonomously operated;
- with an MTOM up to 600 kilogrammes; and
- operated in the ‘specific’ category of operations, medium and high risk, or in the ‘certified’ category of operations.⁸⁶

This Special Condition only addresses the airworthiness specifications for unmanned aircraft and does not cover the authorisation of operations in the ‘specific’ category,⁸⁷ which remains governed by Regulation 2019/947. Special Conditions are only concerned with the safety aspects of the aircraft, rather than its operations. Thus, there is limited relevance for liability, beyond ensuring the aircraft conforms to the accepted level of safety, which may later on operate in a way that interferes with third parties.

4.3.1 Certified category

4.3.1.1 Future rules: airworthiness, licences, flight operations and aerodromes

In cases where the operations are considered to be high risk, the operation will be considered within the ‘certified’ category,⁸⁸ thus requiring both a certification of the unmanned aircraft and the operator.⁸⁹ Such operations will include the transportation of people, like those envisaged by vertical take-off

⁸⁶ EASA, ‘Special Condition Light Unmanned Aircraft Systems’, Doc. No: SC Light-UAS 01, Issue: 1, 20 July 2020.

⁸⁷ *ibid.*, 1.

⁸⁸ Regulation 2019/947, art 6; Regulation 2019/945, art 40.

⁸⁹ Commission Implementing Regulation (EU) 2019/947 of 24 May 2019 on the Rules and Procedures for the Operation of Unmanned Aircraft [2019] OJ L 152/45, 11 June 2019, preamble (11): ‘Operations in the “certified” category should, as a principle, be subject to rules on certification of the operator, and the

and landing (VTOL) aircraft in urban environments (e.g. PATS).⁹⁰ Further, it will include the transportation of dangerous goods,⁹¹ which may result in a high risk for third parties. Finally, it covers operations where safety mitigation measures cannot reduce the level of risk for operations in the ‘specific’ category. As the ‘certified’ category could involve the carriage of passengers, as well as produce a higher risk to third parties, the relevance of contractual and third-party liability is certainly increased.

Neither Regulation 2019/945 nor Regulation 2019/947 contains the detailed technical rules on the ‘certified’ category. Rather, they are currently regulated under the manned aviation rules, with several recent changes⁹², as well as the

licensing of remote pilots, in addition to the certification of the aircraft pursuant to Delegated Regulation (EU) 2019/945.’

⁹⁰ See, for a definition of ‘UAM’, Konstantinos Andritsos, Benjamyn I Scott and Andrea Trimarchi, ‘What is in a Name: Defining Key Terms in Urban Air Mobility’ (2022) 105(81) *Journal of Intelligent & Robotic Systems* 1–9.

⁹¹ Commission Implementing Regulation (EU) 2019/947 of 24 May 2019 on the Rules and Procedures for the Operation of Unmanned Aircraft [2019] OJ L 152/45, 11 June 2019, art 2(11): “‘dangerous goods’ means articles or substances, which are capable of posing a hazard to health, safety, property or the environment in the case of an incident or accident, that the unmanned aircraft is carrying as its payload, including in particular: (a) explosives (mass explosion hazard, blast projection hazard, minor blast hazard, major fire hazard, blasting agents, extremely insensitive explosives); (b) gases (flammable gas, non-flammable gas, poisonous gas, oxygen, inhalation hazard); (c) flammable liquids (flammable liquids; combustible, fuel oil, gasoline); (d) flammable solids (flammable solids, spontaneously combustible solids, dangerous when wet); (e) oxidising agents and organic peroxides; (f) toxic and infectious substances (poison, biohazard); (g) radioactive substances; (h) corrosive substances.’ The list of Certified Category operations is explained further in AMC1, art 6, Certified Category of UAS Operations: UAS Operations in the Certified Category.

⁹² See, the recent regulatory steps for the Certified Category, Commission Implementing Regulation (EU) 2024/1110 of 10 April 2024 Amending Regulation (EU) No 748/2012 as Regards the Initial Airworthiness of Unmanned Aircraft Systems Subject to Certification and Implementing Regulation (EU) 2019/947 as Regards the Rules and Procedures for the Operation of Unmanned Aircraft, OJ L, 2024/1110, 23.5.2024; Commission Implementing Regulation (EU) 2024/1109 of 10 April 2024 Laying Down Rules for the Application of Regulation (EU) 2018/1139 of the European Parliament and of the Council as Regards Competent Authority Requirements and Administrative Procedures for the Certification, Oversight and Enforcement of the Continuing Airworthiness of Certified Unmanned Aircraft Systems, and Amending Implementing Regulation (EU) 2023/203, OJ L, 2024/1109, 23.5.2024; Commission Delegated Regulation (EU) 2024/1108 of 13 March 2024 Amending Regulation (EU) No 748/2012 as Regards

amendments by the Council of the International Civil Aviation Organization (ICAO) to the Chicago Convention Annexes.⁹³ EASA is currently developing the ‘certified’ category rules,⁹⁴ which will cover initial airworthiness, continuing airworthiness, operations, flight crew licensing, rules of the air and aerodromes.⁹⁵ EASA will roll out the rules in three stages:

- Type 1: Instrument Flight Rules (IFR) UAS;
- Type 2: Type 3 but without a pilot onboard; and
- Type 3: Piloted VTOL aircraft.⁹⁶

The order is reversed as the rule for Type 3 will be prioritised, as these aircraft will be the first introduced by industry. As lessons are learnt and as the technology improves, industry will move to Type 2 and then Type 1, of which the rollout of the rules will match.

the Initial Airworthiness of Unmanned Aircraft Systems Subject to Certification and Delegated Regulation (EU) 2019/945 as Regards Unmanned Aircraft Systems and Third-Country Operators of Unmanned Aircraft Systems, OJ L, 2024/1108, 23.5.2024; and Commission Delegated Regulation (EU) 2024/1107 of 13 March 2024 Supplementing Regulation (EU) 2018/1139 of the European Parliament and of the Council by Laying Down Detailed Rules for the Continuing Airworthiness of Certified Unmanned Aircraft Systems and their Components, and on the Approval of Organisations and Personnel Involved in these Tasks, OJ L, 2024/1107, 23.5.2024.

⁹³ See Chapter 2 of this Volume. See, for the recent changes, <https://www.icao.int/Newsroom/Pages/ICAO-Council-adopts-new-international-aviation-Standards-and-Recommended-Practices-for-remotely-piloted-aircraft-systems.aspx>.

⁹⁴ EASA, ‘Introduction of a Regulatory Framework for the Operation of Drones: Enabling Innovative Air Mobility with Manned VTOL-Capable Aircraft, the Initial Airworthiness of Unmanned Aircraft Systems Subject to Certification, and the Continuing Airworthiness of those Unmanned Aircraft Systems Operated in the “Specific” Category’, Notice of Proposed Amendment 2022-06 (NPA 2022-06).

⁹⁵ The documents produced by Joint Authorities for Rulemaking on Unmanned Systems (JARUS) may serve as guidance where the States or the EU have yet to produce Regulations on unmanned aircraft. This includes for the Certified Category with CS-UAS. See, for a full list of JARUS documents, JARUS, ‘Publications’, <http://jarus-rpas.org/publications>. See also, for more information on the Certified Category, Benjamyn I Scott, ‘Open Skies for Unmanned Aircraft in Europe: An Outlier or a New Approach?’ (2021) 46(1) *Air & Space Law* 57–80.

⁹⁶ See EASA, ‘eVTOLs Around the Corner: The work of EASA’s Drones Team’, Sascha Oliver Schott, 31 December 2020, www.easa.europa.eu/downloads/124029/en, 9.

4.3.1.2 VTOL Special Condition

EASA's work on the 'certified' category is linked to its work on the certification of VTOL aircraft. As one of the intended uses of VTOL aircraft is the transportation of people in the urban environment, there is a clear link between the proposed 'certified' category activities of unmanned 'flying taxis' – PATS. However, the focus of EASA's VTOL work is currently on piloted aircraft, and to allow for the certification of these aircraft, which was required by industry,⁹⁷ EASA published a Special Condition.⁹⁸ France, for instance, plans to use electric VTOL during the 2024 Paris Olympic and Paralympic Games to boost regional connectivity, as well as to demonstrate the wide benefits that UAM can have for society.⁹⁹ The Special Condition applies:

- to person-carrying VTOL heavier-than-air aircraft;
- with lift/thrust units used to generate powered lift and control;
- with a passenger seating configuration of 9 or less; and
- a maximum certified take-off mass of up to 3175 kg.

It must be stressed that this relates to *piloted* aircraft, but seeing as how such aircraft are envisaged eventually to become *remotely piloted* (unmanned aircraft), there will be a merger between EASA's 'certified' category and VTOL rulemaking activities.

4.3.1.3 Vertiport Manual

Another important document produced by EASA for the 'certified' category is the 'Prototype Technical Design Specifications for Vertiports' (Vertiport

⁹⁷ See, e.g. Volocopter, 'The Roadmap to Scalable Urban Air Mobility', White Paper 2.0, www.volocopter.com/wp-content/uploads/Volocopter-WhitePaper-2-0.pdf.

⁹⁸ 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 Appliances, as well as for the Certification of Design and Production Organisations [2012] OJ L 224/1, 21 August 2012, 21.A.16B: 'The Agency shall prescribe special detailed technical specifications, named special conditions, for a product if the related certification specifications do not contain adequate or appropriate safety standards for the product.' See, for more information, EASA, 'Special Condition for VTOL and Means of Compliance', www.easa.europa.eu/document-library/product-certification-consultations/special-condition-vtol.

⁹⁹ See Alex Scerri, 'Olympic and Paralympic Games to Enhance Regional Connectivity and Showcase the Benefits and Key Attributes of UAM', Vertical, 21 June 2021, <https://verticalmag.com/news/volocopter-paris-air-forum-evtol-demo/>.

Manual).¹⁰⁰ The document contains ‘guidance to urban planners and local decision-makers as well as industry to enable the safe design of vertiports that will serve these new types of vertical take-off and landing (VTOL) aircraft, which are already at an advanced stage of development’.¹⁰¹ It is, thus, a tool designed to help both local municipalities and vertiport designers with the building and integration of this necessary ground infrastructure in the urban environment. It also supports VTOL manufacturers with the building of the VTOL aircraft. This is only the first step as there will be ‘a full-scale rulemaking task (RMT.230) during which EASA will develop the full spectrum of regulatory requirements to ensure safe vertiport operations’.¹⁰² The new rules will ensure the required level of safety is achieved and in turn reduce the level of risk to third parties. As vertiports are expected to be located in populated areas, so to bring added value to society as it will increase mobility, there is a real link between increased safety and reduced liability risk to third parties. There will also be congestion points for the VTOL aircraft, so collision risk is also a factor. Here, vertiport designs, as well as traffic management and operational restrictions in the airspace and on the ground, will be key.

4.3.1.4 U-space and UTM

Within the EU, most unmanned aircraft activities are currently operated within VLOS of the operator, who is responsible for ensuring the safe operation of their aircraft. However, it is expected that operations will become more complex by operating BVLOS and sharing the airspace with numerous other unmanned and manned aircraft. The air traffic management (ATM) systems currently in place, which were designed around manned aviation, will be unsuitable for large-scale, digital and complex unmanned activities. As a result, the EU is developing unmanned traffic management (UTM) / U-space. The main goals of U-space are to:

- avoid collisions between (manned and unmanned) aircraft;

¹⁰⁰ Prototype Technical Specifications for the Design of VFR Vertiports for Operation with Manned VTOL-Capable Aircraft Certified in the Enhanced Category (PTS-VPT-DSN). See EASA, ‘Prototype Technical Design Specifications for Vertiports’, www.easa.europa.eu/document-library/general-publications/prototype-technical-design-specifications-vertiports.

¹⁰¹ EASA, ‘Prototype Technical Design Specifications for Vertiports’, www.easa.europa.eu/document-library/general-publications/prototype-technical-design-specifications-vertiports.

¹⁰² *ibid.* The US has created a comparable document, which is still a draft, on ‘Vertiport Design’. Federal Aviation Administration, ‘Engineering Brief No. 105, Vertiport Design’, Draft, 13 March 2023.

- minimise the risk to third parties on the ground (persons and property);
- facilitate the orderly conduct of UAS operations;
- provide necessary information for safe operations;
- inform the competent authorities when a UAS poses a danger to others (either aircraft or third parties on the ground); and
- ensure compliance with the applicable laws (both EU regulations and Member States' national rules).¹⁰³

The U-space is not a technology; rather, it is a set of services 'relying on a high level of digitalisation and automation of functions and specific procedures designed to support safe, efficient and secure access to airspace for large numbers of drones'.¹⁰⁴ SESAR JU has stated that the services will be rolled out in four separate phases:

- U1: U-space foundation services covering e-registration, e-identification and geofencing.
- U2: U-space initial services for drone operations management, including flight planning, flight approval, tracking, and interfacing with conventional air traffic control.
- U3: U-space advanced services supporting more complex operations in dense areas such as assistance for conflict detection and automated detect-and-avoid functionalities.
- U4: U-space full services, offering very high levels of automation, connectivity and digitalisation for both the drone and the U-space system.

In order to achieve this, EASA sent Opinion 01/2020 on High-Level Regulatory Framework for the U-space to the European Commission to use as a basis for a U-space Regulation. The result was Regulation 2021/664 on a Regulatory Framework for the U-space, which 'lays down rules and procedures for the safe operations of UAS in the U-space airspace, for the safe integration of UAS into the aviation system and for the provision of U-space services'.¹⁰⁵

¹⁰³ Drone Watch, 'EU Drone Regulations: What is U-space?', www.drone-watch.eu/eu-drone-regulations-what-is-u-space/.

¹⁰⁴ SESAR JU, 'Smart ATM: U-space', www.sesarju.eu/U-space.

¹⁰⁵ Commission Implementing Regulation (EU) 2021/664 of 22 April 2021 on a regulatory framework for the U-space (Text with EEA relevance) C/2021/2671 [2021] OJ L 139/161, 23 April 2021, art 1(1). See Mikko T Huttunen, 'U-space: European Union's Concept of UAS Traffic Management', in Benjamyn I Scott (ed), *The Law of Unmanned Aircraft Systems*, Second Edition (Aalphen aan den Rijn, Wolters Kluwer, 2022), ch 7.

Regulation 2021/664 only makes one reference to liability. Article 15 provides that:

U-space service providers and, when designated, single common information service providers shall be granted certificates if they demonstrate that they:

- ...
- (i) have in place arrangements to cover liabilities related to the execution of their tasks appropriate to the potential loss and damage;
 - (j) where they avail themselves of services of another service provider, they have the agreements concluded to that effect, specifying the allocation of liability between them.

Article 15(i) uses the term ‘liabilities’ to refer to insurance cover¹⁰⁶ and (j) requires U-space service providers to ensure certainty by clearly defining the liability allocation between them.

EASA is currently working on the supporting ‘soft law’ materials (Acceptable Means of Compliance (AMC) and Guidance Materials (GM)), which were open for public consultation on 16 December 2021 and closed for review on 15 March 2022 via Notice of Proposed Amendment (NPA) 2021–14, titled Development of AMC and GM to Support the U-space Regulation.¹⁰⁷ EASA published the first set of AMC and GM on 16 December 2022,¹⁰⁸ but the EU rules are still under development, and more regulations and supporting tools (e.g. AMC and GM) are expected in the future so that the U-space services can be fully implemented.¹⁰⁹

¹⁰⁶ AMC1 Article 15(1)(i) Conditions for Obtaining a Certificate.

¹⁰⁷ EASA, ‘Development of acceptable means of compliance and guidance material to support the U-space regulation’, Notice of Proposed Amendment 2021-14 (NPA 2021-14).

¹⁰⁸ Acceptable Means of Compliance and Guidance Material to Regulation (EU) 2021/664 on a Regulatory Framework for the U-space, Issue 1, 16 December 2022.

¹⁰⁹ Changes to the existing ATM rules have also taken place as ATM and UTM do not and cannot exist in silos. For example, information must flow between the different relevant stakeholders to ensure that the level of safety is achieved. Commission Implementing Regulation (EU) 2021/665 of 22 April 2021 Amending Implementing Regulation (EU) 2017/373 as Regards Requirements for Providers of Air Traffic Management/Air Navigation Services and Other Air Traffic Management Network Functions in the U-space Airspace Designated in Controlled Airspace [2021] OJ L 139/184, 23 April 2021; and Commission Implementing Regulation (EU) 2021/666 of 22 April 2021 Amending Regulation (EU) No 923/2012 as Regards Requirements for Manned Aviation Operating in U-space Airspace [2021] OJ L 139/187, 23 April 2021.

5. CONCLUSION AND BEYOND

5.1 EU Regulations and Liability

While the focus of EU policy and regulation in the area of unmanned aircraft stands firmly on safety, there are other considerations that must be taken into account by operators. The competent authority will only grant a UAS operator the requisite operational authorisation if its evaluation concludes that, in accordance with Article 12(2)(c) of Regulation 2019/947, ‘the UAS operator has provided a statement confirming that the intended operation complies with any applicable Union and national rules relating to it, in particular, with regard to privacy, data protection, liability, insurance, security and environmental protection’.¹¹⁰ In addition to these areas of legal concern, it should be noted that other areas of (general) EU law across a range of policy areas as well as national law, such as criminal law, will be applicable.¹¹¹

While the *lex specialis* unmanned aircraft rules in the EU do not regulate liability, they do acknowledge the importance of UAS operators being ‘adequately informed’ about the applicable EU and national rules on liability. As the EU has not adopted specific rules for unmanned aircraft liability, recourse to more general rules will be required. For international law, this means:

- the Convention for the Unification of Certain Rules Relating to International Carriage by Air (Warsaw Convention) of 1929;
- the Convention for the Unification of Certain Rules for International Carriage by Air (Montreal Convention) of 1999; and
- the Convention on Damage Caused by Foreign Aircraft to Third Parties on the Surface (Rome Convention) of 1952.

As the first category covers international law, these will be dealt with in Chapter 3. Within the EU, this includes:

¹¹⁰ Commission Implementing Regulation (EU) 2019/947 of 24 May 2019 on the Rules and Procedures for the Operation of Unmanned Aircraft [2019] OJ L 152/45, 11 June 2019.

¹¹¹ See, for a comprehensive examination of EU and national approaches to regulating unmanned aircraft, Benjamyn I Scott (ed), *The Law of Unmanned Aircraft Systems*, Second Edition (Aalphen aan den Rijn, Wolters Kluwer, 2022). See Chapters 6–16 of this volume. See also Alan McKenna, ‘Privacy and Legal Enforcement’, in Benjamyn I Scott (ed), *The Law of Unmanned Aircraft Systems*, Second Edition (Aalphen aan den Rijn, Wolters Kluwer, 2022), ch 11.

- the Montreal Convention of 1999 was acceded to by the EU by virtue of the European Union Council (EC)'s Regulation (EC) 2027/97¹¹² as amended by Regulation (EC) 889/2002;¹¹³
- Regulation (EC) No 261/2004 establishing common rules on compensation and assistance to passengers in the event of denied boarding and of cancellation or long delay of flights;¹¹⁴
- the EU Commission's proposal for new liability rules on products and AI to protect consumers and foster innovation; and
- product liability (in the law of obligations).

As the rules, as cited in the first two bullet points, overlap, these will be treated together. The third bullet point is of direct concern for this book as it covers third-party liability. This is, however, discussed in great detail below. Finally, product liability is referenced above within the context of Regulation 2019/945 and is beyond the scope of this book. Finally, national law includes:

- UAS-specific liability rules;
- aviation general liability rules;
- Civil law (e.g. tort).

The national laws of a selection of Member States are dealt with in Chapters 6–16.

5.2 Beyond Regulations: Societal Acceptance

EASA carried out the first study of its kind on citizens' acceptance of UAM in the EU; the final report was published in 2021. While a majority of the 4,000 citizens in six European urban areas who were surveyed welcomed services such as air taxis, air ambulances and deliveries made by small unmanned aircraft, they also expressed their concerns about 'safety, security, noise and

¹¹² Council Regulation (EC) No 2027/97 of 9 October 1997 on Air Carrier Liability in the Event of Accidents, OJ L 285/1, 17 October 1997.

¹¹³ Regulation (EC) No 889/2002 of the European Parliament and of the Council of 13 May 2002 amending Council Regulation (EC) No 2027/97 on Air Carrier Liability in the Event of Accidents, OJ L 140/2, 30 May 2002.

¹¹⁴ Regulation (EC) No 261/2004 of the European Parliament and of the Council of 11 February 2004 establishing common rules on compensation and assistance to passengers in the event of denied boarding and of cancellation or long delay of flights, and repealing Regulation (EEC) No 295/91 (Text with EEA relevance) – Commission Statement OJ L 46/1, 17 February 2004.

impact on wildlife'.¹¹⁵ The report shows that 83 per cent of the respondents were positive about UAM, with use cases for emergency situations and medical transportation showing the strongest support.¹¹⁶ An important conclusion of this study is that regulations are not the answer to every issue and are not the only concern of stakeholders.

While citizens are 'open to solutions improving the quality of life in the city and offering benefits for the common good', EASA concludes that:

[their] acceptance would however be subject to respecting a number of guarantees and conditions to ensure that adequate levels of safety, security and environmental protection will be granted and that no citizen will suffer an undue and unbalanced nuisance from UAM.¹¹⁷

EASA suggests that future 'studies, demonstrations and early implementation projects' as well as '[f]urther information for the general public and guidance to national and local actors concerned will also be useful'. EASA has been actively following up on the study to build proposals and recommendations. However, what is missing from this study is a reference to liability. The study did not flag the need for well-defined liability rules, nor did it offer how they should be constructed (e.g. to protect an emerging industry or to ensure that injured persons are sufficiently compensated).

5.3 Next Steps: Drone Strategy 2.0

As part of the European Green Deal, the European Commission published its 'Smart and Sustainable Mobility Strategy' in December 2020, in which it announced a new initiative: to adopt a *Drone Strategy 2.0*.¹¹⁸ The aim is 'to enable drones to contribute, through digitalisation and automation, to a new offer of sustainable services and transport, while accounting for possible civil/military technological synergies'.¹¹⁹ The Commission also presented

¹¹⁵ EASA, 'EASA Publishes Results of First EU Study on Citizens' Acceptance of Urban Air Mobility', 19 May 2021, www.easa.europa.eu/newsroom-and-events/press-releases/easa-publishes-results-first-eu-study-citizens-acceptance-urban.

¹¹⁶ EASA, 'Study on the societal acceptance of Urban Air Mobility in Europe', 19 May 2021, <https://www.easa.europa.eu/downloads/127760/en>, 63.

¹¹⁷ EASA, 'Study on the societal acceptance of Urban Air Mobility in Europe', 19 May 2021, <https://www.easa.europa.eu/downloads/127760/en>, 99.

¹¹⁸ European Commission, 'Smart and Sustainable Mobility Strategy', 9 December 2020, https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/12438-Sustainable-and-Smart-Mobility-Strategy_en.

¹¹⁹ European Commission, 'A Drone Strategy 2.0 for Europe to Foster Sustainable and Smart Mobility', <https://ec.europa.eu/info/law/better-regulation/>

an Action Plan on synergies between civil, defence and space industries in February 2021.¹²⁰

Within the new policy framework, the focus will be on the regulatory and commercial environment for the drone industry while working to ensure the EU's competitiveness. The '2.0' will look beyond safety, to address remaining technical, legal and administrative barriers, so that the EU drone economy can flourish.¹²¹ As part of the Commission's roadmap, the *Drone Strategy 2.0* was opened for feedback and public consultation, which closed on 31 December 2021. On 29 November 2022, A Drone Strategy 2.0 for a Smart and Sustainable Unmanned Aircraft Eco-System in Europe was published.¹²² There is no reference to liability in the 25-page document. It can, therefore, be concluded that the European Commission does not consider the revision of existing relevant liability rules or the creation of new ones as a priority at this time.¹²³

5.4 Yet to be Accomplished

The EU has been active in regulating unmanned aircraft and must be commended on producing mature and comprehensive rules on this previously widely unregulated topic. They have managed to balance numerous stakeholder positions while trying to regulate a moving target due to the fast-evolving technology and use-cases. However, the work is not done as several safety-based rules are still required; some are already planned:

have-your-say/initiatives/12438-Sustainable-and-Smart-Mobility-Strategy_en.

¹²⁰ European Commission, 'EU Industry: Commission Takes Action to Improve Synergies Between Civil, Defence and Space Industries', Press Release IP/21/651, 22 February 2021, https://ec.europa.eu/commission/presscorner/detail/en/IP_21_651.

¹²¹ European Commission, 'Drone Strategy 2.0 for an Improved Drone Eco-System in Europe', Working Document 4, Informal Expert Group on Drones, 3 March 2021, <https://ec.europa.eu/transparency/expert-groups-register/screen/meetings/consult?lang=en&meetingId=23814&fromExpertGroups=true>.

¹²² European Commission, 'A Drone Strategy 2.0 for a Smart and Sustainable Unmanned Aircraft Eco-System in Europe', Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions, Brussels, 29 November 2022, COM(2022) 652 Final, SWD(2022), 366 Final.

¹²³ See, Scott B.I. & Andritsos K.I. (2023), A drone strategy 2.0 for a smart and sustainable unmanned aircraft eco-system in Europe, *Air & Space Law* 48(3): 273–296.

- development of AMC and GM for the U-space Regulation;¹²⁴
- additional UTM regulations as the current ones are high-level only;
- more StS for the Specific Category;
- more Certified Category Regulations for Type 1, 2 and 3 operations;
- aligning EU law to relevant amendments to ICAO Annexes;
- Member States are preparing for the new EU rules, and national competent authorities are familiarising themselves with their roles and conforming to the harmonised EU rules;
- raise awareness of the rules, especially to civil, non-commercial users, as they may not be experts;
- implementation of Drone Strategy 2.0 results; and
- implementation of the EASA Social Acceptance Study.

As rightly noted by the Commission, the required work extends beyond aviation safety. The different declarations focused on aviation safety, and this was appropriate at the time as safety was and still is the number one priority. However, the safety rules are mature and are being developed as required. Therefore, it is time to focus on other topics, and this is exactly what the Drone Strategy 2.0 is intended to discuss. The Commission took the time to conduct this study, so it has a well-developed idea of what is yet to be undertaken. This was an important and useful step, for which additional steps are still required:

- A better understanding of related (non-safety) aviation regulations (e.g. insurance, passenger protection, third-party liability and access to air-space); and
- Better understanding of related (non-safety) non-aviation regulations (e.g. privacy, criminal law and AI liability).

Consequently, more still needs to be done, whereby all relevant stakeholders are engaged, including citizens, municipalities, new tech companies and traditional aviation stakeholders, to achieve comprehensive and coherent regulation of unmanned aircraft systems in the European Union.

¹²⁴ See EASA, 'AMC and GM to Implementing Regulation (EU) 2021/664 – Issue 1, Proposed acceptable Means of Compliance (AMC) and Guidance Material (GM) to the U-space Regulatory Package', 16 December 2022, <https://www.easa.europa.eu/en/document-library/acceptable-means-of-compliance-and-guidance-materials/amc-and-gm-implementing>; and EASA, 'Development of acceptable means of compliance and guidance material to support the U-space regulation', Notice of Proposed Amendment 2021-14 (NPA 2021-14).